DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Environmental Assessment
For the
Temporary Movement Of B-1B Aircraft and Flight Operations to
Grand Forks AFB, North Dakota

This Finding of No Significant Impact (FONSI) was prepared by 28th Bomb Wing, Air Force Global Strike Command (AFGSC), Ellsworth AFB (EAFB), SD, and 319th RW, Air Combat Command (ACC), Grand Forks AFB (GFAFB), ND. This Environmental Assessment (EA) analyzes the potential effects of the Proposed Action and Alternatives as required in accordance with the National Environmental Policy Act of 1969 (NEPA), Title 42 United States Code (USC) §4321 *et seq*.; implementing regulations issued by the President's Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §§1500-1508; and agency regulations, policies, and procedures for implementing CEQ Regulations and NEPA, including: 32 CFR §989, Environmental Impact Analysis Process (EIAP), and Air Force Instruction (AFI) 32-1015, Integrated Installation Planning., The Department of the Air Force (DAF) has prepared this EA to identify and assess the potential environmental consequences associated with the temporary relocation of B-1B aircraft and operations to GFAFB while EAFB is closed to for runway repairs.

The decision in this FONSI is based on information contained in the EA and supporting technical studies, which are hereby incorporated by reference. The EA's purpose was to determine the potential impacts on the environment from the Proposed Action and to evaluate whether any would be significant.

Description of the Proposed Action and Alternatives

The purpose of the proposed action is to temporarily relocate approximately seventeen (17) B-1B aircraft, 1,000 personnel, munitions and support equipment to Grand Forks AFB (GFAFB), ND, from Ellsworth AFB, SD, for approximately 10 months. The 28 BW is the Air Force lead B1-B conventional bomb wing and provides critical rapid deployment and long-range strike capabilities around the world. The 28 BW needs to operate from an alternative airfield while runway repairs are completed between February and November 2025 at EAFB. The host airfield must contain adequate runway length and width to support B-1B operations, and the capability to operate all 17 aircraft from the same airfield. The host airfield must also have requisite infrastructure in place to fuel, support, and supply the B-1B.

Because the military mission must be maintained, the aircraft operating at EAFB and the supporting functions, such as logistic and aircraft maintenance, would be temporarily relocated to GFAFB. GFAFB would provide the 28 BW with ramp, runway space, shared operational facilities

and munition storage and loading areas needed to operate from an alternative runway location during the time the EAFB runway is closed from February through November 2025.

Preferred Alternative

The Preferred Alternative consists of the following components:

- Construction of three temporary hangers on an existing concrete ramp. The hangers are required to perform aircraft maintenance on aircraft. Power to the hangers will be supplied by connecting to the existing commercial power.
- GFAFB is providing hangar 613 for additional aircraft maintenance. The hangar door will need to be modified to accommodate the tail section of the B-1B. Addition electrical and lighting upgrades may also be required.
- Building 556 will be shared with the 319 Reconnaissance Wing (RW). Electrical and HVAC repairs are required to make area useable for operations and mission planning
- Temporary relocation of 17 B-1B. GFAFB has the required space to park the aircraft on the ramp on the east side of the runway.
- Establish a temporary deicing operation at GFAFB. Equipment from EAFB will be transferred to GFAFB for deicing and recovery of deicing fluid.
- Temporary relocation of up to 1,000 airmen and civilians to GFAFB to support operations. The 28 Bomb Wing (BW) will transfer personnel, munitions, equipment and supplies to limit impacts to 319 RW operations.
- One to four sorties would occur per day. Approximately 900 sorties would be completed in the 10-month period.
- The 319 RW has supplied additional workspace in the following buildings for shared use: B520, B521, B522, B556, B601, B603, B605, B607, B609, B613, B633, B661, B668, and B670. The facilities will be used for equipment storage, office space, and addition maintenance areas. Additionally, six (6) munition storage structures are available for use include 739, 740, 743, 744, 745 and 746.
- Potential buildings that may be used during the relocation use with the 319 RW include: B117, B232, B143, B316, B326, B409, B410, B513, B516, B517, B523, B528, B621 and B622. The potential buildings would provide additional administrative space, training areas, and storage. No modifications would be required for use.

No Action Alternative

CEQ regulations recommend consideration of the No Action Alternative which serves as the baseline condition against which the impacts of the Proposed Action and Alternatives can be evaluated. Under the no action alternative, the temporary movement of B-1B Aircraft from

EAFB to GFAFB would not occur. Aircraft and equipment would be grounded at EAFB during the 10-month runway replacement resulting in a loss of training and military readiness.

Best Management Practices and Mitigation

GFAFB (ACC) owns and operates the existing range and will employ Best Management Practices (BMPs) to minimize potential minor adverse environmental impacts and maintain good stewardship. The BMPs will be implemented as appropriate for the proposed action and include measures for airspace, land use, air quality, noise, earth resources, water resources, biological resources, cultural resources, socioeconomics, hazardous waste and materials, and safety and occupational health.

No other measures are required to reduce anticipated effects. If needed, USAF will implement environmental protection measures to minimize effects to the extent feasible. The relocation is temporary and will likely not result in long term adverse impacts. As discussed in sections regarding water resources (3.8.), safety (3.9), hazardous waste (3.12) following Air Force protocols, environmental protection measure, permits and environmental response plans will reduce potential for minor spills including spills of hazardous material, to reach drainages. Environmental protection measures will be used, if it is determined that potentially adverse environmental impacts may occur to reduce impacts below significant levels.

Anticipated Environmental Effects

The analyses of the affected environment and environmental consequences of implementing the Proposed Action presented in the EA, coupled with informal consultation with Fish and Wildlife Service (FWS), concluded that the proposed action "May affect, but not likely to adversely affect," a single endangered species, the Northern Long Eared Bat (NLEB). The base is on the far western edge of NLEB range. It has not been found on base or the surrounding vicinity. Monarch butterflies are listed as a candidate species and have the potential to occur on Grand Forks AFB, however no critical habitat exist in APE and no habitat modification will occur during the relocation. No other threatened and endangered species have been located in the APE and no critical habitat exists on base or within the noise contours for T&E species.

The buildings and hangers that will be used at GFAFB are not eligible for the National Register of Historic Places (NHRP). A class III cultural resource survey was recently completed in 2023 and covered 1,293 acres. No eligible artifacts or historic properties were identified during the extensive survey. This survey encompasses the area the aircraft and personnel will be using during the relocation. No historic properties will be affected by this action.

The USAF has concluded that there would be no significant adverse effects on the following resources as a result of the proposed action: air quality greenhouse gases, biological resources, geology and soils, safety and occupational health, water resources, or socioeconomics. In addition,

the EA concluded that the Proposed Action would not affect environmental justice or create any environmental health and safety risks to children. The noise contours cover significantly more acres than current conditions but are located primarily outside the western portion of the base. Schools, churches and base residences do not fall within the contours. The area surrounding GFAFB is agriculturally based and thus sparsely populated.

Finding of No Significant Impact

Based on my review of the facts and analyses contained in the attached EA, I conclude the temporary beddown of B-1B aircraft, personnel, munitions and equipment would not have a significant environmental impact, either by itself or cumulatively with other projects at and near GFAFB. Accordingly, an environmental impact statement is not required. The signing of the finding of no significant impact completes the environmental impact analysis process. The NOA initiated a 30-day public review and comment period that began September 11, 2024. The USAF anticipated that the public comment period would close on 10 October 2024. The public review period was extended until October 29, 2024, in light of modifications to the published EA; XX comments were received. See attached EA for more information.

_____ _____

TBD DATE

DRAFT ENVIRONMENTAL ASSESSMENT
FOR
THE TEMPORARY MOVEMENT OF B-1B AIRCRAFT AND FLIGHT OPERATIONS TO GRAND FORKS AFB, NORTH DAKOTA

ID Number: EAXX-007-57-000-1723831243

PREPARED BY:

Department of the Air Force

Ellsworth Air Force Base, South Dakota, 57706

14 Oct 2024

Privacy Advisory

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act of 1969 (NEPA), the President's Council on Environmental Quality NEPA Regulations (40 Code of Federal Regulations [CFR] Parts 1500 - 1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. For this EA, the updated September 2020 CEQ NEPA rules (85 Federal Register 43304 through 43376) are being followed, as modified by the CEQ NEPA Implementing Regulations Revisions Final Rule, effective 20 May 2022. The EIAP provides an opportunity for public input on Department of the Air Force (DAF) decision-making, allows the public to offer input on alternative ways for the DAF to accomplish what it is proposing, and solicits comments on the DAF's analysis of environmental effects.

