MOB6

KC-46A MAIN OPERATING BASE NO.6 BEDDOWN

Draft

Environmental Impact Statement (EIS)

KC-46A Main Operating Base #6 (MOB 6) Beddown

Volume II – Appendices

February 2023

HEADQUARTERS AIR MOBILITY COMMAND

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Public Involvement and Agency Coordination

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Appendix A: Public Involvement and Agency Coordination

A.1 General Stakeholder Involvement

A.1.1 General Stakeholder Contact List

The following is a list by installation of officials, agencies, and interest groups who received notification from the United States Department of the Air Force (DAF) regarding the KC 46A Pegasus (KC-46A) Main Operation Base #6 (MOB 6) Beddown Environmental Impact Statement (EIS) (**Table A-1**). U.S. Congressional members were sent notification to both their Washington, D.C. offices and a preferred local office. Some private citizens received notification, but their names are not published in this list.

Table A-1. KC-46A MOB 6 EIS General Stakeholder Contact List

Title	Organization/Division	Sub-organization	City	State
MacDill AFB				
Congresswoman	U.S. House of Representatives	14th District	Washington	DC
Senator	U.S. Senate	Florida	Washington	DC
Senator	U.S. Senate	Florida	Washington	DC
Senator	Florida Senate	District 18	Tallahassee	FL
Representative	Florida House of Representatives	District 60	Tallahassee	FL
Governor	State of Florida Governor's Office	--	Tallahassee	FL
Mayor	City of Tampa	--	Tampa	FL
Council Chairman	City of Tampa	City Council	Tampa	FL
Councilmember	City of Tampa	City Council District 4	Tampa	FL
County Administrator	Hillsborough County	--	Tampa	FL
Director	City of Tampa Department of Planning and Development	--	Tampa	FL
Regional Administrator	Federal Aviation Administration	Southern Region	Atlanta	GA
Chief of the NEPA Program Office	U.S. Environmental Protection Agency	Region 4	Atlanta	GA
Field Supervisor	U.S Fish and Wildlife Service	North Florida Ecological Services Office	Jacksonville	FL
SERO NEPA Coordinator	NOAA Fisheries		St. Petersburg	FL
Florida State Clearinghouse	Florida Department of Environmental Protection	Office of Intergovernmental Programs	Tallahassee	FL
Supervisor of Federal and State Compliance and Review	Florida Division of Historical Resources	Compliance Review Section	Tallahassee	FL
SHPO	Florida Division of Historical Resources	--	Tallahassee	FL

Title	Organization/Division	Sub-organization	City	State
MacDill AFB (continued)				
Secretary of Transportation	Florida Department of Transportation	--	Tallahassee	FL
Fairchild AFB				
Congressman	U.S. House of Representatives	Idaho District 1	Coeur d'Alene	ID
Congresswoman	U.S. House of Representatives	Washington District 5	Washington	DC
Senator	U.S. Senate	Washington	Washington	DC
Senator	U.S. Senate	Washington	Washington	DC
Senator	U.S. Senate	Idaho	Washington	DC
Senator	U.S. Senate	Idaho	Washington	DC
Governor	Washington Governor's Office	--	Olympia	WA
Governor	Idaho Governor's Office	--	Boise	ID
Representative	Washington House of Representatives	District 4	Olympia	WA
Representative	Washington House of Representatives	District 6	Olympia	WA
Representative	Washington House of Representatives	District 3	Olympia	WA
Senator	Washington Senate	District 6	Olympia	WA
Senator	Washington Senate	District 3	Olympia	WA
Senator	Washington Senate	District 4	Olympia	WA
Mayor	City of Spokane Mayor's Office	--	Spokane	WA
--	U.S. Forest Service	Region 6, Pacific Northwest	Portland	OR
NEPA Program Coordinator	U.S. Fish and Wildlife Service	Upper Columbia Fish and Wildlife Office	Spokane Valley	WA
Regional Administrator	Federal Aviation Administration	Northwest Mountain Region	Renton	WA
Representative	Washington Pilots Association	Government Affairs	Spokane	WA
Regional Director	Washington Department of Fish and Wildlife	--	Spokane Valley	WA
Regional Director	Washington State Department of Ecology	Eastern Region	Spokane	WA
Secretary of Transportation	Washington Department of Transportation	--	Olympia	WA
Executive Director	Idaho Department of Transportation	--	Austin	TX
SHPO	Department of Archaeology & Historic Preservation	--	Olympia	WA
Air Quality Engineer	Spokane Regional Clean Air Agency	--	Spokane	WA
--	City of Airway Heights Planning Department	--	Airway Heights	WA
Planning Director	City of Spokane Planning and Development	--	Spokane	WA

Title	Organization/Division	Sub-organization	City	State
Fairchild AFB (continued)				
Planning Director	City of Coeur d'Alene Planning Commission	--	Coeur d'Alene	ID
City Planner	City of Airway Heights Planning Department	--	Airway Heights	WA
Planning Director	Spokane County Planning Department	Public Works Building and Planning	Spokane	WA
Chief Executive Officer	Spokane Transit Authority	--	Spokane	WA
Executive Officer	Spokane Association of Realtors	--	Spokane	WA
Director	Spokane International Airport	--	Spokane	WA
--	Washington Air National Guard	--	Fairchild AFB	WA
President	Spokane Community College	--	Spokane	WA
Principal	Michael Anderson Elementary School	--	Fairchild AFB	WA
Enrollment Officer	Gonzaga University	--	Spokane	WA
Superintendent	Medical Lake School District	--	Medical Lake	WA
--	Park University of Fairchild AFB	--	Fairchild AFB	WA
Both Installations				
Administrator	U.S. Environmental Protection Agency	--	Washington	DC
Director	U.S. Environmental Protection Agency	Office of Federal Activities	Washington	DC
Administrator	Federal Aviation Administration	--	Washington	DC
Manager	Federal Aviation Administration	Airport Planning and Environmental Division	Washington	DC
Vice President	Federal Aviation Administration	Mission Support Services	Washington	DC
Manager	Federal Aviation Administration	Airspace Policy Group	Washington	DC

Key: FL = Florida; DC = District of Columbia; GA = Georgia; AFB = Air Force Base; SERO = Southeast Regional Office; NEPA = National Environmental Policy Act; NOAA = National Oceanic and Atmospheric Administration; SHPO = State Historic Preservation Officer; ID = Idaho; WA = Washington; TX = Texas; OR = Oregon

A.1.2 General Stakeholder Notification Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND

Acting Chief, Mr. David R. Steele, Programs Division
Directorate Strategy Plans, Requirements and Programs
Headquarters Air Mobility Command
Scott Air Force Base, IL 62225

Federal, State, and Local Public Agencies
Interested Parties
Members of the Public

The Department of the Air Force (DAF) is pleased to provide you with a copy of the Draft Environmental Impact Statement (EIS; Enclosure 1) for the KC-46A Main Operating Base #6 (MOB 6). This document is provided in accordance with the National Environmental Policy Act (NEPA). The following libraries are requested to have this document remain available throughout the 45-day public comment period which ends on February 24, 2023: Port Tampa City Public Library (4902 W Commerce St, Tampa, FL 33616), John F. Germany Public Library (900 N. Ashley Dr, Tampa, FL 33602), Jan Kaminis Platt Regional Library (3910 S. Manhattan Ave, Tampa, FL 33611), MacDill AFB Library (8102 Condor St, Bldg 252, Tampa, FL 33621), Spokane Central Public Library (906 W Main Ave, Spokane, WA 99201), Airway Heights Library (1213 S. Lundstrom St, Airway Heights, WA 99001), Medical Lake Library (321 E Herb St, Medical Lake, WA 99022), and Fairchild AFB Library (2 W Castle St, Fairchild AFB, WA 99011). This document is also available online at www.kc46amob6eis.com.

Notification of the availability of the Draft EIS will appear in the Federal Register on January 13, 2023. The EIS analyzes alternative installations (MacDill AFB [Alternative 1 – Preferred Alternative] and Fairchild AFB [Alternative 2]) for the MOB 6 beddown, which includes the basing of 24 KC-46A tanker aircraft and the infrastructure, facilities, airfield operations, training activities, personnel, and airspace to support the mission transition between fiscal years 2026 and 2028. Aircraft operations with the KC-46A would be similar to the type and level of intensity of existing KC-135 operations, although the number of annual operations would change depending on the alternative installation selected. The purpose of the Proposed Action is to recapitalize aging tanker aircraft (KC-135 Stratotanker) currently used by the DAF with the KC-46A model to better address future mission requirements, offer expanded capability, and provide life-cycle cost savings in comparison to continued operation of existing KC-135 Stratotankers. The Proposed Action is needed because the KC-46A would provide mission essential capabilities currently lacking in the existing tanker fleet, resulting in a fully capable, combat-operational, tanker force to accomplish aerial refueling and related worldwide missions.

The DAF understands that there is the potential for the MOB 6 beddown to affect environmental resources and the human environment. The Draft EIS analyzes and presents the potential environmental consequences associated with the Proposed Action and Alternatives, including the No Action Alternative. The DAF is consulting with the appropriate resource agencies to determine the potential for significant impacts on cultural and natural resources and corresponding mitigation measures, if needed. Consultation will continue to be incorporated into the EIS process and includes, but is not limited to, consultation with Federally-Recognized

AIR MOBILITY WARRIORS
PROJECTING DECISIVE STRENGTH AND DELIVERING HOPE... ALWAYS!

Tribes, consultation under Section 7 of the Endangered Species Act and consultation under Section 106 of the National Historic Preservation Act. It is anticipated that the potentially long-term, major, adverse effects on architectural resources under National Historic Preservation Act Section 106 that would result from Alternative 1 at MacDill AFB could be successfully mitigated in consultation with the Florida State Historic Preservation Office through the development and implementation of a Memorandum of Understanding, and the resulting long-term effects would be reduced to moderate. Therefore, no significant impacts would be expected on any resource area analyzed in the Draft EIS under either alternative. The Final EIS and a Record of Decision on the Proposed Action are expected in Fall 2023. Additional information is also available on the project website at www.kc46amob6eis.com.

The DAF will hold two virtual public hearings on the Draft EIS via internet/phone on February 7, 2023 from 5:30 pm to 8 pm EST to accommodate the public located near the MacDill AFB Alternative and February 9, 2023 from 5:30 pm to 8 pm PST to accommodate the public located near the Fairchild AFB Alternative. The purpose of the hearings is to receive input on the proposed action and alternatives and the Draft EIS analysis. The hearings will also be announced through local media and the project website. Instructions for participating in the virtual public hearing and more information are provided on the project website, www.kc46mob6eis.com. Links to the on-line virtual public hearings will be provided on the project website allowing interested parties to electronically participate in the public hearings, and a phone number will be provided for those without internet access.

All public, agency, and stakeholder substantive comments provided at the hearings and through written comments received via postal mail, email, and the project website will be considered in the preparation of the Final EIS. To ensure we have sufficient time to consider your input in the Final EIS, please submit comments by February 27, 2023.

Additional information can be found on the project website listed above. Comments or questions regarding this project may be directed to the MacDill AFB Public Affairs Office (PAO) via email at 6.arw.pa@us.af.mil or the Fairchild AFB PAO via email at 92arw.pa@us.af.mil, including KC-46A MOB 6 EIS in the subject line, or via postal mail to: AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853.

Sincerely,

DAVID R. STEELE, GS-14, DAF
Air Mobility Command

A.1.3 Materials Distribution to Local Libraries

Hard and CD copies of public hearing materials (project flyer, presentation, public hearing process sheet), and the Draft EIS are available for public access and review at the following local libraries within each installation community (**Table A-2**).

Table A-2. Distribution List of Local Libraries

Library	Address
MacDill AFB	
MacDill AFB Library	8102 Condor St, Bldg 252, Tampa, FL 33621
Jan Kaminis Platt Regional Library	3910 S. Manhattan Ave, Tampa, FL 33611
John F. Germany Public Library	900 N. Ashley Dr, Tampa, FL 33602
Port Tampa City Library	4902 W Commerce St, Tampa, FL 33616
Fairchild AFB	
Fairchild AFB Library	2 W Castle St, Fairchild AFB, WA 99011
Airway Heights Library	1213 S. Lundstrom St, Airway Heights, WA 99001
Medical Lake Library	321 E Herb St, Medical Lake, WA 9902
Spokane Central Public Library	906 W Main Ave, Spokane, WA 99201

A.2 Tribal Consultation

To support this EIS, the DAF is consulting on a government-to-government basis with potentially affected federally-recognized Native American tribes with historic cultural association to the areas around MacDill Air Force Base (AFB) and Fairchild AFB. **Table A-3** provides a list of Indian tribes, by installation.

Table A-3. KC-46A MOB 6 Tribal Contact List

Tribe	City	State
MacDill AFB		
Miccosukee Tribe of Indians	Miami	FL
Seminole Tribe of Florida	Hollywood	FL
The Seminole Nation of Oklahoma	Wewoka	OK
The Muscogee (Creek) Nation	Okmulgee	OK
Fairchild AFB		
Coeur d'Alene Tribe	Plummer	ID
Confederated Tribes of the Colville Reservation	Nespelem	WA
Kalispel Indian Community	Usk	WA
Spokane Tribe of Indians	Wellpinit	WA

Key: AFB = Air Force Base; FL = Florida; OK = Oklahoma; ID = Idaho; WA = Washington

Table A-4 summarizes the DAF's communications with each Native American tribe. All Native American tribes listed in **Table A-3** received notification letters of the DAF's intent to prepare an EIS for the Proposed Action and alternatives and initiating government-to-government consultation under Section 106 of the National Historic Preservation Act (NHPA) and follow up letters that defined the Area of Potential Effects (APE). Several tribes responded to consultation requests or coordination letters; these responses are included in **Table A-4**.

Follow-up correspondence was conducted for Native American tribes that did not respond to initial consultation and coordination efforts, as detailed in **Table A-4**. This additional outreach may include additional telephone, email, or letter correspondence. Unless requested otherwise, all tribes received a copy of the Draft EIS.

Table A-4. Tribal Consultation Record

Tribe	Summary Response	Section 106 Initial Consultation	APE Letter	Follow-up Correspondence
MacDill AFB				
Miccosukee Tribe of Indians	N/A	5/2/2022	5/2/2022	Follow-up email sent on 09/09/22; no response so far.
Seminole Tribe of Florida	Tribe stated the project does fall within the Seminole Tribe of Florida Area of Concern, but that they have no objections to the Proposed Action based on the information provided prior to DEIS review.	5/2/2022	5/2/2022	Follow-up email sent on 09/09/22, which garnered the response.
The Seminole Nation of Oklahoma	N/A	5/2/2022	5/2/2022	Follow-up email sent on 09/09/22; no response so far.
The Muscogee (Creek) Nation	N/A	5/2/2022	5/2/2022	Follow-up email sent on 09/09/22; no response so far.
Fairchild AFB				
Coeur d'Alene Tribe	N/A	4/14/2022	4/14/2022	Follow-up email sent on 5/20/2022; no response so far.
Confederated Tribes of the Colville Reservation	Tribe agreed to being a consulting party for this project, expressing concern that the APE likely overlaps the Spokane Plains battleground.	4/14/2022	4/14/2022	No additional follow up prior to DEIS release.
Kalispel Indian Community	N/A	4/14/2022	4/14/2022	Follow-up email sent on 5/20/2022; no response so far.
Spokane Tribe of Indians	Tribe expressed no concern based on existing cultural surveys, but requests that the project include an inadvertent discovery plan of action.	4/14/2022	4/14/2022	No additional follow up prior to DEIS release.

Key: AFB = Air Force Base; APE = Area of Potential Effect; EIS = Environmental Impact Statement; N/A = not applicable

A.2.1 Government-to-Government Consultation Initiation Letter from MacDill AFB Example

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

JAN 18 2022

Colonel Benjamin Jonsson
Commander
6th Air Refueling Wing
8208 Hangar Loop Drive, Suite 1
MacDill Air Force Base FL 33621-5407

Mr. Talbert Cypress
Chairman
Miccosukee Tribe of Indians of Florida
Tamiami Station
PO Box 440021
Miami FL 33144

Dear Mr. Cypress

The Department of the Air Force (DAF) intends to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft. DAF has identified MacDill Air Force Base (AFB) in Florida as the preferred alternative and Fairchild AFB in Washington as a reasonable alternative for the MOB 6 mission. A Notice of Intent for this EIS is being published in the Federal Register per 32 Code of Federal Regulations (CFR) 989.17. This letter serves as notification of the start of the environmental impact assessment and scoping process.

The Air Force would like to initiate government-to-government consultation on the proposed beddown of KC-46A aircraft for MOB 6. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. This letter initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests any information you have on properties of religious and cultural significance on MacDill AFB. The DAF will continue to contact your tribe under NEPA, and consult with your tribe under EO 13175, unless you request otherwise. Details on the proposed actions associated with the MOB 6 beddown are provided below.

The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission. Renovation of existing facilities and construction of new facilities would be required on-installation to support the KC-46A, and facility requirements would vary depending on the installation. All flight operations would take place within existing airspace; additions to or alterations of airspace are not being considered. Additional information about the MOB 6 Proposed Action is provided on the project website at www.kc46amob6eis.com.

MISSION FOCUSED...VALUED AIRMEN

The EIS will assess the potential environmental consequences of the proposed KC-46A MOB 6 Beddown at either Fairchild AFB, Washington or MacDill AFB, Florida. The No Action Alternative will be addressed in the EIS as well. Consultation will be incorporated into preparation of the Draft EIS and will include, but not be limited to, consultation under Section 7 of the Endangered Species Act and consultation under Section 106 of the National Historic Preservation Act. Increases of air emissions as a result of this action at either installation will be analyzed in the EIS. Currently, no short- or long-term notable impacts are anticipated. Additional analysis will be provided in the Draft EIS, which is anticipated in early 2023. The Final EIS and a decision on the Proposed Action are expected in late 2023 to early 2024.

Due to public health concerns related to COVID-19, the DAF will not hold face-to-face public scoping meetings. Public scoping is being accomplished remotely, in accordance with the 2020 version of 40 CFR Part 1506.6, via the project website at www.kc46amob6eis.com and two virtual public scoping meetings. The website provides posters, a presentation, an informational brochure, a capability for the public to provide public scoping comments, and information on the virtual public scoping meetings. Comments or questions regarding this project may be directed to Ms. Helen Kellogg via email at afcec.czn.workflow@us.af.mil including KC-46A MOB 6 EIS in the subject line or via postal mail to: AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853.

All tribal, public, agency, and stakeholder comments provided to the DAF will be considered during preparation of the EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting scoping comments by May 18, 2022 will ensure we have sufficient time to consider your input in the Draft EIS.

Please let us know when you would be available to discuss the proposed MOB 6 beddown and your expectations on how to proceed with consultation. Please contact me at (813) 828-4444 to discuss dates and times for consultation.

Sincerely

BENJAMIN R. JONSSON, Colonel, USAF
Commander

A.2.2 Tribal Follow-Up Letter with APE from MacDill AFB Example

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

2 May 2022

Ms. Amy M. Doye
Director
6th Civil Engineer Squadron
7621 Hillsborough Loop Drive
MacDill Air Force Base FL 33621-5407

Mr. Talbert Cypress
Chairman
Miccosukee Tribe of Indians of Florida
Tamiami Station
PO Box 440021
Miami FL 33144

Dear Mr. Cypress

This letter provides an update on the proposed Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft at MacDill Air Force Base (AFB) in Florida. The Department of the Air Force (DAF) sent you an initial government-to-government consultation letter regarding preparation of an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the proposed undertaking at both Fairchild AFB and MacDill AFB in Florida. The beddown associated with this proposal would occur at one of the two bases with MacDill AFB identified as preferred alternative for the MOB 6 mission. The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission at the selected alternative. Renovation of existing facilities and construction of new facilities would be required at the selected installation to support the KC-46A. Facility requirements would vary depending on the installation. All flight operations would take place within existing airspace of the selected alternative; additions to or alterations of airspace are not being considered. Additional information about the MOB 6 Proposed Action is provided on the project website at www.kc46amob6eis.com. Please note this update/correction regarding virtual public scoping meetings: The initial letter sent to your tribe indicated virtual public scoping meetings would be held; however, the DAF determined all public scoping for this project will occur through the project website.

