Air Quality Analysis Supporting Documentation

The Proposed Action is to recapitalize the T-38C Talon flight training program at Laughlin Air Force Base (AFB), Texas, with T-7A Red Hawk aircraft. For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft and phasing in the T-7A aircraft. Alternative 2 also would result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a potential scenario in which DAF requires a surge or increase in pilot training operations above current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft to cover a potential scenario in which another military installation is unable to accept delivery of all their T-7A aircraft and some of those aircraft need to be reassigned to Laughlin AFB. T-7A operations for Alternative 3 would be performed at an intensity identical to Alternative 2. Alternative 3 also incorporates a Military Construction (MILCON) project alternative to construct 12 additional shelters for the T-7A aircraft. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The Proposed Action and alternatives include phasing in T-7A aircraft and phasing out T-38C aircraft at Laughlin AFB; conducting aircraft operations at Laughlin AFB and within Laughlin 1, Laughlin 2, and Laughlin 3 Military Operating Areas (MOAs), and Military Training Routes (MTRs) IR-169, IR-170, VR-143, VR-165, VR-168, and VR-187; phasing in T-7A personnel and phasing out T-38C personnel at Laughlin AFB; and construction of six MILCON projects and seven facilities sustainment, restoration, and modernization (FSRM) projects at Laughlin AFB.

The Air Conformity Applicability Model (ACAM) version 5.0.18a was used to perform an analysis to assess the potential air quality impacts associated with the Proposed Action and alternatives in accordance with Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process* (EIAP, 32 Code of Federal Regulations [CFR] Part 989) and the General Conformity Rule (40 CFR Part 93, Subpart B). This document provides the ACAM results.

For this air quality impact assessment, the Region of Influence (ROI) is a three-dimensional vertical column air air up to 3,000 feet above ground level (AGL) (or the mixing zone) where pollutant emissions associated with the Proposed Action would occur. Low-altitude (i.e., below 3,000 feet AGL) were included in the air quality impact assessment. For the Proposed Action, no aircraft operations below 3,000 feet AGL would occur within Laughlin 1, Laughlin 2, or Laughlin 3 MOAs; therefore, these areas were not considered a part of the air quality ROI. In addition, VR-143 and VR-168 would be seldom and irregularly used; therefore, these MTRs were not considered a part of the air quality ROI.

This document is presented in two sections corresponding to two separate air quality ROIs based on regulatory requirements and the physical spatial distribution of the emissions sources associated with the Proposed Action and alternatives. The two ROIs are as follows:

- **ROI 1: Laughlin AFB** – includes all Laughlin AFB airfield operations and construction actions

Counties included:

Val Verde County, TX	Kinney County, TX

- **ROI 2: MTRs** – includes aircraft operations within IR-169, IR-170, VR-165, and VR-187

Counties included:

Brewster County, TX	Maverick County, TX	Upton County, TX
Crockett County, TX	Pecos County, TX	Uvalde County, TX
Dimmit County, TX	Reagan County, TX	Val Verde County, TX
Edwards County, TX	Schleicher County, TX	Webb County, TX
Irion County, TX	Sutton County, TX	Zavala County, TX
Kinney County, TX	Terrell County, TX	

Laughlin AFB is in Val Verde County, Texas. In addition to Val Verde County, Laughlin AFB airfield operations below 3,000 feet occur in Kinney County. Val Verde and Kinnney Counties have been designated as in attainment for all criteria pollutants. The table below outlines the attainment status and the *de minimis* threshold under the General Conformity Rule for the counties within ROIs 1 and 2 (i.e., counties containing Laughlin AFB and the MTRs).

Table 1. Air Attainment Status for All Counties in the Laughlin AFB and MTR ROIs

County	Airspace	Attainment Status	*de minimis* Threshold
Brewster County, TX	VR-165, VR-187	Unclassifiable/Attainment	None
Crockett County, TX	VR-169	Unclassifiable/Attainment	None
Dimmit County, TX	IR-169, IR-170	Unclassifiable/Attainment	None
Edwards County, TX	IR-170	Unclassifiable/Attainment	None
Irion County, TX	IR-169	Unclassifiable/Attainment	None
Kinney County, TX	Laughlin AFB Airfield Operations, IR-170	Unclassifiable/Attainment	None
Maverick County, TX	IR-170	Unclassifiable/Attainment	None
Pecos County, TX	IR-169, VR-165, VR-187	Unclassifiable/Attainment	None
Reagan County, TX	IR-169	Unclassifiable/Attainment	None
Schleicher County, TX	IR-169	Unclassifiable/Attainment	None
Sutton County, TX	IR-169	Unclassifiable/Attainment	None
Terrell County, TX	IR-169, VR-165, VR-187	Unclassifiable/Attainment	None
Upton County, TX	IR-169	Unclassifiable/Attainment	None
Uvalde County, TX	IR-170, VR-168	Unclassifiable/Attainment	None
Val Verde County, TX	Laughlin AFB, IR-169, IR-170, VR-187	Unclassifiable/Attainment	None
Webb County, TX	IR-170	Unclassifiable/Attainment	None
Zavala County, TX	IR-170	Unclassifiable/Attainment	None

Sources: (1) 40 CFR § 93.153 (2) USEPA. 2022. *Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants: Texas*. As of December 31, 2022. (3) USEPA. 2022. *2021 Air Quality Design Values*. As of May 2022.

[1] VR-143 and VR-168 are seldom and irregularly used; therefore, they were not included in the air quality analysis and counties underlying VR-143 and VR-168 are not within the MTR ROI.

The emission factors presented in this report are imbedded within ACAM and come from the following DAF documents: (1) *Air Emissions Guide for Air Force Stationary Sources, Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations*, Air Force Civil Engineer Center (June 2020), and (2) *Air Emissions Guide for Air Force Mobile Sources, Methods for Estimating Emissions of Air Pollutants for Mobile Sources at U.S. Air Force Installations*, Air Force Civil Engineering Center (June 2020). Additional data and methodology used to prepare the ACAM reports are below.

Time in Mode (TIM) Summary for T-7A and T-38C aircraft within the ROIs

Table 2. TIMs Summary for ROI 1: Laughlin AFB

	Idle In/Out (min)	Takeoff AB (min)	Takeoff Mil (min)	Climbout (min)	Approach (min)
Laughlin AFB T-7A TIMs Summary					
LTO Flight	0.00	0.01	0.79	0.58	3.91
LTO Taxi	12.42	0.00	0.00	0.00	0.00
Total LTO	**12.42**	**0.01**	**0.79**	**0.58**	**3.91**
Closed Patterns	**0.00**	**0.00**	**0.46**	**2.63**	**3.57**
Laughlin AFB T-38C TIMs Summary					
LTO Flight	0.00	0.25	0.55	0.58	3.89
LTO Taxi	16.51	0.00	0.00	0.00	0.00
Total LTO	**16.51**	**0.25**	**0.55**	**0.58**	**3.89**
Closed Patterns	**0.00**	**0.00**	**0.42**	**2.66**	**3.59**

Key: AB = afterburner; LTO = landing and takeoff cycle; mil = military; min = minutes

Table 3. TIMs Summary for ROI 2: MTRs (IR-169, IR-170, VR-165, and VR-187)

	Idle In/Out (min)	Takeoff AB (min)	Takeoff Mil (min)	Climbout (min)	Approach (min)
IR-169 T-7A TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	22.76	0.00
IR-169 T-38C TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	22.76	0.00
IR-170 T-7A TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	24.69	0.00
IR-170 T-38C TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	24.69	0.00
VR-165 T-7A TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	14.79	0.00
VR-165 T-38C TIMs Summary					

	Idle In/Out (min)	Takeoff AB (min)	Takeoff Mil (min)	Climbout (min)	Approach (min)
Low Flight Pattern	0.00	0.00	0.00	14.79	0.00
VR-187 T-7A TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	16.07	0.00
VR-187 T-38C TIMs Summary					
Low Flight Pattern	0.00	0.00	0.00	16.07	0.00

Key: AB = afterburner; LTO = landing and takeoff cycle mil = military; min = minutes

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

ROI 1: Laughlin AFB

This section includes the following:

- Alternative 1 ACAM Report
- Alternative 1 ACAM Detail Report
- Alternative 2 ACAM Report
- Alternative 2 ACAM Detail Report
- Alternative 3 ACAM Report
- Alternative 3 ACAM Detail Report

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 1

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2026

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.466	250	
NOx	14.318	250	
CO	21.951	250	
SOx	0.049	250	
PM 10	14.076	250	
PM 2.5	0.539	250	
Pb	0.000	25	No
NH3	0.015	250	
CO2e	4799.0		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.962	250	
NOx	6.294	250	
CO	9.645	250	
SOx	0.021	250	
PM 10	0.219	250	
PM 2.5	0.218	250	
Pb	0.000	25	No
NH3	0.009	250	

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

CO2e	2060.2		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	23.501	250	
NOx	83.174	250	
CO	-144.684	250	
SOx	3.868	250	
PM 10	-4.365	250	
PM 2.5	-3.928	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	12627.2		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	58.152	250	
NOx	189.418	250	
CO	-264.041	250	
SOx	9.447	250	
PM 10	-8.081	250	
PM 2.5	-7.264	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	29603.8		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	57.791	250	
NOx	189.205	250	
CO	-269.142	250	
SOx	9.443	250	
PM 10	-8.088	250	
PM 2.5	-7.270	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	29082.8		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	60.891	250	
NOx	195.857	250	
CO	-262.829	250	
SOx	9.911	250	
PM 10	-7.951	250	
PM 2.5	-7.144	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	30473.3		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	60.891	250	
NOx	195.857	250	
CO	-262.829	250	
SOx	9.911	250	
PM 10	-7.951	250	
PM 2.5	-7.144	250	
Pb	0.000	25	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NH3	-0.009	250	
CO2e	30473.3		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality.Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs.No further air assessment is needed.

Carolyn Hein, Contractor

3/31/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 1

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2026

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030 Add T-7As and LTOs
3.	Aircraft	2030 Add T-7A CPs
4.	Aircraft	2030 Increase T-7A Trim Test and Test Cell
5.	Aircraft	2030 Remove T-38C and LTOs
6.	Aircraft	2030 Remove T-38C CPs
7.	Aircraft	2030 Decrease T-38C Trim Test and Test Cell
8.	Aircraft	2031-2032 Add T-7As and LTOs
9.	Aircraft	2031-2032 Add T-7A CPs
10.	Aircraft	2031-2032 Increase T-7A Trim Test and Test Cell
11.	Aircraft	2031 Remove T-38C and LTOs
12.	Aircraft	2031 Remove T-38C CPs
13.	Aircraft	2031 Decrease T-38C Trim Test and Test Cell
14.	Aircraft	2033 Add T-7As and LTOs
15.	Aircraft	2033 Add T-7A CPs
16.	Aircraft	2033 Increase T-7A Trim Test and Test Cell
17.	Construction / Demolition	MILCON: Construct GBTS Facility
18.	Construction / Demolition	MILCON: Construct UMT Facility
19.	Construction / Demolition	MILCON: Construct Hush House
20.	Construction / Demolition	MILCON: Construct T-7A Shelters
21.	Construction / Demolition	MILCON: Addition to Egress Shop
22.	Construction / Demolition	MILCON: Construct Jet Blast Deflectors
23.	Construction / Demolition	FSRM: Modify Hangars
24.	Construction / Demolition	FSRM: Antenna Farm
25.	Construction / Demolition	FSRM: Squadron Operations Buildings Renovations
26.	Construction / Demolition	FSRM: Airfield Improvements
27.	Construction / Demolition	FSRM: Trim Pad
28.	Construction / Demolition	FSRM: T-7A Explosive Component Storage
29.	Heating	Heating/Cooling for New Facilities
30.	Heating	Remove Heating/Cooling for Demolished Facilities
31.	Personnel	Maximum Increase of 190 Personnel
32.	Personnel	Net Decrease of 60 Personnel
33.	Construction / Demolition	FSRM: Addition to Building 905

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

County: Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030 Add T-7As and LTOs

- Activity Description:
Starting in 2030, add 27 T-7As and 6,561 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	34.518419
SO_x	2.188102
NO_x	28.798002
CO	70.651882
PM 10	1.340769

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.260206
Pb	0.000000
NH_3	0.000000
CO_2e	6285.7

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	33.737628
SO_x	1.973531
NO_x	22.819304
CO	69.362980
PM 10	0.467031

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.413999
Pb	0.000000
NH_3	0.000000
CO_2e	5963.5

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		6561
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

2.5 Aerospace Ground Equipment (AGE)

2.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 6561

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

2.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

2.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Add T-7A CPs

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- Activity Description:
Starting in 2030, add 14,435 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	7.179097
SO_x	4.081313
NO_x	60.168800
CO	12.107864
PM 10	0.450146

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.384278
Pb	0.000000
NH_3	0.000000
CO_2e	12335.5

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

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- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		14435
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2030, add trim test and engine test cell for 27 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.155747
SO_x	0.051102
NO_x	0.848982
CO	2.470121
PM 10	0.056774

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.050874
Pb	0.000000
NH_3	0.000000
CO_2e	154.5

4.2 Aircraft & Engines

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4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

4.3 Aircraft Engine Test Cell

4.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 27

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

4.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

4.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C and LTOs

- Activity Description:
Starting in 2030, remove 32 T-38Cs and 4,401 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.840498
SO_x	-1.321792
NO_x	-5.937370
CO	-149.215148
PM 10	-4.236465

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.851422
Pb	0.000000
NH_3	0.000000
CO_2e	-3451.4

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-13.316758
SO_x	-1.177861
NO_x	-1.926967
CO	-148.350577
PM 10	-3.650377

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.283802
Pb	0.000000
NH_3	0.000000
CO_2e	-3235.3

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4401
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 12
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5.4 Auxiliary Power Unit (APU)

5.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

5.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

5.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

5.5 Aerospace Ground Equipment (AGE)

5.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4401

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

5.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

5.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C CPs

- Activity Description:
Starting in 2030, remove 9,682 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.519087
SO_x	-1.061133
NO_x	-0.933638
CO	-81.020664
PM 10	-1.927323

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.729902
Pb	0.000000
NH_3	0.000000
CO_2e	-3207.2

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

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6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9682
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2030 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2030, remove trim test and engine test cell for 32 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.282907
SO_x	-0.074500
NO_x	-0.215007
CO	-3.791705
PM 10	-0.075009

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.067420
Pb	0.000000
NH_3	0.000000
CO_2e	-225.2

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Aircraft Engine Test Cell

7.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 64

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

7.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

7.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031-2032 Add T-7As and LTOs

- Activity Description:
Starting in 2031, add 34 T-7As and 8,263 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	43.472900
SO_x	2.755722
NO_x	36.268540
CO	88.979805
PM 10	1.688580

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.587118
Pb	0.000000
NH_3	0.000000
CO_2e	7916.3

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	42.489563
SO_x	2.485488
NO_x	28.738898
CO	87.356547
PM 10	0.588184

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.521396
Pb	0.000000
NH_3	0.000000
CO_2e	7510.6

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		8263
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8.4 Auxiliary Power Unit (APU)

8.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

8.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

8.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

8.5 Aerospace Ground Equipment (AGE)

8.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 8263

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

8.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

8.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Add T-7A CPs

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- Activity Description:
Starting in 2031, add 18,178 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	9.040639
SO_x	5.139599
NO_x	75.770588
CO	15.247436
PM 10	0.566868

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.483921
Pb	0.000000
NH_3	0.000000
CO_2e	15534.1

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		18178
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2031, add trim test and engine test cell for 34 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.196125
SO_x	0.064351
NO_x	1.069089
CO	3.110523
PM 10	0.071493