Public commenting allows the DAF to make better informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of this process. Private addresses will be compiled to develop a stakeholders list; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

Compliance with Section 508 of the Rehabilitation Act

This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

Compliance with Revised CEQ Regulations

This document has been verified that it does not exceed 75 pages, not including appendices, as defined in 40 CFR § 1501.5(f). As defined in 40 CFR § 1508.1(v) a "page" means 500 words and does not include maps, diagrams, graphs, tables, and other means of graphically displaying quantitation or geospatial information.

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LIST OF ABBREVIATIONS / ACRONYMS

ACAM	Air Conformity Applicability Model
ACM	Asbestos-containing materials
AF/FP	Anti-terrorism/Force Protection
AFI	Air Force Instruction
AFMAN	Air Force Manual
APE	Area of Potential Effect
APZ	Accident Potential Zone
APZ	Accident Potential Zone
ARPA	Archaeological Resources Protection Act
BG	Block Group
BW	Bomb Wing
C&D	Construction and demolition
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CT	Census Tracts
CZ	Clear Zone
DAFI	Dept. of Air Force Instruction
dBA	decibels
DNL	Day Night Average Sound Level
EA	Environmental Assessment
EAFB	Ellsworth Air Force Base
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
GFAFB	Grand Forks Air Force Base
GHG	Greenhouse gas
HAP	Hazardous Air Pollutant
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resource Management Plan
LBP	Lead-based paint
LQG	Large quantity generator
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
ND	North Dakota
NE	Nebraska
NHPA	National Historic Preservation Act

NO2	Nitrogen dioxide
NOA	Notice of Availability
O_3	Ozone
Pb	Lead
PL	Public Law
PM	Particulate Matter
PRTC	Powder River Training Complex
PSD	Prevention of Significant Deterioration
ROI	Region of Influence
RW	Reconnaissance Wing
SD	South Dakota
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure
SQG	Small quantity generator
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
TX	Texas
U.S.C.	United States Code
USCB	US Census Bureau
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service

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CHAPTER 1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The runway at Ellsworth Air Force Base (EAFB), South Dakota will be closed for repairs for approximately ten months from February through November 2025. In order to ensure continuity of operations, the 28 Bomb Wing (BW) at EAFB must operate from an alternative airfield during the closure period. An Environmental Assessment (EA) is being prepared to evaluate any potential environmental impacts which may result from the temporary relocation of aircraft, equipment, munitions and personnel from EAFB.

The Proposed Action would temporarily relocate approximately seventeen (17) B-1B aircraft, 1,000 personnel, munitions and support equipment to Grand Forks AFB (GFAFB), ND, for approximately 10 months. The Proposed Action would occur during the period that EAFB's runway is closed for repairs.

The 1969 National Environmental Policy Act (NEPA), as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] §§1500-1508) and 32 CFR §989 (*Air Force Environmental Impact Analysis Process*). These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

A Notice of Availability (NOA) for the Draft EA and FONSI, will be published in Forum of Fargo-Moorhead and Grand Forks Herald. Copies of the Draft EA and unsigned Draft FONSI will be made available at the Grand Forks Public Library in Grand Forks, ND. These documents will also be made available on the internet at the https://www.grandforks.af.mil/About-Us/Economic-and-Environmental-Information/. At the same time, copies of the Draft EA and FONSI/FONPA will be distributed to federal, state, and local agencies and applicable Federally recognized Native American Tribes. Copies will also be provided to any other individuals or organizations upon request during the public review period. Applicable and relevant comments received will be addressed in the Final EA.

1.2 LOCATION OF THE PROPOSED ACTION

GFAFB is in Grand Forks County in North Dakota. The City of Grand Forks is approximately 15 miles to the east of the base and the town of Emerado, ND is to the southeast. The area surrounding the base and airfield is rural and has a low population density.

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The CEQ regulations implementing the NEPA require that an EA specify the underlying purpose of and need to which an agency is responding in proposing actions and alternatives (40 CFR 1502.13). The purpose of the proposed action is to temporarily relocate approximately seventeen (17) B-1B aircraft, 1,000 personnel, munitions and support equipment to Grand Forks AFB (GFAFB), ND, from Ellsworth AFB, SD, for approximately 10 months. The need for the proposed action is to ensure that there is no interruption in the mission of the 28 BW. The 28 BW is the Air Force lead B1-B conventional bomb wing and provides critical rapid deployment and long-range strike capabilities around the world. The 28 BW operates two of three squadrons of B-1Bs and must maintain routine operations to ensure military readiness. The 28 BW needs to operate from an alternative airfield while runway repairs are completed between February and November 2025 at EAFB. The host airfield must contain adequate runway length and width to support B-1B operations, and the capability to operate all 17 aircraft from the same airfield. The host airfield must also have requisite infrastructure in place to fuel, support, and supply the B-1B.

1.4 DECISION TO BE MADE

The EA will evaluate the potential environmental consequences associated with the Proposed Action to temporarily relocate B-1B aircraft, operations, and personnel to GFAFB for approximately 10 months of operation. Based on the analysis in the EA, DAF will make one of three decisions regarding the Proposed Action (32 CFR 989.14(a)).

1. Determine the Proposed Action and alternatives would have no significant environmental impacts and issue a signed Finding of No Significant Impact (FONSI).

2. Initiate preparation of an Environmental Impact Statement (EIS) if it is determined that implementing the Proposed Action or alternatives would result in significant environmental impacts.

3. Select the No Action Alternative, whereby the Proposed Action would not be implemented.

As required by NEPA and CEQ regulations implementing NEPA (40 CFR Parts 1500 – 1508), preparation of an environmental document must precede final decisions regarding a

proposed major federal action and be available to inform decision-makers of the potential environmental impacts.

1.5 APPLICABLE REGULATORY REQUIREMENTS AND INTERGOVERNMENTAL COORDINATION

1.5.1 Intergovernmental Coordination, Public and Agency Participation

NEPA and CEQ Regulations require that environmental information be made available to federal agencies, Native American tribes, state agencies, local units of government, and the general public throughout the decision-making process and prior to making a final decision. Per the requirements of Executive Order (EO) 12372, Intergovernmental Review of Federal Programs, as amended by EO 12416, federal, state, and local agencies with jurisdiction that could potentially be affected by the proposed and alternative actions were notified during the development of this EA. U.S. Fish and Wildlife Service (USFWS) consultation is required in accordance with Section 7 of the Endangered Species Act of 1973 (ESA; 16 U.S.C. § 1531 et seq.) (October 2020). A mailing list of the recipients of this correspondence as well as a sample of the outgoing letters is included in Appendix A.

1.5.2 Government-to-Government Consultation

Government-to-government consultation between the DAF and Native American tribes having historic, cultural, or religious ties to areas where the Proposed Action will be conducted in accordance with the National Historic Preservation Act (NHPA) (54 U.S.C. § 300101, et seq) and its implementing regulations at 36 CFR Part 800 which requires federal agencies to consult with Federally Recognized Tribes on proposed undertaking that have the potential to effect

Consistent with the NHPA, the Native American Graves and Protection and Repatriation Act (25 USC § 3001 et seq.), US Department of Defense Instruction 4710.02, *Interactions with Federally Recognized Tribes*, and AFI 90-2002, *Air Force Interaction with Federally Recognized Tribes*, the Air Force will consult with federally recognized tribes that are historically affiliated with lands in the vicinity of the Proposed Action and Alternatives to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation and requires separate notification to all relevant tribes. The timelines for tribal consultation are also distinct from those of NEPA consultation. The Grand Forks point of contact for Federally recognized tribes is the Base Commander. The point of contact for consultation with the Tribal Historic Preservation Officer and the State Historic Preservation Officer (SHPO) is the Grand Forks AFB Cultural Resources Manager. A mailing list of the fifty-eight (58) tribal government recipients of this invitation to consult as well as a sample of the outgoing correspondence is included in Appendix A.

1.5.3 Agency Consultations and Coordination

Implementation of the Proposed Action involves coordination with several agencies. Compliance with Section 7 of the ESA requires consultation with the Fish and Wildlife Service. On 11 July 2024, the DAF initiated Section 7 consultation under the ESA for the Proposed Action using the USFWS Information for Planning and Consultation (IPaC) tool. A species list was obtained that identified threatened and endangered species within the Proposed Action area. Two species were identified, the northern long eared bat (federally endangered), and monarch butterfly (candidate species Based on the analysis no critical habitats were present for both species and determination of "May Affect, Not Likely to Adversely Affect" was reached for the northern long eared bat. USFWS concurred on 31 July 2024 (Atch 1). The information is included in Appendix D and incorporated into this EA where applicable.

The DAF also coordinated with state agencies regarding potential effects from the Proposed Action. Compliance with Section 106 of the NHPA and implementing regulations (36 CFR Part 800) require SHPO be given the opportunity to concur on determinations of eligibility and effects. Consultation letters were sent to Montana, North Dakota and South Dakota SHPO offices. A mailing list of agency correspondence is located in Appendix A.