The DAF is providing this update as part of the consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800). Since the mailing of the initial government-to-government consultation letter for the proposed beddown of KC-46A aircraft for MOB 6, the DAF has established an Area of Potential Effects (APE) for the MacDill AFB alternative based on preliminary site assessments. The proposed APE includes the following:

1) existing buildings and structures that would require alterations to accommodate the

KC-46 aircraft and mission,
2) the locations of proposed new buildings and structures necessary to support the KC-46A mission, and
3) a 0.25-mile buffer around the buildings and structures mentioned in items 1 and 2 above to evaluate potential effects of the proposed alternative on those buildings and structures and any historic properties that would have a view of the proposed construction activities.

A map of the APE is included as an Attachment 1. No ground disturbing activities would occur near known archaeological sites at MacDill AFB. A map of the APE and its proximity to the closest known archaeological sites is included as Attachment 2.

The DAF requests your review of the APE and any information you have on properties of religious and cultural significance in the APE on MacDill AFB. The DAF will continue to contact your tribe under NEPA, and consult with your tribe under EO 13175, unless you request otherwise. Comments or questions regarding this project may be directed to Ms. Helen Kellogg via email at afcec.Helen.Kellogg.1@us.af.mil including KC-46A MOB 6 EIS in the subject line or via postal mail to: Hellen Kellogg, AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853. Please address all comments for this matter to the MacDill AFB point of contact, Mr. Andy Lykens, 6 CES/CEIE, to the address above, or via email at andrew.lykens.ctr@us.af.mil, or by phone at 813-828-0460.

All tribal, public, agency, and stakeholder comments provided to the DAF will be considered during preparation of the EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting scoping comments within 30 days of receipt of this letter will ensure we have sufficient time to consider your input in the Draft EIS.

Sincerely

AMY M. DOYE, P.E., DAF
Director, 6th Civil Engineer Squadron

Attachment 1: *Figure 1. Map Showing Area of Potential Effects (APE)*
Attachment 2: *Figure 2. Map Showing APE and Archaeological Resources*

Figure 1. Map Showing Area of Potential Effects (APE)

A.2.3 DEIS Distribution Letter from MacDill AFB

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

Ms. Amy M. Doye
Director
6th Civil Engineer Squadron
7621 Hillsborough Loop Drive
MacDill Air Force Base FL 33621-5407

Recipient Name
Title, Tribe
Address 1
City, State ZIP

Dear Name

The Department of the Air Force (DAF) is pleased to provide you with a copy of the Draft Environmental Impact Statement (EIS; Enclosure 1) for the KC-46A Main Operating Base #6 (MOB 6). The DAF previously contacted you via an initial government-to-government consultation letter and a follow-up letter regarding preparation of the EIS, which is now being provided in accordance with the National Environmental Policy Act (NEPA). This document is also available online at www.kc46amob6eis.com.

Notification of the availability of the Draft EIS will appear in the Federal Register on January 13, 2023. The EIS analyzes alternative installations (MacDill AFB, Florida [Alternative 1 – Preferred Alternative] and Fairchild AFB, Washington [Alternative 2]) for the MOB 6 beddown, which includes the basing of 24 KC-46A tanker aircraft and the infrastructure, facilities, airfield operations, training activities, personnel, and airspace to support the mission transition between fiscal years 2026 and 2028. The DAF understands that there is the potential for the MOB 6 beddown to affect properties of religious and cultural significance. The Draft EIS analyzes and presents the potential environmental consequences on properties of religious and cultural significance associated with the Proposed Action and Alternatives, including the No Action Alternative. The DAF is consulting with the appropriate resource agencies to determine the potential for significant impacts on cultural and natural resources and corresponding mitigation measures, if needed. Consultation will continue to be incorporated into the EIS process and includes, but is not limited to, consultation with Federally-Recognized Tribes, consultation under Section 7 of the Endangered Species Act, and consultation under Section 106 of the National Historic Preservation Act. It is anticipated that the potentially long-term, major, adverse effects on architectural resources under National Historic Preservation Act Section 106 that would result from Alternative 1 at MacDill AFB could be successfully mitigated in consultation with the Florida State Historic Preservation Office through the development and implementation of a Memorandum of Understanding, and the resulting long-term effects would be reduced to moderate. Therefore, no significant impacts would be expected on any resource area analyzed in the Draft EIS under either alternative. The Final EIS and a Record of Decision

CHARGE THE STORM...LET'S GO!

on the Proposed Action are expected in Fall 2023. Additional information is also available on the project website at www.kc46amob6eis.com.

The DAF will hold two virtual public hearings on the Draft EIS via internet/phone on February 7, 2023 from 5:30 pm to 8 pm EST to accommodate the public located near the MacDill AFB Alternative and February 9, 2023 from 5:30 pm to 8 pm PST to accommodate the public located near the Fairchild AFB Alternative. The purpose of the hearings is to receive input on the proposed action and alternatives and the Draft EIS analysis. The hearings will also be announced through local media. Instructions for participating in the virtual public hearing and more information are provided on the project website, www.kc46mob6eis.com. Links to the on-line virtual public hearings will be provided on the project website allowing interested parties to electronically participate in the public hearings, and a phone number will be provided for those without internet access.

All tribal comments regarding properties of religious and cultural significance provided at the hearings and through written comments received via postal mail, email, and the project website will be considered in the preparation of the Final EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting comments by February 27, 2023 will ensure we have sufficient time to consider your input in the Final EIS. Please contact me at (813) 828-3577 with any comments or questions regarding this project.

Sincerely,

AMY M. DOYE, GS-15, DAF
Director, 6th Civil Engineer Squadron

A.2.4 Responses from MacDill AFB Tribes

A.2.4.1 Seminole Tribe of Florida

From:	Danielle Simon
To:	LYKENS, ANDREW S CTR USAF AMC 6 CES/CEIE
Cc:	THPO Compliance; RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE; KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE; KELLOGG, HELEN L GS-13 USAF AFMC AFCEC/CZN; SWICK, NOLAN T GS-13 USAF AFMC AFCEC/CZN; Scott Garrold
Subject:	[URL Verdict: Neutral][Non-DoD Source] RE: Sec 106 - KC-46A Main Operating Base #6 Beddown - MacDill Air Force Base
Date:	Tuesday, October 4, 2022 4:24:30 PM

SEMINOLE TRIBE OF FLORIDA
TRIBAL HISTORIC PRESERVATION OFFICE

TRIBAL HISTORIC PRESERVATION OFFICE
SEMINOLE TRIBE OF FLORIDA
30290 JOSIE BILLIE HIGHWAY
PMB 1004
CLEWISTON, FL 33440
THPO PHONE: (863) 983-6549
FAX: (863) 902-1117
THPO WEBSITE: WWW.STOFTHPO.COM

TRIBAL OFFICERS
MARCELLUS W. OSCEOLA JR.
CHAIRMAN
MITCHELL CYPRESS
VICE CHAIRMAN
LAVONNE ROSE
SECRETARY
PETER A. HAHN
TREASURER

October 4, 2022

Andrew Lykens
Contractor, Amentum
NEPA, Natural & Cultural Resources Manager
6th Civil Engineer Squadron, Environmental Element
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621
Office: 813-828-0460
DSN: 968-0460

Subject: KC-46A Main Operating Base #6 Beddown
THPO Compliance Tracking Number: 0033729

In order to expedite the THPO review process:

1. Please correspond via email and provide documents as attachments (a THPO FTP site is available for large files),
2. Please send all emails to THPOCompliance@semtribe.com,
3. Please reference the THPO Compliance Tracking Number if one has been assigned.

Dear Mr. Lykens,

Thank you for contacting the Seminole Tribe of Florida Tribal Historic Preservation Office (STOF THPO) Compliance Section regarding KC-46A Main Operating Base #6 Beddown.

The proposed undertaking does fall within the STOF Area of Interest. We have reviewed the documents that you provided pursuant to Section 106 of the National Historic Preservation Act (16 USC 470) as amended and its implementing regulations (36 CFR 800). Based on the limited information available, we have no objections to

the APE as proposed at this time. However, we look forward to providing additional comments upon review of a draft Environmental Impact Statement. Please continue to consult with our office and feel free to contact us with any questions or concerns.

Respectfully,
Danielle A. Simon, MA, RPA
Compliance Review Supervisor
STOF THPO, Compliance Review Section
30290 Josie Billie Hwy, PMB 1004
Clewiston, FL 33440
Email: daniellesimon@semtribe.com

From: LYKENS, ANDREW S CTR USAF AMC 6 CES/CEIE <andrew.lykens.ctr@us.af.mil>
Sent: Friday, September 9, 2022 11:08 AM
To: Paul Backhouse <PaulBackhouse@semtribe.com>
Cc: THPO Compliance <THPOCompliance@semtribe.com>; RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE <andrew.rider.2@us.af.mil>; KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE <jason.kirkpatrick.2.ctr@us.af.mil>; KELLOGG, HELEN L GS-13 USAF AFMC AFCEC/CZN <helen.kellogg.1@us.af.mil>; SWICK, NOLAN T GS-13 USAF AFMC AFCEC/CZN <nolan.swick@us.af.mil>
Subject: RE: Sec 106 - KC-46A Main Operating Base #6 Beddown - MacDill Air Force Base

Good morning,

The Department of the Air Force has not received a response from your tribe regarding the preparation of an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the proposed Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft, which has identified MacDill Air Force Base in Tampa, FL as the preferred alternative. Please see attached letters and supporting figures, below email sent 2 May 2022, and/or the project website: www.kc46amob6eis.com, for more details. Please let us know of any feedback or comments about the proposed project your tribe may have.

Respectfully,
Andy

Andrew Lykens
Contractor, Amentum
NEPA, Natural & Cultural Resources Manager
6th Civil Engineer Squadron, Environmental Element
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621
Office: 813-828-0460
DSN: 968-0460

From: LYKENS, ANDREW S CTR USAF AMC 6 CES/CEIE
Sent: Monday, May 2, 2022 2:22 PM

To: paulbackhouse@semtribe.com
Cc: THPOCompliance@semtribe.com; RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE <andrew.rider.2@us.af.mil>; KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE <jason.kirkpatrick.2.ctr@us.af.mil>; KELLOGG, HELEN L GS-13 USAF AFMC AFCEC/CZN <helen.kellogg.1@us.af.mil>
Subject: Sec 106 - KC-46A Main Operating Base #6 Beddown - MacDill Air Force Base

Good afternoon,

The Department of the Air Force (DAF) intends to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft. DAF has identified MacDill Air Force Base (AFB) in Florida as the preferred alternative and Fairchild AFB in Washington as a reasonable alternative for the MOB 6 mission. The Air Force would like to initiate government-to-government consultation on the proposed beddown of KC-46A aircraft for MOB 6. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. The attached letters initiate the DAF consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests any information you have on properties of religious and cultural significance on MacDill AFB. The DAF will continue to contact your tribe under NEPA, and consult with your tribe under EO 13175, unless you request otherwise. Details on the proposed actions associated with the MOB 6 beddown are provided in the attached letters and supporting figures. Additional project details can be found by visiting the project website: www.kc46amob6eis.com. A copy of these letters has also been mailed to your tribe. Please let us know of any feedback or comments about the proposed project your tribe may have.

We look forward to hearing from you.

Respectfully,
Andy

Andrew Lykens
Contractor, Amentum/PAE
NEPA, Natural & Cultural Resources Manager
6th Civil Engineer Squadron, Environmental Element
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621
Office: 813-828-0460
DSN: 968-0460

A.2.5 Government-to-Government Consultation Initiation Letter from Fairchild AFB Example

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D AIR REFUELING WING (AMC)
FAIRCHILD AIR FORCE BASE WASHINGTON

January 18, 2022

Colonel Cassius T. Bentley III
Commander
92d Air Refueling Wing
1 East Bong Street, Suite 221A
Fairchild AFB WA 99011

Honorable Chief James Allan
Coeur d'Alene Tribe
P.O. Box 408
850 A Street
Plummer ID 83851-0408

Dear Chief Allan

The Department of the Air Force (DAF) intends to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft. DAF has identified MacDill Air Force Base (AFB) in Florida as the preferred location, and Fairchild AFB in Washington as a reasonable alternative for the MOB 6 mission. A Notice of Intent for this EIS is being published in the Federal Register per 32 Code of Federal Regulations (CFR) 989.17. This letter serves as notification of the start of the environmental impact assessment and scoping process.

The Air Force would like to initiate government-to-government consultation on the proposed beddown of KC-46A aircraft for MOB 6. This letter initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests any information you have on properties of religious and cultural significance on Fairchild AFB. The DAF will continue to contact your tribe under NEPA, and consult with your tribe under EO 13175, unless you request otherwise. Details on the proposed actions associated with the MOB 6 beddown are provided below.

The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission. Renovation of existing facilities and construction of new facilities would be required on-installation to support the KC-46A, and facility requirements would vary depending on the installation. All flight operations would take place within existing airspace; additions to or alterations of airspace are not being considered. Additional information about the MOB 6 Proposed Action is provided on the project website at www.kc46amob6eis.com.

The EIS will assess the potential environmental consequences of the proposed KC-46A MOB 6 beddown at Fairchild AFB, Washington or MacDill AFB, Florida. The No Action

Alternative will be addressed in the EIS as well. Consultation will be incorporated into preparation of the Draft EIS and will include, but is not limited to, consultation under Section 7 of the Endangered Species Act and consultation under Section 106 of the National Historic Preservation Act. Increases of air emissions as a result of this action at both installations will be analyzed in the EIS. Currently, no short- or long-term notable impacts are anticipated. Additional analysis will be provided in the Draft EIS, which is anticipated in early 2023. The Final EIS and a decision on the Proposed Action are expected in late 2023 to early 2024.

Due to public health concerns related to COVID-19, the DAF will not hold face-to-face public scoping meetings. Public scoping is being accomplished remotely, in accordance with the 2020 version of 40 CFR Part 1506.6, via the project website at www.kc46amob6eis.com and two virtual public scoping meetings. The website provides posters, a presentation, an informational brochure, a capability for the public to provide public scoping comments, and information on the virtual public scoping meetings. Comments or questions regarding this project may be directed to Ms. Helen Kellogg via email at afcec.czn.workflow@us.af.mil; include KC-46A MOB 6 EIS in the subject line or via postal mail to: AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853.

All tribal, public, agency, and stakeholder comments provided to the DAF will be considered during preparation of the EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting scoping comments by May 18, 2022 will ensure we have sufficient time to consider your input in the Draft EIS.

Please let us know if you have any preferences or expectations relative to consultation regarding the KC-46A MOB6 beddown. My Installation Tribal Liaison Officer (ITLO), Mr. Jeff Johnson, will continue to provide you updates at key milestones in the EIS process and he is always available to discuss any concerns with you. You can contact him at (509)247-1470 or jeffrey.johnson.64@us.af.mil.

Sincerely

BENTLEY.CASSIUS.T.III.1102901327 Digitally signed by BENTLEY.CASSIUS.T.III.1102901327 Date: 2022.01.28 12:36:58 -08'00'

CASSIUS T. BENTLEY, III, Colonel, USAF
Commander

A.2.6 Tribal Follow-Up Letter with APE from Fairchild AFB Example

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D AIR REFUELING WING (AMC)
FAIRCHILD AIR FORCE BASE WASHINGTON

Jeffrey R. Johnson
Installation Tribal Liaison Officer
5 West Bong St
Fairchild AFB WA 99011

8 April 2022

Honorable Chief James Allan
Coeur d'Alene Tribe
PO Box 408
850 A Street
Plummer, ID 83851-0408

Dear Chief Allan,

This letter provides an update on the proposed Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft at Fairchild Air Force Base (AFB) in Washington State. The Department of the Air Force (DAF) sent you an initial government-to-government consultation letter regarding preparation of an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the proposed undertaking at both Fairchild AFB and MacDill AFB in Florida. The beddown associated with this proposal would occur at one of the two bases with MacDill AFB identified as preferred alternative for the MOB 6 mission. The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission at the selected alternative. Renovation of existing facilities and construction of new facilities would be required at the selected installation to support the KC-46A. Facility requirements would vary depending on the installation. All flight operations would take place within existing airspace of the selected alternative; additions to or alterations of airspace are not being considered. Additional information about the MOB 6 Proposed Action is provided on the project website at www.kc46amob6eis.com. Please note this update/correction regarding virtual public scoping meetings: The initial letter sent to your tribe indicated virtual public scoping meetings would be held; however the DAF determined all public scoping for this project will occur through the project website.

The DAF is providing this update as part of the consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800). Since the mailing of the initial government-to-government consultation letter for the proposed beddown of KC-46A aircraft for MOB 6, the DAF has established an Area of Potential Effects (APE) for the Fairchild AFB alternative based on preliminary site assessments. The proposed APE includes the following:

1) existing buildings and structures that would require alterations to accommodate the KC-46 aircraft and mission,

2) the locations of proposed new buildings and structures necessary to support the KC-46 mission, and

3) a 0.25-mile buffer around the buildings and structures mentioned in items 1 and 2 above to evaluate potential effects of the proposed alternative on those buildings and structures and any historic properties that would have a view of the proposed construction activities. A map of the APE is included as an Attachment.

The DAF requests your review of the APE and any information you have on properties of religious and cultural significance in the APE on Fairchild AFB. The DAF will continue to contact your tribe under NEPA, and consult with your tribe under EO 13175, unless you request otherwise. Comments or questions regarding this project may be directed to Ms. Helen Kellogg via email at Helen.Kellogg.1@us.af.mil including KC-46A MOB 6 EIS in the subject line or via postal mail to: Helen Kellogg, AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853.

All tribal, public, agency, and stakeholder comments provided to the DAF will be considered during preparation of the EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting scoping comments within 30 days of receipt of this letter will ensure we have sufficient time to consider your input in the Draft EIS.