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.064063
Pb	0.000000
NH_3	0.000000
CO_2e	194.5

10.2 Aircraft & Engines

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Aircraft Engine Test Cell

10.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 34

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

10.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

10.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C and LTOs

- Activity Description:
Starting in 2031, remove 31 T-38Cs and 4,263 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.406508
SO_x	-1.280345
NO_x	-5.751194
CO	-144.536282
PM 10	-4.103624

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.730654
Pb	0.000000
NH_3	0.000000
CO_2e	-3343.2

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-12.899191
SO_x	-1.140927
NO_x	-1.866544
CO	-143.698820
PM 10	-3.535914

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.180833
Pb	0.000000
NH_3	0.000000
CO_2e	-3133.9

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4263
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 12
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11.4 Auxiliary Power Unit (APU)

11.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

11.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

11.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

11.5 Aerospace Ground Equipment (AGE)

11.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4263

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

11.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

11.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

12. Aircraft

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C CPs

- Activity Description:
Starting in 2031, remove 9,379 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.377661
SO_x	-1.027924
NO_x	-0.904420
CO	-78.485107
PM 10	-1.867007

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.675764
Pb	0.000000
NH_3	0.000000
CO_2e	-3106.8

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

12.2 Aircraft & Engines

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9379
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2031 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2031, remove trim test and engine test cell for 31 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.274066
SO_x	-0.072172
NO_x	-0.208288
CO	-3.673214
PM 10	-0.072665

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.065313
Pb	0.000000
NH_3	0.000000
CO_2e	-218.1

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

13.3 Aircraft Engine Test Cell

13.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 62

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

13.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

13.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 Add T-7As and LTOs

- Activity Description:
Starting in 2033, add 2 T-7As and 486 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	2.556920
SO_x	0.162082
NO_x	2.133185
CO	5.233473
PM 10	0.099316

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.093349
Pb	0.000000
NH_3	0.000000
CO_2e	465.6

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	2.499084
SO_x	0.146187
NO_x	1.690319
CO	5.137999
PM 10	0.034595

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.030667
Pb	0.000000
NH_3	0.000000
CO_2e	441.7

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		486
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14.4 Auxiliary Power Unit (APU)

14.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

14.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

14.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

14.5 Aerospace Ground Equipment (AGE)

14.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 486

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

14.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

14.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Add T-7A CPs

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
Starting in 2033, add 1,069 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.531656
SO_x	0.302246
NO_x	4.455867
CO	0.896661
PM 10	0.033336

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.028458
Pb	0.000000
NH_3	0.000000
CO_2e	913.5

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1069
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2033, add trim test and engine test cell for 2 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.011537
SO_x	0.003785
NO_x	0.062888
CO	0.182972
PM 10	0.004205

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003768
Pb	0.000000
NH_3	0.000000
CO_2e	11.4

16.2 Aircraft & Engines

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16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

16.3 Aircraft Engine Test Cell

16.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 2

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

16.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

16.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year

$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

17. Construction / Demolition

17.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct GBTS Facility

- Activity Description:
Construction of the GBTS Facility (34,000 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 3.5 acres (152,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new GBTS facility would total approximately 34,000 square feet. The height of the GBTS facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 34,000 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, parking areas, and roadways would occur on an area totaling approximately 35,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.884072

Pollutant	Total Emissions (TONs)
PM 2.5	0.099416

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SO_x	0.009094
NO_x	2.754339
CO	3.972870
PM 10	6.237396

Pb	0.000000
NH_3	0.002748
CO_2e	883.7

17.1 Site Grading Phase

17.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

17.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 152000
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	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	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

17.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.2 Trenching/Excavating Phase

17.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

17.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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

17.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.2.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.3 Building Construction Phase

17.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1

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Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

17.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34000
Height of Building (ft): 15
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

17.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.4 Architectural Coatings Phase

17.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

17.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 34000
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

17.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.4.4 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

17.5 Paving Phase

17.5.1 Paving Phase Timeline Assumptions

- Phase Start Date

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Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

17.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 35000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

17.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

18. Construction / Demolition

18.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct UMT Facility

- Activity Description:
Construction of the UMT Facility (11,500 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 0.8 acres (35,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new UMT facility would total approximately 11,500 square feet. The height of the UMT facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 11,500 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 10,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

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Pollutant	Total Emissions (TONs)
VOC	0.430947
SO_x	0.005936
NO_x	1.523831
CO	2.399582
PM 10	1.536463

Pollutant	Total Emissions (TONs)
PM 2.5	0.054174
Pb	0.000000
NH_3	0.001575
CO_2e	576.5

18.1 Site Grading Phase

18.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

18.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 35000
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

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18.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.2 Trenching/Excavating Phase

18.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

18.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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)

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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

18.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.3 Building Construction Phase

18.3.1 Building Construction Phase Timeline Assumptions

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- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

18.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 11500
Height of Building (ft): 15
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

18.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77

Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.4 Architectural Coatings Phase

18.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

18.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 11500
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

18.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.4.4 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

18.5 Paving Phase

18.5.1 Paving Phase Timeline Assumptions

- Phase Start Date

Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration

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Number of Month: 2
Number of Days: 0

18.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 10000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

18.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336

HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

19. Construction / Demolition

19.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Hush House

- Activity Description:
Construction of the Hush House (24,111 square feet) would occur from 2026 through 2027.

Demolition would include Building 15 (approximately 1,000 square feet) and Building 18 (approximately 250 square feet). The height of the buildings was assumed to be 15 feet. Demolition would begin in January 2026 and last approximately 3 months.

Site grading would occur on an area of approximately 0.6 acres (25,000 square feet) for the Hush House site and approximately 0.6 acres (25,000 square feet) for the road alteration. Grading also would be required for removal of the existing road (25,000 square feet), for a total of approximately 75,000 square feet. Site grading would begin in April 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 100 feet of excavation. A 3-foot trench width for utilities was assumed. Excavation of the existing roadway also would be required (25,000 square feet). Total trenching/excavation area would be 25,300 square feet. Trenching would begin in August 2026 and last approximately 2 months.

Construction of the new Hush House would total approximately 24,111 square feet. The height of the Hush House was assumed to be 20 feet. Construction would begin in October 2026 and last approximately 12 months.

Architectural coatings would be applied to the facility, totaling 24,111 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 22,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

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- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.708530
SO_x	0.007976
NO_x	2.413391
CO	3.529440
PM 10	3.579196

Pollutant	Total Emissions (TONs)
PM 2.5	0.087421
Pb	0.000000
NH_3	0.002512
CO_2e	777.0

19.1 Demolition Phase

19.1.1 Demolition 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

19.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1250
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- 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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

19.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards ($1\ yd^3 / 27\ ft^3$)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

19.2 Site Grading Phase

19.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 4
Number of Days: 0

19.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 75000
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

19.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.2.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.3 Trenching/Excavating Phase

19.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

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Start Month: 8
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

19.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25300
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

19.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.3.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.4 Building Construction Phase

19.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 12
Number of Days: 0

19.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24111
Height of Building (ft): 20
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

19.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.5 Architectural Coatings Phase

19.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

19.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 24111
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

19.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.5.4 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

19.6 Paving Phase

19.6.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

19.6.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 22000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

19.6.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.6.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)

(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

20. Construction / Demolition

20.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct T-7A Shelters

- Activity Description:
Construction of 48 aircraft shelters (sunshades) would occur from 2026 through 2027.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Demolition would be required for the existing T-38C shelters. Demolition would include removal of 48 sunshades totaling approximately 150,000 square feet. Demolition would begin in January 2026 and last approximately 12 months.

Construction would include installation of 48 sunshades totaling approximately 150,000 square feet. The height of all sunshades were assumed to be 15 feet. Construction would begin in July 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.407693
SO_x	0.007842
NO_x	2.459897
CO	3.819583
PM 10	0.554024

Pollutant	Total Emissions (TONs)
PM 2.5	0.081227
Pb	0.000000
NH_3	0.004334
CO_2e	809.6

20.1 Demolition Phase

20.1.1 Demolition Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

20.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 150000
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	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

20.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

20.2 Building Construction Phase

20.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 12

Number of Days: 0

20.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 150000
Height of Building (ft): 15
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

20.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21. Construction / Demolition

21.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Addition to Egress Shop

- Activity Description:
Construction of the addition to the Egress Shop would occur from 2026 through 2027.

Construction of the Egress Shop addition would total approximately 3,400 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 23 months.

Architectural coatings would be applied to the addition, totaling 3,400 square feet. Architectural coating application would begin in December 2027 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.255801
SO_x	0.004627
NO_x	1.057743
CO	1.914952
PM 10	0.033559

Pollutant	Total Emissions (TONs)
PM 2.5	0.033527
Pb	0.000000
NH_3	0.001412
CO_2e	445.3

21.1 Building Construction Phase

21.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 23
Number of Days: 0

21.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 3400
Height of Building (ft): 20
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

21.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21.2 Architectural Coatings Phase

21.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2027

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- Phase Duration
Number of Month: 1
Number of Days: 0

21.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 3400
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

21.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.2.4 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

22. Construction / Demolition

22.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Jet Blast Deflectors

- Activity Description:
Construction of the jet blast deflectors would occur from 2026 through 2027.

Construction of the deflectors would total approximately 48,000 square feet. The high of the deflectors was assumed to be 12 feet. Construction would begin in January 2026 and last approximately 24 months.

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

- Activity End Date
Indefinite: False
End Month: 0
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.466869
SO_x	0.008803
NO_x	2.692399
CO	4.041546
PM 10	0.091521

Pollutant	Total Emissions (TONs)
PM 2.5	0.091423
Pb	0.000000
NH_3	0.003192
CO_2e	849.9

22.1 Building Construction Phase

22.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 24
Number of Days: 0

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22.1.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 48000
Height of Building (ft): 12
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

22.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

22.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23. Construction / Demolition

23.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Modify Hangars

- Activity Description:
Modification of Buildings 50 and 210 would occur in 2026.

It was assumed 25 percent of the total square footage of the hangars (Building 50 = approximately 52,500 square feet; Building 210 = approximately 46,000 square feet) would be construction to equate the renovations (98,500 square feet * 0.25 = 24,625 square feet). The height of the hangars was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (98,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.357297
SO_x	0.004061
NO_x	1.248297
CO	1.863404
PM 10	0.042210

Pollutant	Total Emissions (TONs)
PM 2.5	0.042140
Pb	0.000000
NH_3	0.001672
CO_2e	397.4

23.1 Building Construction Phase

23.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 11
Number of Days: 0

23.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24625
Height of Building (ft): 25
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

23.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23.2 Architectural Coatings Phase

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

23.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

23.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 98500
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

23.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.2.4 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

24. Construction / Demolition

24.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Antenna Farm

- Activity Description:
Construction of the antenna farm as part of the GBTS facility would occur in 2026.

It was assumed approximately 5,000 square feet would be trenched and excavated for installation of the antenna farm. Trenching/excavation would begin in January 2026 and last approximately 12 months. Assumed no materials are required to be hauled on- or off-site; excavated spoils will be used on-site.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.234605
SO_x	0.005168
NO_x	1.079323
CO	1.988326
PM 10	0.634433

Pollutant	Total Emissions (TONs)
PM 2.5	0.037540
Pb	0.000000
NH_3	0.000717
CO_2e	487.1

24.1 Trenching/Excavating Phase

24.1.1 Trenching / Excavating Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

24.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 5000
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

24.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983

MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

24.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25. Construction / Demolition

25.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Squadron Operations Buildings Renovations

- Activity Description:
Squadron Operations Buildings Renovations (i.e., Buildings 307, 320, and 328) would occur in 2026.

It was assumed 25 percent of the total square footage of the buildings (Building 307 = approximately 13,000 square feet; Building 320 = approximately 78,500 square feet; Building 328 = approximately 45,000 square feet) would be construction to equate the renovations (136,500 square feet * 0.25 = 34,125 square feet). The height of the buildings was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (136,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.798520
SO_x	0.004078
NO_x	1.257903
CO	1.869855
PM 10	0.042386

Pollutant	Total Emissions (TONs)
PM 2.5	0.042299
Pb	0.000000
NH_3	0.001806
CO_2e	402.6

25.1 Building Construction Phase

25.1.1 Building Construction Phase Timeline Assumptions

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

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- Phase Duration
Number of Month: 11
Number of Days: 0

25.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34125
Height of Building (ft): 25
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

25.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25.2 Architectural Coatings Phase

25.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

25.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 136500
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

25.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.2.4 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

26. Construction / Demolition

26.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: FSRM: Airfield Improvements

- Activity Description:
Airfield improvements would occur in 2026.

Airfield improvements would occur on an area totaling approximately 607,000 square feet. Improvements would begin in January 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.278284
SO_x	0.003494
NO_x	1.492374
CO	2.040054
PM 10	0.081524

Pollutant	Total Emissions (TONs)
PM 2.5	0.081481
Pb	0.000000
NH_3	0.001094
CO_2e	349.9

26.1 Paving Phase

26.1.1 Paving Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

26.1.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 607000

- Paving 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
Pavers Composite	1	8

Paving Equipment Composite	2	8
Rollers Composite	2	6

- 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

26.1.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

26.1.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

27. Construction / Demolition

27.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Trim Pad

- Activity Description:
Construction of the trim pad would occur in 2026.

Excavation of existing pavement would occur on an area totaling approximately 25,000 square feet. Excavation would begin in January 2026 and last approximately 4 months.

Pavement for the new trim pad would be required for an area totaling approximately 25,000 square feet. Paving would begin in May 2026 and last approximately 8 months.

- Activity Start Date

Start Month: 1
Start Month: 2026

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.230958
SO_x	0.003847
NO_x	1.202020
CO	1.887355
PM 10	1.048948

Pollutant	Total Emissions (TONs)
PM 2.5	0.054127
Pb	0.000000
NH_3	0.001203
CO_2e	367.8

27.1 Trenching/Excavating Phase

27.1.1 Trenching / Excavating Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

27.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25000
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

27.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

27.2 Paving Phase

27.2.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 8
Number of Days: 0

27.2.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

27.2.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.2.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

28. Construction / Demolition

28.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: T-7A Explosive Component Storage

- Activity Description:
Construction of the explosive component storage facility would occur in 2026.

Site grading would occur on an area of approximately 0.35 acres (15,000 square feet). Site grading would begin in January 2026 and last approximately 2 months.

Trenching for site utilities would require approximately 250 feet of excavation and trenching for site fencing would require approximately 500 feet of excavation. A 3-foot trench width for utilities and 1-foot trench width for fencing was assumed, for a total of 1,250 square feet. Trenching would begin in March 2026 and last approximately 1 month.

Construction of the new storage facility would total approximately 7,200 square feet. The height of the storage facility was assumed to be 12 feet. Construction would begin in April 2026 and last approximately 6 months.