1.5.3 Other Regulatory Requirements

EA considers all applicable laws and regulations, including but not limited to the following:

- NEPA of 1969 (Public Law [PL] 91-190, 42 United States Code [U.S.C.] §4321-4347)
- 32 CFR §989, Environmental Impact Analysis Process
- 40 CFR §1500-1505, CEQ's Regulations on Implementing NEPA
- 50 CFR §402, Interagency Cooperation - Endangered Species Act of 1973, as amended
- U.S. Army Corps of Engineers wetlands policy
- Endangered Species Act (ESA) of 1973 (16 U.S.C. §1531-1542)
- Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §703-712; Ch. 128; July 13, 1918; 40 Stat. 755)
- Archaeological Resources Protection Act (ARPA) of 1979
- National Historic Preservation Act (NHPA) of 1966 (36 CFR §800)
- Native American Graves Protection and Repatriation Act of 1991 (25 U.S.C. §3001 et seq.)
- Executive Order (EO) 11988 - Floodplain Management
- EO 11990 - Protection of Wetlands
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Air Force Manual (AFMAN) 32-7003, Integrated Natural Resources Management
- AFMAN 32-7003, Cultural Resources Management
- AFI 32-7066, Environmental Baseline Surveys in Real Property Transactions
- Clean Air Act of 1970 (42 U.S.C. §7401 et seq.)
- AFMAN 32-7002, Air Quality Compliance and Resource Management
- United States Air Force Air Quality EIAP Guide found online at http://aqhelp.com.

- Clean Water Act of 1972 (33 U.S.C. §1251 et seq.)
- Pollution Prevention Act of 1990 (42 U.S.C. §13101 and §13102 et seq.)
- Air Force Air Quality EIAP Guide – Fundamentals, Volume 1 of 2
- Considering Cumulative Effects under the National Environmental Policy Act, Council on Environmental Quality, January 1997
- CEQ document "Environmental Justice, Guidance Under the National Environmental Policy Act"
- Air Force Guide for Environmental Justice Analysis under the EIAP

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides detailed information on the Proposed Action and Alternatives, including the No Action Alternative. As discussed in Section 1.4, the NEPA process is used to evaluate potential environmental consequences associated with a Proposed Action and consider alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for a Proposed Action, as defined in Section 1.3. In addition, CEQ regulations also specify the inclusion of a No Action Alternative against which potential effects can be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in accordance with CEQ regulations.

2.1 SELECTION STANDARDS

Identifying and analyzing alternatives is one of the core elements NEPA and the Air Force's implementing regulations. The Air Force may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 19 §989.8[c]). This section describes the Air Force process and the application of this process to identify alternative temporary runway locations. The process applied operational and other criteria to identify reasonable alternatives for the temporary relocation of B-1B aircraft.

Viable options for the alternative runway location must satisfy the following selection criteria:

- Adequate Runway length and width requirements
- Capability to operate seventeen (17) B-1B at one airfield
- Existing capability and infrastructure to allow for receipt, issuance, loading and storage of supplies, including munitions
- Capability/capacity to accommodate servicing and maintenance requirements, including fueling of aircraft.
- Capacity to accommodate 1,000 people to the local area
- Distance from EAFB to GFAFB for logistical support to minimize resources needed and distance for training operations in the PRTC

2.2 DESCRIPTION OF SCREENING ALTERNATIVES

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives for the Proposed Action. Reasonable alternatives are those that could be used to meet the purpose of and need for the Proposed Action. Among the alternatives evaluated is a No Action Alternative, which evaluates the potential consequences of not undertaking the Proposed Action and serves to establish a comparative baseline for analysis. The following alternatives including the No Action Alternative were identified and screened against the selection standards.

2.2.1 Alternative 1: Proposed Action (Preferred Alternative)

Under the Proposed Action, GFAFB would provide the 28 BW with ramp, runway space, operational facilities and munition storage and loading areas needed to operate from an alternative runway location during the time the EAFB runway is closed (**Figure 2-1)**. Based on the selection standards described above, GFAFB was the only installation that met the minimum requirements necessary for the proposed temporary relocation of aircraft. The Proposed Action would allow the 28 BW to continue its mission without disrupting the mission of the 319th Reconnaissance Wing (319 RW) at GFAFB. The 319 RW currently oversees the infrastructure and support for the unmanned RQ-4 missions across the globe.

The Air Force proposes to temporarily relocate 17 B-1B aircraft, support operations, equipment, munitions and up to 1,000 personnel to satisfy the Purpose and Need for the Action described above. B-1B aircraft operated out of GFAFB until 1994; however, they no longer have the operational personnel, equipment, supplies or munitions to adequately support the 28 BW. The 28th BW will supply personnel, munitions, equipment and supplies to limit impacts to 319 RW operations.

Pending completion of any required environmental assessment and pending availability of funding, preparation for the proposed action would begin prior to flight operations. Movement of munitions and equipment would occur as early as November 2024. Movement of the aircraft would occur in December 2024 and January 2025. Actual flight and training operations would not begin until 1 February 2025.

The operation of the B-1B aircraft and associated personnel would use a combination of new and existing structures for operations, maintenance, storage of supporting equipment and munitions. Existing buildings, or portions of buildings, have been identified for use or shared use with the 319 RW and include: B520, B521, B522, B556, B601, B603, B605, B607, B609, B613, B633, B661, B668, and B670 (**Figure 2-2**). Additionally, six (6) munition storage structures are available for use and include 739, 740, 743, 744, 745 and 746 (**Figure 2-2**). Additional buildings have been identified for potential office and storage space and include buildings 117, 143, 316, 326, 408, 409, 410, 513, 516, 517 and 528. No major modifications of these facilities would be required and would be shared space with the 319 RW.

The temporary relocation will require construction of up to three temporary hangars for aircraft maintenance which will be installed on the Charlie Ramp (**Figure 2-2)**. Power to the hangars will be supplied by connecting to the existing GFAFB power system. Minor modifications and repairs of available facilities selected for use for aircraft, operations, maintenance and support activities may be required. Preparation of infrastructure and the movement of munitions and equipment would be completed in a phased approach starting in November of 2024, if approved, and funding becomes available. Expected facility use and required modifications to the buildings are in **Table 2-1**. Personnel would be housed off-base in hotels and available rental apartments. Personnel from the 28 BW would begin arriving in December and reach full staffing by April of 2025 (**Table 2-2**).

Flight operations would increase at GFAFB by up to four (4) landings and takeoffs (LTOs) per day. Operation of aircraft would use the existing flight path routings and operating hours that GFAFB currently uses for departures and arrivals at the airfield. B-1B training operations would continue to use the PRTC airspace. The relocation of B-1B aircraft to GFAFB will result in approximately 900 additional flight operations during the EAFB runway closure. The Area of Potential Effect of the Proposed Action includes the airfield, the area under the B-1B noise contours, the flight path to the PRTC and buildings that will be used to support B-1B operations (**Figure 2-3, Figure 2-4**).