Sincerely,

JOHNSON.JEFFREY.R.1044990268 Digitally signed by JOHNSON.JEFFREY.R.1044990268 Date: 2022.04.08 12:20:03 -07'00'

JEFFREY R. JOHNSON, GS-14, DAFC
Installation Tribal Liaison Officer

Attachment:
Figure 1. Map Showing Area of Potential Effects (APE)

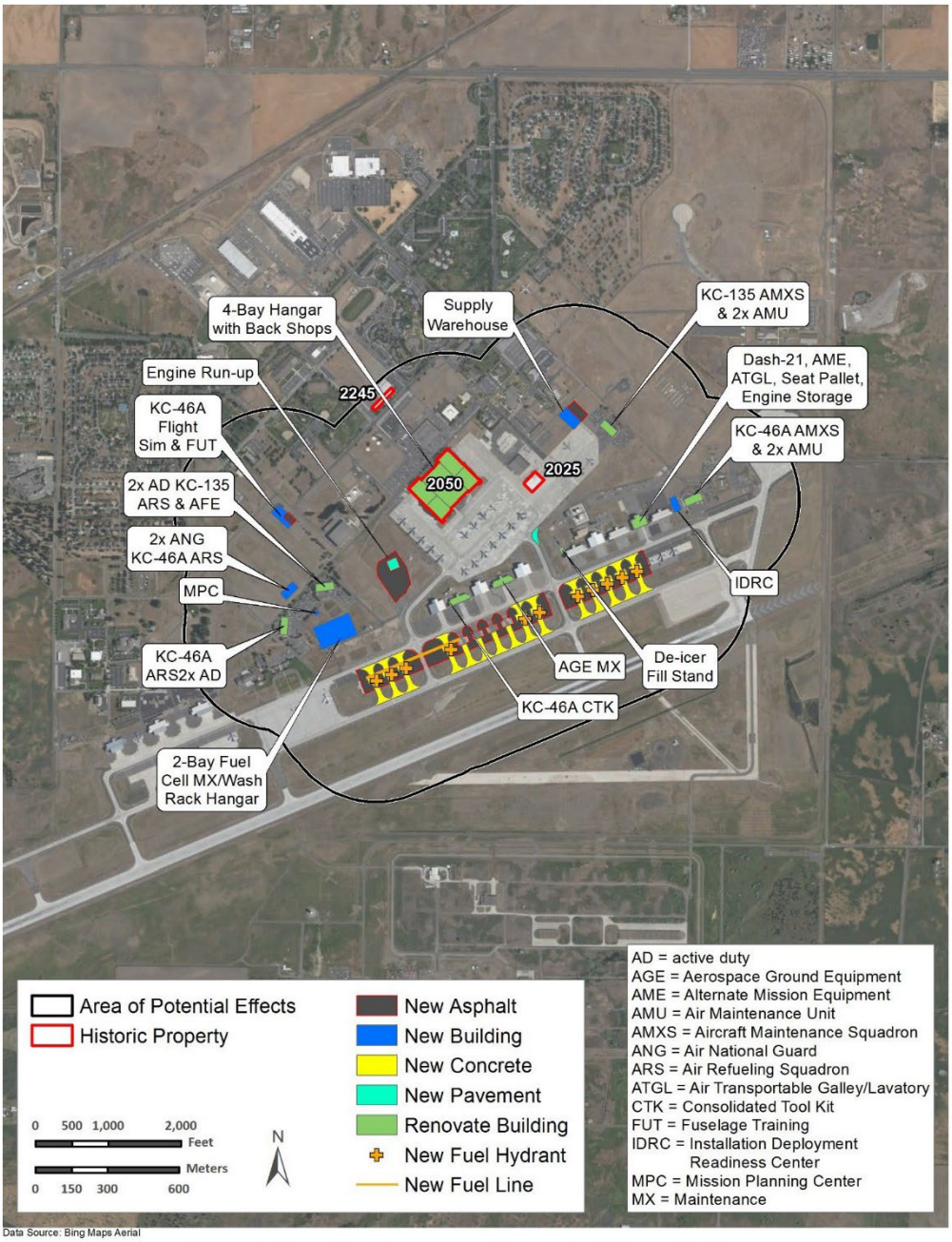


Figure 1. Map Showing Area of Potential Effects (APE)

A.2.7 DEIS Distribution Letter from Fairchild AFB

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D AIR REFUELING WING (AMC)
FAIRCHILD AIR FORCE BASE WASHINGTON

Colonel Cassius T. Bentley III
Commander
92d Air Refueling Wing
1 East Bong Street, Suite 221A
Fairchild AFB WA 99011

Recipient Name
Title, Tribe
Address 1
City, State ZIP

Dear Name

The Department of the Air Force (DAF) is pleased to provide you with a copy of the Draft Environmental Impact Statement (EIS; Enclosure 1) for the KC-46A Main Operating Base #6 (MOB 6). The DAF previously contacted you via an initial government-to-government consultation letter and a follow-up letter regarding preparation of the EIS, which is now being provided in accordance with the National Environmental Policy Act (NEPA). This document is also available online at www.kc46amob6eis.com.

Notification of the availability of the Draft EIS will appear in the Federal Register on January 13, 2023. The EIS analyzes alternative installations (MacDill AFB, Florida [Alternative 1 – Preferred Alternative] and Fairchild AFB, Washington [Alternative 2]) for the MOB 6 beddown, which includes the basing of 24 KC-46A tanker aircraft and the infrastructure, facilities, airfield operations, training activities, personnel, and airspace to support the mission transition between fiscal years 2026 and 2028. The DAF understands that there is the potential for the MOB 6 beddown to affect properties of religious and cultural significance. The Draft EIS analyzes and presents the potential environmental consequences on properties of religious and cultural significance associated with the Proposed Action and Alternatives, including the No Action Alternative. The DAF is consulting with the appropriate resource agencies to determine the potential for significant impacts on cultural and natural resources and corresponding mitigation measures, if needed. Consultation will continue to be incorporated into the EIS process and includes, but is not limited to, consultation with Federally-Recognized Tribes, consultation under Section 7 of the Endangered Species Act, and consultation under Section 106 of the National Historic Preservation Act. The Final EIS and a Record of Decision on the Proposed Action are expected in Fall 2023. Additional information is also available on the project website at http://www.kc46amob6eis.com.

The DAF will hold two virtual public hearings on the Draft EIS via internet/phone on February 7, 2023 from 5:30 pm to 8 pm EST to accommodate the public located near the MacDill AFB Alternative and February 9, 2023 from 5:30 pm to 8 pm PST to accommodate the public located near the Fairchild AFB Alternative. The purpose of the hearings is to receive input on the proposed action and alternatives and the Draft EIS analysis. The hearings will also be

announced through local media. Instructions for participating in the virtual public hearing and more information are provided on the project website, www.kc46mob6eis.com. Links to the on-line virtual public hearings will be provided on the project website allowing interested parties to electronically participate in the public hearings, and a phone number will be provided for those without internet access.

All tribal comments regarding properties of religious and cultural significance provided at the hearings and through written comments received via postal mail, email, and the project website will be considered in the preparation of the Final EIS. We respect the unique government-to-government relationship that exists between the DAF and your tribe, and your input on the project is welcome at any time during the EIS process. However, submitting comments by February 27, 2023 will ensure we have sufficient time to consider your input in the Final EIS. Comments or questions regarding this project may be directed to the Installation Tribal Liaison Officer (ITLO), Mr. Jeff Johnson, at (509) 247-1470 or jeffrey.johnson.64@us.af.mil.

Sincerely,

CASSIUS T. BENTLEY, III, Colonel, USAF
Commander

A.2.8 Responses from Fairchild AFB Tribes

A.2.8.1 Spokane Tribe of Indians

Spokane Tribe of Indians

Tribal Historic Preservation Officer

P. Box 100 Wellpinit WA 99040

April 19, 2022

To: Joshua Potter, Fairchild Air Force Base Air Quality Engineer

RE: MOB 6- KC EIS

Mr. Potter,

Thank you for contacting the Tribe's Historic Preservation Office. We appreciate the opportunity to provide a cultural consult for your project, the intent of this process is to preserve and protect all cultural resources whenever protection is feasible.

After archive research of this area has a high probability for cultural resources this project is just renovation to the buildings there has been some cultural surveys completed on the base, T25, R41 sections 28,29,32, I have no further concern however, any new facilities would require more consultation.

RE: This project will require an **inadvertent discovery plan of action** implemented into the scope of work.

This letter is your notification that your project has been cleared, and your project may move forward.

As always, if any artifacts or human remains are found upon excavation, this office should be immediately notified and the work in the immediate area **cease**.

Should additional information become available or scope of work change our assessment may be revised. Again, thank you for this opportunity to comment and consider this a positive action that will assist in protecting our shared heritage.

If questions arise, please contact me at (509) 258 – 4222.

Sincerely,

Randy Abrahamson

Tribal Historic Preservation Officer – THPO

A.2.8.2 Confederated Tribes of the Colville Reservation

From: Robert Sloma <robert.sloma@colvilletribes.com>
Sent: Monday, May 9, 2022 1:02 PM
To: KELLOGG, HELEN L GS-13 USAF AFMC AFCEC/CZN <helen.kellogg.1@us.af.mil>
Cc: POTTER, JOSHUA S GS-12 USAF AMC 92 CES/CEIE <joshua.potter.2@us.af.mil>; JOHNSON, JEFFREY R GS-14 USAF AMC 92 MSG/DD <jeffrey.johnson.64@us.af.mil>; Guy Moura (HSY) <guy.moura@colvilletribes.com>
Subject: [URL Verdict: Neutral][Non-DoD Source] MOB 6 KC-46 EIS Section 106 Tribal Consultation Initiation and APE Description

Dear Ms Kellogg:

The Confederated Tribes of the Colville Reservation (also known as the Colville Confederated Tribes or CCT) received notice of the above referenced EIS from Colonel Cassius T. Bentley III, Commander of the 92d Air Refueling Wing at Fairchild Air Force Base, in Spokane, Washington and Jeffrey R. Johnson, Installation Tribal Liaison Officer via Joshua S. Potter, Fairchild Air Force Base Air Quality Engineer/EPCRA/Toxic/Rideshare/NEPA Program Manager.

Fairchild Air Force Base lies within the usual and accustomed grounds and areas of the CCT. The Area of Potential Effect (APE) also likely overlaps the Spokane Plains battleground, a conflict during the Coeur d'Alene War of 1858 in which Palus and other Native American Tribes participated. This running battle stretched for fourteen miles and according to Manring (1912:204, 207) resulted in at least six Native Americans dead and three wounded. Trogdon (1970) writes that this battle is "Perhaps, one of the most important episodes in our history as well as the most deplorable, is our treatment of the American Indian."

The Palus Tribe is one of the twelve tribes that make up the CCT, which is governed by the Colville Business Council (CBC). The CBC has delegated to the Tribal Historic Preservation Officer (THPO) the responsibility of representing the CCT with regard to cultural resources management issues throughout the traditional territories of all of the constituent tribes under Resolution 1996-29. This area includes parts of eastern Washington, northeastern Oregon, and the Palus (Palouse) territory in Idaho.

The CCT desires to be included as a consulting party in regard to the proposed MOB6 beddown of the KC-46A tanker aircraft at Fairchild Air Force Base EIS and concurs with the APE as described by Mr. Johnson.

The Fairchild Air Force Base is considered by the CCT to be highly sensitive for containing evidence of Pre Contact to historic period Native American activity. Information on Native American use in the project vicinity shows that prehistoric, ethnographic, historic, and traditional sites of value to the CCT surround the project area.

The CCT look forward to continuing consultation on this project and offer our appreciation for your assistance with protecting cultural resources. Please note that these comments are based on information available to us at this time. We reserve the right to revise our comments as information becomes available. Please contact me if you have any questions in regard to this response.

REFERENCES CITED

Manring, Benjamin Franklin
1912 The Conquest of the Coeur d'Alenes, Spokanes and Palouses: The Expeditions of Colonels E.J. Steptoe and George Wright Against the "Northern Indians" in 1858. Spokane, Washington: Inland Print. Co.

Trogdon, William H.
1970 Battle of Spokane Plains State Park [National Register of Historic Places Nomination Form.] Electronic document, http://properties.historicspokane.org/_pdf/properties/property-1985.pdf, accessed

May 13, 2020.

--
Robert A. Sloma
Archaeologist
History/Archaeology Program
Confederated Tribes of the Colville Reservation
PO Box 150
Nespelem, WA 99155
Tel: (509) 634-2692
Cell: (509) 557-2273
robert.sloma@colvilletribes.com

A.3 National Historic Preservation Act Section 106 Consultation

Section 106 consultation under the National Historic Preservation Act (NHPA) is being conducted with the respective State Historic Preservation Office (SHPO) for each installation. Because MacDill AFB is the Preferred Alternative and modifications would be required to historic properties under the MOB 6 beddown, additional Section 106 consultation is being conducted with the Advisory Council on Historic Preservation.

A.3.1 Section 106 SHPO Consultation Initiation Letter from MacDill AFB

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

2 May 2022

Ms. Amy M. Doye
Director
6th Civil Engineer Squadron
7621 Hillsborough Loop Drive
MacDill Air Force Base FL 33621-5407

Dr. Timothy A. Parsons
Director, State Historic Preservation Officer
Division of Historical Resources
Florida Department of State
500 South Bronough Street
Tallahassee, FL 32399

Dear Dr. Parsons

The Department of the Air Force (DAF) intends to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft. MacDill Air Force Base (AFB) in Florida and Fairchild AFB in Washington State are proposed alternatives for the MOB 6 mission. As a federal undertaking, the KC-46A MOB 6 beddown is subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA; 54 U.S.C 306108) and its implementing regulations in the Code of Federal Regulations, Title 36, Part 800 (36 CFR Part 800). This letter initiates our consultation under Section 106 of the NHPA for the proposed undertaking at MacDill AFB and requests your input. A Notice of Intent for this EIS is being published in the Federal Register per 32 Code of Federal Regulations (CFR) 989.17.

The EIS will assess the potential environmental consequences of the proposed KC-46A MOB 6 Beddown at MacDill AFB and Fairchild AFB, as well as addressing the No Action Alternative. The DAF proposes to beddown the MOB 6 mission at one of the two bases being analyzed. MacDill AFB has been identified as the Preferred Alternative for the proposed KC-46A MOB 6 Beddown. The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission. Renovation of existing facilities and construction of new facilities would be required at MacDill AFB to support the KC-46A. All flight operations would take place within existing airspace; additions to or alterations of airspace are not being considered.

Based on preliminary site assessments, an Area of Potential Effects (APE) for the proposed undertaking at MacDill AFB has been identified, including a 0.25-mile buffer to assess potential visual effects. Maps of the APE and its relation to previously identified historic properties can be found in Attachments 1 through 2. The proposed undertaking would require alterations and/or additions to 20 buildings, 11 of which are historic-age (50 years of age or older). Ten (10) of the buildings identified for alterations and/or additions are located in the MacDill Field Historic District (Buildings 6, 9, 44, 55, and 56 and Hangars 1–5). Five of those buildings (Buildings 6, 9, 44 55, 56) are non-contributing resources to the MacDill Field Historic District and have been determined individually ineligible for listing in the National Register of Historic Places (NRHP). The design of alterations to the non-contributing buildings have not been completed, but the alterations are expected to be minor in nature.

The remaining five buildings located in the MacDill Field Historic District (Hangars 1–5) are considered contributing resources to the district and are each individually eligible for listing in the NRHP. The KC-46A airframe does not safely fit inside the hangars, necessitating the proposed additions. While specifications for the proposed additions are unknown at this time, the additions would extend the entire width and height of each hangar on the flightline side to create enough space for the KC-46A to be housed in the hangar. The addition on each hangar is anticipated to be approximately 11,000 square feet. The existing hangar doors, which have been previously replaced in coordination with your office, may be reused as part of the alterations. However, if the proposed basing action occurs at MacDill AFB, the DAF has determined that any proposed additions to Hangars 1-5 would result in an adverse effect on historic properties.

No ground disturbing activities would occur near known archaeological sites at MacDill AFB. A map of the APE and its proximity to the closest known archaeological sites is included as Attachment 3.

The DAF anticipates having the initial (35 percent) planning design completed for Hangars 1, 4, and 5 by 1 August 2022; these projects are proposed Military Construction (MILCON) projects for fiscal year (FY) 2024. Hangars 2 and 3 are MILCON projects and would be designed at a later time. We seek your input to ensure we address your concerns during that process. As you may already be aware from the project scoping letter sent to your office, further information on this proposed basing action can be found via the project website at www.kc46amob6eis.com. The website provides posters, a presentation, an informational brochure, downloadable comment forms, and a capability for the public to provide public scoping comments online. Consultation with the Advisory Council on Historic Preservation will occur simultaneously with your office. The DAF is also consulting with four Native American tribes with cultural affiliation to the MacDill AFB area: the Miccosukee Tribe, the Muscogee (Creek) Nation, the Seminole Nation of Oklahoma, and the Seminole Tribe of Florida.

Comments or questions regarding this project are requested at your earliest convenience, but no later than 30 days from receipt of this correspondence. Please address all EIS comments or questions to Ms. Helen Kellogg via email at Helen.Kellogg.1@us.af.mil including KC-46A MOB 6 EIS in the subject line or via postal mail to: Ms. Helen Kellogg, AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853. Please address all comments for this matter to the MacDill AFB point of contact, Mr. Andy Lykens, 6 CES/CEIE, to the address above, or via email at andrew.lykens.ctr@us.af.mil, or by phone at 813-828-0460.

Sincerely

AMY M. DOYE, P.E., DAF
Director, 6th Civil Engineer Squadron

Attachments:
1. *Figure 1. Map Showing Area of Potential Effects (APE)*
2. *Figure 2. Map Showing MacDill Field Historic District*
3. *Figure 3. Map Showing APE and Archaeological Resources*

Figure 1. Map Showing Area of Potential Effects (APE)

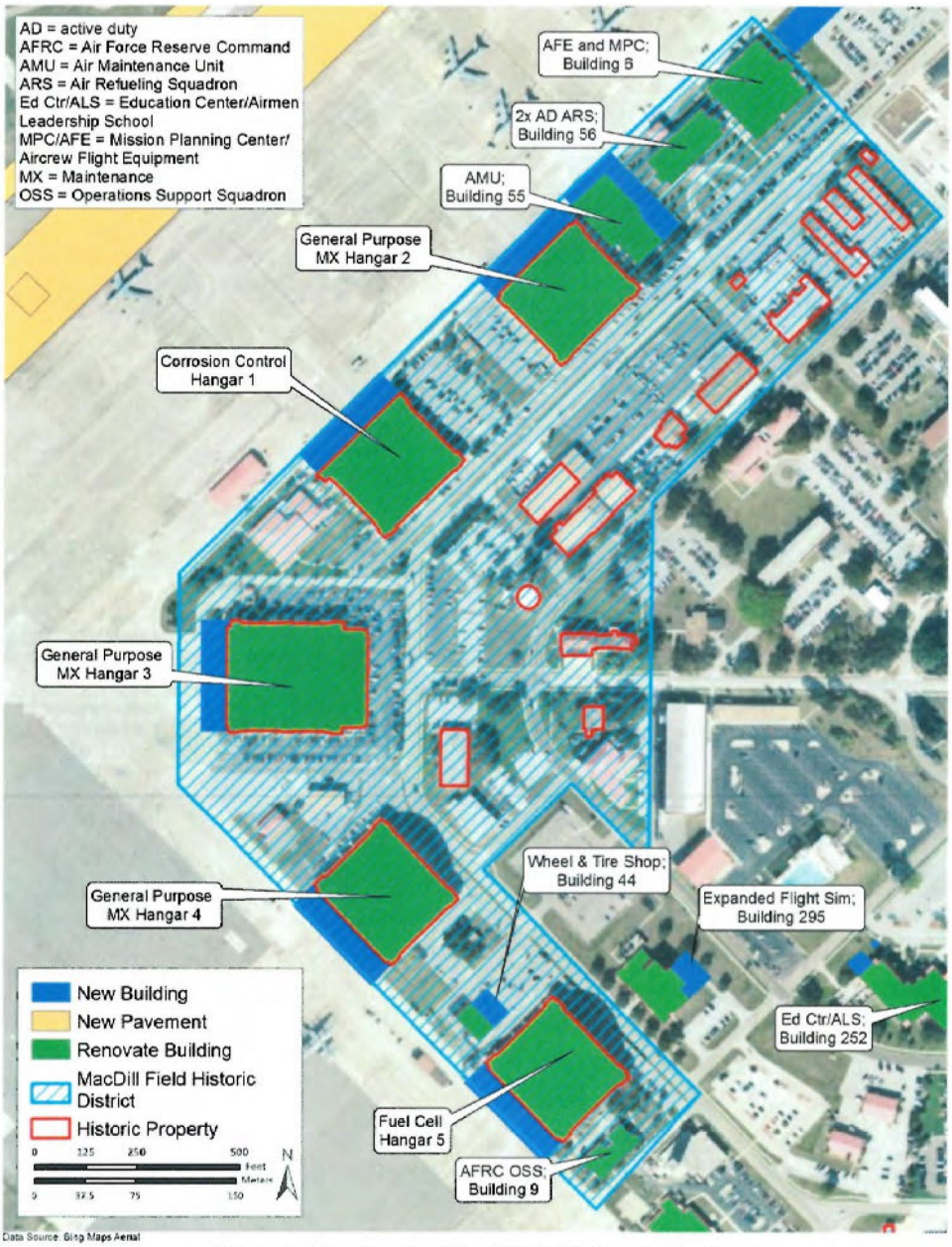


Figure 2. Map Showing MacDill Field Historic District

A.3.2 Section 106 Advisory Council on Historic Preservation Consultation Letter from MacDill AFB

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

2 May 2022

Ms. Amy M. Doye
Director
6th Civil Engineer Squadron
7621 Hillsborough Loop Drive
MacDill Air Force Base FL 33621-5407

Ms. Katharine Kerr
Program Analyst
Advisory Council on Historic Preservation
Federal Property Management Section
401 F Street NW, Suite 308
Washington DC 20001-2637

Dear Ms. Kerr

The Department of the Air Force (DAF) wishes to formally initiate consultation with the Advisory Council on Historic Preseration (ACHP) under Section 106 of the National Historic Preservation Act (NHPA; 54 U.S.C 306108) for the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft at MacDill Air Force Base (AFB) in Florida. The undertaking would require additions to Hangars 1–5, which are eligible for listing in the National Resgiter of Historic Places (NRHP). Hangars 1–5 are also the most prominent contributing resources in the MacDill Field Historic District, which is also eligible for listing in the NRHP. Therefore, DAF has determined that the undertaking would have an adverse effect on historic properties.