Architectural coatings would be applied to the facility, totaling 7,200 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

The facility would require concrete or gravel hardstands and an access roadway. Paving would occur on an area totaling approximately 25,000 square feet. Paving would begin November 2026 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.242628
SO_x	0.002995
NO_x	0.827269
CO	1.264223
PM 10	0.342648

Pollutant	Total Emissions (TONs)
PM 2.5	0.031751
Pb	0.000000
NH_3	0.000833
CO_2e	291.3

28.1 Site Grading Phase

28.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 2
Number of Days: 0

28.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 15000
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

28.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_X	NO_X	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.2 Trenching/Excavating Phase

28.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2026

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Duration
Number of Month: 1
Number of Days: 0

28.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1250
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

28.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.3 Building Construction Phase

28.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 6
Number of Days: 0

28.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 7200
Height of Building (ft): 12
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

28.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.4 Architectural Coatings Phase

28.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

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- Phase Duration
Number of Month: 1
Number of Days: 0

28.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 7200
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

28.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.4.4 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

28.5 Paving Phase

28.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

28.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

28.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
VOC_P = (2.62 * PA) / 43560

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

29. Heating

29.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Heating/Cooling for New Facilities

- Activity Description:
Heating/cooling for new facilities would begin with the arrival of the first T-7A aircraft and crews, or approximately January 2030. Heating/cooling would be required for the following facilities:
GBTS Facility - 34,000 square feet
UMT Facility - 11,500 square feet
Hush House - 24,111 square feet
Addition to the Egress Shop - 3,400 square feet
T-7A Explosive Component Storage - 7,200 square feet
Addition to Building 905 - 1,036 square feet

Total area to be heated -81,247 square feet

- Activity Start Date
Start Month: 1

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Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.015810
SO_x	0.001725
NO_x	0.287460
CO	0.241466
PM 10	0.021847

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.021847
Pb	0.000000
NH_3	0.000000
CO_2e	346.1

29.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 81247
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0743

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

29.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

29.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year
FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year
HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant

2000: Conversion Factor pounds to tons

30. Heating

30.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove Heating/Cooling for Demolished Facilities

- Activity Description:
Heating/cooling for demolished facilities (Buildings 15 = approximately 1,000 square feet; Building 18 = approximately 250 square feet) no longer would be required starting in approximately January 2026.

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

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.000311
SO_x	-0.000034
NO_x	-0.005649
CO	-0.004745
PM 10	-0.000429

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.000429
Pb	0.000000
NH_3	0.000000
CO_2e	-6.8

30.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 1250
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0949

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

30.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

30.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year

FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

31. Personnel

31.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Maximum Increase of 190 Personnel

- Activity Description:

Addition of 190 personnel during the T-7A and T-38C transition period (i.e., 2030 and 2031). Assumed all personnel commute daily.

- Activity Start Date

Start Month: 1
Start Year: 2030

- Activity End Date

Indefinite: No
End Month: 12
End Year: 2031

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.548963
SO_x	0.005708

Pollutant	Total Emissions (TONs)
PM 2.5	0.008553
Pb	0.000000

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NO_x	0.323898
CO	7.752876
PM 10	0.009992

NH_3	0.056079
CO_2e	792.1

31.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel:	190
Civilian Personnel:	0
Support Contractor Personnel:	0
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week (default)
Civilian Personnel:	5 Days Per Week (default)
Support Contractor Personnel:	5 Days Per Week (default)
Air National Guard (ANG) Personnel:	4 Days Per Week (default)
Reserve Personnel:	4 Days Per Month (default)

31.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

31.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

31.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_{C} + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_{C}: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

32. Personnel

32.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Net Decrease of 60 Personnel

- Activity Description:
Net decrease of 60 personnel following T-38C withdrawal (i.e., 2032). Assumed all personnel commute daily.

- Activity Start Date
Start Month: 1
Start Year: 2032

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.086678
SO_x	-0.000901
NO_x	-0.051142
CO	-1.224138
PM 10	-0.001578

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.001350
Pb	0.000000
NH_3	-0.008855
CO_2e	-125.1

32.2 Personnel Assumptions

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- Number of Personnel

Active Duty Personnel:	60
Civilian Personnel:	0
Support Contractor Personnel:	0
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week (default)
Civilian Personnel:	5 Days Per Week (default)
Support Contractor Personnel:	5 Days Per Week (default)
Air National Guard (ANG) Personnel:	4 Days Per Week (default)
Reserve Personnel:	4 Days Per Month (default)

32.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

32.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

32.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)

VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

33. Construction / Demolition

33.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Addition to Building 905

- Activity Description:
Construction of the addition to Building 905 and parking area would occur in 2026.

Construction of the addition would total approximately 1,036 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 9 months.

Architectural coatings would be applied to the addition, totaling 1,036 square feet. Architectural coating application would begin in October 2026 and last approximately 1 month.

Site grading for the parking area would occur on approximately 5,000 square feet. Site grading would begin in November 2026 and last approximately 1 month.

Paving for the parking area would occur on approximately 5,000 square feet. Paving would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.133232
SO_x	0.002426
NO_x	0.614393
CO	1.013668
PM 10	0.071146

Pollutant	Total Emissions (TONs)
PM 2.5	0.021390
Pb	0.000000
NH_3	0.000735
CO_2e	234.6

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33.1 Site Grading Phase

33.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 5000
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

33.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89

Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

33.2 Building Construction Phase

33.2.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 9
Number of Days: 0

33.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 1036
Height of Building (ft): 20
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

33.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)

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

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33.3 Architectural Coatings Phase

33.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 1036
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

33.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.3.4 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

33.4 Paving Phase

33.4.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.4.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 5000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

33.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 2

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2026

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.466	250	
NOx	14.318	250	
CO	21.951	250	
SOx	0.049	250	
PM 10	14.076	250	
PM 2.5	0.539	250	
Pb	0.000	25	No
NH3	0.015	250	
CO2e	4799.0		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.962	250	
NOx	6.294	250	
CO	9.645	250	
SOx	0.021	250	
PM 10	0.219	250	
PM 2.5	0.218	250	
Pb	0.000	25	No
NH3	0.009	250	

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

CO2e	2060.2		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	33.929	250	
NOx	105.415	250	
CO	-123.987	250	
SOx	5.435	250	
PM 10	-3.917	250	
PM 2.5	-3.516	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	17282.5		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	81.704	250	
NOx	239.660	250	
CO	-217.296	250	
SOx	12.987	250	
PM 10	-7.070	250	
PM 2.5	-6.336	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	40119.8		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	81.343	250	
NOx	239.447	250	
CO	-222.397	250	
SOx	12.984	250	
PM 10	-7.076	250	
PM 2.5	-6.341	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	39598.7		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	85.213	250	
NOx	247.747	250	
CO	-214.556	250	
SOx	13.568	250	
PM 10	-6.906	250	
PM 2.5	-6.185	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	41334.2		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	85.213	250	
NOx	247.747	250	
CO	-214.556	250	
SOx	13.568	250	
PM 10	-6.906	250	
PM 2.5	-6.185	250	
Pb	0.000	25	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NH3	-0.009	250	
CO2e	41334.2		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality.Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs.No further air assessment is needed.

Carolyn Hein, Contractor

3/31/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 2

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2026

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

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The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030 Add T-7As and LTOs
3.	Aircraft	2030 Add T-7A CPs
4.	Aircraft	2030 Increase T-7A Trim Test and Test Cell
5.	Aircraft	2030 Remove T-38C and LTOs
6.	Aircraft	2030 Remove T-38C CPs
7.	Aircraft	2030 Decrease T-38C Trim Test and Test Cell
8.	Aircraft	2031-2032 Add T-7As and LTOs
9.	Aircraft	2031-2032 Add T-7A CPs
10.	Aircraft	2031-2032 Increase T-7A Trim Test and Test Cell
11.	Aircraft	2031 Remove T-38C and LTOs
12.	Aircraft	2031 Remove T-38C CPs
13.	Aircraft	2031 Decrease T-38C Trim Test and Test Cell
14.	Aircraft	2033 Add T-7As and LTOs
15.	Aircraft	2033 Add T-7A CPs
16.	Aircraft	2033 Increase T-7A Trim Test and Test Cell
17.	Construction / Demolition	MILCON: Construct GBTS Facility
18.	Construction / Demolition	MILCON: Construct UMT Facility
19.	Construction / Demolition	MILCON: Construct Hush House
20.	Construction / Demolition	MILCON: Construct T-7A Shelters
21.	Construction / Demolition	MILCON: Addition to Egress Shop
22.	Construction / Demolition	MILCON: Construct Jet Blast Deflectors
23.	Construction / Demolition	FSRM: Modify Hangars
24.	Construction / Demolition	FSRM: Antenna Farm
25.	Construction / Demolition	FSRM: Squadron Operations Buildings Renovations
26.	Construction / Demolition	FSRM: Airfield Improvements
27.	Construction / Demolition	FSRM: Trim Pad
28.	Construction / Demolition	FSRM: T-7A Explosive Component Storage
29.	Heating	Heating/Cooling for New Facilities
30.	Heating	Remove Heating/Cooling for Demolished Facilities
31.	Personnel	Maximum Increase of 190 Personnel
32.	Personnel	Net Decrease of 60 Personnel
33.	Construction / Demolition	FSRM: Addition to Building 905

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2030 Add T-7As and LTOs

- Activity Description:
Starting in 2030, add 27 T-7As and 8,202 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	43.151970
SO_x	2.735378
NO_x	36.000795
CO	88.322929
PM 10	1.676115

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.575401
Pb	0.000000
NH_3	0.000000
CO_2e	7857.8

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	42.175892
SO_x	2.467139
NO_x	28.526739
CO	86.711655
PM 10	0.583842

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.517547
Pb	0.000000
NH_3	0.000000
CO_2e	7455.1

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		8202
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

2.5 Aerospace Ground Equipment (AGE)

2.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 8202

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

2.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

2.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Add T-7A CPs

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- Activity Description:
Starting in 2030, add 18,043 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	8.973498
SO_x	5.101430
NO_x	75.207874
CO	15.134200
PM 10	0.562659

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.480327
Pb	0.000000
NH_3	0.000000
CO_2e	15418.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		18043
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2030, add trim test and engine test cell for 27 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.155747
SO_x	0.051102
NO_x	0.848982
CO	2.470121
PM 10	0.056774

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.050874
Pb	0.000000
NH_3	0.000000
CO_2e	154.5

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

4.3 Aircraft Engine Test Cell

4.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 27

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

4.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

4.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C and LTOs

- Activity Description:
Starting in 2030, remove 32 T-38Cs and 4,401 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.840498
SO_x	-1.321792
NO_x	-5.937370
CO	-149.215148
PM 10	-4.236465

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.851422
Pb	0.000000
NH_3	0.000000
CO_2e	-3451.4

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-13.316758
SO_x	-1.177861
NO_x	-1.926967
CO	-148.350577

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.283802
Pb	0.000000
NH_3	0.000000
CO_2e	-3235.3

PM 10	-3.650377		

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4401
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 12
Approach (mins): 27

Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5.4 Auxiliary Power Unit (APU)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

5.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

5.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

5.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

5.5 Aerospace Ground Equipment (AGE)

5.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4401

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

5.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2

TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

5.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C CPs

- Activity Description:
Starting in 2030, remove 9,682 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.519087
SO_x	-1.061133
NO_x	-0.933638
CO	-81.020664
PM 10	-1.927323

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.729902
Pb	0.000000
NH_3	0.000000
CO_2e	-3207.2

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9682
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0

AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2030, remove trim test and engine test cell for 32 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.282907
SO_x	-0.074500
NO_x	-0.215007
CO	-3.791705
PM 10	-0.075009

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.067420
Pb	0.000000
NH_3	0.000000
CO_2e	-225.2

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Aircraft Engine Test Cell

7.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 64

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

7.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

7.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Add T-7As and LTOs

- Activity Description:
Starting in 2031, add 34 T-7As and 10,328 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	54.337179
SO_x	3.444402
NO_x	45.332383
CO	111.216680
PM 10	2.110572

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.983753
Pb	0.000000
NH_3	0.000000
CO_2e	9894.6

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	53.108097
SO_x	3.106634
NO_x	35.921014
CO	109.187755
PM 10	0.735177

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.651697
Pb	0.000000
NH_3	0.000000
CO_2e	9387.5

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		10328
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8.4 Auxiliary Power Unit (APU)

8.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

8.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

8.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

8.5 Aerospace Ground Equipment (AGE)

8.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 10328

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

8.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

8.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Add T-7A CPs

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- Activity Description:
Starting in 2031, add 22,721 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	11.300052
SO_x	6.424075
NO_x	94.706983
CO	19.058037
PM 10	0.708539

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.604861
Pb	0.000000
NH_3	0.000000
CO_2e	19416.3

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

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- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		22721
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2031, add trim test and engine test cell for 34 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.196125
SO_x	0.064351
NO_x	1.069089
CO	3.110523
PM 10	0.071493

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.064063
Pb	0.000000
NH_3	0.000000
CO_2e	194.5

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10.2 Aircraft & Engines

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Aircraft Engine Test Cell

10.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 34

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

10.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

10.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C and LTOs

- Activity Description:
Starting in 2031, remove 31 T-38Cs and 4,263 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.406508
SO_x	-1.280345
NO_x	-5.751194
CO	-144.536282
PM 10	-4.103624

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.730654
Pb	0.000000
NH_3	0.000000
CO_2e	-3343.2

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-12.899191
SO_x	-1.140927
NO_x	-1.866544
CO	-143.698820

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.180833
Pb	0.000000
NH_3	0.000000
CO_2e	-3133.9

PM 10	-3.535914		

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4263
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 12
Approach (mins): 27

Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11.4 Auxiliary Power Unit (APU)

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11.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

11.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

11.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

11.5 Aerospace Ground Equipment (AGE)

11.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4263

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

11.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2

TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

11.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

12. Aircraft

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C CPs

- Activity Description:
Starting in 2031, remove 9,379 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.377661
SO_x	-1.027924
NO_x	-0.904420
CO	-78.485107
PM 10	-1.867007

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.675764
Pb	0.000000
NH_3	0.000000
CO_2e	-3106.8

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.2 Aircraft & Engines

12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9379
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0

AfterBurn (mins): 0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2031, remove trim test and engine test cell for 31 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.274066
SO_x	-0.072172
NO_x	-0.208288
CO	-3.673214
PM 10	-0.072665

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.065313
Pb	0.000000
NH_3	0.000000
CO_2e	-218.1

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

13.3 Aircraft Engine Test Cell

13.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 62

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

13.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

13.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2033 Add T-7As and LTOs

- Activity Description:
Starting in 2033, add 2 T-7As and 607 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	3.193519
SO_x	0.202435
NO_x	2.664287
CO	6.536457
PM 10	0.124043

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.116590
Pb	0.000000
NH_3	0.000000
CO_2e	581.5

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	3.121283
SO_x	0.182584
NO_x	2.111160
CO	6.417212
PM 10	0.043208

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.038302
Pb	0.000000
NH_3	0.000000
CO_2e	551.7

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		607
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14.4 Auxiliary Power Unit (APU)

14.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

14.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

14.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

14.5 Aerospace Ground Equipment (AGE)

14.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 607

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

14.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

14.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Add T-7A CPs

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- Activity Description:
Starting in 2033, add 1,337 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.664943
SO_x	0.378020
NO_x	5.572961
CO	1.121456
PM 10	0.041693

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.035593
Pb	0.000000
NH_3	0.000000
CO_2e	1142.5

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

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- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1337
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2033, add trim test and engine test cell for 2 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.011537
SO_x	0.003785
NO_x	0.062888
CO	0.182972
PM 10	0.004205

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003768
Pb	0.000000
NH_3	0.000000
CO_2e	11.4

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16.2 Aircraft & Engines

16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

16.3 Aircraft Engine Test Cell

16.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 2

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

16.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

16.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

17. Construction / Demolition

17.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct GBTS Facility

- Activity Description:
Construction of the GBTS Facility (34,000 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 3.5 acres (152,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new GBTS facility would total approximately 34,000 square feet. The height of the GBTS facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 34,000 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, parking areas, and roadways would occur on an area totaling approximately 35,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

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Pollutant	Total Emissions (TONs)
VOC	0.884072
SO_x	0.009094
NO_x	2.754339
CO	3.972870
PM 10	6.237396

Pollutant	Total Emissions (TONs)
PM 2.5	0.099416
Pb	0.000000
NH_3	0.002748
CO_2e	883.7

17.1 Site Grading Phase

17.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

17.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 152000
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	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

17.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.2 Trenching/Excavating Phase

17.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

17.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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)

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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

17.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.3 Building Construction Phase

17.3.1 Building Construction Phase Timeline Assumptions

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- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

17.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34000
Height of Building (ft): 15
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

17.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.4 Architectural Coatings Phase

17.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

17.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 34000
Number of Units: N/A

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- 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

17.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.4.4 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

17.5 Paving Phase

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

17.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

17.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 35000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

17.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

18. Construction / Demolition

18.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct UMT Facility

- Activity Description:
Construction of the UMT Facility (11,500 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 0.8 acres (35,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new UMT facility would total approximately 11,500 square feet. The height of the UMT facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 11,500 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 10,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12

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End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.430947
SO_x	0.005936
NO_x	1.523831
CO	2.399582
PM 10	1.536463

Pollutant	Total Emissions (TONs)
PM 2.5	0.054174
Pb	0.000000
NH_3	0.001575
CO_2e	576.5

18.1 Site Grading Phase

18.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

18.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 35000
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

18.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.2 Trenching/Excavating Phase

18.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

18.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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

18.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.3 Building Construction Phase

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18.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

18.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 11500
Height of Building (ft): 15
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

18.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.4 Architectural Coatings Phase

18.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

18.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 11500
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

18.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.4.4 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

18.5 Paving Phase

18.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1

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Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

18.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 10000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

18.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

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	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

19. Construction / Demolition

19.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Hush House

- Activity Description:
Construction of the Hush House (24,111 square feet) would occur from 2026 through 2027.