Fig 2-1. Proposed Action Area

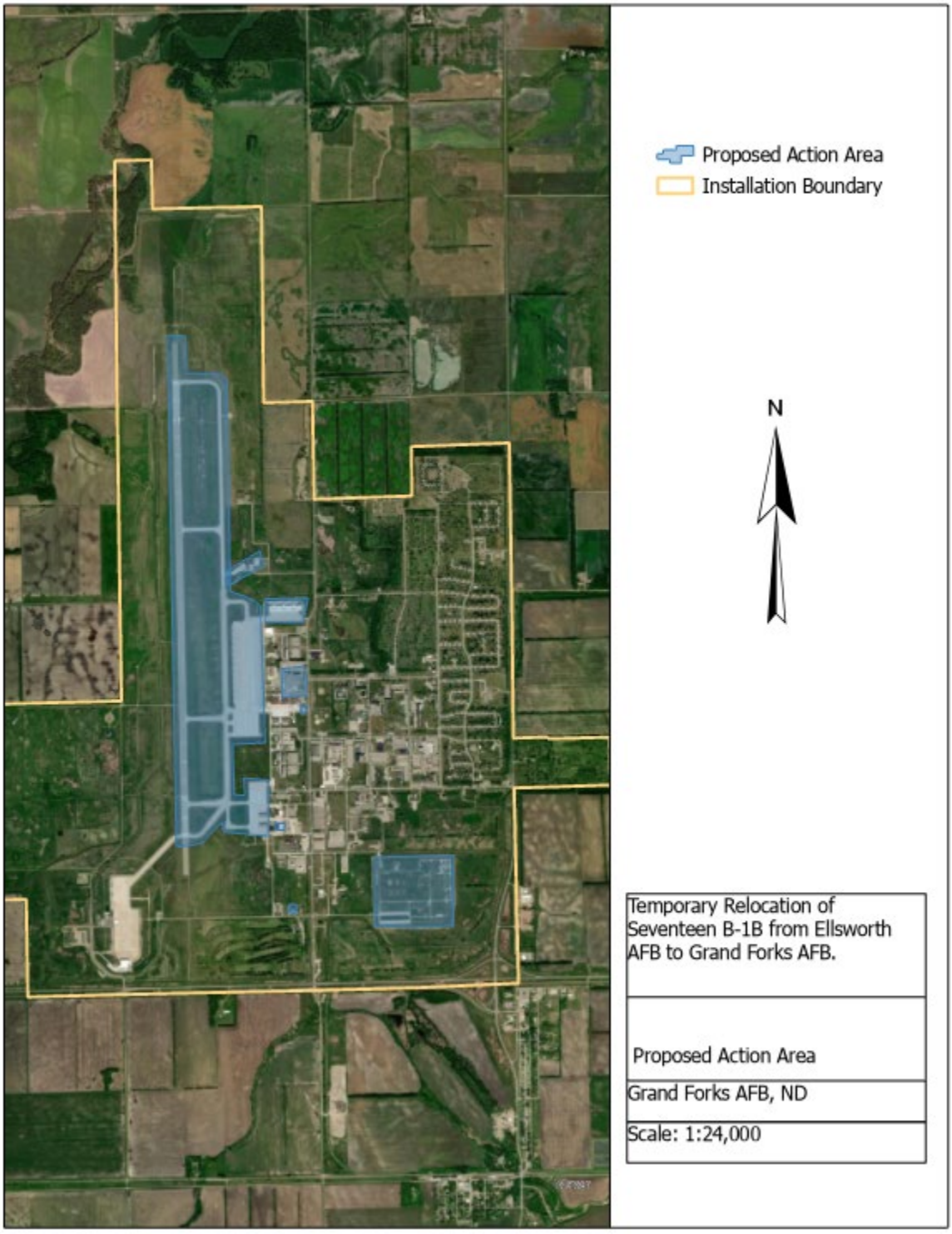


Figure 2-2. Proposed Facility Use at Grand Forks AFB

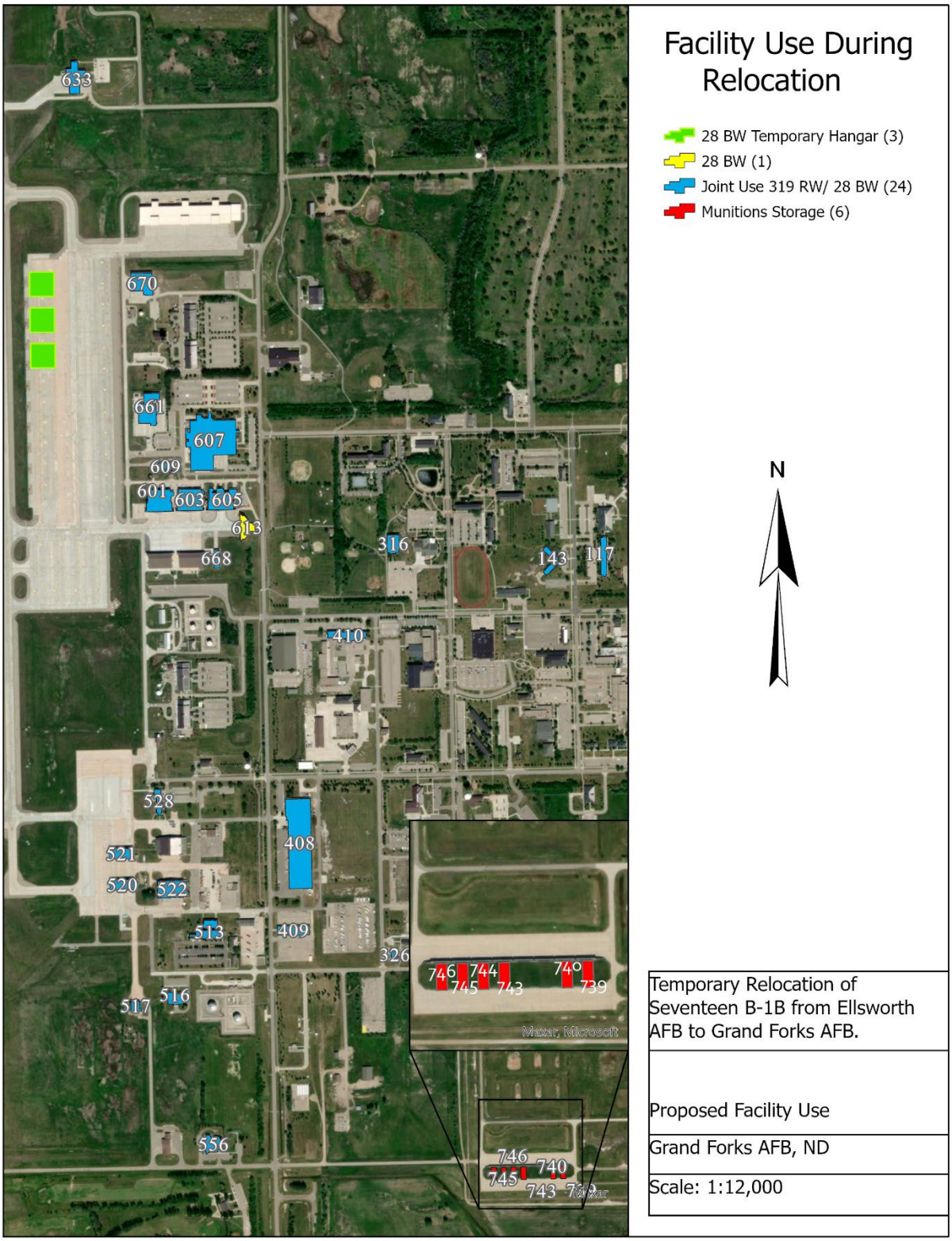


Table 2-1. Proposed Facilities for aircraft, personnel, munitions and equipment storage

APE Facilities	Proposed Undertaking Intended Use	Planned Modifications	Construction Date	Eligibility Status Document Ref
408	Base Supply Warehouse. Joint use with 319 RW. Hazardous Waste Storage	None Planned	1964	Determined Not Eligible; 2011 Survey
520	Snow Removal and Deicing Equipment- Joint use with 319 RW	None Planned	1958	Determined Not Eligible; 2011 Survey
521	Snow Removal and Deicing Equipment- Joint use with 319 RW	None Planned	1958	Determined Not Eligible; 2011 Survey
522	Portion of hangar available for LRS vehicles. Joint use with 319 RW Pavements Maintenance Facility.	None Planned	1957	Determined Not Eligible; 2011 Survey
556	Operations and Mission Planning Office Space/Air crew flight equipment storage. Joint use with 319 RW	HVAC Repair Electrical Repair	1983	Less than 50 years
601	Hangar- joint use with 319 RW	None Planned	1959	Determined Not Eligible; 2011 Survey
603	Hangar -joint use with 319 RW	None Planned	1959	Determined Not Eligible; 2011 Survey
605	Hangar -joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
607	Joint Use with 319 RW- Office Space	None Planned	1959	Determined Not Eligible; 2011 Survey
609	Joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
613	Hangar	Hangar Door Modification for B1 Maintenance	1962	Determined Not Eligible; 2011 Survey
633	Fire Station- Fire truck and 10 personnel from EAFB to assist GFAFB Fire Department	None Planned	2011	Less than 50 years

661	Joint use with 319 RW2 Bays for AGE storage	None Planned	1988	Less than 50 years
668	Equipment Storage-CTK	None Planned	1986	Less than 50 years
670	LRS Part Storage and Supply	None Planned	1990	Less than 50 years
739	Munition Storage- 75% of space available	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
740	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
743	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
744	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
745	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
746	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
Potential Additional Facilities				
117	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1959	Determined Not Eligible; 2011 Survey
143	Administrative Space / Storage. Joint use with 319 RW.	None Planned	2002	Less than 50 years
232	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1957	Determined Not Eligible; 2011 Survey
316	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1976	Less than 50 years
326	Administrative Space / SFS Training Space. Joint use with 319 RW.	None Planned	1998	Less than 50 years
409	Storage. Joint use with 319 RW.	None Planned	1964	Determined Not Eligible; 2011 Survey
410	CE Project Management Space. Joint use with 319	None Planned	1957	Determined Not Eligible; 2011 Survey