Attached, please find the information required under 36 C.F.R. § 800.11(e)., including an ACHP *Electronic Section 106 Documentation Submittal System Form* (Attachment 1). DAF is notifying the Florida State Historic Preservation Office (SHPO) of the proposed undertaking, along with the following Indian tribes with potential interests in the MacDill AFB area: the Miccosukee Tribe, the Muscogee (Creek) Nation, the Seminole Nation of Oklahoma, and the Seminole Tribe of Florida (see Attachment 2). Additionally, the DAF is inviting the public to comment on the Proposed Action during a 30-day scoping period in accordance with the National Environmental Policy Act (NEPA) (see Attachment 3). Upon receipt of comments, and in coordination with the Florida SHPO and the ACHP, additional consulting parties may be identified for this particular part of the Proposed Action and invited to comment further.

MISSION FOCUSED...VALUED AIRMEN

If you have any questions concerning the proposed undertaking, please contact the MacDill Environmental Element Chief, Andrew Rider, at (813) 828-2718 or andrew.rider.2@us.af.mil.

Sincerely

AMY M. DOYE, P.E., DAF
Director, 6th Civil Engineer Squadron

3 Attachments:
1. *ACHP Electronic Section 106 Documentation Submittal System Form*
2. *NHPA Section 106 Consultation Letters to Florida SHPO and Tribes*
3. *NEPA Stakeholder Letter*

A.3.3 Section 106 Consultation Responses for MacDill AFB

A.3.3.1 Advisory Council on Historic Preservation

May 17, 2022

Mr. Andrew Rider
Chief, Environmental Element
6th Civil Engineer Squadron
Department of the Air Force
7621 Hillsborough Loop Drive
MacDill AFB, FL 33621

Ref: *Main Operating Base #6 Beddown of the KC-46A Tanker Aircraft at MacDill Air Force Base Hillsborough County, Florida*
ACHP Project Number: 018290

Dear Mr. Rider:

On May 2, 2022, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the potential adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act, does not apply to this undertaking. Accordingly, we do not believe our participation in the consultation to resolve adverse effects is needed.

However, if we receive a request for participation from the State Historic Preservation Officer, Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Should the undertaking's circumstances change, consulting parties cannot come to consensus, or you need further advisory assistance to conclude the consultation process, please contact us.

Pursuant to Section 800.6(b)(1)(iv), you will need to file the final Section 106 agreement document (Agreement), developed in consultation with the Florida State Historic Preservation Office and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Katharine Kerr at (202) 517-0216 or by e-mail at kkerr@achp.gov

ADVISORY COUNCIL ON HISTORIC PRESERVATION
401 – Street NW, Suite 308 • Washington, DC 20001-2637
Phone: 202-517-0200 • Fax: 202-517-6381 • achp@achp.gov • www.achp.gov

and reference the ACHP Project Number above.

Sincerely,

Artisha Thompson
Historic Preservation Technician
Office of Federal Agency Programs

FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

CORD BYRD
Secretary of State

Mr. Andrew Lykens
6 CES/CEIC
7621 Hillsborough Loop Drive
MacDill Air Force Base, Florida 33621-5407

June 3, 2022

Re: DHR Project File No.: 2022-3083
Proposed Environmental Impact Statement (EIS) for the Main Operating Base #6 (MOB 6) Beddown of the KC-46A Tanker Aircraft
MacDill Air Force Base, Hillsborough County

Dear Mr. Lykens:

The Florida State Historic Preservation Officer reviewed the referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

Based on the information provided, we note that the proposed undertaking would require alterations to 20 buildings. A number of these buildings are contributing to the MacDill Field Historic District (8HI 11656) which this office has previously determined to meet the criteria for listing in the *National Register*.

This office concur with your preliminary finding that the undertaking will have an adverse effect on historic properties. We are encouraged to see that the Department of the Air Force (DAF) is following the process described in 36 CFR Part 800.6, Resolution of Adverse Effects to complete the Section 106 process. We look forward to continuing consultation with your office develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties.

If you have any questions, please contact Scott Edwards, Historic Preservationist, by electronic mail *scott.edwards@dos.myflorida.com*, or at 850.245.6333 or 800.847.7278.

Sincerely,

Kelly L Chase
For

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
and State Historic Preservation Officer

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street• Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com

Historical Resources

A.3.3.3 SHPO Follow-up Letter

FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

CORD BYRD
Secretary of State

Mr. Andrew Lykens
6 CES/CEIC
7621 Hillsborough Loop Drive
MacDill Air Force Base, Florida 33621-5407

August 19, 2022

Re: DHR Project File No.: 2022-3083-B
Continuing Consultation for Hangars 1, 4, 5, and Building 24
Proposed Environmental Impact Statement (EIS) for the Main Operating Base #6 (MOB 6)
Beddown of the KC-46A Tanker Aircraft
MacDill Air Force Base, Hillsborough County

Dear Mr. Lykens:

The Florida State Historic Preservation Officer reviewed the referenced projects in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

Hangars 1, 4, and 5
We note that the first phase of the KC-46A beddown will include modifications to hangars 1 (8HI5392), 4 (8HI5391), and 5 (8HI5391) beginning in Fiscal Year 2024. Hangars 2 and 3 will be modified beginning in Fiscal Year 2026. As previously stated, Hangar No. 1, 4, and 5 are contributing resources to the MacDill Field Historic District (8HI1656), which this office has previously determined to meet the criteria for listing in the *National Register*.

The overall design of the new additions appear to be compatible with the historic materials, features, size, scale and proportion, and massing of the historic hangars. However, in keeping with Standard 9 of the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, we recommend that the exterior finishes be differentiated from the historic finishes. This would include the concrete wainscot and metal corrugated wall panels.

In addition, our office request that the 3-D renderings for each hangar be sent to this office to serve as additional mitigation for the adverse effects. We look forward to receiving the 35% design drawings when they become available.

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street• Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com

Historical Resources

Mr. Lykens
DHR Project No.: 2022-3083-B
August 19, 2022
Page 2

Building 24
Based on the information provided, it is the opinion of this office that Building 24 does not appear to meet the criteria for listing in the *National Register*. Therefore, the proposed demolition will have no effect on historic properties.

We would like to compliment MacDill Air Force Base on protecting and preserving Florida's historic properties.

If you have any questions, please contact Scott Edwards, Historic Preservationist, by electronic mail *scott.edwards@dos.myflorida.com*, or at 850.245.6333 or 800.847.7278.

Sincerely,

Kelly L Chase
For

Alissa Slade Lotane
Director, Division of Historical Resources
and State Historic Preservation Officer

A.3.4 Section 106 SHPO Consultation Initiation Letter from Fairchild AFB

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D AIR REFUELING WING (AMC)
FAIRCHILD AIR FORCE BASE WASHINGTON

Jeffrey R. Johnson
Deputy Director
92d Mission Support Group
5 West Bong St
Fairchild AFB WA 99011

8 April 2022

Dr. Allyson Brooks
State Historic Preservation Officer/Director
Department of Archaeology and Historic Preservation
P.O. Box 48343
Olympia, WA 98504-8343

Dear Dr. Brooks,

The Department of the Air Force (DAF) intends to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with the Main Operating Base #6 (MOB 6) beddown of the KC-46A tanker aircraft. Fairchild Air Force Base (AFB) in Washington State and MacDill AFB in Florida and are proposed alternatives for the MOB 6 mission. As a federal undertaking, the KC-46A MOB 6 beddown is subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA; 54 U.S.C 306108) and its implementing regulations in the Code of Federal Regulations, Title 36, Part 800 (36 CFR Part 800). This letter initiates our consultation under Section 106 of the NHPA for the proposed undertaking at Fairchild AFB and requests your input. A Notice of Intent for this EIS is being published in the Federal Register per 32 Code of Federal Regulations (CFR) 989.17.

The EIS will assess the potential environmental consequences of the proposed KC-46A MOB 6 Beddown at Fairchild AFB and MacDill AFB, as well as addressing the No Action alternative. The DAF proposes to beddown the MOB 6 mission at one of the two bases being analyzed. MacDill AFB has been identified as the Preferred Alternative. Consultation under Section 106 of the NHPA will be incorporated into the preparation of the Draft EIS under the National Enivronmental Policy Act (NEPA). Additional analysis will be provided in the Draft EIS, which is anticipated in early 2023. The Final EIS and a decision on the Proposed Action are expected in late 2023 to early 2024. Additional information about the MOB 6 Proposed Action is provided on the project website at www.kc46amob6eis.com.

The basing action would require infrastructure, facilities, airfield operations, training activities, and personnel to support the KC-46A mission at the selected alternative. Renovation of existing facilities and construction of new facilities would be required at the selected installation to support the KC-46A. Facility requirements would vary depending on the installation. All flight operations would take place within existing airspace of the selected alternative; additions to or alterations of airspace are not being considered. DAF intends to

submit a report to your office in Summer 2022 detailing the proposed actions at Fairchild AFB, an inventory of the cultural resources within the Area of Potential Effects (APE) for the undertaking, and an assessment of project effects on any historic properties in the APE. Based on preliminary site assessments, an APE for the proposed Fairchild AFB alternative has been identified. The proposed APE includes the following:

1) existing buildings and structures that would require alterations to accommodate the KC-46 aircraft and mission,

2) the locations of proposed new buildings and structures necessary to support the KC-46 mission, and

3) a 0.25-mile buffer around the buildings and structures mentioned in items 1 and 2 above to evaluate potential effects of the proposed alternative on those buildings and structures and any historic properties that would have a view of the proposed construction activities. A map of the APE is included as an Attachment. The DAF is requesting your review and concurrence on the APE at this time.

The DAF is also initiating consultation under Section 106 with four Native American tribes with cultural affiliation to the Fairchild AFB area: the Coeur d'Alene Tribe, the Confederated Tribes of the Colville Reservation, the Kalispel Tribe of Indians, and the Spokane Tribe of Indians. The Air Force has sent scoping letters to these four tribes informing them of the DAF's intent to prepare the EIS and the opening of the public scoping period. Due to public health concerns related to COVID-19, the DAF will not hold face-to-face public scoping meetings. Public scoping is being accomplished remotely, in accordance with the 2020 version of 40 CFR Part 1506.6, via the project website at www.kc46amob6eis.com. The website provides posters, a presentation, an informational brochure, downloadable comment forms, and a capability for the public to provide public scoping comments online.

Comments or questions regarding this project may be directed to Ms. Helen Kellogg via email at Helen.Kellogg.1@us.af.mil including KC-46A MOB 6 EIS in the subject line or via postal mail to: Ms. Helen Kellogg, AFCEC/CZN, Attn: KC-46A MOB 6 EIS, 2261 Hughes Ave, Suite 155, JBSA Lackland, TX 78236-9853.

Thank you in advance for your assistance in this effort. We look forward to consultation with your office for this undertaking.

Sincerely,

JOHNSON.JEFFREY.R.1044990268 Digitally signed by JOHNSON.JEFFREY.R.1044990268 Date: 2022.04.08 12:21:20 -07'00'

JEFFREY R. JOHNSON, GS-14, DAFC
Installation Tribal Liaison Officer

Attachment:
Figure 1. Map Showing Area of Potential Effects (APE)

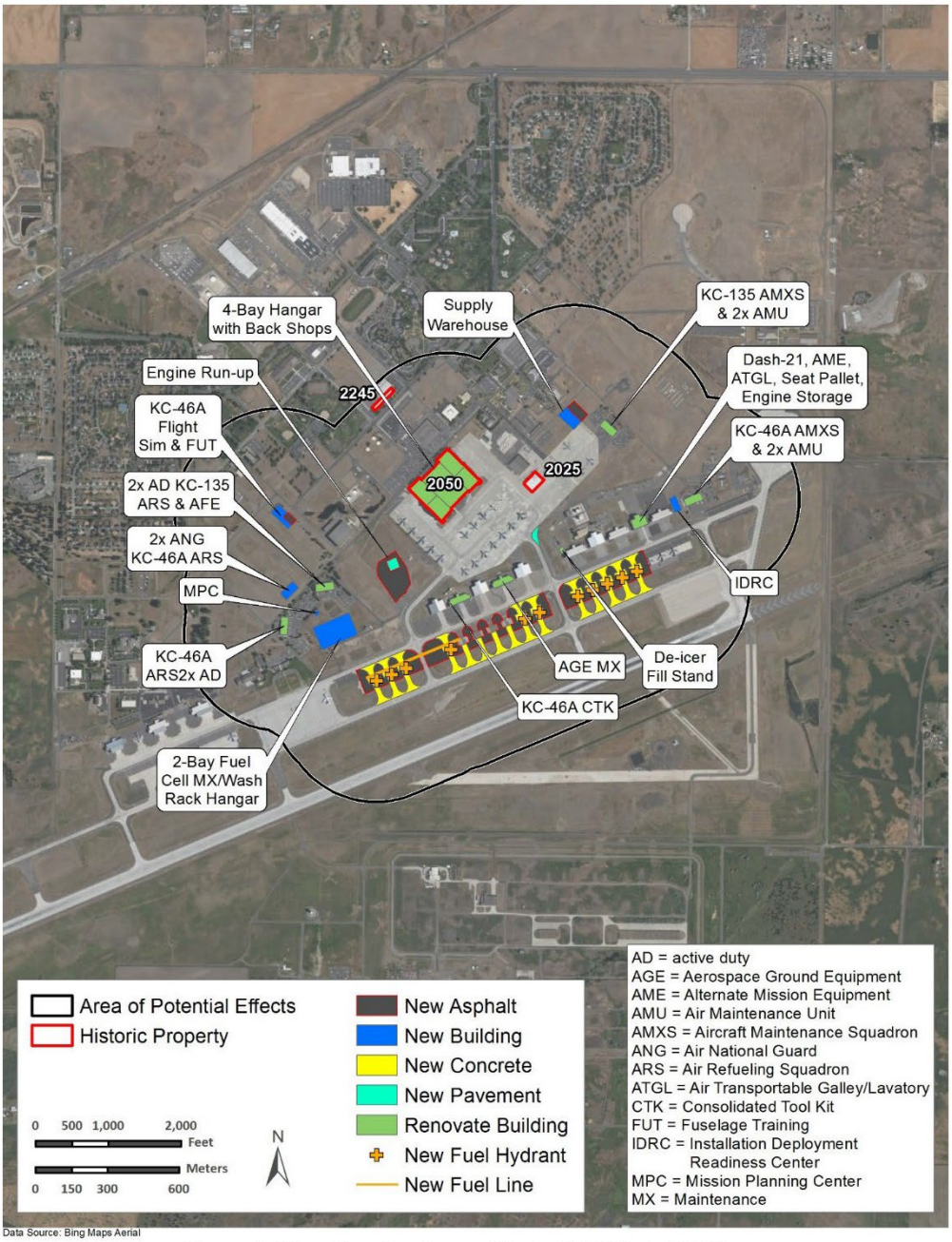


Figure 1. Map Showing Area of Potential Effects (APE)

A.3.5 Section 106 Consultation Responses for Fairchild AFB

No response has been received from the Washington SHPO as of release of this DEIS.

A.4 Endangered Species Act (ESA) Section 7 Consultation

A.4.1 ESA Section 7 Consultation Letter from MacDill AFB

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

22 November 2022

MEMORANDUM FOR MR. ROBERT CAREY
MANAGER, DIVISION OF ENVIRONMENTAL REVIEW
U.S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FL 32257-7517

FROM: 6 CES/CEIE
7621 Hillsborough Loop Drive
MacDill AFB FL 33621-5207

SUBJECT: Request for Initiation of Consultation for the KC-46A Main Operating Base #6 Beddown at MacDill Air Force Base (AFB), Florida.

1. The Department of the Air Force (DAF) requests initiation of formal consultation under Section 7(a)(2) of the Endangered Species Act on the effects to 26 species resulting from the proposed to recapitalize aging tanker aircraft (KC-135 Stratotanker) currently used by DAF with the KC-46A model. The Proposed Action at the MacDill AFB alternative requires minimal new construction because existing facilities would only require minor to moderate demolition or additions and existing utility infrastructure would continue to support new facilities in the proposed construction area; there is no in water work. Additionally, there would be an approximately 1 percent increase in installation personnel and dependents and an anticipated ~15 percent increase in the annual refueling mission operations at MacDill AFB. Operations would occur within existing airspace and training areas currently utilized by KC-135 aircraft that operate from MacDill AFB. The final biological assessment evaluating effects of the proposed KC-46A MOB 6 Beddown at MacDill AFB on listed species is attached for your review. The conclusions of the biological assessment are presented in the following paragraphs.

a. ***May affect and is likely to adversely affect*** 2 species, the rufa red knot (*Calidris canutus rufa*) and the wood stork (*Mycteria americana*).

b. ***May affect but is not likely to adversely affect*** 11 species; American alligator (*Alligator mississippiensis*), Audubon's crested caracara (*Polyborus plancus audubonii*), eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*), eastern indigo snake (*Drymarchon couperi*), Florida scrub-jay (*Aphelocoma coerulescens*), gopher tortoise (*Gopherus polyphemus*)*, monarch butterfly (*Danaus plexippus*)*, piping plover (*Charadrius melodus*), red-cockaded woodpecker (*Leuconotopicus borealis*), tricolored bat (*Perimyotis subflavus*)*, and West Indian manatee (*Trichechus manatus*).

c. ***No effect*** on 13 species; American crocodile (*Crocodylus acutus*), Brooksville bellflower (*Campanula robinsiae*), Florida bonamia (*Bonamia grandiflora*), Florida golden aster (*Chrysopsis floridana*), giant manta ray (*Manta birostris*), green sea turtle (*Chelonia mydas*), gulf sturgeon (*Acipenser Oxyrinchus desotoi*), hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*),

CHARGE THE STORM...LET'S GO!

loggerhead sea turtle (*Caretta caretta*), pygmy fringe-tree (*Chionanthus pygmaeus*), and smalltooth sawfish (*Pristis pentinata*).

d. The DAF recognizes gopher tortoise (*Gopherus polyphemus*), monarch butterfly (*Danaus plexippus*), and tricolored bat (*Perimyotis subflavus*) do not require formal consultation; however, given either the listing status at the start of biological assessment or the potential for the species status to change throughout the course of the project, the DAF decided to include these species in analysis.