Demolition would include Building 15 (approximately 1,000 square feet) and Building 18 (approximately 250 square feet). The height of the buildings was assumed to be 15 feet. Demolition would begin in January 2026 and last approximately 3 months.

Site grading would occur on an area of approximately 0.6 acres (25,000 square feet) for the Hush House site and approximately 0.6 acres (25,000 square feet) for the road alteration. Grading also would be required for removal of the existing road (25,000 square feet), for a total of approximately 75,000 square feet. Site grading would begin in April 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 100 feet of excavation. A 3-foot trench width for utilities was assumed. Excavation of the existing roadway also would be required (25,000 square feet). Total trenching/excavation area would be 25,300 square feet. Trenching would begin in August 2026 and last approximately 2 months.

Construction of the new Hush House would total approximately 24,111 square feet. The height of the Hush House was assumed to be 20 feet. Construction would begin in October 2026 and last approximately 12 months.

Architectural coatings would be applied to the facility, totaling 24,111 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 22,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date

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Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.708530
SO_x	0.007976
NO_x	2.413391
CO	3.529440
PM 10	3.579196

Pollutant	Total Emissions (TONs)
PM 2.5	0.087421
Pb	0.000000
NH_3	0.002512
CO_2e	777.0

19.1 Demolition Phase

19.1.1 Demolition 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

19.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1250
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- 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

19.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards ($1\ yd^3 / 27\ ft^3$)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

19.2 Site Grading Phase

19.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 4
Number of Days: 0

19.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 75000
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)

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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

19.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.3 Trenching/Excavating Phase

19.3.1 Trenching / Excavating Phase Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

19.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25300
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

19.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45

Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.3.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.4 Building Construction Phase

19.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 12
Number of Days: 0

19.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24111
Height of Building (ft): 20
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

19.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.5 Architectural Coatings Phase

19.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

19.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 24111
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

19.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.5.4 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

19.6 Paving Phase

19.6.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

19.6.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 22000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

19.6.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.6.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)

0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

20. Construction / Demolition

20.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct T-7A Shelters

- Activity Description:
Construction of 48 aircraft shelters (sunshades) would occur from 2026 through 2027.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Demolition would be required for the existing T-38C shelters. Demolition would include removal of 48 sunshades totaling approximately 150,000 square feet. Demolition would begin in January 2026 and last approximately 12 months.

Construction would include installation of 48 sunshades totaling approximately 150,000 square feet. The height of all sunshades were assumed to be 15 feet. Construction would begin in July 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.407693
SO_x	0.007842
NO_x	2.459897
CO	3.819583
PM 10	0.554024

Pollutant	Total Emissions (TONs)
PM 2.5	0.081227
Pb	0.000000
NH_3	0.004334
CO_2e	809.6

20.1 Demolition Phase

20.1.1 Demolition Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

20.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 150000
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	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

20.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

20.2 Building Construction Phase

20.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 12

Number of Days: 0

20.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 150000
Height of Building (ft): 15
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

20.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21. Construction / Demolition

21.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Addition to Egress Shop

- Activity Description:
Construction of the addition to the Egress Shop would occur from 2026 through 2027.

Construction of the Egress Shop addition would total approximately 3,400 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 23 months.

Architectural coatings would be applied to the addition, totaling 3,400 square feet. Architectural coating application would begin in December 2027 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.255801
SO_x	0.004627
NO_x	1.057743
CO	1.914952
PM 10	0.033559

Pollutant	Total Emissions (TONs)
PM 2.5	0.033527
Pb	0.000000
NH_3	0.001412
CO_2e	445.3

21.1 Building Construction Phase

21.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 23
Number of Days: 0

21.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 3400
Height of Building (ft): 20
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

21.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21.2 Architectural Coatings Phase

21.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2027

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- Phase Duration
Number of Month: 1
Number of Days: 0

21.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 3400
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

21.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.2.4 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

22. Construction / Demolition

22.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Jet Blast Deflectors

- Activity Description:
Construction of the jet blast deflectors would occur from 2026 through 2027.

Construction of the deflectors would total approximately 48,000 square feet. The high of the deflectors was assumed to be 12 feet. Construction would begin in January 2026 and last approximately 24 months.

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

- Activity End Date
Indefinite: False
End Month: 0
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.466869
SO_x	0.008803
NO_x	2.692399
CO	4.041546
PM 10	0.091521

Pollutant	Total Emissions (TONs)
PM 2.5	0.091423
Pb	0.000000
NH_3	0.003192
CO_2e	849.9

22.1 Building Construction Phase

22.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 24
Number of Days: 0

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22.1.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 48000
Height of Building (ft): 12
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

22.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

22.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23. Construction / Demolition

23.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Modify Hangars

- Activity Description:
Modification of Buildings 50 and 210 would occur in 2026.

It was assumed 25 percent of the total square footage of the hangars (Building 50 = approximately 52,500 square feet; Building 210 = approximately 46,000 square feet) would be construction to equate the renovations (98,500 square feet * 0.25 = 24,625 square feet). The height of the hangars was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (98,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.357297
SO_x	0.004061
NO_x	1.248297
CO	1.863404
PM 10	0.042210

Pollutant	Total Emissions (TONs)
PM 2.5	0.042140
Pb	0.000000
NH_3	0.001672
CO_2e	397.4

23.1 Building Construction Phase

23.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 11
Number of Days: 0

23.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24625
Height of Building (ft): 25
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

23.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23.2 Architectural Coatings Phase

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

23.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

23.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 98500
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

23.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.2.4 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

24. Construction / Demolition

24.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Antenna Farm

- Activity Description:
Construction of the antenna farm as part of the GBTS facility would occur in 2026.

It was assumed approximately 5,000 square feet would be trenched and excavated for installation of the antenna farm. Trenching/excavation would begin in January 2026 and last approximately 12 months. Assumed no materials are required to be hauled on- or off-site; excavated spoils will be used on-site.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.234605
SO_x	0.005168
NO_x	1.079323
CO	1.988326
PM 10	0.634433

Pollutant	Total Emissions (TONs)
PM 2.5	0.037540
Pb	0.000000
NH_3	0.000717
CO_2e	487.1

24.1 Trenching/Excavating Phase

24.1.1 Trenching / Excavating Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

24.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 5000
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

24.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983

MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

24.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25. Construction / Demolition

25.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Squadron Operations Buildings Renovations

- Activity Description:
Squadron Operations Buildings Renovations (i.e., Buildings 307, 320, and 328) would occur in 2026.

It was assumed 25 percent of the total square footage of the buildings (Building 307 = approximately 13,000 square feet; Building 320 = approximately 78,500 square feet; Building 328 = approximately 45,000 square feet) would be construction to equate the renovations (136,500 square feet * 0.25 = 34,125 square feet). The height of the buildings was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (136,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.798520
SO_x	0.004078
NO_x	1.257903
CO	1.869855
PM 10	0.042386

Pollutant	Total Emissions (TONs)
PM 2.5	0.042299
Pb	0.000000
NH_3	0.001806
CO_2e	402.6

25.1 Building Construction Phase

25.1.1 Building Construction Phase Timeline Assumptions

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

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- Phase Duration
Number of Month: 11
Number of Days: 0

25.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34125
Height of Building (ft): 25
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

25.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25.2 Architectural Coatings Phase

25.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

25.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 136500
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

25.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.2.4 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

26. Construction / Demolition

26.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: FSRM: Airfield Improvements

- Activity Description:
Airfield improvements would occur in 2026.

Airfield improvements would occur on an area totaling approximately 607,000 square feet. Improvements would begin in January 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.278284
SO_x	0.003494
NO_x	1.492374
CO	2.040054
PM 10	0.081524

Pollutant	Total Emissions (TONs)
PM 2.5	0.081481
Pb	0.000000
NH_3	0.001094
CO_2e	349.9

26.1 Paving Phase

26.1.1 Paving Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

26.1.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 607000

- Paving 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
Pavers Composite	1	8

Paving Equipment Composite	2	8
Rollers Composite	2	6

- 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

26.1.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

26.1.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

27. Construction / Demolition

27.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Trim Pad

- Activity Description:
Construction of the trim pad would occur in 2026.

Excavation of existing pavement would occur on an area totaling approximately 25,000 square feet. Excavation would begin in January 2026 and last approximately 4 months.

Pavement for the new trim pad would be required for an area totaling approximately 25,000 square feet. Paving would begin in May 2026 and last approximately 8 months.

- Activity Start Date

Start Month: 1
Start Month: 2026

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.230958
SO_x	0.003847
NO_x	1.202020
CO	1.887355
PM 10	1.048948

Pollutant	Total Emissions (TONs)
PM 2.5	0.054127
Pb	0.000000
NH_3	0.001203
CO_2e	367.8

27.1 Trenching/Excavating Phase

27.1.1 Trenching / Excavating Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

27.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25000
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

27.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

27.2 Paving Phase

27.2.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 8
Number of Days: 0

27.2.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

27.2.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.2.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

28. Construction / Demolition

28.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: T-7A Explosive Component Storage

- Activity Description:
Construction of the explosive component storage facility would occur in 2026.

Site grading would occur on an area of approximately 0.35 acres (15,000 square feet). Site grading would begin in January 2026 and last approximately 2 months.

Trenching for site utilities would require approximately 250 feet of excavation and trenching for site fencing would require approximately 500 feet of excavation. A 3-foot trench width for utilities and 1-foot trench width for fencing was assumed, for a total of 1,250 square feet. Trenching would begin in March 2026 and last approximately 1 month.

Construction of the new storage facility would total approximately 7,200 square feet. The height of the storage facility was assumed to be 12 feet. Construction would begin in April 2026 and last approximately 6 months.

Architectural coatings would be applied to the facility, totaling 7,200 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

The facility would require concrete or gravel hardstands and an access roadway. Paving would occur on an area totaling approximately 25,000 square feet. Paving would begin November 2026 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.242628
SO_x	0.002995
NO_x	0.827269
CO	1.264223
PM 10	0.342648

Pollutant	Total Emissions (TONs)
PM 2.5	0.031751
Pb	0.000000
NH_3	0.000833
CO_2e	291.3

28.1 Site Grading Phase

28.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 2
Number of Days: 0

28.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 15000
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

28.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_X	NO_X	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.2 Trenching/Excavating Phase

28.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2026

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Duration
Number of Month: 1
Number of Days: 0

28.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1250
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

28.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.3 Building Construction Phase

28.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 6
Number of Days: 0

28.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 7200
Height of Building (ft): 12
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

28.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.4 Architectural Coatings Phase

28.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

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- Phase Duration
Number of Month: 1
Number of Days: 0

28.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 7200
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

28.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.4.4 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

28.5 Paving Phase

28.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

28.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

28.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
VOC_P = (2.62 * PA) / 43560

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

29. Heating

29.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Heating/Cooling for New Facilities

- Activity Description:
Heating/cooling for new facilities would begin with the arrival of the first T-7A aircraft and crews, or approximately January 2030. Heating/cooling would be required for the following facilities:
GBTS Facility - 34,000 square feet
UMT Facility - 11,500 square feet
Hush House - 24,111 square feet
Addition to the Egress Shop - 3,400 square feet
T-7A Explosive Component Storage - 7,200 square feet
Addition to Building 905 - 1,036 square feet

Total area to be heated - 81,247 square feet

- Activity Start Date
Start Month: 1

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Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.015810
SO_x	0.001725
NO_x	0.287460
CO	0.241466
PM 10	0.021847

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.021847
Pb	0.000000
NH_3	0.000000
CO_2e	346.1

29.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 81247
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0743

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

29.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

29.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year
FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year
HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant

2000: Conversion Factor pounds to tons

30. Heating

30.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove Heating/Cooling for Demolished Facilities

- Activity Description:
Heating/cooling for demolished facilities (Buildings 15 = approximately 1,000 square feet; Building 18 = approximately 250 square feet) no longer would be required starting in approximately January 2026.

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

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.000311
SO_x	-0.000034
NO_x	-0.005649
CO	-0.004745
PM 10	-0.000429

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.000429
Pb	0.000000
NH_3	0.000000
CO_2e	-6.8

30.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 1250
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0949

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

30.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

30.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year

FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

31. Personnel

31.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Maximum Increase of 190 Personnel

- Activity Description:

Addition of 190 personnel during the T-7A and T-38C transition period (i.e., 2030 and 2031). Assumed all personnel commute daily.

- Activity Start Date

Start Month: 1
Start Year: 2030

- Activity End Date

Indefinite: No
End Month: 12
End Year: 2031

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.548963
SO_x	0.005708

Pollutant	Total Emissions (TONs)
PM 2.5	0.008553
Pb	0.000000

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NO_x	0.323898
CO	7.752876
PM 10	0.009992

NH_3	0.056079
CO_2e	792.1

31.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel:	190
Civilian Personnel:	0
Support Contractor Personnel:	0
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week (default)
Civilian Personnel:	5 Days Per Week (default)
Support Contractor Personnel:	5 Days Per Week (default)
Air National Guard (ANG) Personnel:	4 Days Per Week (default)
Reserve Personnel:	4 Days Per Month (default)

31.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

31.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

31.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_{C} + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_{C}: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

32. Personnel

32.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Net Decrease of 60 Personnel

- Activity Description:
Net decrease of 60 personnel following T-38C withdrawal (i.e., 2032). Assumed all personnel commute daily.

- Activity Start Date
Start Month: 1
Start Year: 2032

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.086678
SO_x	-0.000901
NO_x	-0.051142
CO	-1.224138
PM 10	-0.001578

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.001350
Pb	0.000000
NH_3	-0.008855
CO_2e	-125.1

32.2 Personnel Assumptions

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- Number of Personnel

Active Duty Personnel:	60
Civilian Personnel:	0
Support Contractor Personnel:	0
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week (default)
Civilian Personnel:	5 Days Per Week (default)
Support Contractor Personnel:	5 Days Per Week (default)
Air National Guard (ANG) Personnel:	4 Days Per Week (default)
Reserve Personnel:	4 Days Per Month (default)

32.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

32.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

32.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)

VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

33. Construction / Demolition

33.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Addition to Building 905

- Activity Description:
Construction of the addition to Building 905 and parking area would occur in 2026.

Construction of the addition would total approximately 1,036 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 9 months.