	RW.			
513	Administrative Facility / Storage. Joint use with 319 RW.	None Planned	1963	Determined Not Eligible; 2011 Survey
516	Administrative Facility / Storage. Joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
517	Satellite Fire Station. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
523	Administrative Facility / Storage. Joint use with 319 RW	None Planned	1957	Determined Not Eligible; 2011 Survey
528	Base Operations. Joint use with 319 RW.	None Planned	1957	Determined Not Eligible; 2011 Survey
621	Base Operations. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
622	Base Operations. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
New Construction				
Temporary Hangar (3) on Charlie Ramp Parking Apron Pavement	Aircraft Maintenance	New Construction, temporary hangars on concrete aprons		Determined Not Eligible; 2016 Survey, SITS#32GF3662
Airfield Areas	Infrastructure modifications	Electrical connection to base power supply.		Determined Not Eligible; 2023 Airfield Cultural Survey for BASH

Table 2-2. Personnel from 28 BW stationed at GFAFB by month during relocation

Month	28 BW personnel on station at GFAFB
December	30-50
January	450-500
February	450-500
March	450-500
April-November	800-1000

Figure 2-3. Area of Potential Effect for the temporary relocation of B-1B aircraft to GFAFB

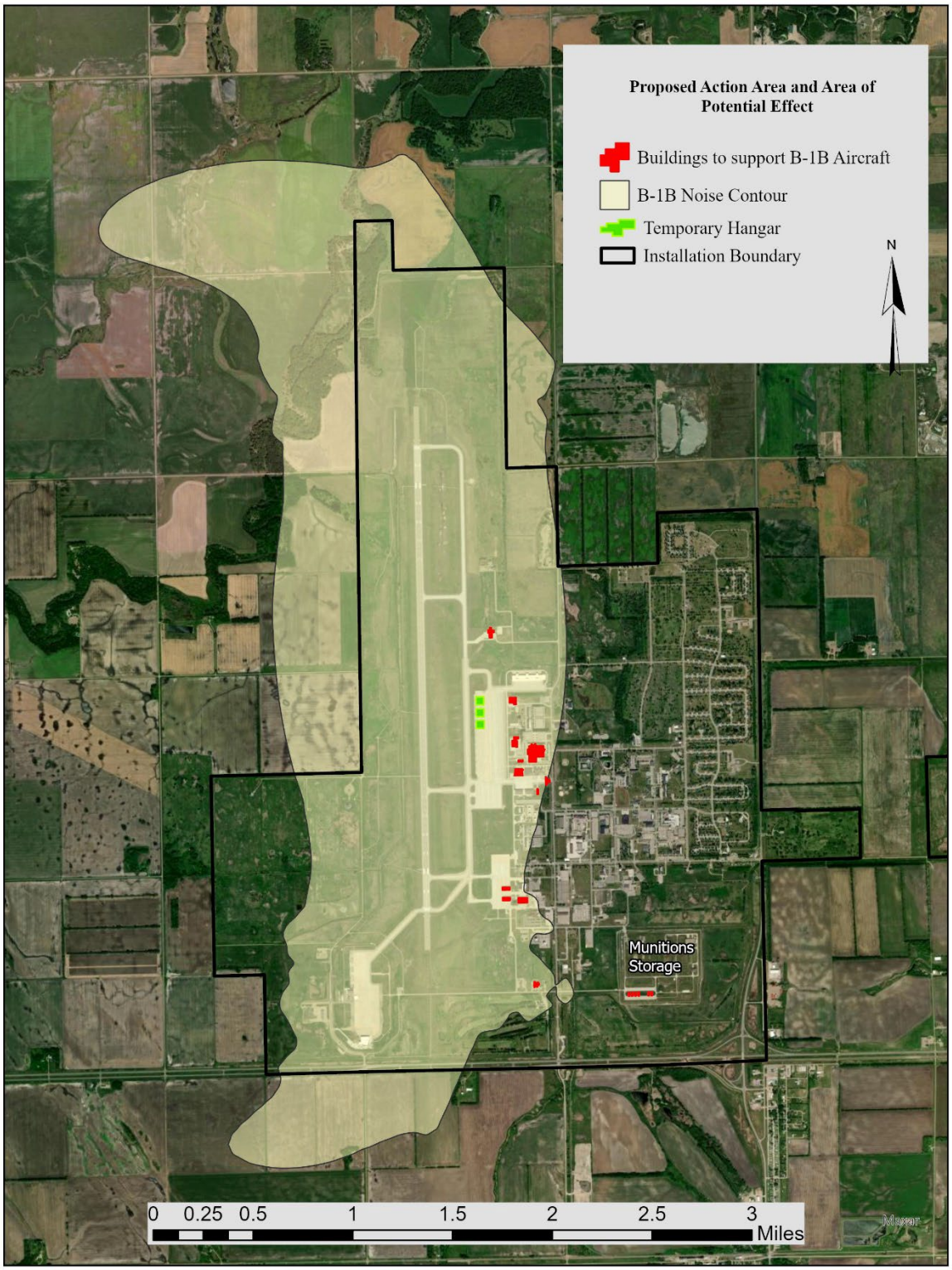
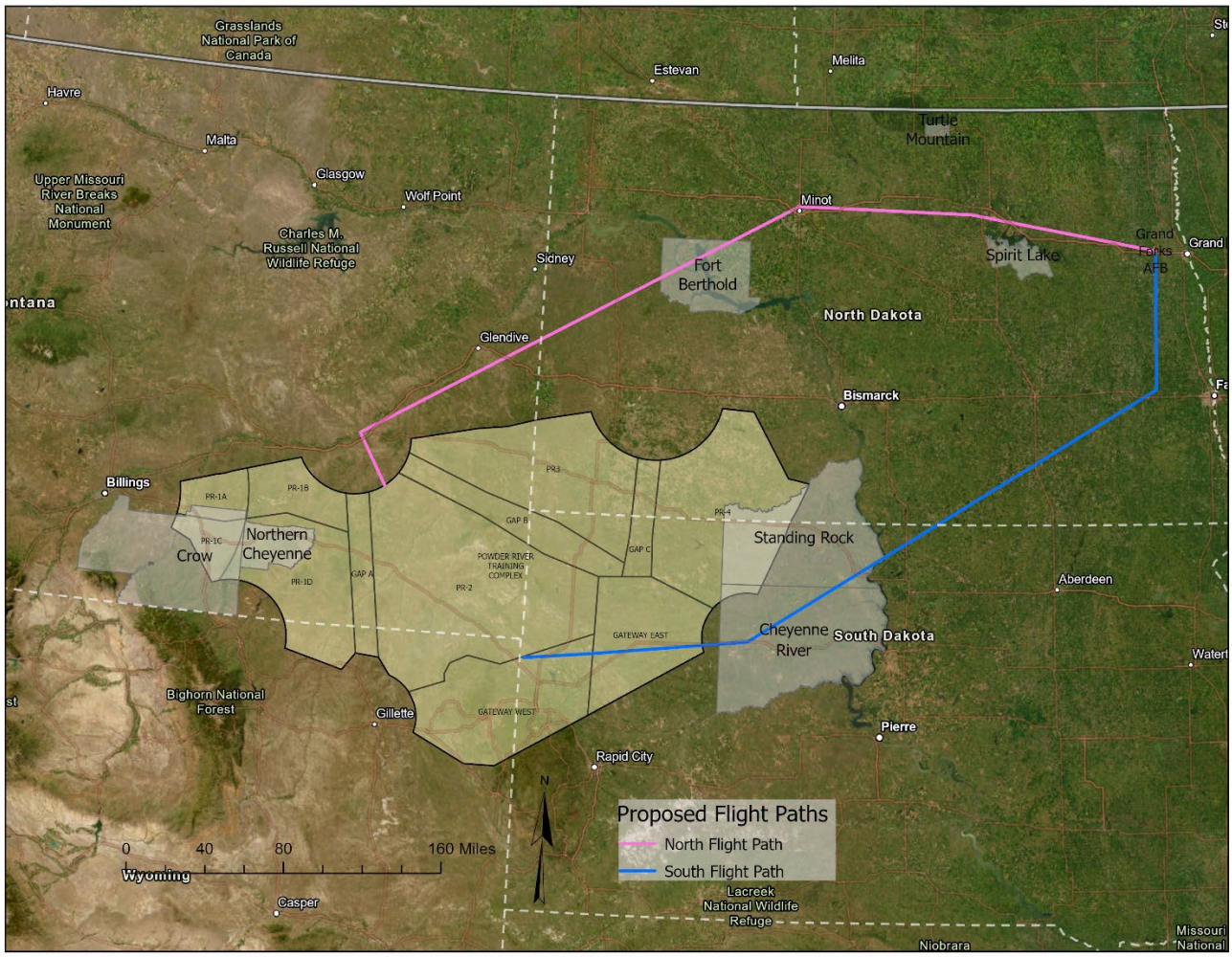


Figure 2-4. Flight Patterns from Grand Forks AFB to Powder River Training Complex



2.2.2 Alternative 2: Relocation to Lincoln Airport, NE

EAFB would temporarily relocate 17 B-1B aircraft, operations and personnel from EAFB to Lincoln Airport in Lincoln, NE.