2. We value your support in our efforts to continue carrying out the DAF's responsibility regarding the management of its natural resources, and we seek your concurrence on our effects determinations. The primary points of contact for the biological assessment are myself and Mr. Andrew Lykens and can be reached at (813) 828-2718 or andrew.rider.2@us.af.mil and (813) 828-0460 or andrew.lykens.ctr@us.af.mil, respectively.

RIDER.ANDREW.WARRICK.1153194676
Digitally signed by RIDER.ANDREW.WARRICK.1153194676
Date: 2022.11.22 06:18:17 -05'00'

ANDREW W. RIDER, GS-12, DAF
Chief, Environmental Element

Attachment:
Biological Assessment

A.4.2 ESA Section 7 Consultation Letter from Fairchild AFB

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D AIR REFUELING WING (AMC)
FAIRCHILD AIR FORCE BASE WASHINGTON

13 December 2022

Lieutenant Colonel D. Jason Murley
Commander
92d Civil Engineer Squadron
100 W. Ent Street
Fairchild AFB WA 99011

Mr. Brad Thompson
State Supervisor
U.S. Fish and Wildlife Service
510 Desmond Drive, Suite 102
Lacey WA 98503

Dear Mr. Thompson:

The Department of the Air Force (DAF) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental impacts associated with recapitalizing aging tanker aircraft (KC-135 Stratotanker) currently used by DAF with the KC-46A model to better address future mission requirements, offer expanded capability, and provide life-cycle cost savings in comparison to continued operation of existing KC-135 Stratotanker (the Proposed Action) at Fairchild AFB in Washington State (reasonable alternative) or MacDill Air Force Base (AFB) in Florida (preferred alternative).

Pursuant to Section 7 of the Endangered Species Act of 1973 (16 USC 1531 to 1544), the DAF has determined the KC-46A Main Operating Base (MOB) 6 Beddown EIS at Fairchild AFB *will have no effect* on four federally listed species (atch 1). The Proposed Action would replace 24 KC-135 Stratotanker with 24 KC-46A aircraft and would require facilities and infrastructure development to establish one KC-46A active duty Continental United States location as part of the KC-46A MOB 6 beddown. Minimal new construction would be required for the Fairchild AFB Reasonable Alternative because redevelopment would occur within the developed cantonment (atch 2).

A copy of the Draft EIS addressing the KC-46A MOB 6 Beddown at Fairchild AFB, Washington or MacDill AFB, Florida is available at: www.kc46amob6eis.com.

Threatened, Endangered, and Candidate Species and Critical Habitat

The 2018 Fairchild AFB Integrated Natural Resource Management Plan and the U.S. Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) System report for the project area (atch 3) were reviewed to determine if any federally listed, proposed, or candidate species, or their habitats, could potentially occur in the vicinity of the Proposed Action. None of the identified species have been reported or observed within the project area or within the immediate vicinity of the project area. There is no critical habitat within the project area. See Section 3.4.2 of the Draft EIS.

We seek your concurrence on the finding that the Fairchild AFB Alternative will have *no effect* for the species identified in Attachment 1. If you require additional information, please contact Mr. Joshua Potter, Fairchild AFB NEPA Program Manager, at joshua.potter.2@us.af.mil or 509-247-8139. Thank you for your support of this project.

Sincerely,

MURLEY.DAVID.J.1252091935 Digitally signed by MURLEY.DAVID.J.1252091935 Date: 2022.12.15 06:55:12 -08'00'

D. JASON MURLEY, Lt Col, USAF
Commander

Attachments:
1. Federally Listed Species with Potential to Occur on Fairchild AFB and Effects Determination
2. Proposed Action Area Map
3. USFWS IPaC Species List

Attachment 1. Federally Listed Species with Potential to Occur on Fairchild AFB and Effects Determination

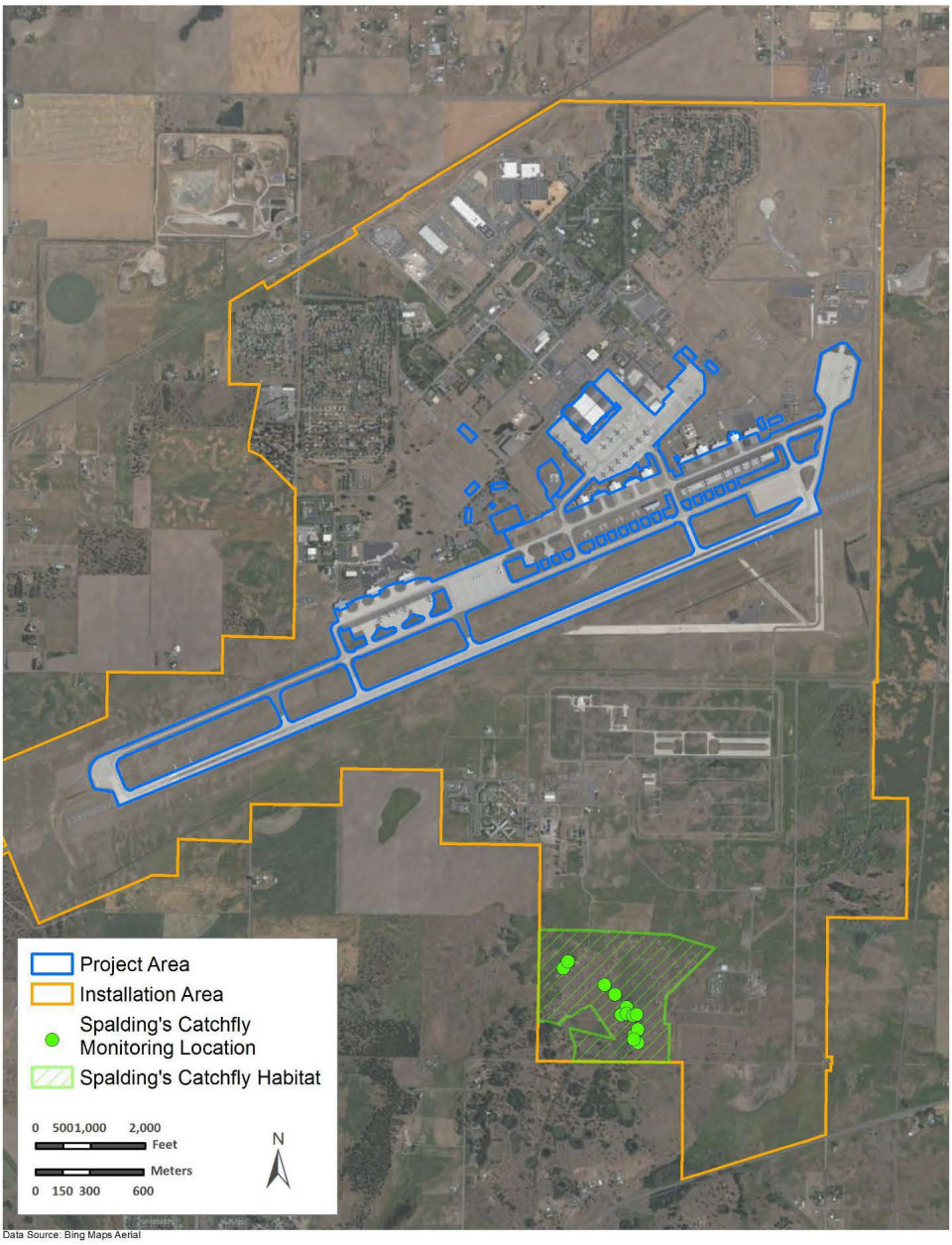
Species	Federal	Habitat Description and Distribution	Effect Determination and Justification
Birds			
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Predominantly western Washington, but potentially in the southwest as well. Prefer large, continuous riparian zones with cottonwoods and willows.	**No effect** – No suitable habitat on or near the project area; no documented observations on the installation.
Insects			
Monarch butterfly (*Danaus plexippus*)	Candidate	Travels and breeds throughout Washington but does not overwinter. This species lays eggs on obligate milkweed plants (*Asclepia* spp.).	**No effect** – No suitable habitat on or near the project area; no documented observations on the installation.
Fishes			
Bull Trout[a] (*Salvelinus confluentus*)	Threatened	Cold, clean, and clear stream habitats, stable stream channels, and abundant overhead cover.	**No effect** – No suitable habitat on or near the project area; no documented observations on the installation.
Plants			
Spalding's catchfly (*Silene spaldingi*)	Threatened	In Washington, it occurs in the Blue Mountains and Columbia Basin physiographic provinces in Asotin, Lincoln, Spokane and Whitman Counties. Open native grasslands with a minor shrub component, occasionally with scattered conifers.	**No effect** – No suitable habitat on or near the project area; documented in the southern portion of the installation.

Sources: Fairchild AFB 2018 and USFWS 2022.

[a] Species is not within the Project Area but is listed in the USFWS IPaC report as a potentially occurring species within the expanded region of influence used for analysis of operational impacts.

Attachment 1

Attachment 2. Proposed Action Area Map



Data Source: Bing Maps Aerial

Attachment 2

Attachment 3. USFWS IPaC Species List

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405

In Reply Refer To:
Project Code: 2022-0081698
Project Name: MOB 6 FAFB

September 01, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

Attachment 3

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment 3

Attachment(s):

- Official Species List

Attachment 3

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Attachment 3

Project Summary

Project Code: 2022-0081698
Project Name: MOB 6 FAFB
Project Type: Military Operations
Project Description: The Department of the Air Force is preparing an Environmental Impact Statement to evaluate the environmental impacts associated with recapitalizing aging tanker aircraft (KC-135 Stratotanker) currently used by DAF with the KC 46A model.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@47.61904585,-117.65503950830455,14z

Counties: Spokane County, Washington

Attachment 3

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Attachment 3

Flowering Plants

NAME	STATUS
Spalding's Catchfly *Silene spaldingii*	Threatened

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/3681

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment 3

IPaC User Contact Information

Agency: Air Force
Name: Isha Alexander
Address: 1054 NE Pennington Loop
City: Coupeville
State: WA
Zip: 98239
Email isha.alexander@hdrinc.com
Phone: 3602208669

Lead Agency Contact Information

Lead Agency: Air Force

Attachment 3

A.4.3 ESA Section 7 Consultation Response from USFWS for MacDill AFB

Consultation with the USFWS regarding Alternative 1 is ongoing. Response documentation will be incorporated into the Final EIS.

A.4.1 ESA Section 7 Consultation Response from NMFS for MacDill AFB

From: nmfs ser esa consultations - NOAA Service Account <nmfs.ser.esa.consultations@noaa.gov>
Sent: Tuesday, January 17, 2023 4:29 PM
To: RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE <andrew.rider.2@us.af.mil>
Cc: Karla Reece - NOAA Federal <karla.reece@noaa.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] Re: MacDill AFB KC-46A MOB 6 EIS Sec 7 - NMFS Letter

Hello,

Because you determined No Effect for all species, Section 7 consultation is not necessary. NMFS does not concur with or review "No Effect" determinations under Section 7 of the Endangered Species Act. You can find effect determination guidance for Section 7 of the ESA on our website here: Making a "No Effect" Determination. **Based on this, your consultation request has been withdrawn**.

Also, you may find a host of information about the ESA Section 7 Process on our Section 7 Guidance webpage. It would be prudent for you to document to your project files your rationale behind your No Effect determination. That way should you ever be questioned about your ESA responsibilities you will be able to share the rationale behind your determinations.

If you have any questions, please let me know.
Thank you,
Karla

I am 100% Teleworking due to Covid-19. Please email any questions or concerns for the most efficient response.

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Karla Reece- *(she/her)*
Section 7 Team Lead
Interagency Cooperation Branch
Protected Resources
NOAA Fisheries | U.S. Department of Commerce
Southeast Regional Office
National Marine Fisheries Service
email: karla.reece@noaa.gov

Section 7 Guidance Webpage - UPDATED URL
Updated Construction Conditions, (May 2021)

NOAA FISHERIES

This is a U.S. government email account. Your emails to this address may be reviewed or archived. Please do not send inappropriate material. Thank you.

On Tue, Nov 29, 2022 at 8:39 AM nmfs ser esa consultations - NOAA Service Account <nmfs.ser.esa.consultations@noaa.gov> wrote:

National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division has received your request for Endangered Species Act Section 7 consultation. Your consultation request will be logged in and assigned to a Consultation Biologist in the order it was received. Consultation requests are assigned to the next available Consultation Biologist as workload allows. Once it is assigned you will receive an email from the Consulting Biologist notifying you of their contact information.

Please note: Because of the large number of Requests for Additional Information we have to send due to incomplete consultation requests, we are starting to return consultation requests that aren't complete or that have conflicting information.

The project has been assigned a tracking number in our NMFS Environmental Consultation Organizer (ECO), SERO-2022-03003. Please refer to the ECO tracking number if you should have any future inquiries regarding this project. ECO does not have current project status at this time.

If you have any questions about the status of your request, please reply to this email.

On Tue, Nov 29, 2022 at 8:05 AM RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE <andrew.rider.2@us.af.mil> wrote:

Good Morning,

MacDill AFB is pleased to provide you the attached request for consultation related to the KC-46A Main Operating Base (MOB) #6 project.

We seek input from NOAA-NMFS on the proposed work and our determination of effect, and/or recommended best management practices that could be utilized to improve listed species protection.

Please let us know if you have any questions about the proposed project.

Thanks

V/R

Andy Rider, PE, GS-12, DAF
Chief, Environmental Element
6 CES/CEIE
MacDill AFB, FL
DSN: 968-2718
(813) 828-2718
Cell: 352-536-5634

A.4.2 ESA Section 7 Consultation Response from USFWS for Fairchild AFB

Fw: [EXTERNAL] RE: Fairchild AFB Section 7 Initiation KC-46 MOB 6 EIS

Campbell Hansen, Julie <julie_campbellhansen@fws.gov>
Mon 1/9/2023 2:06 PM
To: joshua.potter.2@us.af.mil <joshua.potter.2@us.af.mil>

1 attachments (1 MB)
[EXTERNAL] RE: Fairchild AFB Section 7 Initiation KC-46 MOB 6 EIS;

Hello Joshua

I am responding to the Air Force's request for concurrence with your "no effect" determination for federally listed species resulting from the KC-46 MOB 6 beddown, Fairchild AFB alternative. The US Fish and Wildlife Service has no regulatory or statutory authority under the ESA to concur with "no effect" determinations, and therefore, there is no requirement for the Air Force to consult. The "no effect" determination rests with the Air Force.

Thank you for informing us of the Draft EIS availability, and for your attention to conservation of federally listed species.

Regards,
Julie Campbell

Julie Campbell
Inland Columbia Basin Zone Supervisor
U.S. Fish and Wildlife Service
Eastern Washington Field Office
email: julie_campbellhansen@fws.gov
work cell: 509-393-5883

From: Thompson, Brad <brad_thompson@fws.gov>
Sent: Wednesday, December 21, 2022 8:00 AM
To: joshua.potter.2@us.af.mil <joshua.potter.2@us.af.mil>
Cc: Krupka, Jeff <jeff_krupka@fws.gov>; Campbell Hansen, Julie <julie_campbellhansen@fws.gov>; Froschauer, Ann <ann_froschauer@fws.gov>
Subject: Fw: [EXTERNAL] RE: Fairchild AFB Section 7 Initiation KC-46 MOB 6 EIS

Hi Joshua,

I am confirming receipt and have cc'd our eastern Washington office supervisors.

Thank you,
Brad

Brad Thompson
State Supervisor
US Fish and Wildlife Service
Washington Ecological Services Office
510 Desmond Dr. SE, Suite 102

Lacey, WA 98503

360-753-4652 office
360-790-8187 cell
brad_thompson@fws.gov
(He/His/Him)

From: POTTER, JOSHUA S GS-12 USAF AMC 92 CES/CEIE <joshua.potter.2@us.af.mil>
Sent: Wednesday, December 21, 2022 7:20 AM
To: Thompson, Brad <brad_thompson@fws.gov>
Subject: [EXTERNAL] RE: Fairchild AFB Section 7 Initiation KC-46 MOB 6 EIS

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

A.5 Coastal Zone Management Act – Coastal Consistency Determination

A.5.1 Introduction

This document provides the State of Florida with the DAF's Federal Consistency Determination under the Coastal Zone Management Act (CZMA) Section 307 and 15 Code of Federal Regulations (CFR) Section 930 Subpart C. The information in this Consistency Determination is provided pursuant to 15 CFR Part 930.39; Section 307 of the CZMA; and 16 United States Code 1456, as amended, and its implementing regulations at 15 CFR Part 930.

A.5.2 Proposed Federal Agency Action

This Federal Consistency Determination addresses the DAF's Main Operating Base #6 (MOB 6) mission to beddown 24 KC-46A aircraft as well as base facilities, infrastructure, and workforce to support two squadrons of 12 KC-46A Primary Aerospace Vehicle Authorization (PAA) at MacDill Air Force Base (AFB) between fiscal year (FY) 2026 and 2028.

Alternative 1 would base 24-KC46A PAA in two squadrons at MacDill AFB, replacing 24 KC-135 PAA, resulting in no net change of PAA supporting the aerial refueling missions. Facility construction and renovation would be required to support operations and maintenance of the KC-46A PAA. New construction would include two new storage facilities. Renovation of seven existing facilities as well as 18 alteration actions to expand existing facilities and infrastructure would be required, resulting in an increase of approximately 9.4 acres of impervious surfaces and approximately 16.6 acres of ground disturbance. Approximately 1,092 DAF personnel and 1,674 associated dependents would be added to support the KC-46A mission with the relocation or reassignment of approximately 858 KC-135 personnel and 1,625 associated dependents, representing an approximate 1 percent net increase in MacDill AFB's population. Annual refueling tanker aircraft operations at MacDill AFB would increase by approximately 15 percent, and would use existing airspace and training areas currently or previously used by refueling tanker aircraft.

The purpose of Alternative 1 at MacDill AFB is to recapitalize aging tanker aircraft with the KC-46A model to better address current and future mission requirements, offer expanded capability, and provide life-cycle cost savings in comparison to continued operation of existing KC-135 aircraft. The Proposed Action under Alternative 1 to establish MOB 6 is intended to provide a fully capable, combat operational KC-46A aerial refueling force at MacDill AFB to accomplish aerial refueling and related missions. The mission-ready KC-46A squadrons would allow immediate and effective employment in exercises, peacekeeping operations, contingencies, and combat. The KC-46A beddown and operation would allow the DAF to maintain combat capability and mission readiness as U.S. military resources commit to missions throughout the world.

Alternative 1 at MacDill AFB is needed because the KC-46A would provide mission essential capabilities currently lacking in the existing tanker fleet, including receiver capability, night vision imaging system, multi-point refueling, command and control network, and defensive protection.

A.5.3 Federal Consistency Review

The Florida Statutes addressed as part of the Florida Coastal Management Program consistency review and considered in the analysis of Alternative 1 at MacDill AFB are discussed in **Table A-5**.