Architectural coatings would be applied to the addition, totaling 1,036 square feet. Architectural coating application would begin in October 2026 and last approximately 1 month.

Site grading for the parking area would occur on approximately 5,000 square feet. Site grading would begin in November 2026 and last approximately 1 month.

Paving for the parking area would occur on approximately 5,000 square feet. Paving would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.133232
SO_x	0.002426
NO_x	0.614393
CO	1.013668
PM 10	0.071146

Pollutant	Total Emissions (TONs)
PM 2.5	0.021390
Pb	0.000000
NH_3	0.000735
CO_2e	234.6

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33.1 Site Grading Phase

33.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 5000
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

33.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89

Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

33.2 Building Construction Phase

33.2.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 9
Number of Days: 0

33.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 1036
Height of Building (ft): 20
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

33.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)

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

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33.3 Architectural Coatings Phase

33.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 1036
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

33.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.3.4 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

33.4 Paving Phase

33.4.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.4.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 5000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

33.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 3

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2026

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.466	250	
NOx	14.318	250	
CO	21.951	250	
SOx	0.049	250	
PM 10	14.076	250	
PM 2.5	0.539	250	
Pb	0.000	25	No
NH3	0.015	250	
CO2e	4799.0		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.963	250	
NOx	6.317	250	
CO	9.660	250	
SOx	0.021	250	
PM 10	0.219	250	
PM 2.5	0.219	250	
Pb	0.000	25	No
NH3	0.009	250	

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

CO2e	2072.4		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	-0.006	250	
CO	-0.005	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	-6.8		

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	34.021	250	
NOx	105.918	250	
CO	-122.523	250	
SOx	5.465	250	
PM 10	-3.883	250	
PM 2.5	-3.486	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	17374.0		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	81.796	250	
NOx	240.163	250	
CO	-215.833	250	
SOx	13.018	250	
PM 10	-7.036	250	
PM 2.5	-6.305	250	
Pb	0.000	25	No
NH3	0.028	250	
CO2e	40211.3		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	81.435	250	
NOx	239.950	250	
CO	-220.933	250	
SOx	13.014	250	
PM 10	-7.042	250	
PM 2.5	-6.311	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	39690.2		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	85.305	250	
NOx	248.250	250	
CO	-213.092	250	
SOx	13.598	250	
PM 10	-6.873	250	
PM 2.5	-6.155	250	
Pb	0.000	25	No
NH3	-0.009	250	
CO2e	41425.7		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	85.305	250	
NOx	248.250	250	
CO	-213.092	250	
SOx	13.598	250	
PM 10	-6.873	250	
PM 2.5	-6.155	250	
Pb	0.000	25	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NH3	-0.009	250	
CO2e	41425.7		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality.Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs.No further air assessment is needed.

Carolyn Hein, Contractor

3/31/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 3

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2026

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030 Add T-7As and LTOs
3.	Aircraft	2030 Add T-7A CPs
4.	Aircraft	2030 Increase T-7A Trim Test and Test Cell
5.	Aircraft	2030 Remove T-38C and LTOs
6.	Aircraft	2030 Remove T-38C CPs
7.	Aircraft	2030 Decrease T-38C Trim Test and Test Cell
8.	Aircraft	2031-2032 Add T-7As and LTOs
9.	Aircraft	2031-2032 Add T-7A CPs
10.	Aircraft	2031-2032 Increase T-7A Trim Test and Test Cell
11.	Aircraft	2031 Remove T-38C and LTOs
12.	Aircraft	2031 Remove T-38C CPs
13.	Aircraft	2031 Decrease T-38C Trim Test and Test Cell
14.	Aircraft	2033 Add T-7As and LTOs
15.	Aircraft	2033 Add T-7A CPs
16.	Aircraft	2033 Increase T-7A Trim Test and Test Cell
17.	Construction / Demolition	MILCON: Construct GBTS Facility
18.	Construction / Demolition	MILCON: Construct UMT Facility
19.	Construction / Demolition	MILCON: Construct Hush House
20.	Construction / Demolition	MILCON: Construct T-7A Shelters
21.	Construction / Demolition	MILCON: Addition to Egress Shop
22.	Construction / Demolition	MILCON: Construct Jet Blast Deflectors
23.	Construction / Demolition	FSRM: Modify Hangars
24.	Construction / Demolition	FSRM: Antenna Farm
25.	Construction / Demolition	FSRM: Squadron Operations Buildings Renovations
26.	Construction / Demolition	FSRM: Airfield Improvements
27.	Construction / Demolition	FSRM: Trim Pad
28.	Construction / Demolition	FSRM: T-7A Explosive Component Storage
29.	Heating	Heating/Cooling for New Facilities
30.	Heating	Remove Heating/Cooling for Demolished Facilities
31.	Personnel	Maximum Increase of 190 Personnel
32.	Personnel	Net Decrease of 60 Personnel
33.	Construction / Demolition	FSRM: Addition to Building 905

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

County: Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030 Add T-7As and LTOs

- Activity Description:
Starting in 2030, add 43 T-7As and 8,202 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	43.151970
SO_x	2.735378
NO_x	36.000795
CO	88.322929
PM 10	1.676115

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.575401
Pb	0.000000
NH_3	0.000000
CO_2e	7857.8

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	42.175892
SO_x	2.467139
NO_x	28.526739
CO	86.711655
PM 10	0.583842

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.517547
Pb	0.000000
NH_3	0.000000
CO_2e	7455.1

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		43
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		8202
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

2.5 Aerospace Ground Equipment (AGE)

2.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 8202

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

2.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

2.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Add T-7A CPs

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
Starting in 2030, add 18,043 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	8.973498
SO_x	5.101430
NO_x	75.207874
CO	15.134200
PM 10	0.562659

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.480327
Pb	0.000000
NH_3	0.000000
CO_2e	15418.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:		43
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		18043
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2030 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2030, add trim test and engine test cell for 43 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.248041
SO_x	0.081385
NO_x	1.352083
CO	3.933897
PM 10	0.090418

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.081021
Pb	0.000000
NH_3	0.000000
CO_2e	246.0

4.2 Aircraft & Engines

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

4.3 Aircraft Engine Test Cell

4.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 43

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

4.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

4.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C and LTOs

- Activity Description:
Starting in 2030, remove 32 T-38Cs and 4,401 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.840498
SO_x	-1.321792
NO_x	-5.937370
CO	-149.215148
PM 10	-4.236465

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.851422
Pb	0.000000
NH_3	0.000000
CO_2e	-3451.4

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-13.316758
SO_x	-1.177861
NO_x	-1.926967
CO	-148.350577
PM 10	-3.650377

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.283802
Pb	0.000000
NH_3	0.000000
CO_2e	-3235.3

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4401
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 12
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5.4 Auxiliary Power Unit (APU)

5.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

5.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

5.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

5.5 Aerospace Ground Equipment (AGE)

5.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4401

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

5.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

5.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2030 Remove T-38C CPs

- Activity Description:
Starting in 2030, remove 9,682 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.519087
SO_x	-1.061133
NO_x	-0.933638
CO	-81.020664
PM 10	-1.927323

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.729902
Pb	0.000000
NH_3	0.000000
CO_2e	-3207.2

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9682
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2030 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2030, remove trim test and engine test cell for 32 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.282907
SO_x	-0.074500
NO_x	-0.215007
CO	-3.791705
PM 10	-0.075009

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.067420
Pb	0.000000
NH_3	0.000000
CO_2e	-225.2

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Aircraft Engine Test Cell

7.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 64

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

7.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

7.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031-2032 Add T-7As and LTOs

- Activity Description:
Starting in 2031, add 34 T-7As and 10,328 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	54.337179
SO_x	3.444402
NO_x	45.332383
CO	111.216680
PM 10	2.110572

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.983753
Pb	0.000000
NH_3	0.000000
CO_2e	9894.6

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	53.108097
SO_x	3.106634
NO_x	35.921014
CO	109.187755
PM 10	0.735177

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.651697
Pb	0.000000
NH_3	0.000000
CO_2e	9387.5

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		10328
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8.4 Auxiliary Power Unit (APU)

8.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

8.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

8.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

8.5 Aerospace Ground Equipment (AGE)

8.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 10328

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

8.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

8.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Add T-7A CPs

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- Activity Description:
Starting in 2031, add 22,721 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	11.300052
SO_x	6.424075
NO_x	94.706983
CO	19.058037
PM 10	0.708539

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.604861
Pb	0.000000
NH_3	0.000000
CO_2e	19416.3

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

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- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		22721
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2031-2032 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2031, add trim test and engine test cell for 34 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.196125
SO_x	0.064351
NO_x	1.069089
CO	3.110523
PM 10	0.071493

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.064063
Pb	0.000000
NH_3	0.000000
CO_2e	194.5

10.2 Aircraft & Engines

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10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Aircraft Engine Test Cell

10.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 34

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

10.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

10.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C and LTOs

- Activity Description:
Starting in 2031, remove 31 T-38Cs and 4,263 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-13.406508
SO_x	-1.280345
NO_x	-5.751194
CO	-144.536282
PM 10	-4.103624

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.730654
Pb	0.000000
NH_3	0.000000
CO_2e	-3343.2

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-12.899191
SO_x	-1.140927
NO_x	-1.866544
CO	-143.698820
PM 10	-3.535914

Pollutant	Emissions Per Year (TONs)
PM 2.5	-3.180833
Pb	0.000000
NH_3	0.000000
CO_2e	-3133.9

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 4263
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.51
Approach [Approach] (mins): 3.89
Climb Out [Intermediate] (mins): 0.58
Takeoff [Military] (mins): 0.55
Takeoff [After Burn] (mins): 0.25

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 12
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 9
AfterBurn (mins): 3

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11.4 Auxiliary Power Unit (APU)

11.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

11.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

11.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

11.5 Aerospace Ground Equipment (AGE)

11.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 4263

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

11.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

11.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

12. Aircraft

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: 2031 Remove T-38C CPs

- Activity Description:
Starting in 2031, remove 9,379 T-38C CPs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-4.377661
SO_x	-1.027924
NO_x	-0.904420
CO	-78.485107
PM 10	-1.867007

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.675764
Pb	0.000000
NH_3	0.000000
CO_2e	-3106.8

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

12.2 Aircraft & Engines

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12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 9379
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 3.59
Climb Out [Intermediate] (mins): 2.66
Takeoff [Military] (mins): 0.42
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: 2031 Decrease T-38C Trim Test and Test Cell

- Activity Description:
Starting in 2031, remove trim test and engine test cell for 31 T-38Cs.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.274066
SO_x	-0.072172
NO_x	-0.208288
CO	-3.673214
PM 10	-0.072665

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.065313
Pb	0.000000
NH_3	0.000000
CO_2e	-218.1

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

13.3 Aircraft Engine Test Cell

13.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 62

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	3 (default)
Idle Duration (mins):	0 (default)
Approach Duration (mins):	4.97 (default)
Intermediate Duration (mins):	10.45 (default)
Military Duration (mins):	6.14 (default)
After Burner Duration (mins):	2.04 (default)

13.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

13.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 Add T-7As and LTOs

- Activity Description:
Starting in 2033, add 2 T-7As and 607 LTOs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	3.193519
SO_x	0.202435
NO_x	2.664287
CO	6.536457
PM 10	0.124043

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.116590
Pb	0.000000
NH_3	0.000000
CO_2e	581.5

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	3.121283
SO_x	0.182584
NO_x	2.111160
CO	6.417212
PM 10	0.043208

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.038302
Pb	0.000000
NH_3	0.000000
CO_2e	551.7

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	LTO (Landing and Takeoff)	
Number of Annual Flight Operation Cycles for all Aircraft:		607
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	12.42
Approach [Approach] (mins):	3.91
Climb Out [Intermediate] (mins):	0.58
Takeoff [Military] (mins):	0.79
Takeoff [After Burn] (mins):	0.01

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14.4 Auxiliary Power Unit (APU)

14.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	0.25	No	4501687C	Hamilton Sundstrand

14.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
4501687C	211.0	0.010	0.230	1.380	1.070	-1.000	-1.000	740.4

14.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
APU_{POL} = APU * OH * LTO * EF_{POL} / 2000

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

14.5 Aerospace Ground Equipment (AGE)

14.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 607

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.5	No	Air Compressor	MC-1A - 18.4hp
1	0.17	No	Generator Set	A/M32A-86D
1	0.17	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No	Light Cart	TF-1

14.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-1-1	2.5	0.026	0.018	0.757	0.043	0.109	0.105	57.2
TF-1	0.0	0.025	0.043	0.170	0.130	0.160	0.155	30.7

14.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Add T-7A CPs

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- Activity Description:
Starting in 2033, add 1,337 T-7A CPs.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.664943
SO_x	0.378020
NO_x	5.572961
CO	1.121456
PM 10	0.041693

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.035593
Pb	0.000000
NH_3	0.000000
CO_2e	1142.5

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:		2
Flight Operation Cycle Type:	CP (Close Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1337
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	3.57
Climb Out [Intermediate] (mins):	2.63
Takeoff [Military] (mins):	0.46
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: 2033 Increase T-7A Trim Test and Test Cell

- Activity Description:
Starting in 2033, add trim test and engine test cell for 2 T-7As.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.011537
SO_x	0.003785
NO_x	0.062888
CO	0.182972
PM 10	0.004205

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003768
Pb	0.000000
NH_3	0.000000
CO_2e	11.4

16.2 Aircraft & Engines

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

16.3 Aircraft Engine Test Cell

16.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 2

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 0 (default)
Approach Duration (mins): 4.97 (default)
Intermediate Duration (mins): 10.45 (default)
Military Duration (mins): 6.14 (default)
After Burner Duration (mins): 2.04 (default)

16.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

16.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

17. Construction / Demolition

17.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct GBTS Facility

- Activity Description:
Construction of the GBTS Facility (34,000 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 3.5 acres (152,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new GBTS facility would total approximately 34,000 square feet. The height of the GBTS facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 34,000 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, parking areas, and roadways would occur on an area totaling approximately 35,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.884072

Pollutant	Total Emissions (TONs)
PM 2.5	0.099416

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SO_x	0.009094
NO_x	2.754339
CO	3.972870
PM 10	6.237396

Pb	0.000000
NH_3	0.002748
CO_2e	883.7

17.1 Site Grading Phase

17.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

17.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 152000
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	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	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

17.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.2 Trenching/Excavating Phase

17.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

17.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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

17.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.2.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.3 Building Construction Phase

17.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1

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Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

17.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34000
Height of Building (ft): 15
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

17.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

17.4 Architectural Coatings Phase

17.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

17.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 34000
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

17.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.4.4 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

17.5 Paving Phase

17.5.1 Paving Phase Timeline Assumptions

- Phase Start Date

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Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

17.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 35000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

17.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

17.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

18. Construction / Demolition

18.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct UMT Facility

- Activity Description:
Construction of the UMT Facility (11,500 square feet) would occur from 2026 through 2027.

Site grading would occur on an area of approximately 0.8 acres (35,000 square feet). Site grading would begin in January 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 1,500 feet of excavation. A 3-foot trench width for utilities was assumed, for a total of 4,500 square feet. Trenching would begin in May 2026 and last approximately 2 months.

Construction of the new UMT facility would total approximately 11,500 square feet. The height of the UMT facility was assumed to be 15 feet. Construction would begin in July 2026 and last approximately 15 months.