Alternative 2 meets four of the six selection standards. The distance to Lincoln Airport (508 m) is shorter than the distance to GFAFB (529 m); however, Lincoln Airport does not have the required fuel capacity to support B-1B bomber operations or the capability to store and load/unload munitions. Therefore, Alternative 2 was eliminated from further analysis.

2.2.3 Alternative 3: Relocation to Dyess AFB, Texas

EAFB would temporarily relocate 17 B-1B bombers, personnel, munitions, and equipment from EAFB to Dyess AFB for a period approximately 10 months.

Alternative 3 meets three of the six selection standards. Dyess AFB does not have the capacity to provide sufficient space to land and operate 17 additional B-1B bombers. The travel distance from EAFB to Dyess AFB is 978 miles which increases cost of transferring equipment, munitions, personnel and parts to and from EAFB during the closure. Concrete spalling limits airfield space use and increases runway conflict with the Dyess AFB required mission and operation. The limited number of refueling pits would also impact mission requirements. The distance from EAFB would increase transportation cost of equipment and personnel during the relocation period. Flight distance to the PRTC for training purposes would increase. Therefore, Alternative 3 was eliminated from further analysis.

2.2.4 Alternative 4: No Action Alternative

The CEQ regulation, 40 CFR §1502.14(d), requires the inclusion of a No Action Alternative in the NEPA analysis. Under the No Action Alternative, the Air Force would not temporarily relocate 17 B-1B aircraft and operations from EAFB to GFAFB but would instead ground the aircraft until runway repairs have been completed at EAFB. The No Action Alternative will serve as the baseline for the evaluation the Proposed Action and alternative for adverse impacts to the affected environment. The effected environment and environmental resources analyzed in the EA will be discussed in **Chapter 3** of the draft EA.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Three locations were considered by EAFB for the temporary beddown of the B-1B and include GFAFB, ND, Lincoln Airport, NE and Dyess AFB, TX. Site visits were conducted in 2024 to determine base compatibility for the temporary relocation. GFAFB was the only base that met the selection criteria for the purpose and need for the proposed action. A comparison of standards is provided in **Table 2-3**.

Table 2-3. Screening of Alternatives

Alternative	Runway Length/Width Requirements	Capability to operate 17 B-1B at one airfield	Capability/ Capacity for receipt, issuance, loading and storage of supplies, including munitions	Capability/ Capacity to service, maintain and fuel aircraft	Capacity to House 1,000 Personnel	Distance/Proximity to EAFB and PRTC
Alternative 1 – GFAFB (Preferred Alternative)	Y	Y	Y	Y	Y	Y
Alternative 2- Lincoln Airport	Y	Y	N	N	Y	Y
Alternative 3- Dyess AFB	Y	N	Y	N	Y	N
No Action Alternative						

2.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Potential impacts from the Proposed Action are summarized in Table 2-4. This summary is derived from the discussion of potential impacts in the Environmental Consequence presented in Chapter 3 of this EA.

Table 2-4. Comparison of Potential Environmental Consequences of the Proposed Action

Resource	Proposed Action (Alternative 1)	No Action Alternative
Airspace	• Negligible short-term impacts on GFAFB airspace and surrounding airspace •	No Change
Noise and Land Use	• The proposed action would result in approximately 900 sorties during the 10-month operational period from Feb – Nov 2025 • GFAFB and portions outside of base will be exposed to higher noise levels. • Impacts will be short term • Temporary action should not impact land use categories. • Construction of 3 temporary hangars- short term minor impacts to noise. No changes in land use. • Administration and storage areas would be shared with 319 RW.	No Change
Air Quality and Climate	• No Significant air quality impacts will occur.	No Change
Biological Resources	• Implementation of the Proposed Action is not expected to cause significant impacts to wildlife species or their associated habitat • No critical habitat is present on GFAFB. The Project "May affect, but Not likely to adversely Affect Northern long-eared bat (NLEB)". Grand Forks is on the extreme western edge of NLEB habitat range. The bat has not been	No Change

	found on base or in the vicinity outside of the airfield. • No critical habitats or Threatened and Endangered (T&E) species within the Area of Potential Effect (APE) based on Information for Planning and Consultation (IPaC) results	
Cultural Resources	• No adverse effects on historic properties at GFAFB • Flight corridors to PRTC will travel over Tribal lands at altitudes greater than 20,000 feet. No low flights will occur outside of the PRTC	No Change
Water Resources	• No adverse effects with adherence to preventive measures and environmental plans. • Follow GFAFB SPCC and SWPPP plans	No Change
Safety and Occupational Health	• No significant impacts to safety and occupational health by following Air Force guidance, BMPs and safety plans	No Change
Geology and Soils	• No ground disturbing activities will occur. No impacts to geology and soils	No Change
Socioeconomics and Environmental Justice	• Positive temporary impact to local economy for housing, food, dining and fuel for airmen	No Change
Hazardous Materials and Hazardous Waste	• Minor impact from the increased procurement and use of hazardous materials, increased storage and disposal of hazardous wastes • No adverse impacts from increased hazardous waste if managed, removed and disposed of with all applicable regulations and procedures	No Change

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This EA analyzes potential impacts on existing environmental conditions associated with the temporary relocation of B-1B aircraft and operations as described in section 2.2.1. The analysis considers current, baseline conditions of the affected environment and compares those to conditions that might occur should the DAF implement the Proposed Action (Alternative 1) or the No Action Alternative.

3.2 Analyzed Resources and Evaluation Criteria

In this chapter, each resource is analyzed followed by a description of the existing conditions of that resource. The geographic scope of potential environmental consequences is referred to as the region of influence (ROI). The ROI boundaries vary depending on the nature of each resource. Evaluation criteria for most potential impacts were obtained from standard criteria: federal, state, or local agency guidelines and requirements; and/or legislative criteria.

Impacts and their significance are discussed for each resource. Impacts are defined in general terms and are qualified as adverse or beneficial, and as short- or long term. For the purposes of the EA, short term impacts are generally considered those impacts that would have a temporary effect. Long-term impacts are generally considered those impacts that would result in persistent effects.

Major impacts are considered significant and receive the greatest attention in the decision-making process. The significance of an impact is assessed based on the relationship between context and intensity. Major impacts require application of a mitigation measure to achieve a less than significant impact. Moderate impacts may not meet the criteria to be classified as significant, but the degree of change is noticeable and has the potential to become significant if not effectively mitigated. Minor impacts have little to no effect on the environment and are not easily detected; impacts defined as negligible are the lowest level of detection and generally not measurable. Beneficial impacts provide desirable situations or outcomes. **Table 3-1** Indicates the resources identified for analysis for each ROI.

Table 3-1. Region of Influence for the Proposed Action by Resource

Resource	Region of Influence	
	GFAFB	Airspace
Airspace	GFAFB and its environs	Flight Corridor to PRTC
Noise and Land Use	GFAFB and off-base land within existing and proposed noise contours	Land beneath flight corridor to PRTC and other missions
Air Quality and Climate	GFAFB, Grand Forks County	Not analyzed
Biological Resources	GFAFB	Area under noise contours

Cultural Resources	GFAFB and its environs including areas adjacent to runways	Land beneath flight corridor to PRTC and other missions
Water Resources	GFAFB	
Safety and Occupational Health	GFAFB, runways, taxiways, aircraft parking areas, airspace, adjacent off-base properties, munitions storage and loading areas, Maintenance Shops	Not analyzed
Geology and Soils	Buildings, facilities, structures at GFAFB and land beneath flight paths and noise contours	Not analyzed
Socioeconomics and Environmental Justice	GFAFB, Grand Forks County	Not analyzed
Hazardous Materials and Hazardous Waste	Buildings, facilities, structures and other areas of GFAFB where the proposed activities will occur	Not analyzed

3.3 AIRSPACE

3.3.1 Affected Environment

The ROI for this undertaking is defined as the GFAFB, the surrounding area and flight corridors for training.

3.3.2 Environmental Consequences

3.3.1.1 Proposed Action

The Proposed Action would have negligible impacts on airspace management and usage at GFAFB and in the flight corridors for training. The Proposed Action would not impact airspace operational capacity or necessitate changes to airspace locations or dimensions. The proposed corridors have sufficient capacity and dimensions to support the B-1B sorties. The Proposed Action would not require modifications to existing airspace or the establishment of new airspace resulting in *negligible impacts.*

3.3.1.2 No Action Alternative

Under the No Action Alternative, flight operations at GFAFB would remain the same as compared to the existing condition; therefore, there would be no change to current condition within the airspace.