Table A-5. Florida Coastal Management Program Federal Consistency Review

Statute	Scope	Consistency
Chapter 161, F.S. *Beach and Shore Preservation*	Authorizes the Florida Department of Environmental Protection to regulate construction on or seaward of the state's beaches	Alternative 1 would not affect coastal areas, including beach and shore management, because no construction nor other activities would occur on or near beach areas.
Chapter 163, F.S. *Intergovernmental Programs: Growth Policy; County and Municipal Planning; Land Development Regulation*	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner that is consistent with the public interest	Alternative 1 would not impact local government comprehensive plans.
Chapter 186, F.S. *State and Regional Planning*	Details state-level planning requirements; requires the development of special statewide plans governing water use, land development, and transportation	State and regional agencies will be provided the opportunity to review the KC-46A MOB 6 Beddown Environmental Impact Statement. Alternative 1 would not affect nor interfere with the development of state plans for water use, land development, and transportation.
Chapter 252, F.S. *Emergency Management*	Directs the state to reduce the vulnerability of its people and property to natural and human-made disasters; prepare for, respond to, and reduce the impacts of disasters; and decrease the time and resources needed when responding to disasters	Alternative 1 would not have adverse impacts on the ability of the state to manage and respond to natural and human-made disasters.
Chapter 253, F.S. *State Lands*	Provides the framework for conservation and protection of natural and cultural resources on state-owned lands	Alternative 1 would occur on federal property and use existing airspace; therefore, no impact on state-owned lands would occur.
Chapter 258, F.S. *State Parks and Preserves*	Addresses administration and management of state parks, preserves, and recreation areas	Alternative 1 would not impact state parks, recreational areas, nor preserves.

Statute	Scope	Consistency
Chapter 259, F.S. *Land Acquisitions for Conservation or Recreation*	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands	Alternative 1 would not affect publicly owned lands for tourism or outdoor recreation.
Chapter 260, F.S. *Florida Greenways and Trails Act*	Authorizes acquisition of land to create a recreational trails system (Florida Greenways and Trails System) and to facilitate management of the system	Alternative 1 would not include the acquisition of land and would not affect the Greenways and Trails Program.
Chapter 267, F.S. *Historical Resources*	Addresses management and preservation of the state's archaeological and historic resources	Alternative 1 at MacDill AFB would affect historic resources through modifications of Hangars 1, 2, 3, 4, and 5, which are individually eligible for National Register of Historic Places (NRHP) listing and are contributing resources to the MacDill Field Historic District. Adverse effects under Section 106 of the National Historic Preservation Act (NHPA) would occur due to modification of the hangars. Temporary impacts (visual, noise, vibration) on historic properties would be expected during construction activities. Proposed new facilities would be designed to be compatible with the MacDill Field Historic District's architectural styles and consistent with other recent buildings constructed within the district. It is anticipated that the potentially long-term, major, adverse effects on architectural resources under NHPA Section 106 that would result from Alternative 1 could be successfully mitigated in consultation with the Florida State Historic Preservation Office (SHPO) through the development and implementation of a Memorandum of Understanding, and the resulting long-term effects would be reduced to moderate The DAF is satisfying its responsibilities under Section 106 of the NHPA concurrent with the National Environmental Policy Act process, as provided for in 36 CFR 800.8(a), by consulting with the Florida SHPO and the Advisory Council on Historic Preservation as necessary. Alternative 1 would not affect archaeological or traditional resources because no such properties have been identified within the Area of Potential Effects.
Chapter 288, F.S. *Commercial Development and Capital Improvements*	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy	Alternative 1 would not have adverse impacts on Florida industries or economic diversification efforts.

Statute	Scope	Consistency
Chapter 334, F.S. *Transportation Administration*	Addresses the transportation administration policies of the state	Short-term, negligible impacts are anticipated on the transportation network at MacDill AFB from construction vehicles, which would comprise a small percentage of the total existing traffic. Long-term, negligible to minor, adverse impacts could result from the increase in personnel and dependents, and potential increased congestion that would primarily occur at access gates during peak hours. No permanent impacts nor alterations to the transportation network would occur.
Chapter 339, F.S. *Transportation Finance and Planning*	Addresses the state's transportation systems finance and planning needs	Alternative 1 would not affect the finance and planning needs of the state's transportation system.
Chapter 373, F.S. *Water Resources*	Addresses conservation and preservation of water resources, water quality, and environmental quality.	Short-term, negligible to minor, adverse impacts would occur during construction and renovation projects associated with the beddown from potential intersection risk with the surficial aquifer as well as increased sedimentation. Long-term, minor, adverse impacts would occur on surface water and floodplains from the increased rate and volume of stormwater runoff due to an increase in impervious surfaces. Impacts would be minimized through implementation of environmental protection and best management practices (BMPs) and by following the project-specific and installation Stormwater Pollution Prevention Plans (SWPPPs). All applicable permits would be coordinated in accordance with Florida's statutes and the National Pollutant Discharge Elimination System. Therefore, the Alternative 1 would be consistent with Florida's statutes and regulations regarding the water resources of the state.
Chapter 375, F.S. *Outdoor Recreation and Conservation Lands*	Addresses the development of a comprehensive multipurpose outdoor recreation plan	Alternative 1 would not affect opportunities for outdoor recreation on state lands.
Chapter 376, F.S. *Pollutant Discharge Prevention and Removal*	Regulates the transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges	All petroleum, oils, and lubricants would be managed through implementation of the installation's Spill Prevention, Control, and Countermeasures Plan. Handling, storage, transportation, and disposal activities would be conducted in accordance with applicable federal, state, and local regulations; DAF Instructions; and the MacDill AFB Hazardous Waste Management Plan.
Chapter 377, F.S. *Energy Resources*	Addresses the regulation, planning, and development of oil and gas resources of the state	Alternative 1 would not affect energy resource production, including oil and gas, in Florida.

Statute	Scope	Consistency
Chapter 379, F.S. *Fish and Wildlife Conservation*	Addresses the management of the wildlife resources of the state	Alternative 1 would occur in improved or semi-improved areas that provide habitat for few native wildlife species. Implementation of Alternative 1 would result in short-term, negligible to minor, adverse impacts on wildlife and special status species from increased noise and potential displacement due to actions associated with construction, demolition, and renovation. Short-term, minor, adverse impacts on wildlife would occur from noise associated with heavy equipment use and increased human presence during facility construction, demolition, and renovation. Long-term, negligible, adverse impacts on wildlife would occur from the permanent loss of potential habitat for wildlife. Similarly, implementation of Alternative 1 would result in short-term, minor, adverse impacts to federally and state protected species from increased noise and potential displacement due to actions associated with construction, demolition, and renovation as well as long-term, minor, adverse impacts from the slightly increased BASH risk as a result of the proposed KC-46A aircraft operations. Impacts relating to noise exposures on special status species would be unchanged from existing conditions
Chapter 380, F.S. *Land and Water Management*	Establishes state land and water management policies to guide and coordinate local decisions relating to growth and development	Alternative 1 would be consistent with state and local policies regarding growth and development. Alternative 1 would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, nor use of state funds for infrastructure planning, designing, or construction.
Chapter 381, F.S. *Public Health: General Provisions*	Establishes public policy concerning the state's public health system	Alternative 1 would not affect the state's policy concerning the public health system.
Chapter 388, F.S. *Mosquito Control*	Addresses mosquito control efforts in the state	Alternative 1 would not affect mosquito control efforts.
Chapter 403, F.S. *Environmental Control*	Establishes public policy concerning environmental control (i.e., pollution control) in the state	Alternative 1 would have negligible to minor impacts on groundwater and surface water quality and quantity, protection of potable water supply, floodplains and wetlands, and the conservation of environmentally sensitive living resources. Alternative 1 would have minor to moderate impacts on air quality. Minimization measures for these impacts are identified in the EIS.

Statute	Scope	Consistency
Chapter 553, F.S. *Building Construction Standards*	Addresses building construction standards for a unified Florida Building Code	Alternative 1 would comply with the state's construction standards; therefore, no impacts on building construction standards would occur. New facilities would be constructed in conformance with Executive Order 14008, Department of Defense's (DoD's) UFC-2-100-01, the DoD's *2021 Climate Adaptation Plan,* Federal Emergency Management Agency Federal Flood Risk Management Standards, including elevating facilities above the floodplain, and Southwest Florida Water Management District permit requirements to avoid or minimize flood impacts.
Chapter 582, F.S. *Soil and Water Conservation*	Provides for the control and prevention of soil erosion	Soil disturbance would occur during construction and renovation projects associated with Alternative 1, but would be controlled through implementation of environmental protection measures and BMPs. Additionally, adherence to site-specific Erosion and Sediment Control Plans, both site-specific and installation SWPPPs, and Section 438 of the Energy Independence and Security Act would further minimize impacts.
Chapter 597, F.S. *Aquaculture*	Establishes public policy to enhance the growth of aquaculture	Alternative 1 would not affect aquaculture.

Key: F.S. = Florida Statute; NHPA = National Historic Preservation Act; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Officer; BMP = best management practices; SWPPP = Stormwater Pollution Prevention Plans; EIS = Environmental Impact Statement; DoD = Department of Defense; DAF = Department of the Air Force; CFR = Code of Federal Regulations

Based on the information and analysis provided in **Table A-5**, MacDill AFB finds that the Proposed Action Alternative at MacDill AFB, under which 24 KC-46A aircraft would replace 24 KC-135 aircraft, is consistent with the applicable enforceable policies and mechanisms of the Florida Coastal Management Program.

Pursuant to 15 CFR 930.41, the Florida State Clearinghouse has 60 days from receipt of this document to concur with, or object to, this Consistency Determination, or to request an extension in writing under 15 CFR 930.41(b). Florida's concurrence will be presumed if MacDill AFB does not receive its response by the 60th day from receipt of this determination.

B

Air Quality Analysis Supporting Documentation

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Appendix B: Air Quality Analysis Supporting Documentation

The emission factors presented in this appendix are imbedded within the United States Department of the Air Force (DAF) Air Conformity Applicability Model (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).

The following on-road vehicle type abbreviations and their definitions are used throughout this appendix.

LDGV: Light-Duty Gasoline Vehicle (Passenger Cars)
LDGT: Light-Duty Gasoline Truck (0–8,500 Pounds Gross Vehicle Weight Rating [GVWR])
HDGV: Heavy-Duty Gasoline Vehicle (8,501 to > 60,000 Pounds GVWR)
LDDV: Light-Duty Diesel Vehicle (Passenger Cars)
LDDT: Light-Duty Diesel Truck (0–8,500 Pounds GVWR)
HDDV: Heavy-Duty Diesel Vehicle (8,501 to > 60,000 Pounds GVWR)
MC: Motorcycles (Gasoline)

B.1 Alternative 1 – ACAM Report Record of Air Analysis (ROAA)

1. General Information: The DAF's ACAM was used to perform an analysis to assess the potential air quality impacts associated with the action in accordance with 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: MACDILL AFB
State: Florida
County(s): Hillsborough
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: KC-46A Main Operating Base #6 Beddown

c. Project Number/s (if applicable): Alternative 1: KC-46A Beddown at MacDill AFB, Florida

d. Projected Action Start Date: 10/2025

e. Action Description:

Alternative 1 would base 24 KC-46A aircraft in two squadrons of 12 PAA at MacDill AFB as an active duty, Continental United States location for the KC-46A MOB 6 beddown. The KC-46A beddown would occur in two stages: beddown and operational. The beddown stage would involve construction/retrofit of required facilities, infrastructure, and prepared surfaces, which includes renovation, alteration, and demolition. The beddown stage would also include preparing support facilities for new personnel and students to support the mission. The operational stage would involve conducting day-to-day activities (e.g., operational missions, maintenance) at the installation, including flight operations and training in the existing regional airspace.

f. Point of Contact:
Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number: (484) 612-1100

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 DAF'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*.

"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/year Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5 percent of any NAAQS), and the GCR *de minimis* values (25 ton/year for lead and 100 ton/year for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5 percent 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:

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.441	250	No
NOx	2.350	250	No
CO	3.528	250	No
SOx	0.008	250	No
PM 10	41.342	250	No
PM 2.5	0.090	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	789.5		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.058	250	No
NOx	5.924	250	No
CO	8.660	250	No
SOx	0.018	250	No
PM 10	13.732	250	No
PM 2.5	0.233	250	No
Pb	0.000	25	No
NH3	0.007	250	No
CO2e	1772.9		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.018	250	No
NOx	5.744	250	No
CO	8.325	250	No
SOx	0.017	250	No
PM 10	0.228	250	No
PM 2.5	0.227	250	No
Pb	0.000	25	No
NH3	0.006	250	No
CO2e	1691.6		

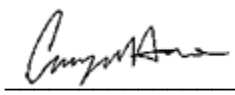
2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	12.297	250	No
NOx	39.685	250	No
CO	6.441	250	No
SOx	1.038	250	No
PM 10	-1.698	250	No
PM 2.5	-0.601	250	No
Pb	0.000	25	No
NH3	0.013	250	No
CO2e	4456.8		

2029 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	10.418	250	No
NOx	141.510	250	No
CO	0.768	250	No
SOx	4.101	250	No
PM 10	-7.478	250	No
PM 2.5	-3.085	250	No
Pb	0.000	25	No
NH3	0.032	250	No
CO2e	12750.5		

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 would not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.



Carolyn Hein, Contractor

10/27/2022

B.2 Alternative 1 – Detail ACAM Report for the Beddown of 24 KC-46A PAA at MacDill AFB

B.2.1 General Information

- Action Location
Base: MACDILL AFB
State: Florida
County(s): Hillsborough
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: KC-46A Main Operating Base #6 Beddown

- Project Number/s (if applicable): Alternative 1: KC-46A Beddown at MacDill AFB, Florida

- Projected Action Start Date: 10 / 2025

- Action Purpose and Need:
The purpose of the Proposed Action is to recapitalize aging tanker aircraft (KC-135 Stratotanker) currently used by the Department of the Air Force with the KC-46A model to better address current and future mission requirements, offer expanded capability, and provide life-cycle cost savings in comparison to continued operation of existing KC-135 Stratotanker.

The Proposed Action to establish Main Operating Base #6 (MOB 6) is intended to provide a fully capable, combat operational KC-46A aerial refueling force at the MOB 6 location(s) to accomplish aerial refueling and related missions. The mission-ready KC-46A squadrons would allow immediate and effective employment in exercises, peacekeeping operations, contingencies, and combat. Bedding down and operating the KC-46A would allow DAF to maintain combat capability and mission readiness as U.S. military resources commit to missions throughout the world.

The MOB 6 beddown of the KC-46A is needed because the KC-46A would provide mission essential capabilities currently lacking in the existing tanker fleet, resulting in fully capable, combat-operational tanker force to accomplish aerial refueling and related worldwide missions. Additional capabilities include receiver capability, night vision, multi-point refueling, connectivity to command and control assets, and defensive protection.

- Action Description:
Alternative 1 would base 24 KC-46A aircraft in two squadrons of 12 Primary Aerospace Vehicle Authorization (PAA) at MacDill AFB as an active duty, continental United States location for the KC-46A Main Operating Base #6 (MOB 6) beddown. The KC-46A beddown would occur in two stages: a beddown stage and an operational stage. The beddown stage would involve construction/retrofit of required facilities, infrastructure, and prepared surfaces, which includes renovation, alteration, and demolition. The beddown stage would also include preparing support facilities for new personnel and students to support the mission. The operational stage would involve conducting day-to-day activities (e.g., operational missions, maintenance) at the installation, including flight operations and training in the existing regional airspace.

- Point of Contact
Name: Carolyn Hein

Title: Contractor
Organization: HDR EOC
Email:
Phone Number: (484) 612-1100

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	New Facility Construction
3.	Construction / Demolition	Facility Renovations
4.	Construction / Demolition	Facility and Airfield Improvements
5.	Personnel	Addition of Personnel
6.	Heating	Heating of New Facilities
7.	Paint Booth	KC-46A Maintenance Hangar Paint Booth
8.	Aircraft	Beddown of 24 KC-46A Aircraft at MacDill AFB, Florida - LTOs, APU, Engine Testing
9.	Aircraft	Remove 24 KC-135R Aircraft from MacDill AFB, Florida - LTOs, APU, Engine Testing
10.	Aircraft	Beddown of 24 KC-46A Aircraft at MacDill AFB, Florida - TGOs
11.	Aircraft	Remove 24 KC-135R Aircraft from MacDill AFB, Florida - TGOs

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.

B.2.2 Construction/Demolition

B.2.2.1 General Information & Timeline Assumptions

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

- Activity Title: New Facility Construction

- Activity Description:
Construction of New Facilities:
DASH-21 Facility (19,656 square feet)
High Bay Supply/Bulk Storage Warehouse (5,798 square feet)

Assumed no materials are required to be hauled on- or off-site due to site grading; excavated spoils will be used on-site. Conservatively assumed all site grading for new facility construction is done in FY2025.

Also assumed the following: (1) no new emergency generator(s), or if any were needed for new facilities, their emissions would be offset by removing a generator(s) that was supporting KC-135 operations/facilities; (2) for special vehicles and non-road combustion equipment needed to support KC-46A operations/facilities, their operation/emissions would be equally offset by eliminating or reusing vehicles and non-road equipment that were supporting KC-135 operations/facilities; (3) KC-46A deicing, 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 KC-135 operations/facilities.

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.169184
SO_x	0.016317
NO_x	4.830554
CO	7.314629
PM 10	1.939042

Pollutant	Total Emissions (TONs)
PM 2.5	0.166124
Pb	0.000000
NH_3	0.004882
CO_2e	1572.4

B.2.2.2 Site Grading Phase

B.2.2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

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

B.2.2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 25454
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

B.2.2.2.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.2.2.4 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

B.2.2.3 Trenching/Excavating Phase

B.2.2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 4
Number of Days: 0

B.2.2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2): 25454
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 Equipment 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

B.2.2.3.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851

LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.2.3.4 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

B.2.2.4 Building Construction Phase

B.2.2.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.2.2.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft²): 25454
Height of Building (ft): 35
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

B.2.2.4.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.2.4.4 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

B.2.2.5 Architectural Coatings Phase

B.2.2.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 9
Start Quarter: 1
Start Year: 2028

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

2.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 25454
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

B.2.2.5.2 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.2.5.3 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

B.2.3 Construction/Demolition

B.2.3.1 General Information & Timeline Assumptions

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

- Activity Title: Facility Renovations

- Activity Description:
Facility Renovations [Assumed 25 percent of total square footage (229,376 square feet) is construction to equate the renovations]:
ATGL Storage; Building 1042 (6,417 square feet)
MPC/AFE; Building 6 (30,331 square feet)
AD ARSs x 2; Building 56 (30,037 square feet)
AFRC ARSs x 2; Building 53 (19,476 square feet)
AFRC OSS; Building 9 (8,304 square feet)
FUT; Building 1071 (27,370 square feet)
Washracks and Bird Bath Facilities 563, 580, and 1359 (107,441 square feet)

Total square footage = 229,376 square feet (25 percent of total square footage = 57,344 square feet)

Assumed 229,376 square feet would require architectural coatings.

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	3.396374
SO_x	0.013641
NO_x	4.178912
CO	6.235306
PM 10	0.143305

Pollutant	Total Emissions (TONs)
PM 2.5	0.142637
Pb	0.000000
NH_3	0.005041
CO_2e	1317.9

B.2.3.2 Building Construction Phase

B.2.3.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.2.3.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 57344
Height of Building (ft): 35
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

B.2.3.2.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.3.2.4 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

B.2.3.3 Architectural Coatings Phase

B.2.3.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 6
Number of Days: 0

B.2.3.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 229376
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

B.2.3.3.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.3.3.4 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

B.2.4 Construction/Demolition

B.2.4.1 General Information & Timeline Assumptions

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

- Activity Title: Facility and Airfield Improvements

- Activity Description:
Facility and Airfield Improvements:
Add/Alter AGE; Construct Jack Testing Pad in Maintenance Building; Building 552 (18,614 square feet)
Add/Alter Ed Ctr/ALS; Building 252 (37,685 square feet renovation area; 2,850 square feet addition)
Add/Alter Corrosion Control Hangar 1 (75,350 square foot renovation area; 11,302 square foot addition)
Add/Alter General Purpose MX Hangar 2 (69,707 square foot renovation area; 11,302 square foot addition)
Add/Alter General Purpose MX Hangar 3 (11,302 square foot addition)
Add/Alter General Purpose MX Hangar 4 (69,707 square foot renovation area; 11,302 square foot addition)
Add/Alter Fuel Cell Hangar 5 (47,716 square foot renovation area; 11,302 square foot addition)
Add/Alter Wheel and Tire Shop; Building 44 (4,000 square feet)
Add/Alter BOT; Building 295 (5,005 square foot renovation; 1,604 square footage addition)
Add/Alter AMU; Building 55 (22,199 square feet)
Add/Alter Apron & Hydrant Fueling Pits (679,666 square foot renovation; 371,667 square foot addition)

For buildings where renovations are to be determined or where both renovations and additions are to be determined, assumed total square footage would undergo renovations.