Architectural coatings would be applied to the facility, totaling 11,500 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 10,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

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Pollutant	Total Emissions (TONs)
VOC	0.430947
SO_x	0.005936
NO_x	1.523831
CO	2.399582
PM 10	1.536463

Pollutant	Total Emissions (TONs)
PM 2.5	0.054174
Pb	0.000000
NH_3	0.001575
CO_2e	576.5

18.1 Site Grading Phase

18.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

18.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 35000
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

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18.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.2 Trenching/Excavating Phase

18.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

18.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 4500
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)

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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

18.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.2.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.3 Building Construction Phase

18.3.1 Building Construction Phase Timeline Assumptions

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- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 15
Number of Days: 0

18.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 11500
Height of Building (ft): 15
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

18.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77

Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

18.4 Architectural Coatings Phase

18.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

18.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 11500
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

18.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.4.4 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

18.5 Paving Phase

18.5.1 Paving Phase Timeline Assumptions

- Phase Start Date

Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration

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Number of Month: 2
Number of Days: 0

18.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 10000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

18.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336

HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

18.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

19. Construction / Demolition

19.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Hush House

- Activity Description:
Construction of the Hush House (24,111 square feet) would occur from 2026 through 2027.

Demolition would include Building 15 (approximately 1,000 square feet) and Building 18 (approximately 250 square feet). The height of the buildings was assumed to be 15 feet. Demolition would begin in January 2026 and last approximately 3 months.

Site grading would occur on an area of approximately 0.6 acres (25,000 square feet) for the Hush House site and approximately 0.6 acres (25,000 square feet) for the road alteration. Grading also would be required for removal of the existing road (25,000 square feet), for a total of approximately 75,000 square feet. Site grading would begin in April 2026 and last approximately 4 months.

Trenching for site utilities would require approximately 100 feet of excavation. A 3-foot trench width for utilities was assumed. Excavation of the existing roadway also would be required (25,000 square feet). Total trenching/excavation area would be 25,300 square feet. Trenching would begin in August 2026 and last approximately 2 months.

Construction of the new Hush House would total approximately 24,111 square feet. The height of the Hush House was assumed to be 20 feet. Construction would begin in October 2026 and last approximately 12 months.

Architectural coatings would be applied to the facility, totaling 24,111 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

Paving for driveways, sidewalks and roadways would occur on an area totaling approximately 22,000 square feet. Paving would begin November 2027 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

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- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.708530
SO_x	0.007976
NO_x	2.413391
CO	3.529440
PM 10	3.579196

Pollutant	Total Emissions (TONs)
PM 2.5	0.087421
Pb	0.000000
NH_3	0.002512
CO_2e	777.0

19.1 Demolition Phase

19.1.1 Demolition 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

19.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1250
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- 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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

19.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards ($1\ yd^3 / 27\ ft^3$)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

19.2 Site Grading Phase

19.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 4
Number of Days: 0

19.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 75000
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

19.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.2.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.3 Trenching/Excavating Phase

19.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

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Start Month: 8
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

19.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25300
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

19.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.3.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.4 Building Construction Phase

19.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 12
Number of Days: 0

19.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24111
Height of Building (ft): 20
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

19.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

19.5 Architectural Coatings Phase

19.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

19.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 24111
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

19.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.5.4 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

19.6 Paving Phase

19.6.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 2
Number of Days: 0

19.6.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 22000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

19.6.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

19.6.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)

(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

20. Construction / Demolition

20.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct T-7A Shelters

- Activity Description:
Construction of 60 aircraft shelters (sunshades) would occur from 2026 through 2027.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Demolition would be required for the existing T-38C shelters. Demolition would include removal of 48 sunshades totaling approximately 150,000 square feet. Demolition would begin in January 2026 and last approximately 12 months.

Construction would include installation of 60 sunshades totaling approximately 187,500 square feet. The height of all sunshades were assumed to be 15 feet. Construction would begin in July 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.408695
SO_x	0.007881
NO_x	2.482649
CO	3.834864
PM 10	0.554441

Pollutant	Total Emissions (TONs)
PM 2.5	0.081604
Pb	0.000000
NH_3	0.004652
CO_2e	821.9

20.1 Demolition Phase

20.1.1 Demolition Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

20.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 150000
Height of Building to be demolished (ft): 15

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	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

20.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
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

20.2 Building Construction Phase

20.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 12

Number of Days: 0

20.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 187500
Height of Building (ft): 15
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

20.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

20.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21. Construction / Demolition

21.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Addition to Egress Shop

- Activity Description:
Construction of the addition to the Egress Shop would occur from 2026 through 2027.

Construction of the Egress Shop addition would total approximately 3,400 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 23 months.

Architectural coatings would be applied to the addition, totaling 3,400 square feet. Architectural coating application would begin in December 2027 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.255801
SO_x	0.004627
NO_x	1.057743
CO	1.914952
PM 10	0.033559

Pollutant	Total Emissions (TONs)
PM 2.5	0.033527
Pb	0.000000
NH_3	0.001412
CO_2e	445.3

21.1 Building Construction Phase

21.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 23
Number of Days: 0

21.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 3400
Height of Building (ft): 20
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

21.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

21.2 Architectural Coatings Phase

21.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2027

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- Phase Duration
Number of Month: 1
Number of Days: 0

21.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 3400
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

21.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

21.2.4 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

22. Construction / Demolition

22.1 General Information & Timeline Assumptions

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

- Activity Title: MILCON: Construct Jet Blast Deflectors

- Activity Description:
Construction of the jet blast deflectors would occur from 2026 through 2027.

Construction of the deflectors would total approximately 48,000 square feet. The high of the deflectors was assumed to be 12 feet. Construction would begin in January 2026 and last approximately 24 months.

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

- Activity End Date
Indefinite: False
End Month: 0
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.466869
SO_x	0.008803
NO_x	2.692399
CO	4.041546
PM 10	0.091521

Pollutant	Total Emissions (TONs)
PM 2.5	0.091423
Pb	0.000000
NH_3	0.003192
CO_2e	849.9

22.1 Building Construction Phase

22.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 24
Number of Days: 0

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22.1.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 48000
Height of Building (ft): 12
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

22.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

22.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23. Construction / Demolition

23.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Modify Hangars

- Activity Description:
Modification of Buildings 50 and 210 would occur in 2026.

It was assumed 25 percent of the total square footage of the hangars (Building 50 = approximately 52,500 square feet; Building 210 = approximately 46,000 square feet) would be construction to equate the renovations (98,500 square feet * 0.25 = 24,625 square feet). The height of the hangars was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (98,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

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- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.357297
SO_x	0.004061
NO_x	1.248297
CO	1.863404
PM 10	0.042210

Pollutant	Total Emissions (TONs)
PM 2.5	0.042140
Pb	0.000000
NH_3	0.001672
CO_2e	397.4

23.1 Building Construction Phase

23.1.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 11
Number of Days: 0

23.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 24625
Height of Building (ft): 25
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

23.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

23.2 Architectural Coatings Phase

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23.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

23.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 98500
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

23.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

23.2.4 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

24. Construction / Demolition

24.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Antenna Farm

- Activity Description:
Construction of the antenna farm as part of the GBTS facility would occur in 2026.

It was assumed approximately 5,000 square feet would be trenched and excavated for installation of the antenna farm. Trenching/excavation would begin in January 2026 and last approximately 12 months. Assumed no materials are required to be hauled on- or off-site; excavated spoils will be used on-site.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.234605
SO_x	0.005168
NO_x	1.079323
CO	1.988326
PM 10	0.634433

Pollutant	Total Emissions (TONs)
PM 2.5	0.037540
Pb	0.000000
NH_3	0.000717
CO_2e	487.1

24.1 Trenching/Excavating Phase

24.1.1 Trenching / Excavating Phase Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Phase Duration
Number of Month: 12
Number of Days: 0

24.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 5000
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

24.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983

MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

24.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25. Construction / Demolition

25.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Squadron Operations Buildings Renovations

- Activity Description:
Squadron Operations Buildings Renovations (i.e., Buildings 307, 320, and 328) would occur in 2026.

It was assumed 25 percent of the total square footage of the buildings (Building 307 = approximately 13,000 square feet; Building 320 = approximately 78,500 square feet; Building 328 = approximately 45,000 square feet) would be construction to equate the renovations (136,500 square feet * 0.25 = 34,125 square feet). The height of the buildings was assumed to be 25 feet. Renovations would begin in January 2026 and last approximately 11 months.

It was assumed architectural coatings would be required for the entire facility (136,500 square feet) following the renovations. Architectural coating application would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.798520
SO_x	0.004078
NO_x	1.257903
CO	1.869855
PM 10	0.042386

Pollutant	Total Emissions (TONs)
PM 2.5	0.042299
Pb	0.000000
NH_3	0.001806
CO_2e	402.6

25.1 Building Construction Phase

25.1.1 Building Construction Phase Timeline Assumptions

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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Duration
Number of Month: 11
Number of Days: 0

25.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34125
Height of Building (ft): 25
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

25.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

25.2 Architectural Coatings Phase

25.2.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

25.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 136500
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

25.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

25.2.4 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

26. Construction / Demolition

26.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Activity Title: FSRM: Airfield Improvements

- Activity Description:
Airfield improvements would occur in 2026.

Airfield improvements would occur on an area totaling approximately 607,000 square feet. Improvements would begin in January 2026 and last approximately 12 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.278284
SO_x	0.003494
NO_x	1.492374
CO	2.040054
PM 10	0.081524

Pollutant	Total Emissions (TONs)
PM 2.5	0.081481
Pb	0.000000
NH_3	0.001094
CO_2e	349.9

26.1 Paving Phase

26.1.1 Paving Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 12
Number of Days: 0

26.1.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 607000

- Paving 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
Pavers Composite	1	8

Paving Equipment Composite	2	8
Rollers Composite	2	6

- 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

26.1.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

26.1.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

27. Construction / Demolition

27.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Trim Pad

- Activity Description:
Construction of the trim pad would occur in 2026.

Excavation of existing pavement would occur on an area totaling approximately 25,000 square feet. Excavation would begin in January 2026 and last approximately 4 months.

Pavement for the new trim pad would be required for an area totaling approximately 25,000 square feet. Paving would begin in May 2026 and last approximately 8 months.

- Activity Start Date

Start Month: 1
Start Month: 2026

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.230958
SO_x	0.003847
NO_x	1.202020
CO	1.887355
PM 10	1.048948

Pollutant	Total Emissions (TONs)
PM 2.5	0.054127
Pb	0.000000
NH_3	0.001203
CO_2e	367.8

27.1 Trenching/Excavating Phase

27.1.1 Trenching / Excavating Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 4
Number of Days: 0

27.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 25000
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

27.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

27.2 Paving Phase

27.2.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 8
Number of Days: 0

27.2.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

27.2.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.534	000.007	000.582	004.759	000.010	000.009		000.034	00373.409
LDGT	000.732	000.010	001.014	007.911	000.011	000.010		000.034	00500.251
HDGV	001.399	000.016	002.839	025.321	000.028	000.025		000.045	00783.622
LDDV	000.225	000.003	000.317	003.873	000.007	000.006		000.008	00382.861
LDDT	000.538	000.005	000.853	007.913	000.009	000.008		000.008	00597.264
HDDV	000.763	000.014	008.044	002.712	000.368	000.339		000.028	01587.983
MC	002.858	000.008	000.719	014.264	000.027	000.024		000.050	00395.027

27.2.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

28. Construction / Demolition

28.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: T-7A Explosive Component Storage

- Activity Description:
Construction of the explosive component storage facility would occur in 2026.

Site grading would occur on an area of approximately 0.35 acres (15,000 square feet). Site grading would begin in January 2026 and last approximately 2 months.

Trenching for site utilities would require approximately 250 feet of excavation and trenching for site fencing would require approximately 500 feet of excavation. A 3-foot trench width for utilities and 1-foot trench width for fencing was assumed, for a total of 1,250 square feet. Trenching would begin in March 2026 and last approximately 1 month.

Construction of the new storage facility would total approximately 7,200 square feet. The height of the storage facility was assumed to be 12 feet. Construction would begin in April 2026 and last approximately 6 months.

Architectural coatings would be applied to the facility, totaling 7,200 square feet. Architectural coating application would begin in October 2027 and last approximately 1 month.

The facility would require concrete or gravel hardstands and an access roadway. Paving would occur on an area totaling approximately 25,000 square feet. Paving would begin November 2026 and last approximately 2 months.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.242628
SO_x	0.002995
NO_x	0.827269
CO	1.264223
PM 10	0.342648

Pollutant	Total Emissions (TONs)
PM 2.5	0.031751
Pb	0.000000
NH_3	0.000833
CO_2e	291.3

28.1 Site Grading Phase

28.1.1 Site Grading Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 2
Number of Days: 0

28.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 15000
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

28.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_X	NO_X	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.1.4 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
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.2 Trenching/Excavating Phase

28.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2026

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Duration
Number of Month: 1
Number of Days: 0

28.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1250
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

28.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.2.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.3 Building Construction Phase

28.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 6
Number of Days: 0

28.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 7200
Height of Building (ft): 12
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

28.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

28.4 Architectural Coatings Phase

28.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

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- Phase Duration
Number of Month: 1
Number of Days: 0

28.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 7200
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

28.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.4.4 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

28.5 Paving Phase

28.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 2
Number of Days: 0

28.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 25000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

28.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

28.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^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

- Off-Gassing Emissions per Phase
VOC_P = (2.62 * PA) / 43560

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

29. Heating

29.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Heating/Cooling for New Facilities

- Activity Description:
Heating/cooling for new facilities would begin with the arrival of the first T-7A aircraft and crews, or approximately January 2030. Heating/cooling would be required for the following facilities:
GBTS Facility - 34,000 square feet
UMT Facility - 11,500 square feet
Hush House - 24,111 square feet
Addition to the Egress Shop - 3,400 square feet
T-7A Explosive Component Storage - 7,200 square feet
Addition to Building 905 - 1,036 square feet

Total area to be heated -81,247 square feet

- Activity Start Date
Start Month: 1
Start Year: 2030

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- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.015810
SO_x	0.001725
NO_x	0.287460
CO	0.241466
PM 10	0.021847

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.021847
Pb	0.000000
NH_3	0.000000
CO_2e	346.1

29.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 81247
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0743

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

29.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

29.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year
$FC_{HER} = HA * EI / HV / 1000000$

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year
$HE_{POL} = FC * EF_{POL} / 2000$

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

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30. Heating

30.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove Heating/Cooling for Demolished Facilities

- Activity Description:
Heating/cooling for demolished facilities (Buildings 15 = approximately 1,000 square feet; Building 18 = approximately 250 square feet) no longer would be required starting in approximately January 2026.

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

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.000311
SO_x	-0.000034
NO_x	-0.005649
CO	-0.004745
PM 10	-0.000429

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.000429
Pb	0.000000
NH_3	0.000000
CO_2e	-6.8

30.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 1250
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0949

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

30.3 Heating Emission Factor(s)

- Heating Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
5.5	0.6	100	84	7.6	7.6			120390

30.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year

FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

31. Personnel

31.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Maximum Increase of 190 Personnel

- Activity Description:

Addition of 190 personnel during the T-7A and T-38C transition period (i.e., 2030 and 2031). Assumed all personnel commute daily.

- Activity Start Date

Start Month: 1
Start Year: 2030

- Activity End Date

Indefinite: No
End Month: 12
End Year: 2031

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.548963
SO_x	0.005708
NO_x	0.323898

Pollutant	Total Emissions (TONs)
PM 2.5	0.008553
Pb	0.000000
NH_3	0.056079

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CO	7.752876
PM 10	0.009992

CO_2e	792.1

31.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel: 190
Civilian Personnel: 0
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel: 5 Days Per Week (default)
Civilian Personnel: 5 Days Per Week (default)
Support Contractor Personnel: 5 Days Per Week (default)
Air National Guard (ANG) Personnel: 4 Days Per Week (default)
Reserve Personnel: 4 Days Per Month (default)

31.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

31.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

31.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_{C}: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

32. Personnel

32.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Net Decrease of 60 Personnel

- Activity Description:
Net decrease of 60 personnel following T-38C withdrawal (i.e., 2032). Assumed all personnel commute daily.