3.4 NOISE AND LAND USE

In 1974, following the Noise Control Act of 1972, the administrator of the Environmental Protection Agency recommended that all federal agencies adopt the Day Night Average Sound Level (DNL) noise descriptor system. Shortly thereafter, the Air Force and EPA agreed upon an implementation procedure by which all future AICUZ studies would be prepared in DNL. Based on the results of many studies, EPA and the rest of the federal government continue to use DNL as the best predictor of community reaction to aircraft noise. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to nighttime levels (10 p.m. to 7 a.m.). The DNL is a useful descriptor for noise because it averages ongoing, yet intermittent noise and it measures total sound energy over a 24-hour period. Noise levels used to characterize community noise effects from such activities as aircraft or building construction are measured in the DNL.

3.4.1 Affected Environment

The ROI for the Proposed Action includes GFAFB, surrounding area and land beneath the flight path to the PRTC. The Medical Clinic, Education Center, Nathan Twining Elementary and Middle School, University of Mary Grand Forks AFB Campus, Dakota Lanes Bowling Alley, the Airmen and Family Readiness Center, residential communities, dormitories, administrative buildings, library, aquatic fitness centers, playgrounds and recreational trails are considered noise sensitive receptors. (Source IDEA 2021).

Ambient sound levels were modeled as part of the Final Supplemental EA for the Relocation of the North Dakota Air Branch to Grannd Forks Air Force Base (Air Force, 2017). Modeling results indicated Day-night sound levels (DNL) range from 65 A-weighted decibels (dBA) to 75 dBA across GFAFB.

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, and local noise control regulations. In 1974, the US Environmental Protection Agency (USEPA) provided information suggesting continuous and long-term noise levels greater than 65 dBA DNL are normally unacceptable for noise-sensitive receptors such as residences, schools, churches, and hospitals.

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

Construction Activity: The Proposed Action would result in temporary minor impacts on noise. Construction of temporary hangars would occur over a three-month period beginning in December 2024. Construction activities would occur during daytime hours. Use of heavy equipment can cause an increase in sound above ambient levels. The only construction occurring at GFAFB for the relocation consist of up to three temporary hangars which are not located near any noise sensitive receptors. Given that construction would be temporary and completed during daytime

hours, there would be no long-term adverse impacts from construction projects associated with the Proposed Action.

Flight Activity: The Proposed Action would increase the number of acres exposed to increased noise both at GFAFB and the surrounding area. To mitigate impacts Relocated B-1 bombers would follow the flight tracks GFAFB currently use to avoid flying over populated areas. Training operations would continue at the Powder River Training Complex. Operations at Grand Forks would result in 5-20 sorties/week with approximately two closed patterns per sortie. Occasionally, a flight operation may return after 10 pm. All flight operations will occur within GFAFB standard operating hours. Night operations have been factored into the noise analysis and contours. **Table 3-2** shows the number of acres that will be exposed to various DNL levels on and off base. The relocation would increase noise levels on and off base during the 10-month period that B-1B aircraft operate at GFAFB (**Figure 3-1**).

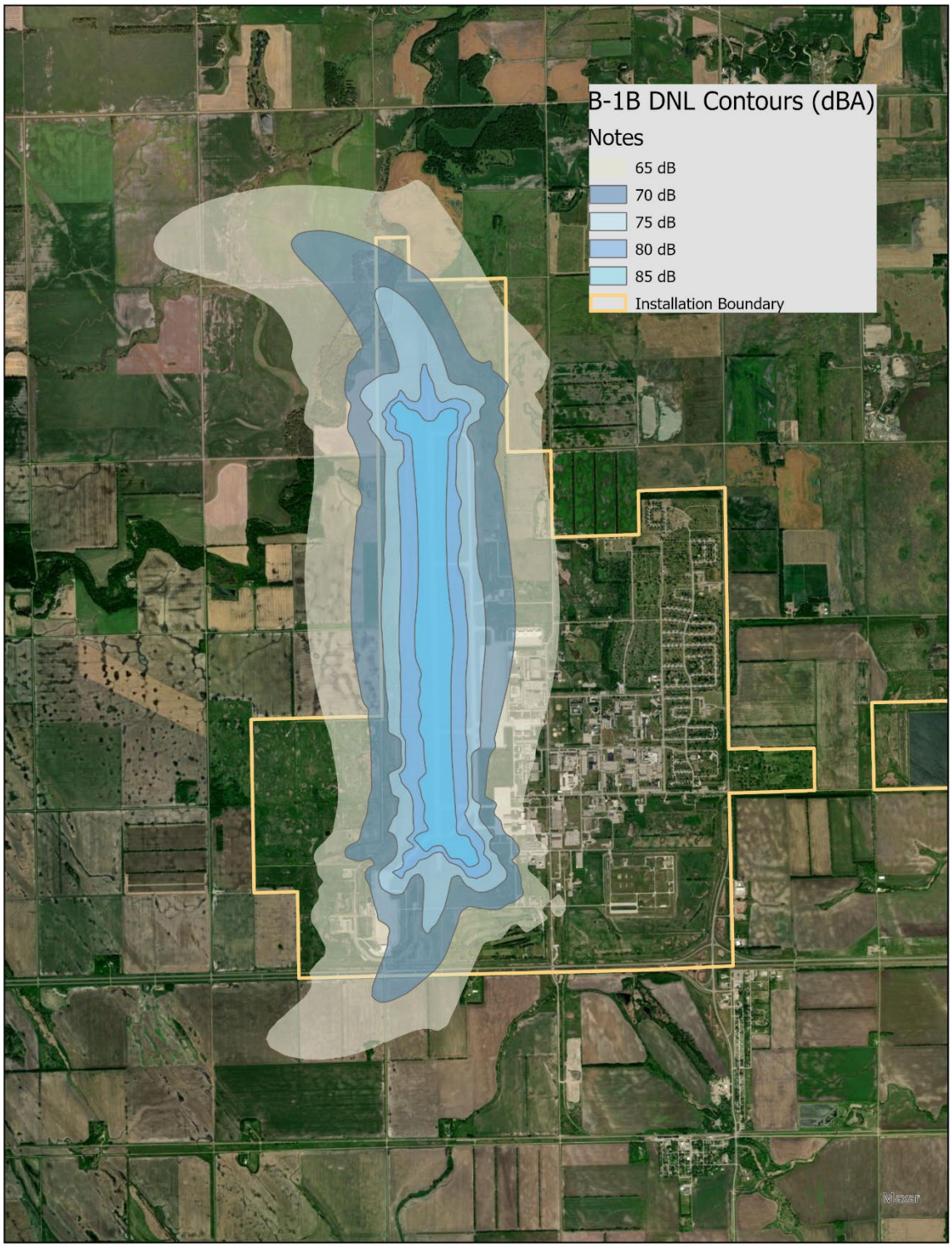
The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, and local noise control regulations. In 1974, the US Environmental Protection Agency (USEPA) provided information suggesting continuous and long-term noise levels greater than 65 dBA DNL are normally unacceptable for noise-sensitive receptors such as residences, schools, churches, and hospitals.

Areas of the base that would be impacted by the 65 -75 DNL levels include operation buildings east of the runway and the Grand Sky Business Park located south-west of the runway. Most of the land outside of the base boundary is agricultural land. One farmstead is located to the south of airfield and falls just outside of the 65 DNL contour. Another farmstead is located north-west of the airfield and is in the 70-75 DNL contour. The 80 and 85 DNL contours are located entirely within the base boundary and near the runway. Impacts from noise associated with aircraft activity will not likely result in long term impacts or changes in land use.

Table 3-2. Acres exposed to B-1B noise contours

Day Night Average Sound Level (dBA)	Proposed Action: Acres Exposed off Base	Proposed Action: Acres Exposed on Base	Current Condition off base	Current Condition on Base
65-70	1242	841	0	301
70-75	325	634	0	10.2
75-80	12.9	470	0	9.3
80-85	0	323	0	
>85	0	327	0	

Figure 3-1. Noise contours from B-1B flight operations at GFAFB and surrounding area.



3.4.2.2 No-Action Alternative

Under the No-Action Alternative, no construction or movement of aircraft and operations to GFAFB would occur; therefore, there would be no increase in noise levels. As a result, no adverse impacts would occur with the implementation of the No Action Alternative.

3.5 AIR QUALITY AND CLIMATE

Air quality conditions at a given location are a function of several factors including the quantity and type of pollutants emitted locally and regionally, as well as the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersal include wind speed and direction, atmospheric stability, climate and temperature, and topography.

3.5.1 Affected Environment

The ROI for air quality is Grand Forks County.