Assumed 25 percent of total building renovation area is construction to equate the renovations. Assumed 100 percent of additional square footage is construction to equate the additions. Assumed 100 percent of building renovations and additions would require architectural coatings.

Total building renovation square footage = 465,206 square feet
25 percent of total building renovation square footage = 116,301.5 square feet
Total building addition square footage = 49,662 square feet

Total assumed construction area: 165,963.5 square feet

Assumed 500 square feet needed for trenching plus total facility and airfield renovation/addition square footage for excavation.

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	7.643912
SO_x	0.026862
NO_x	9.316662
CO	13.212183
PM 10	53.389972

Pollutant	Total Emissions (TONs)
PM 2.5	0.411725
Pb	0.000000
NH_3	0.009976
CO_2e	2632.8

B.2.4.2 Trenching/Excavating Phase

B.2.4.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

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

B.2.4.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1331337
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 Equipment 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

B.2.4.2.3 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	000.578	000.008	000.613	005.086	000.009	000.008		000.034	00391.932
LDGT	000.823	000.010	001.060	008.566	000.010	000.009		000.034	00522.586
HDGV	001.597	000.016	002.785	026.982	000.023	000.020		000.046	00814.010
LDDV	000.216	000.004	000.307	004.001	000.006	000.006		000.008	00402.372
LDDT	000.537	000.006	000.822	008.176	000.008	000.008		000.008	00626.077
HDDV	000.762	000.015	007.639	002.810	000.395	000.363		000.028	01633.017
MC	003.190	000.008	000.648	014.785	000.027	000.024		000.048	00392.026

B.2.4.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

B.2.4.3 Building Construction Phase

B.2.4.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36

Number of Days: 0

B.2.4.3.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 165963.5
Height of Building (ft): 35
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

B.2.4.3.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.4.3.4 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

B.2.4.4 Architectural Coatings Phase

B.2.4.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2028

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

B.2.4.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 514868
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

B.2.4.4.3 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.4.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

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

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

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

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

- Off-Gassing Emissions per Phase

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

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

B.2.4.5 Paving Phase

B.2.4.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.2.4.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1051333

- 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

B.2.4.5.3 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	000.578	000.008	000.613	005.086	000.009	000.008		000.034	00391.932
LDGT	000.823	000.010	001.060	008.566	000.010	000.009		000.034	00522.586
HDGV	001.597	000.016	002.785	026.982	000.023	000.020		000.046	00814.010
LDDV	000.216	000.004	000.307	004.001	000.006	000.006		000.008	00402.372
LDDT	000.537	000.006	000.822	008.176	000.008	000.008		000.008	00626.077

HDDV	000.762	000.015	007.639	002.810	000.395	000.363		000.028	01633.017
MC	003.190	000.008	000.648	014.785	000.027	000.024		000.048	00392.026

B.2.4.5.4 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)

B.2.5 Personnel

B.2.5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Addition of Personnel

- Activity Description:
Net change of additional 221 military personnel, additional 13 government civilian and contractor personnel, and additional 49 military dependents and family members. Conservatively assumed all military dependents and family members commute.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.524446
SO_x	0.003524
NO_x	0.423095
CO	6.010837
PM 10	0.009370

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.007978
Pb	0.000000
NH_3	0.032357
CO_2e	539.4

B.2.5.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 221
Civilian Personnel: 13
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)

B.2.5.3 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

B.2.5.4 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	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

B.2.5.5 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

B.2.6 Heating

B.2.6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Heating of New Facilities

- Activity Description:
Heating of new facilities: DASH-21 Facility (19,656 square feet); and High Bay Supply/Bulk Storage Warehouse (5,798 square feet). Heating for facility additions (49,662 total square feet).

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.014617
SO_x	0.001595
NO_x	0.265768
CO	0.223245
PM 10	0.020198

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.020198
Pb	0.000000
NH_3	0.000000
CO_2e	320.0

B.2.6.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 75116
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)

B.2.6.3 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

B.2.6.4 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

B.2.7 Paint Booth

B.2.7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: KC-46A Maintenance Hangar Paint Booth

- Activity Description:
KC-46A Maintenance Hangar Paint Booth. Assumed paint booth is relatively small and its operation and emissions will be similar to the reduction in maintenance painting conducted for the KC-135 aircraft that will be removed from the installation. Therefore, it is assumed no emissions increase due to painting.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

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

B.2.7.2 Paint Booth Assumptions

- Paint Booth
Coating throughput (gallons/year): 0

- Default Settings Used: Yes

- Paint Booth Consumption
Coating used: Quick Dry Enamel (default)
Specific gravity of coating: 1.19 (default)
Coating VOC content by weight (%): 32 (default)
Efficiency of control device (%): 0 (default)

B.2.7.3 Paint Booth Formula(s)

- Paint Booth Emissions per Year
PBE_{VOC}= (VOC / 100) * CT * SG * 8.35 * (1 - (CD / 100)) / 2000

PBE_{VOC}: Paint Booth VOC Emissions (TONs per Year)
VOC: Coating VOC content by weight (%)
(VOC / 100): Conversion Factor percent to decimal
CT: Coating throughput (gallons/year)
SG: Specific gravity of coating
8.35: Conversion Factor the density of water
CD: Efficiency of control device (%)
(1 - (CD / 100)): Conversion Factor percent to decimal (Not effected by control device)
2000: Conversion Factor pounds to tons

B.2.8 Aircraft

B.2.8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Beddown of 24 KC-46A Aircraft at MacDill AFB, Florida - LTOs, APU, Engine Testing

- Activity Description:

Beddown 24 KC-46A Aircraft at MacDill AFB, and associated LTOs, APU, and Engine Run-up Testing operations. Assumed aerospace ground equipment (AGE) used for the KC-46A that would be added would be similar to the AGE used for the KC-135A that would be removed. Therefore, AGE-related emissions added from KC-46A beddown would be similar to the reduction in AGE-related emissions from KC-135 removal. Therefore, it is assumed no net emissions change from AGE.

- Activity Start Date

Start Month: 10
Start Year: 2028

- Activity End Date

Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	9.725478
SO_x	3.869567
NO_x	68.681025
CO	35.517619
PM 10	0.262188

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.227532
Pb	0.000000
NH_3	0.000000
CO_2e	11207.7

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

Pollutant	Emissions Per Year (TONs)
VOC	9.604696
SO_x	3.619114
NO_x	62.757517
CO	34.964277
PM 10	0.245676

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.213361
Pb	0.000000
NH_3	0.000000
CO_2e	10450.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.120782
SO_x	0.250453
NO_x	5.923508
CO	0.553342
PM 10	0.016512

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.014171
Pb	0.000000
NH_3	0.000000
CO_2e	757.0

B.2.8.2 Aircraft & Engines

B.2.8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: KC-46A
Engine Model: PW4062

Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

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

B.2.8.2.2 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	1666.68	12.49	1.07	3.78	42.61	0.11	0.10	3234
Approach	5698.45	0.10	1.07	12.17	1.93	0.05	0.04	3234
Intermediate	16865.19	0.08	1.07	25.98	0.50	0.07	0.06	3234
Military	21627.13	0.09	1.07	34.36	0.61	0.08	0.07	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.2.8.3 Flight Operations

B.2.8.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 1306.5
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 0
Number of Annual Trim Test(s) per Aircraft: 1

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi/Idle Out [Idle] (mins): 10.16
Takeoff [Military] (mins): 1.29
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 2.29
Approach [Approach] (mins): 6.54
Taxi/Idle In [Idle] (mins): 10.16

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): 12
AfterBurn (mins): 0

B.2.8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + $AEM_{APPROACH}$ + $AEM_{CLIMBOUT}$ + $AEM_{TAKEOFF}$

AE_{LTO}: 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 TGOs per Year

AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

AE_{TGO} = $AEM_{APPROACH}$ + $AEM_{CLIMBOUT}$ + $AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.2.8.4 Auxiliary Power Unit (APU)

B.2.8.4.1 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	0.87	No	GTCP 331-200ER	Honeywell Inc.

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
GTCP 331-200ER	267.9	0.115	0.284	2.548	1.110	-1.000	-1.000	-1.0

B.2.8.4.2 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

B.2.8.5 Aircraft Engine Test Cell

B.2.8.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 48

- Default Settings Used: No

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1
Idle Duration (mins):	12
Approach Duration (mins):	27
Intermediate Duration (mins):	9
Military Duration (mins):	12
After Burner Duration (mins):	0

B.2.8.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

B.2.8.5.3 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 1000pou
nds
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)

B.2.9 Aircraft

B.2.9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location

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

- Activity Title: Remove 24 KC-135R Aircraft from MacDill AFB, Florida - LTOs, APU, Engine Testing

- Activity Description:
Remove 24 KC-135R Aircraft and associated operations (LTOs, APU, and Engine Testing) at MacDill AFB.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.158940
SO_x	-2.136611
NO_x	-15.188473
CO	-19.005545
PM 10	-2.915565

Pollutant	Emissions Per Year (TONs)
PM 2.5	-1.090785
Pb	0.000000
NH_3	0.000000
CO_2e	-6457.8

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

Pollutant	Emissions Per Year (TONs)
VOC	-0.150614
SO_x	-1.956211
NO_x	-13.634753
CO	-18.159451
PM 10	-2.682746

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.969441
Pb	0.000000
NH_3	0.000000
CO_2e	-5912.5

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	-0.008326
SO_x	-0.180399
NO_x	-1.553719
CO	-0.846094
PM 10	-0.232820

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.121344
Pb	0.000000
NH_3	0.000000
CO_2e	-545.2

B.2.9.2 Aircraft & Engines

B.2.9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: KC-135R
Engine Model: F108-CF-100
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

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

B.2.9.2.2 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	1136.00	0.19	1.07	3.88	23.65	2.07	0.16	3234
Approach	2547.00	0.06	1.07	5.73	8.57	1.55	0.76	3234
Intermediate	5650.00	0.03	1.07	11.04	2.32	0.65	0.36	3234
Military	6458.00	0.03	1.07	12.05	0.36	1.59	1.02	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.2.9.3 Flight Operations

B.2.9.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 631
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 0
Number of Annual Trim Test(s) per Aircraft: 1

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi/Idle Out [Idle] (mins): 10.16
Takeoff [Military] (mins): 1.41
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 3.58
Approach [Approach] (mins): 10.4
Taxi/Idle In [Idle] (mins): 10.16

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): 12
AfterBurn (mins): 0

B.2.9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.2.9.4 Auxiliary Power Unit (APU)

B.2.9.4.1 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

B.2.9.4.2 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

B.2.9.4.3 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

B.2.9.5 Aircraft Engine Test Cell

B.2.9.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 96

- Default Settings Used: No

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1
Idle Duration (mins):	12
Approach Duration (mins):	27
Intermediate Duration (mins):	9
Military Duration (mins):	12

After Burner Duration (mins): 0

B.2.9.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

B.2.9.5.3 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)

B.2.10 Aircraft

B.2.10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Beddown of 24 KC-46A Aircraft at MacDill AFB, Florida - TGOs

- Activity Description:
Beddown 24 KC-46A Aircraft at MacDill AFB - TGOs only

- Activity Start Date
Start Month: 10

Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.512713
SO_x	5.941809
NO_x	106.494523
CO	6.688060
PM 10	0.334010

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.278479
Pb	0.000000
NH_3	0.000000
CO_2e	17958.7

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

Pollutant	Emissions Per Year (TONs)
VOC	0.512713
SO_x	5.941809
NO_x	106.494523
CO	6.688060
PM 10	0.334010

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.278479
Pb	0.000000
NH_3	0.000000
CO_2e	17958.7

B.2.10.2 Aircraft & Engines

B.2.10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: KC-46A
Engine Model: PW4062
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

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

B.2.10.2.2 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	1666.68	12.49	1.07	3.78	42.61	0.11	0.10	3234
Approach	5698.45	0.10	1.07	12.17	1.93	0.05	0.04	3234
Intermediate	16865.19	0.08	1.07	25.98	0.50	0.07	0.06	3234
Military	21627.13	0.09	1.07	34.36	0.61	0.08	0.07	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.2.10.3 Flight Operations

B.2.10.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	5304
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	0
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	1.89
Approach [Approach] (mins):	5.43
Taxi/Idle In [Idle] (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):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

B.2.10.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.2.10.4 Auxiliary Power Unit (APU)

B.2.10.4.1 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	0.87	No	GTCP 331-200ER	Honeywell Inc.

B.2.10.4.2 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
GTCP 331-200ER	267.9	0.115	0.284	2.548	1.110	-1.000	-1.000	-1.0

B.2.10.4.3 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

B.2.11 Aircraft

B.2.11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove 24 KC-135R Aircraft from MacDill AFB, Florida - TGOs

- Activity Description:
Remove KC-135R aircraft at MacDill AFB - TGOs only

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)

Pollutant	Emissions Per Year (TONs)

VOC	-0.200695
SO_x	-3.579069
NO_x	-19.166415
CO	-28.666000
PM 10	-5.187977

PM 2.5	-2.528763
Pb	0.000000
NH_3	0.000000
CO_2e	-10817.5

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

Pollutant	Emissions Per Year (TONs)
VOC	-0.200695
SO_x	-3.579069
NO_x	-19.166415
CO	-28.666000
PM 10	-5.187977

Pollutant	Emissions Per Year (TONs)
PM 2.5	-2.528763
Pb	0.000000
NH_3	0.000000
CO_2e	-10817.5

B.2.11.2 Aircraft & Engines

B.2.11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: KC-135R
Engine Model: F108-CF-100
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

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

B.2.11.2.2 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	1136.00	0.19	1.07	3.88	23.65	2.07	0.16	3234
Approach	2547.00	0.06	1.07	5.73	8.57	1.55	0.76	3234
Intermediate	5650.00	0.03	1.07	11.04	2.32	0.65	0.36	3234
Military	6458.00	0.03	1.07	12.05	0.36	1.59	1.02	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.2.11.3 Flight Operations

B.2.11.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 5130
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins): 0
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 0
Approach [Approach] (mins): 7.68
Taxi/Idle In [Idle] (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): 12
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 12
AfterBurn (mins): 0

B.2.11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.2.11.4 Auxiliary Power Unit (APU)

B.2.11.4.1 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

B.2.11.4.2 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

B.2.11.4.3 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

B.3 Alternative 2 – ACAM Report ROAA

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

a. Action Location:
Base: FAIRCHILD AFB
State: Washington
County(s): Spokane
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: KC-46A Main Operating Base #6 Beddown

c. Project Number/s (if applicable): Alternative 2: KC-46A Beddown at Fairchild AFB, Washington

d. Projected Action Start Date: 10/2025

e. Action Description:

Alternative 2 would base 24 KC-46A aircraft in two squadrons of 12 PAA at Fairchild AFB as an active duty, Continental United States location for the KC-46A MOB 6 beddown. The KC-46A beddown would occur in two stages: beddown and operational. The beddown stage would involve construction/retrofit of required facilities, infrastructure, and prepared surfaces, which includes renovation, alteration, and demolition. The beddown stage would also include preparing support facilities for new personnel and students to support the mission. The operational stage would involve conducting day-to-day activities (e.g., operational missions, maintenance) at the installation, including flight operations and training in the existing regional airspace.

f. Point of Contact:
Name: Carolyn Hein
Title: Contractor
Organization: HDR EOC
Email:
Phone Number: (484) 612-1100

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 DAF'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*.

"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 NAAQSs. These insignificance indicators are the 250 ton/year PSD major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5 percent of any NAAQS), and the GCR *de minimis* values (25 ton/year for lead and 100 ton/year for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5 percent 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:

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.477	250	No
NOx	2.595	250	No
CO	3.734	250	No
SOx	0.009	250	No
PM 10	72.854	250	No
PM 2.5	0.098	250	No
Pb	0.000	25	No
NH3	0.003	250	No
CO2e	856.7		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.111	250	No
NOx	6.362	250	No
CO	8.825	250	No
SOx	0.019	250	No
PM 10	21.365	250	No
PM 2.5	0.245	250	No
Pb	0.000	25	No
NH3	0.008	250	No
CO2e	1883.3		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.071	250	No
NOx	6.181	250	No
CO	8.491	250	No
SOx	0.018	250	No
PM 10	0.241	250	No
PM 2.5	0.239	250	No
Pb	0.000	25	No
NH3	0.008	250	No
CO2e	1802.0		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	14.613	250	No
NOx	39.994	250	No
CO	7.869	250	No
SOx	1.185	250	No
PM 10	-1.217	250	No
PM 2.5	-0.368	250	No
Pb	0.000	25	No
NH3	0.018	250	No
CO2e	5351.4		

2029 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.979	250	No
NOx	141.432	250	No
CO	5.977	250	No
SOx	4.683	250	No
PM 10	-5.590	250	No
PM 2.5	-2.189	250	No
Pb	0.000	25	No
NH3	0.047	250	No
CO2e	15996.8		

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 would not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Carolyn Hein, Contractor

11/18/2022
DATE

B.4 Alternative 2 – Detail ACAM Report for the Beddown of 24 KC-46A PAA at Fairchild AFB

B.4.1 General Information

- Action Location
Base: FAIRCHILD AFB
State: Washington
County(s): Spokane
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: KC-46A Main Operating Base #6 Beddown

- Project Number/s (if applicable): Alternative 2: KC-46A Beddown at Fairchild AFB, Washington

- Projected Action Start Date: 10 / 2025

- Action Purpose and Need:
The purpose of the Proposed Action is to recapitalize aging tanker aircraft (KC-135 Stratotanker) currently used by the Department of the Air Force with the KC-46A model to better address current and future mission requirements, offer expanded capability, and provide life-cycle cost savings in comparison to continued operation of existing KC-135 Stratotanker.

The Proposed Action to establish Main Operating Base #6 (MOB 6) is intended to provide a fully capable, combat operational KC-46A aerial refueling force at the MOB 6 location(s) to accomplish aerial refueling and related missions. The mission-ready KC-46A squadrons would allow immediate and effective employment in exercises, peacekeeping operations, contingencies, and combat. Bedding down and operating the KC-46A would allow DAF to maintain combat capability and mission readiness as U.S. military resources commit to missions throughout the world.

The MOB 6 beddown of the KC-46A is needed because the KC-46A would provide mission essential capabilities currently lacking in the existing tanker fleet, resulting in fully capable, combat-operational tanker force to accomplish aerial refueling and related worldwide missions. Additional capabilities include receiver capability, night vision, multi-point refueling, connectivity to command and control assets, and defensive protection.