- Activity Start Date
Start Month: 1
Start Year: 2032

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.086678
SO_x	-0.000901
NO_x	-0.051142
CO	-1.224138
PM 10	-0.001578

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.001350
Pb	0.000000
NH_3	-0.008855
CO_2e	-125.1

32.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel: 60
Civilian Personnel: 0
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week (default)
Civilian Personnel: 5 Days Per Week (default)
Support Contractor Personnel: 5 Days Per Week (default)
Air National Guard (ANG) Personnel: 4 Days Per Week (default)
Reserve Personnel: 4 Days Per Month (default)

32.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

32.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

32.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year
$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year
$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

33. Construction / Demolition

33.1 General Information & Timeline Assumptions

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

- Activity Title: FSRM: Addition to Building 905

- Activity Description:
Construction of the addition to Building 905 and parking area would occur in 2026.

Construction of the addition would total approximately 1,036 square feet. The height of the addition was assumed to be 20 feet. Construction would begin in January 2026 and last approximately 9 months.

Architectural coatings would be applied to the addition, totaling 1,036 square feet. Architectural coating application would begin in October 2026 and last approximately 1 month.

Site grading for the parking area would occur on approximately 5,000 square feet. Site grading would begin in November 2026 and last approximately 1 month.

Paving for the parking area would occur on approximately 5,000 square feet. Paving would begin in December 2026 and last approximately 1 month.

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

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.133232
SO_x	0.002426
NO_x	0.614393
CO	1.013668
PM 10	0.071146

Pollutant	Total Emissions (TONs)
PM 2.5	0.021390
Pb	0.000000
NH_3	0.000735
CO_2e	234.6

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33.1 Site Grading Phase

33.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 5000
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

33.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.1.4 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

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
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

33.2 Building Construction Phase

33.2.1 Building Construction Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 9
Number of Days: 0

33.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 1036
Height of Building (ft): 20
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

33.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

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- 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

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33.3 Architectural Coatings Phase

33.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 1036
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

33.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.3.4 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

33.4 Paving Phase

33.4.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2026

- Phase Duration
Number of Month: 1
Number of Days: 0

33.4.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 5000

- Paving 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- 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

33.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.197	000.002	000.094	003.149	000.003	000.003		000.024	00306.502
LDGT	000.208	000.003	000.168	003.545	000.005	000.004		000.026	00398.336
HDGV	000.890	000.006	000.817	013.497	000.022	000.020		000.051	00913.820
LDDV	000.059	000.001	000.080	003.473	000.003	000.002		000.008	00311.249
LDDT	000.064	000.001	000.119	002.357	000.003	000.003		000.009	00361.998
HDDV	000.101	000.004	002.293	001.540	000.042	000.038		000.032	01238.796
MC	002.758	000.003	000.620	012.221	000.023	000.020		000.054	00389.005

33.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)

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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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

ROI 2: MTRs (IR-169, IR-170, VR-165, and VR-187)

This section includes the following:

- Alternative 1 ACAM Report
- Alternative 1 ACAM Detail Report
- Alternative 2 ACAM Report
- Alternative 2 ACAM Detail Report
- Alternative 3 ACAM Report
- Alternative 3 ACAM Detail Report

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 1

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2030

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.356	100	
NOx	3.971	100	
CO	-4.242	250	
SOx	0.185	250	
PM 10	-0.097	250	
PM 2.5	-0.089	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	559.5		

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.712	100	
NOx	7.943	100	
CO	-8.483	250	
SOx	0.370	250	
PM 10	-0.195	250	
PM 2.5	-0.179	250	
Pb	0.000	25	No

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NH3	0.000	250	
CO2e	1119.0		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.712	100	
NOx	7.943	100	
CO	-8.483	250	
SOx	0.370	250	
PM 10	-0.195	250	
PM 2.5	-0.179	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1119.0		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.712	100	
NOx	7.943	100	
CO	-8.483	250	
SOx	0.370	250	
PM 10	-0.195	250	
PM 2.5	-0.179	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1119.0		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.712	100	
NOx	7.943	100	
CO	-8.483	250	
SOx	0.370	250	
PM 10	-0.195	250	
PM 2.5	-0.179	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1119.0		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Carolyn Hein, Contractor

3/15/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 1

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2030

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-169)
3.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-170)
4.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-165)
5.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-187)
6.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-169)
7.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-170)
8.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-165)
9.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-187)
10.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)
11.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)
12.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)
13.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)
14.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)
15.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)
16.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)
17.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)
18.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)
19.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)
20.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)
21.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:

Starting in 2030, add 54 T-7A Low-Altitude Operations in IR-169 with 27 aircraft.

- Activity Start Date

Start Month: 1
Start Year: 2030

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.162606
SO_x	0.076647
NO_x	1.174774
CO	0.133953
PM 10	0.009312

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.007880
Pb	0.000000
NH_3	0.000000
CO_2e	231.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 54
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, add 18 T-7A Low-Altitude Operations in IR-170 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.058798
SO_x	0.027715
NO_x	0.424797
CO	0.048437
PM 10	0.003367

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.002849
Pb	0.000000
NH_3	0.000000
CO_2e	83.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 18
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, add 54 T-7A Low-Altitude Operations in VR-165 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.105665
SO_x	0.049807
NO_x	0.763396
CO	0.087046
PM 10	0.006051

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.005120
Pb	0.000000
NH_3	0.000000
CO_2e	150.5

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.3 Flight Operations

4.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		54
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, add 108 T-7A Low-Altitude Operations in VR-187 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.229620
SO_x	0.108235
NO_x	1.658929
CO	0.189158

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.011127
Pb	0.000000
NH_3	0.000000
CO_2e	327.1

PM 10	0.013150		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 108
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2030, remove 54 T-38C Low-Altitude Operations in IR-169 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.058654
SO_x	-0.022575
NO_x	-0.014769
CO	-1.372881
PM 10	-0.037766

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.033969
Pb	0.000000
NH_3	0.000000
CO_2e	-68.2

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 54
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, remove 18 T-38C Low-Altitude Operations in IR-170 with 32 aircraft.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.021209
SO_x	-0.008163
NO_x	-0.005340
CO	-0.496433
PM 10	-0.013656

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.012283
Pb	0.000000
NH_3	0.000000
CO_2e	-24.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Flight Operations

7.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:		32
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		18
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	24.69
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

7.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, remove 54 T-38C Low-Altitude Operations in VR-165 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.038115
SO_x	-0.014670
NO_x	-0.009597
CO	-0.892131
PM 10	-0.024541

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.022074
Pb	0.000000
NH_3	0.000000
CO_2e	-44.3

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 54
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, remove 108 T-38C Low-Altitude Operations in VR-187 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.082827
SO_x	-0.031879
NO_x	-0.020856
CO	-1.938681
PM 10	-0.053331

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.047968
Pb	0.000000
NH_3	0.000000
CO_2e	-96.4

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer

Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 108
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)

60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)

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- Activity Description:
Between 2031 and 2032, add 54 T-7A Low-Altitude Operations in IR-169 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.325212
SO_x	0.153294
NO_x	2.349548
CO	0.267906
PM 10	0.018624

Pollutant	Total Emissions (TONs)
PM 2.5	0.015759
Pb	0.000000
NH_3	0.000000
CO_2e	463.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

10.2 Aircraft & Engines

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Flight Operations

10.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		54
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

10.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Between 2031 and 2032, add 18 T-7A Low-Altitude Operations in IR-170 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.117596
SO_x	0.055431
NO_x	0.849595
CO	0.096875
PM 10	0.006735

Pollutant	Total Emissions (TONs)
PM 2.5	0.005699
Pb	0.000000
NH_3	0.000000
CO_2e	167.5

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

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Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 18
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0

Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

12. Aircraft

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Between 2031 and 2032, add 54 T-7A Low-Altitude Operations in VR-165 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.211330
SO_x	0.099614
NO_x	1.526793
CO	0.174092
PM 10	0.012103

Pollutant	Total Emissions (TONs)
PM 2.5	0.010241
Pb	0.000000
NH_3	0.000000
CO_2e	301.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

12.2 Aircraft & Engines

12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		54
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Between 2031 and 2032, add 108 T-7A Low-Altitude Operations in VR-187 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

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- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.459240
SO_x	0.216470
NO_x	3.317858
CO	0.378317
PM 10	0.026300

Pollutant	Total Emissions (TONs)
PM 2.5	0.022254
Pb	0.000000
NH_3	0.000000
CO_2e	654.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

13.3 Flight Operations

13.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 108
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07

Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

13.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2031, remove 54 T-38C Low-Altitude Operations in IR-169 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.058654
SO_x	-0.022575
NO_x	-0.014769
CO	-1.372881
PM 10	-0.037766

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.033969
Pb	0.000000
NH_3	0.000000
CO_2e	-68.2

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 54
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location

County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2031, remove 18 T-38C Low-Altitude Operations in IR-170 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.021209
SO_x	-0.008163
NO_x	-0.005340
CO	-0.496433
PM 10	-0.013656

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.012283
Pb	0.000000
NH_3	0.000000
CO_2e	-24.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234

Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 18
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2031, remove 54 T-38C Low-Altitude Operations in VR-165 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.038115

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.022074

SO_x	-0.014670
NO_x	-0.009597
CO	-0.892131
PM 10	-0.024541

Pb	0.000000
NH_3	0.000000
CO_2e	-44.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

16.2 Aircraft & Engines

16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

16.3 Flight Operations

16.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 54
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0

Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

16.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

17. Aircraft

17.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2031, remove 108 T-38C Low-Altitude Operations in VR-187 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.082827
SO_x	-0.031879
NO_x	-0.020856
CO	-1.938681
PM 10	-0.053331

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.047968
Pb	0.000000
NH_3	0.000000
CO_2e	-96.4

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

17.2 Aircraft & Engines

17.2.1 Aircraft & Engines Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

17.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

17.3 Flight Operations

17.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 108
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

17.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

18. Aircraft

18.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2033, add 54 T-7A Low-Altitude Operations in IR-169 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.162606
SO_x	0.076647
NO_x	1.174774
CO	0.133953
PM 10	0.009312

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.007880
Pb	0.000000
NH_3	0.000000
CO_2e	231.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

18.2 Aircraft & Engines

18.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

18.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

18.3 Flight Operations

18.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		54
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

18.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

19. Aircraft

19.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2033, add 18 T-7A Low-Altitude Operations in IR-170 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.058798
SO_x	0.027715
NO_x	0.424797
CO	0.048437

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.002849
Pb	0.000000
NH_3	0.000000
CO_2e	83.8

PM 10	0.003367		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

19.2 Aircraft & Engines

19.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

19.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

19.3 Flight Operations

19.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 18
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

19.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

20. Aircraft

20.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2033, add 54 T-7A Low-Altitude Operations in VR-165 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.105665
SO_x	0.049807
NO_x	0.763396
CO	0.087046
PM 10	0.006051

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.005120
Pb	0.000000
NH_3	0.000000
CO_2e	150.5

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

20.2 Aircraft & Engines

20.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

20.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

20.3 Flight Operations

20.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	54
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

20.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

21. Aircraft

21.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2033, add 108 T-7A Low-Altitude Operations in VR-187 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.229620
SO_x	0.108235
NO_x	1.658929
CO	0.189158
PM 10	0.013150

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.011127
Pb	0.000000
NH_3	0.000000
CO_2e	327.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

21.2 Aircraft & Engines

21.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

21.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

21.3 Flight Operations

21.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 108
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	16.07
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

21.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 2

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2030

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.520	100	
NOx	4.852	100	
CO	-3.125	250	
SOx	0.259	250	
PM 10	-0.063	250	
PM 2.5	-0.058	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	781.6		

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NH3	0.000	250	
CO2e	1462.2		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Carolyn Hein, Contractor

3/15/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 2

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2030

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-169)
3.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-170)
4.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-165)
5.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-187)
6.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-169)
7.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-170)
8.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-165)
9.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-187)
10.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)
11.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)
12.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)
13.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)
14.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)
15.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)
16.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)
17.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)
18.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)
19.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)
20.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)
21.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:

Starting in 2030, add 66 T-7A Low-Altitude Operations in IR-169 with 27 aircraft.

- Activity Start Date

Start Month: 1
Start Year: 2030

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.198741
SO_x	0.093679
NO_x	1.435835
CO	0.163720
PM 10	0.011382

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.009631
Pb	0.000000
NH_3	0.000000
CO_2e	283.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, add 21 T-7A Low-Altitude Operations in IR-170 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.068598
SO_x	0.032335
NO_x	0.495597
CO	0.056510
PM 10	0.003929

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003324
Pb	0.000000
NH_3	0.000000
CO_2e	97.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, add 66 T-7A Low-Altitude Operations in VR-165 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.129146
SO_x	0.060875
NO_x	0.933040
CO	0.106389
PM 10	0.007396

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006258
Pb	0.000000
NH_3	0.000000
CO_2e	184.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.3 Flight Operations

4.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		27
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, add 132 T-7A Low-Altitude Operations in VR-187 with 27 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.280647
SO_x	0.132287
NO_x	2.027580
CO	0.231194

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.013600
Pb	0.000000
NH_3	0.000000
CO_2e	399.8

PM 10	0.016072		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 27
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2030, remove 42 T-38C Low-Altitude Operations in IR-169 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.045620
SO_x	-0.017559
NO_x	-0.011487
CO	-1.067796
PM 10	-0.029374

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.026420
Pb	0.000000
NH_3	0.000000
CO_2e	-53.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 42
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, remove 15 T-38C Low-Altitude Operations in IR-170 with 32 aircraft.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.017674
SO_x	-0.006803
NO_x	-0.004450
CO	-0.413694
PM 10	-0.011380

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.010236
Pb	0.000000
NH_3	0.000000
CO_2e	-20.6

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Flight Operations

7.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		32
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		15
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	24.69
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

7.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, remove 42 T-38C Low-Altitude Operations in VR-165 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.029645
SO_x	-0.011410
NO_x	-0.007465
CO	-0.693880
PM 10	-0.019088

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.017168
Pb	0.000000
NH_3	0.000000
CO_2e	-34.5

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 42
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, remove 84 T-38C Low-Altitude Operations in VR-187 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.064421
SO_x	-0.024795
NO_x	-0.016221
CO	-1.507863
PM 10	-0.041480

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.037308
Pb	0.000000
NH_3	0.000000
CO_2e	-74.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer

Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 84
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)

60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
Between 2031 and 2032, add 66 T-7A Low-Altitude Operations in IR-169 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.397481
SO_x	0.187359
NO_x	2.871669
CO	0.327440
PM 10	0.022763

Pollutant	Total Emissions (TONs)
PM 2.5	0.019261
Pb	0.000000
NH_3	0.000000
CO_2e	566.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

10.2 Aircraft & Engines

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Flight Operations

10.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

10.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Between 2031 and 2032, add 21 T-7A Low-Altitude Operations in IR-170 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.137196
SO_x	0.064669
NO_x	0.991194
CO	0.113020
PM 10	0.007857

Pollutant	Total Emissions (TONs)
PM 2.5	0.006648
Pb	0.000000
NH_3	0.000000
CO_2e	195.5

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

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Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0

Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

12. Aircraft

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Between 2031 and 2032, add 66 T-7A Low-Altitude Operations in VR-165 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.258293
SO_x	0.121750
NO_x	1.866080
CO	0.212779
PM 10	0.014792

Pollutant	Total Emissions (TONs)
PM 2.5	0.012516
Pb	0.000000
NH_3	0.000000
CO_2e	368.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

12.2 Aircraft & Engines

12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Between 2031 and 2032, add 132 T-7A Low-Altitude Operations in VR-187 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.561294
SO_x	0.264574
NO_x	4.055160
CO	0.462387
PM 10	0.032145

Pollutant	Total Emissions (TONs)
PM 2.5	0.027199
Pb	0.000000
NH_3	0.000000
CO_2e	799.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

13.3 Flight Operations

13.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07

Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

13.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2031, remove 66 T-38C Low-Altitude Operations in IR-169 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.071688
SO_x	-0.027592
NO_x	-0.018051
CO	-1.677965
PM 10	-0.046159

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.041517
Pb	0.000000
NH_3	0.000000
CO_2e	-83.4

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location

County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2031, remove 21 T-38C Low-Altitude Operations in IR-170 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.024744
SO_x	-0.009524
NO_x	-0.006231
CO	-0.579171
PM 10	-0.015932

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.014330
Pb	0.000000
NH_3	0.000000
CO_2e	-28.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234

Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2031, remove 66 T-38C Low-Altitude Operations in VR-165 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.046585

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.026979

SO_x	-0.017930
NO_x	-0.011730
CO	-1.090383
PM 10	-0.029995

Pb	0.000000
NH_3	0.000000
CO_2e	-54.2

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

16.2 Aircraft & Engines

16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

16.3 Flight Operations

16.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0

Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

16.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

17. Aircraft

17.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2031, remove 132 T-38C Low-Altitude Operations in VR-187 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.101233
SO_x	-0.038964
NO_x	-0.025490
CO	-2.369499
PM 10	-0.065182

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.058628
Pb	0.000000
NH_3	0.000000
CO_2e	-117.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

17.2 Aircraft & Engines

17.2.1 Aircraft & Engines Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

17.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

17.3 Flight Operations

17.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

17.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

18. Aircraft

18.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2033, add 66 T-7A Low-Altitude Operations in IR-169 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.198741
SO_x	0.093679
NO_x	1.435835
CO	0.163720
PM 10	0.011382

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.009631
Pb	0.000000
NH_3	0.000000
CO_2e	283.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

18.2 Aircraft & Engines

18.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

18.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

18.3 Flight Operations

18.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

18.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

19. Aircraft

19.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2033, add 21 T-7A Low-Altitude Operations in IR-170 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.068598
SO_x	0.032335
NO_x	0.495597
CO	0.056510

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003324
Pb	0.000000
NH_3	0.000000
CO_2e	97.7

PM 10	0.003929		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

19.2 Aircraft & Engines

19.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

19.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

19.3 Flight Operations

19.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

19.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

20. Aircraft

20.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2033, add 66 T-7A Low-Altitude Operations in VR-165 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.129146
SO_x	0.060875
NO_x	0.933040
CO	0.106389
PM 10	0.007396

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006258
Pb	0.000000
NH_3	0.000000
CO_2e	184.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

20.2 Aircraft & Engines

20.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

20.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

20.3 Flight Operations

20.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	66
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

20.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

21. Aircraft

21.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2033, add 132 T-7A Low-Altitude Operations in VR-187 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.280647
SO_x	0.132287
NO_x	2.027580
CO	0.231194
PM 10	0.016072

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.013600
Pb	0.000000
NH_3	0.000000
CO_2e	399.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

21.2 Aircraft & Engines

21.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

21.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

21.3 Flight Operations

21.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	16.07
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

21.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 3

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2030

e. Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

f. Point of Contact:

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.520	100	
NOx	4.852	100	
CO	-3.125	250	
SOx	0.259	250	
PM 10	-0.063	250	
PM 2.5	-0.058	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	781.6		

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NH3	0.000	250	
CO2e	1462.2		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

2034 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.953	100	
NOx	9.683	100	
CO	-8.285	250	
SOx	0.484	250	
PM 10	-0.181	250	
PM 2.5	-0.167	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	1462.2		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Carolyn Hein, Contractor

3/15/2023
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: LAUGHLIN AFB
State: Texas
County(s): Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde; Edwards; Kinney; Maverick; Uvalde; Webb; Zavala; Brewster
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: T-7A Recapitalization at Laughlin AFB - Alternative 3

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2030

- Action Purpose and Need:

The purpose of the Proposed Action is to continue the T-7A recapitalization program by recapitalizing Laughlin AFB to prepare pilots to operate modern fourth and fifth generation aircraft. The Proposed Action is needed because current training practices with older T 38C aircraft do not prepare pilots adequately for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T 38C. Additionally, training systems provided with the newer T 7A aircraft allow for enhanced and improved flight and simulator training. The T 7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T 7A recapitalization at Laughlin AFB would allow DAF to continue the geographically phased T 7A recapitalization sequence, ensuring DAF pilot training requirements are met.

- Action Description:

The Proposed Action is recapitalization of the T-38C Talon flight training program at Laughlin AFB with T-7A Red Hawk aircraft. Recapitalization would entail introduction of T-7A aircraft and flight operations at Laughlin AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; changes to the number of personnel and dependents in the Laughlin AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), the No Action Alternative, and several military construction (MILCON) project alternatives.

For Alternative 1, Laughlin AFB would receive 63 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in 63 T-7A aircraft being delivered to Laughlin AFB; however, T-7A operations would be performed at an intensity approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Laughlin AFB would receive 79 T-7A aircraft and perform T-7A operations at an intensity identical to Alternative 2. Alternative 3 also incorporates a MILCON project alternative to construct 12 additional shelters for the additional T-7A aircraft. Alternative 3 is intended to provide DAF with operational flexibility, and inclusion of this alternative in the EIS provides analysis to evaluate future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Laughlin AFB.

The analysis for all construction and operation actions assumes the following: (1) MILCON projects would occur over a period of 2 years and FSRM projects would occur over a period of 1 year; (2) during construction, no materials are required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-169)
3.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (IR-170)
4.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-165)
5.	Aircraft	2030: Add T-7A MTR Low-Altitude Operations (VR-187)
6.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-169)
7.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (IR-170)
8.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-165)
9.	Aircraft	2030: Remove T-38C MTR Low-Altitude Operations (VR-187)
10.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)
11.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)
12.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)
13.	Aircraft	2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)
14.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)
15.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)
16.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)
17.	Aircraft	2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)
18.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)
19.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)
20.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)
21.	Aircraft	2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:

Starting in 2030, add 66 T-7A Low-Altitude Operations in IR-169 with 43 aircraft.

- Activity Start Date

Start Month: 1
Start Year: 2030

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.198741
SO_x	0.093679
NO_x	1.435835
CO	0.163720
PM 10	0.011382

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.009631
Pb	0.000000
NH_3	0.000000
CO_2e	283.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 43
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, add 21 T-7A Low-Altitude Operations in IR-170 with 43 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.068598
SO_x	0.032335
NO_x	0.495597
CO	0.056510
PM 10	0.003929

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003324
Pb	0.000000
NH_3	0.000000
CO_2e	97.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation:	T-7A
Engine Model:	F404-GE-102
Primary Function:	Trainer
Aircraft has After burn:	Yes
Number of Engines:	1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate?	No
Original Aircraft Name:	
Original Engine Name:	

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		43
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		21
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	24.69
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, add 66 T-7A Low-Altitude Operations in VR-165 with 43 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.129146
SO_x	0.060875
NO_x	0.933040
CO	0.106389
PM 10	0.007396

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006258
Pb	0.000000
NH_3	0.000000
CO_2e	184.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.3 Flight Operations

4.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		43
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, add 132 T-7A Low-Altitude Operations in VR-187 with 43 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.280647
SO_x	0.132287
NO_x	2.027580
CO	0.231194

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.013600
Pb	0.000000
NH_3	0.000000
CO_2e	399.8

PM 10	0.016072		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 43
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2030, remove 42 T-38C Low-Altitude Operations in IR-169 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.045620
SO_x	-0.017559
NO_x	-0.011487
CO	-1.067796
PM 10	-0.029374

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.026420
Pb	0.000000
NH_3	0.000000
CO_2e	-53.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 42
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2030, remove 15 T-38C Low-Altitude Operations in IR-170 with 32 aircraft.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.017674
SO_x	-0.006803
NO_x	-0.004450
CO	-0.413694
PM 10	-0.011380

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.010236
Pb	0.000000
NH_3	0.000000
CO_2e	-20.6

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

7.3 Flight Operations

7.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		32
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		15
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	24.69
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

7.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2030, remove 42 T-38C Low-Altitude Operations in VR-165 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.029645
SO_x	-0.011410
NO_x	-0.007465
CO	-0.693880
PM 10	-0.019088

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.017168
Pb	0.000000
NH_3	0.000000
CO_2e	-34.5

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 42
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2030: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2030, remove 84 T-38C Low-Altitude Operations in VR-187 with 32 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2030

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.064421
SO_x	-0.024795
NO_x	-0.016221
CO	-1.507863
PM 10	-0.041480

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.037308
Pb	0.000000
NH_3	0.000000
CO_2e	-74.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer

Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 32
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 84
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)

60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-169)

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- Activity Description:
Between 2031 and 2032, add 66 T-7A Low-Altitude Operations in IR-169 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.397481
SO_x	0.187359
NO_x	2.871669
CO	0.327440
PM 10	0.022763

Pollutant	Total Emissions (TONs)
PM 2.5	0.019261
Pb	0.000000
NH_3	0.000000
CO_2e	566.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

10.2 Aircraft & Engines

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

10.3 Flight Operations

10.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

10.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

11. Aircraft

11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Between 2031 and 2032, add 21 T-7A Low-Altitude Operations in IR-170 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.137196
SO_x	0.064669
NO_x	0.991194
CO	0.113020
PM 10	0.007857

Pollutant	Total Emissions (TONs)
PM 2.5	0.006648
Pb	0.000000
NH_3	0.000000
CO_2e	195.5

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

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Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

11.2 Aircraft & Engines

11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

11.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

11.3 Flight Operations

11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0

Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

12. Aircraft

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Between 2031 and 2032, add 66 T-7A Low-Altitude Operations in VR-165 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.258293
SO_x	0.121750
NO_x	1.866080
CO	0.212779
PM 10	0.014792

Pollutant	Total Emissions (TONs)
PM 2.5	0.012516
Pb	0.000000
NH_3	0.000000
CO_2e	368.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

12.2 Aircraft & Engines

12.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

12.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

12.3 Flight Operations

12.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		34
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

12.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

13. Aircraft

13.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and 2032: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Between 2031 and 2032, add 132 T-7A Low-Altitude Operations in VR-187 with 34 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2032

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- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.561294
SO_x	0.264574
NO_x	4.055160
CO	0.462387
PM 10	0.032145

Pollutant	Total Emissions (TONs)
PM 2.5	0.027199
Pb	0.000000
NH_3	0.000000
CO_2e	799.7

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

13.2 Aircraft & Engines

13.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

13.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

13.3 Flight Operations

13.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 34
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07

Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

13.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

14. Aircraft

14.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2031, remove 66 T-38C Low-Altitude Operations in IR-169 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.071688
SO_x	-0.027592
NO_x	-0.018051
CO	-1.677965
PM 10	-0.046159

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.041517
Pb	0.000000
NH_3	0.000000
CO_2e	-83.4

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

14.2 Aircraft & Engines

14.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

14.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

14.3 Flight Operations

14.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 22.76
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

14.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

15. Aircraft

15.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location

County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2031, remove 21 T-38C Low-Altitude Operations in IR-170 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.024744
SO_x	-0.009524
NO_x	-0.006231
CO	-0.579171
PM 10	-0.015932

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.014330
Pb	0.000000
NH_3	0.000000
CO_2e	-28.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

15.2 Aircraft & Engines

15.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

15.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234

Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

15.3 Flight Operations

15.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

15.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

16. Aircraft

16.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2031, remove 66 T-38C Low-Altitude Operations in VR-165 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.046585

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.026979

SO_x	-0.017930
NO_x	-0.011730
CO	-1.090383
PM 10	-0.029995

Pb	0.000000
NH_3	0.000000
CO_2e	-54.2

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

16.2 Aircraft & Engines

16.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

16.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

16.3 Flight Operations

16.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 66
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0

Climb Out [Intermediate] (mins): 14.79
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

16.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

17. Aircraft

17.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2031 and Later: Remove T-38C MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2031, remove 132 T-38C Low-Altitude Operations in VR-187 with 31 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2031

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.101233
SO_x	-0.038964
NO_x	-0.025490
CO	-2.369499
PM 10	-0.065182

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.058628
Pb	0.000000
NH_3	0.000000
CO_2e	-117.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

17.2 Aircraft & Engines

17.2.1 Aircraft & Engines Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine

Aircraft Designation: T-38C
Engine Model: J85-GE-5R
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

17.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	520.00	16.80	1.07	1.08	177.45	4.70	4.23	3234
Approach	689.00	7.96	1.07	0.84	119.23	2.42	2.17	3234
Intermediate	1030.00	2.78	1.07	0.70	65.07	1.79	1.61	3234
Military	2220.00	0.75	1.07	1.92	30.99	1.13	1.01	3234
After Burn	7695.00	6.97	1.07	6.23	53.43	0.25	0.23	3234

17.3 Flight Operations

17.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 31
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 16.07
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

17.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

18. Aircraft

18.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Crockett; Dimmit; Irion; Pecos; Reagan; Schleicher; Sutton; Terrell; Upton; Val Verde

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-169)

- Activity Description:
Starting in 2033, add 66 T-7A Low-Altitude Operations in IR-169 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.198741
SO_x	0.093679
NO_x	1.435835
CO	0.163720
PM 10	0.011382

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.009631
Pb	0.000000
NH_3	0.000000
CO_2e	283.1

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

18.2 Aircraft & Engines

18.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

18.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

18.3 Flight Operations

18.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		66
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	22.76
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

18.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

19. Aircraft

19.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Dimmit; Edwards; Kinney; Maverick; Uvalde; Val Verde; Webb; Zavala
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (IR-170)

- Activity Description:
Starting in 2033, add 21 T-7A Low-Altitude Operations in IR-170 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.068598
SO_x	0.032335
NO_x	0.495597
CO	0.056510

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003324
Pb	0.000000
NH_3	0.000000
CO_2e	97.7

PM 10	0.003929		

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.000000	PM 2.5	0.000000
SO_x	0.000000	Pb	0.000000
NO_x	0.000000	NH_3	0.000000
CO	0.000000	CO_2e	0.0
PM 10	0.000000		

19.2 Aircraft & Engines

19.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

19.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

19.3 Flight Operations

19.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 21
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 24.69
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

19.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

20. Aircraft

20.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-165)

- Activity Description:
Starting in 2033, add 66 T-7A Low-Altitude Operations in VR-165 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.129146
SO_x	0.060875
NO_x	0.933040
CO	0.106389
PM 10	0.007396

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006258
Pb	0.000000
NH_3	0.000000
CO_2e	184.0

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

20.2 Aircraft & Engines

20.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

20.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

20.3 Flight Operations

20.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	36
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	66
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	14.79
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

20.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

21. Aircraft

21.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Brewster; Pecos; Terrell; Val Verde
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 2033 and Later: Add T-7A MTR Low-Altitude Operations (VR-187)

- Activity Description:
Starting in 2033, add 132 T-7A Low-Altitude Operations in VR-187 with 36 aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2033

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.280647
SO_x	0.132287
NO_x	2.027580
CO	0.231194
PM 10	0.016072

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.013600
Pb	0.000000
NH_3	0.000000
CO_2e	399.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

21.2 Aircraft & Engines

21.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-7A
Engine Model: F404-GE-102
Primary Function: Trainer
Aircraft has After burn: Yes
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

21.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)
Proprietary Information. Contact Air Quality Subject Matter Expert for More Information regarding this engine's Emission Factors.

21.3 Flight Operations

21.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 36
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 132
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	16.07
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

21.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft

NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)