- Action Description:
Alternative 2 would base 24 KC-46A aircraft in two squadrons of 12 Primary Aerospace Vehicle Authorization (PAA) at Fairchild AFB as an active duty, continental United States location for the KC-46A Main Operating Base #6 (MOB 6) beddown. The KC-46A beddown would occur in two stages: a beddown stage and an operational stage. The beddown stage would involve construction/retrofit of required facilities, infrastructure, and prepared surfaces, which includes renovation, alteration, and demolition. The beddown stage would also include preparing support facilities for new personnel and students to support the mission. The operational stage would involve conducting day-to-day activities (e.g., operational missions, maintenance) at the installation, including flight operations and training in the existing regional airspace

- Point of Contact

Name: Carolyn Hein
Title: Contractor
Organization: HDR EOC
Email:
Phone Number: (484) 612-1100

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Beddown 24 KC-46A Aircraft at Fairchild AFB, Washington - LTOs, APU, and Engine Testing
3.	Aircraft	Remove 24 KC-135R Aircraft from Fairchild AFB, Washington - LTOs, APU, Engine Testing
4.	Construction / Demolition	New Facility Construction
5.	Construction / Demolition	Facility Renovations
6.	Construction / Demolition	Facility and Airfield Improvements
7.	Personnel	Addition of Personnel
8.	Heating	Heating of New Facilities
9.	Paint Booth	KC-46A Maintenance Hangar Paint Booth
10.	Aircraft	Beddown 24 KC-46A Aircraft at Fairchild AFB, Washington - TGOs
11.	Aircraft	Remove 24 KC-135R Aircraft from Fairchild AFB, Washington - TGOs

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.

B.4.2 Aircraft

B.4.2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Beddown 24 KC-46A Aircraft at Fairchild AFB, Washington - LTOs, APU, and Engine Testing

- Activity Description:
Beddown 24 KC-46A Aircraft at Fairchild AFB, and associated LTOs, APU, and Engine Run-up Testing operations. Assumed aerospace ground equipment (AGE) used for the KC-46A that would be added would be similar to the AGE used for the KC-135A that would be removed. Therefore, AGE-related emissions added from KC-46A beddown would be similar to the reduction in AGE-related emissions from KC-135 removal. Therefore, it is assumed no net emissions change from AGE.

- Activity Start Date
Start Month: 10
Start Year: 2028

- Activity End Date
Indefinite: Yes

End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	6.941093
SO_x	3.227617
NO_x	62.605160
CO	25.669911
PM 10	0.217618

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.188962
Pb	0.000000
NH_3	0.000000
CO_2e	9267.4

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

Pollutant	Emissions Per Year (TONs)
VOC	6.820312
SO_x	2.977164
NO_x	56.681652
CO	25.116568
PM 10	0.201106

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.174790
Pb	0.000000
NH_3	0.000000
CO_2e	8510.4

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.120782
SO_x	0.250453
NO_x	5.923508
CO	0.553342
PM 10	0.016512

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.014171
Pb	0.000000
NH_3	0.000000
CO_2e	757.0

B.4.2.2 Aircraft & Engines

B.4.2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: KC-46A
Engine Model: PW4062
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

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

B.4.2.2.2 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	1666.68	12.49	1.07	3.78	42.61	0.11	0.10	3234
Approach	5698.45	0.10	1.07	12.17	1.93	0.05	0.04	3234
Intermediate	16865.19	0.08	1.07	25.98	0.50	0.07	0.06	3234
Military	21627.13	0.09	1.07	34.36	0.61	0.08	0.07	3234

After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.4.2.3 Flight Operations

B.4.2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 1306.5
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 0
Number of Annual Trim Test(s) per Aircraft: 1

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins): 7.125
Takeoff [Military] (mins): 1.74
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 1.24
Approach [Approach] (mins): 4.88
Taxi/Idle In [Idle] (mins): 7.125

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): 12
AfterBurn (mins): 0

B.4.2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.4.2.4 Auxiliary Power Unit (APU)

B.4.2.4.1 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	0.87	No	GTCP 331-200ER	Honeywell Inc.

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
GTCP 331-200ER	267.9	0.115	0.284	2.548	1.110	-1.000	-1.000	-1.0

B.4.2.4.2 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

B.4.2.5 Aircraft Engine Test Cell

B.4.2.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 48

- Default Settings Used: No

- Annual Run-ups / Test Durations
Annual Run-ups (Per Aircraft Engine): 1
Idle Duration (mins): 12
Approach Duration (mins): 27
Intermediate Duration (mins): 9
Military Duration (mins): 12
After Burner Duration (mins): 0

B.4.2.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

B.4.2.5.3 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)

B.4.3 Aircraft

B.4.3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove 24 KC-135R Aircraft from Fairchild AFB, Washington - LTOs, APU, Engine Testing

- Activity Description:
Remove 24 KC-135R aircraft and associated operations (LTOs, APU, and Engine Run-up Testing) from Fairchild AFB, Washington.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.126188
SO_x	-1.461731
NO_x	-9.604017
CO	-15.337217
PM 10	-2.210900

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.762207
Pb	0.000000
NH_3	0.000000
CO_2e	-4418.0

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

Pollutant	Emissions Per Year (TONs)
VOC	-0.117862
SO_x	-1.281332
NO_x	-8.050297
CO	-14.491123
PM 10	-1.978081

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.640863
Pb	0.000000
NH_3	0.000000
CO_2e	-3872.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	-0.008326
SO_x	-0.180399
NO_x	-1.553719
CO	-0.846094
PM 10	-0.232820

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.121344
Pb	0.000000
NH_3	0.000000
CO_2e	-545.2

B.4.3.2 Aircraft & Engines

B.4.3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: KC-135R
Engine Model: F108-CF-100
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate

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

B.4.3.2.2 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	1136.00	0.19	1.07	3.88	23.65	2.07	0.16	3234
Approach	2547.00	0.06	1.07	5.73	8.57	1.55	0.76	3234
Intermediate	5650.00	0.03	1.07	11.04	2.32	0.65	0.36	3234
Military	6458.00	0.03	1.07	12.05	0.36	1.59	1.02	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.4.3.3 Flight Operations

B.4.3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	811
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	0
Number of Annual Trim Test(s) per Aircraft:	1

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	7.125
Takeoff [Military] (mins):	0.83
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	0.61
Approach [Approach] (mins):	5.13
Taxi/Idle In [Idle] (mins):	7.125

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):	12
AfterBurn (mins):	0

B.4.3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.4.3.4 Auxiliary Power Unit (APU)

B.4.3.4.1 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

B.4.3.4.2 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

B.4.3.4.3 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

B.4.3.5 Aircraft Engine Test Cell

B.4.3.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 96

- Default Settings Used: No

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1
Idle Duration (mins):	12
Approach Duration (mins):	27
Intermediate Duration (mins):	9
Military Duration (mins):	12
After Burner Duration (mins):	0

B.4.3.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

B.4.3.5.3 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)

B.4.4 Construction/Demolition

B.4.4.1 General Information & Timeline Assumptions

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

- Activity Title: New Facility Construction

- Activity Description:
Construction of New Facilities:
2-Bay Fuel Cell and Wash Rack Hangar with Back Shops (178,013 square feet)
Mission Planning Center (4,238 square feet)
Installation Deployment Readiness Center (21,435 square feet)
Squadron Operations Facility (2 KC-46A ANG) (29,745 square feet)
Supply Warehouse (81,616 square feet)

Total = 315,047 square feet

Assumed no materials are required to be hauled on- or off-site due to site grading; excavated spoils will be used on-site. Conservatively assumed all site grading for new facility construction is done in FY2028.
Also assumed the following: (1) no new emergency generator(s), or if any were needed for new facilities, their emissions would be offset by removing a generator(s) that was supporting KC-135 operations/facilities; (2) For special vehicles and non-road combustion equipment needed to support KC-46A operations/facilities, their operation/emissions would be equally offset by eliminating or reusing vehicles and non-road equipment that were supporting KC-135 operations/facilities; (3) KC-46A deicing, 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 KC-135 operations/facilities.

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	4.684260
SO_x	0.020011
NO_x	6.127169
CO	8.065448
PM 10	22.148181

Pollutant	Total Emissions (TONs)
PM 2.5	0.206927
Pb	0.000000
NH_3	0.009927
CO_2e	1963.9

B.4.4.2 Site Grading Phase

B.4.4.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

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

B.4.4.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 315047
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

B.4.4.2.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.4.2.4 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

B.4.4.3 Trenching/Excavating Phase

B.4.4.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 4
Number of Days: 0

B.4.4.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2): 315047
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 Equipment 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

B.4.4.3.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211

HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.4.3.4 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

B.4.4.4 Building Construction Phase

B.4.4.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.4.4.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 315047
Height of Building (ft): 35
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	7
Forklifts Composite	2	7
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

B.4.4.4.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.4.4.4 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

B.4.4.5 Architectural Coatings Phase

B.4.4.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 9
Start Quarter: 1
Start Year: 2028

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

B.4.4.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 315047
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

B.4.4.5.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.4.5.4 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

B.4.5 Construction/Demolition

B.4.5.1 General Information & Timeline Assumptions

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

- Activity Title: Facility Renovations

- Activity Description:
Facility Renovations [Assumed 25% of total square footage (652,671 square feet) is construction to equate the renovations]:
KC-46A AMXS & 2 AMUs; Building 2090 (27,076 square feet)
KC-135 AMXS & 2 AMUs; Building 2097 (25,254 square feet)
Squadron Operations Facility (2 KC-46A AD ARSs); Building 2005 (23,892 square feet)
Squadron Operations Facility (2 KC-135 AD ARSs); Building 2007 (26,326 square feet)
4-Bay Hangar with Backshops; Building 2050 (463,498 square feet)
DASH-21, AME, ATGL, Seat Pallet, Engine Storage; Building 1003 (31,499 square feet)
AGE MX; Building 1013 (27,563 square feet)
KC-46A CTK; Building 1017 (27,563 square feet)
Enclosed water fill station for deicing operations (4,679 square feet)

Total square footage = 652,671 square feet (25 percent of total square footage = 163,167.75 square feet).

Assumed 652,671 square feet would require architectural coatings.

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	8.339394
SO_x	0.014455
NO_x	4.547789
CO	6.314027
PM 10	0.154533

Pollutant	Total Emissions (TONs)
PM 2.5	0.153051
Pb	0.000000
NH_3	0.006879
CO_2e	1407.8

B.4.5.2 Building Construction Phase

B.4.5.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.4.5.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 163167.75
Height of Building (ft): 35
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

B.4.5.2.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.5.2.4 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

B.4.5.3 Architectural Coatings Phase

B.4.5.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 6
Number of Days: 0

B.4.5.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 652671
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

B.4.5.3.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.5.3.4 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

B.4.6 Construction/Demolition

B.4.6.1 General Information & Timeline Assumptions

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

- Activity Title: Facility and Airfield Improvements

- Activity Description:
Facility and Airfield Improvements:
Flight Simulator Facility / FUT Complex (50,719 square foot addition)
Parking apron and hydrant fuel system expansion (1,612,029 square foot renovation; 398,995 square foot addition)
Engine run-up area (195,553 square foot renovation)
Total renovations = 1,137,582 square feet
Total additions = 449,714 square feet

Total assumed construction area: 50,719 square feet (i.e., Flight Simulator Facility/FUT Complex)
(Assumed 500 square feet needed for trenching plus total facility and airfield renovation/addition square footage for excavation)

- Activity Start Date
Start Month: 10
Start Month: 2025

- Activity End Date
Indefinite: False
End Month: 9

End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	2.253511
SO_x	0.025918
NO_x	9.098818
CO	13.045229
PM 10	72.338287

Pollutant	Total Emissions (TONs)
PM 2.5	0.401796
Pb	0.000000
NH_3	0.008191
CO_2e	2522.4

B.4.6.2 Trenching/Excavating Phase

B.4.6.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

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

B.4.6.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1807796
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 Equipment 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

B.4.6.2.3 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	000.541	000.007	000.605	004.970	000.014	000.013		000.034	00366.775
LDGT	000.730	000.010	001.051	007.932	000.016	000.014		000.034	00491.466
HDGV	001.333	000.015	003.076	026.359	000.041	000.036		000.045	00764.988
LDDV	000.257	000.003	000.316	003.374	000.007	000.006		000.008	00372.571
LDDT	000.574	000.005	000.856	006.977	000.009	000.008		000.008	00581.646
HDDV	000.839	000.014	009.019	002.812	000.375	000.345		000.029	01554.798
MC	002.423	000.008	000.845	015.088	000.029	000.026		000.050	00398.949

B.4.6.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

B.4.6.3 Building Construction Phase

B.4.6.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.4.6.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 50719
Height of Building (ft): 35
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

B.4.6.3.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.6.3.4 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

B.4.6.4 Architectural Coatings Phase

B.4.6.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 9
Start Quarter: 1
Start Year: 2028

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

B.4.6.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 50719
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

B.4.6.4.3 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

6.3.4 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

B.4.6.5 Paving Phase

B.4.6.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2025

- Phase Duration
Number of Month: 36
Number of Days: 0

B.4.6.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1756577

- 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

B.4.6.5.3 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	000.541	000.007	000.605	004.970	000.014	000.013		000.034	00366.775
LDGT	000.730	000.010	001.051	007.932	000.016	000.014		000.034	00491.466
HDGV	001.333	000.015	003.076	026.359	000.041	000.036		000.045	00764.988
LDDV	000.257	000.003	000.316	003.374	000.007	000.006		000.008	00372.571
LDDT	000.574	000.005	000.856	006.977	000.009	000.008		000.008	00581.646
HDDV	000.839	000.014	009.019	002.812	000.375	000.345		000.029	01554.798
MC	002.423	000.008	000.845	015.088	000.029	000.026		000.050	00398.949

B.4.6.5.4 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)

B.4.7 Personnel

B.4.7.1.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Addition of Personnel

- Activity Description:

Net change of additional 334 military personnel, additional 4 government civilian and contractor personnel, and additional 500 military dependents and family members. Conservatively assumed all military dependents and family members commute.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.699765
SO_x	0.005090
NO_x	0.637645
CO	8.213569
PM 10	0.018607

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.016563
Pb	0.000000
NH_3	0.046812
CO_2e	733.8

B.4.7.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 334
Civilian Personnel: 4
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)

B.4.7.3 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

B.4.7.4 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	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

B.4.7.5 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

B.4.8 Heating

B.4.8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Heating of New Facilities

- Activity Description:
Heating of new facilities:
2-Bay Fuel Cell and Wash Rack Hangar with Back Shops (178,013 square feet)

Mission Planning Center (4,238 square feet)
Installation Deployment Readiness Center (21,435 square feet)
Squadron Operations Facility (29,745 square feet)
Supply Warehouse (81,616 square feet)

Heating for facility additions:
Flight Simulator Facility/FUT Complex (50,719 square feet)

Assumed heating occurs over a 6 month period for 4380 hours per year

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.074817
SO_x	0.008162
NO_x	1.360301
CO	1.142653
PM 10	0.103383

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.103383
Pb	0.000000
NH_3	0.000000
CO_2e	1637.7

B.4.8.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 365766
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): 0.0781

- Default Settings Used: No

- Boiler/Furnace Usage
Operating Time Per Year (hours): 4380

B.4.8.3 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

B.4.8.4 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

B.4.9 Paint Booth

B.4.9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: KC-46A Maintenance Hangar Paint Booth

- Activity Description:
KC-46A Maintenance Hangar Paint Booth. Assumed paint booth is relatively small and its operation and emissions will be similar to the reduction in maintenance painting conducted for the KC-135 aircraft that will be removed from the installation. Therefore, it is assumed no emissions increase due to painting.

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

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

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

PM 10	0.000000		

B.4.9.2 Paint Booth Assumptions

- Paint Booth
Coating throughput (gallons/year): 0

- Default Settings Used: Yes

- Paint Booth Consumption
Coating used: Quick Dry Enamel (default)
Specific gravity of coating: 1.19 (default)
Coating VOC content by weight (%): 32 (default)
Efficiency of control device (%): 0 (default)

B.4.9.3 Paint Booth Formula(s)

- Paint Booth Emissions per Year
PBE_{VOC}= (VOC / 100) * CT * SG * 8.35 * (1 - (CD / 100)) / 2000

PBE_{VOC}: Paint Booth VOC Emissions (TONs per Year)
VOC: Coating VOC content by weight (%)
(VOC / 100): Conversion Factor percent to decimal
CT: Coating throughput (gallons/year)
SG: Specific gravity of coating
8.35: Conversion Factor the density of water
CD: Efficiency of control device (%)
(1 - (CD / 100)): Conversion Factor percent to decimal (Not effected by control device)
2000: Conversion Factor pounds to tons

B.4.10 Aircraft

B.4.10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Beddown 24 KC-46A Aircraft at Fairchild AFB, Washington - TGOs

- Activity Description:
Beddown 24 KC-46A Aircraft at Fairchild AFB - TGOs only

- Activity Start Date
Start Month: 10
Start Year: 2028

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

End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.553461
SO_x	6.346934
NO_x	110.278778
CO	7.504077
PM 10	0.351748

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.292431
Pb	0.000000
NH_3	0.000000
CO_2e	19183.2

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

Pollutant	Emissions Per Year (TONs)
VOC	0.553461
SO_x	6.346934
NO_x	110.278778
CO	7.504077
PM 10	0.351748

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.292431
Pb	0.000000
NH_3	0.000000
CO_2e	19183.2

B.4.10.2 Aircraft & Engines

B.4.10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: KC-46A
Engine Model: PW4062
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

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

B.4.10.2.2 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	1666.68	12.49	1.07	3.78	42.61	0.11	0.10	3234
Approach	5698.45	0.10	1.07	12.17	1.93	0.05	0.04	3234
Intermediate	16865.19	0.08	1.07	25.98	0.50	0.07	0.06	3234
Military	21627.13	0.09	1.07	34.36	0.61	0.08	0.07	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.4.10.3 Flight Operations

B.4.10.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 5304
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	0
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	1.85
Approach [Approach] (mins):	6.3
Taxi/Idle In [Idle] (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):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

B.4.10.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.4.10.4 Auxiliary Power Unit (APU)

B.4.10.4.1 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	0.87	No	GTCP 331-200ER	Honeywell Inc.

B.4.10.4.2 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
GTCP 331-200ER	267.9	0.115	0.284	2.548	1.110	-1.000	-1.000	-1.0

B.4.10.4.3 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

B.4.11 Aircraft

B.4.11.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Remove 24 KC-135R Aircraft from Fairchild AFB, Washington - TGOs

- Activity Description:
Remove 24 KC-135R aircraft from Fairchild AFB, Washington - TGOs only

- Activity Start Date
Start Month: 10
Start Year: 2028

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

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.163561
SO_x	-3.443342
NO_x	-23.845448
CO	-21.216073
PM 10	-4.070915

Pollutant	Emissions Per Year (TONs)
PM 2.5	-2.027680
Pb	0.000000
NH_3	0.000000
CO_2e	-10407.3

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

Pollutant	Emissions Per Year (TONs)
VOC	-0.163561
SO_x	-3.443342
NO_x	-23.845448
CO	-21.216073
PM 10	-4.070915

Pollutant	Emissions Per Year (TONs)
PM 2.5	-2.027680
Pb	0.000000
NH_3	0.000000
CO_2e	-10407.3

B.4.11.2 Aircraft & Engines

B.4.11.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: KC-135R
Engine Model: F108-CF-100
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate

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

B.4.11.2.2 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	1136.00	0.19	1.07	3.88	23.65	2.07	0.16	3234
Approach	2547.00	0.06	1.07	5.73	8.57	1.55	0.76	3234
Intermediate	5650.00	0.03	1.07	11.04	2.32	0.65	0.36	3234
Military	6458.00	0.03	1.07	12.05	0.36	1.59	1.02	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

B.4.11.3 Flight Operations

B.4.11.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 24
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 3378.5
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins): 0
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 1.6
Approach [Approach] (mins): 7.67
Taxi/Idle In [Idle] (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):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

B.4.11.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

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

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
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

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

AE_{LTO}: 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 TGOs per Year

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

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
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (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)

B.4.11.4 Auxiliary Power Unit (APU)

B.4.11.4.1 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

B.4.11.4.2 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

B.4.11.4.3 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

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MOB6

KC-46A MAIN OPERATING BASE NO.6 BEDDOWN

HEADQUARTERS AIR MOBILITY COMMAND