Criteria Pollutants: National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency (USEPA) for six "criteria pollutants" (as listed under Section 108 of the Clean Air Act [CAA] of 1970) (see Table 3-3): carbon monoxide (CO); lead (Pb); nitrogen dioxide (NO2); ozone (O3); particulate matter (PM), divided into two size classes of 1) aerodynamic size less than or equal to 10 micrometers (PM10), and 2) aerodynamic size less than or equal to 2.5 micrometers (PM2.5); and sulfur dioxide (SO2). The State of North Dakota has adopted the NAAQS to regulate air pollution levels.

The ambient air quality in an area is characterized in terms of whether it complies with the NAAQS. Areas where monitored outdoor air concentrations are within an applicable NAAQS are considered in *attainment* of that NAAQS. If sufficient ambient air monitoring data are not available to make a determination, the area is instead deemed as *attainment/unclassifiable*. Areas where monitored outdoor air concentrations exceed the NAAQS are designated by the USEPA as *nonattainment*. Nonattainment designations for some pollutants (e.g., O3) can be further classified based on the severity of the NAAQS exceedances. Lastly, areas that have historically exceeded the NAAQS but have since instituted controls and programs that have successfully remedied these exceedances are known as *maintenance* areas.

The General Conformity Rule of the federal CAA mandates that the federal government abide by approved State Implementation Plans (SIP) (i.e., air quality control plans). Air Force Policy Directive (AFPD) 32-70, *Environmental Considerations in Air Force Programs and Activities*, mandates that the USAF comply with all federal, state, and local environmental laws and standards. In accordance with AFPD 32-70, AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, explains responsibilities and specific details on how to comply with the CAA and other federal, state, and local air quality regulations. This AFMAN provides further and more specific instruction on the requirements of the USAF's Environmental Impact Analysis Process (EIAP) for air quality promulgated at 32 CFR 989.30, which mandates that EIAP documents, such as this EA, address General Conformity.

According to the USAF's attainment list provided by the Air Force Civil Engineer Center, the GFAFB is in *attainment* areas for all criteria pollutants (USAF, 2023a).

Table 3-3. National and North Dakota Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8-hour	9 parts per million (ppm)	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead	Primary and Secondary	Rolling 3-month average	0.15 micrograms per cubic meter ($\mu g/m^3$) [(1)]	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 (parts per billion) ppb	98th percentile, averaged over 3 years
	Primary and Secondary	Annual	53 ppb[(2)]	Annual mean
Ozone	Primary and Secondary	8-hour	0.070 ppm[(3)]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$)	Primary	Annual	9 $\mu g/m^3$	Annual mean, averaged over 3 years
	Secondary	Annual	15 $\mu g/m^3$	Annual mean, averaged over 3 years
	Primary and Secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
Particulate matter equal to or less than 10 microns in diameter (PM_{10})	Primary and Secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb[(4)]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

[(1)] In areas designated nonattainment for Lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

[(2)] The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of a clearer comparison to the 1-hour standard.

[(3)] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3

standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is a USEPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS
Source: (USEPA, 2024)

Climate Change and Greenhouse Gas Emissions: The primary long-lived greenhouse gases (GHGs) directly emitted by human activities are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF6). GHGs produced by fossil-fuel combustion are primarily CO2, CH4, and NO2. These three GHGs represent more than 97 percent of all U.S. GHG emissions. However, the dominant GHG emitted is CO2, mostly from fossil fuel combustion (85.4 percent). Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources. This EA considers CO2e as the representative GHG emission.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO_2e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; however, it provides a threshold to identify actions that are insignificant (de minimis, too trivial or minor to merit consideration). Actions with a net change in GHG (CO_2e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant any further analysis. Note that actions with a net change in GHG (CO_2e) emissions above the insignificance indicator (threshold) are only considered potentially significant and require further assessment to determine if the action poses a significant impact.

3.5.2 Regional Climate

The ROI regional climate varies greatly between summer and winter. The summers are relatively warm and humid with long days. The winters are cold, very dry and windy with short days. **Table 3-4** also summarizes climate conditions for the ROI.

Table 3-4. Climate Conditions in the ROI

Climate Feature	Conditions in ROI
General Climate Description	Warm humid summers with very cold dry and windy winters
Average Annual Precipitation (Inches)	21.7
Wettest Month / Average Monthly Precipitation (inches)	June 3.7
Driest Month / Average Monthly Precipitation (inches)	January 0.5
Annual Mean Temperature (°F)	39.0
Warmest Month / Average Temperature (°F)	July 68.9
Coolest Month / Average Temperature (°F)	January 6.8

Sources: (NWS, 2024)

3.5.3 Other Air Quality Considerations

In addition to the criteria pollutants discussed above, Hazardous Air Pollutants (HAPs) also are regulated under the CAA. The USEPA has identified 187 HAPs that are known or suspected to cause health effects in small concentrations. HAPs are emitted by a wide range of man-made and naturally occurring sources, including combustion mobile and stationary sources. However, unlike the NAAQS for criteria pollutants, federal ambient air quality standards do not exist for non-criteria pollutants. Therefore, HAPs are generally regulated through specific air emission permit provisions for stationary sources and HAP emission limits for mobiles sources.

Special goals for visibility in many “Class I Federal areas” were also established by the CAA; these areas generally include national parks, wilderness areas, and international parks. The Regional Haze Rule (40 CFR Part 51) was subsequently enacted in 1999 and requires states to establish goals for improving visibility in national parks and wilderness areas and to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. Visibility-impairing pollutants can be transported over great distances; therefore, states are encouraged to work together to develop regional visibility goals and strategies. Visibility-impairing pollutants are emitted by a wide variety of activities and sources, including mobile source fuel combustion, agriculture, and manufacturing. Emissions of these pollutants are regulated by complying with the NAAQS, through state-specific programs, and through specific air emission permit provisions.

3.5.4 Environmental Consequences

Air quality is affected by stationary sources (e.g., boilers, emergency generators, and industrial processes), mobile sources (e.g., motor vehicles, construction equipment, and aircraft), and area sources (e.g., vehicle and aircraft fuel transfer, storage, and dispensing). The nature and magnitude of Proposed Action under Alternatives 1 are expected to create only localized air quality impacts to the area surrounding the Project Site. The air quality impact analysis follows the EIAP Air Quality Guidelines for criteria pollutants and GHG emissions. The USAF used the Air Conformity Applicability Model (ACAM) to analyze the potential air quality impacts associated with the Proposed Action, in accordance with AFMAN 32-7002, the EIAP, and the General Conformity Rule (40 CFR 93 Subpart B). The ACAM report is available in **Appendix B**.

Construction and operation emissions resulting from the Proposed Action were calculated using ACAM. The project emissions are "netted" on an annual basis. The impact analysis must consider the greatest annual emissions associated with the Proposed Action. Construction activities are expected to occur in late 2024.

Current USAF guidance provides methodology for performing an Air Quality EIAP Level II, Quantitative Assessment, which is an insignificance assessment that can determine if an action poses an insignificant impact on air quality (Solutio Environmental Inc., 2023). An air quality impact is considered insignificant if the action does not cause or contribute to exceedance of one or more of the NAAQS. The USAF defines "insignificance indicators" for each criteria pollutant according to current air quality conditions.

For *maintenance* areas*,* the General Conformity Rule formally defines *de minimis* (insignificant) levels that must be used as insignificance indicators. However, General Conformity Rule *de minimis* levels have not been established for *attainment* criteria pollutant emissions. In areas the USAF considers *clearly attainment* (i.e., where all criteria pollutant concentrations are currently less than 95 percent of applicable NAAQS), the insignificance indicators are 250 tons per year (i.e., the USEPA's Prevention of Significant Deterioration threshold), except for Pb, which is 25 tons per year. Grand Forks County is in *clear attainment* for all criteria pollutants.

The change in climate conditions caused by GHGs is a global effect. The Proposed Action would have no impact on overall global or regional GHG emissions and global climate change. For NEPA disclosure purposes, however, this EA analyzes the potential GHG emissions, as calculated by the ACAM, anticipated under the Proposed Action, which could contribute to climate change.

3.5.4.1 Proposed Action

Criteria Pollutants: Construction of the Proposed Action would result in *short-term, less-than-significant impacts* on air quality. Given the only construction activities are the building of the temporary hangars, the air quality impacts would be minimal. Construction activities would temporarily generate criteria pollutant emissions (e.g., VOCs and NO_X [as precursors of O_3], CO, PM_{10}, and $PM_{2.5}$ [including its precursor SO_2]) and GHG emissions from the use of diesel-powered and gasoline-powered equipment. The construction workforce commute would also contribute to

a short-term increase in emissions. The construction emissions would occur in late 2024 into early 2025. The majority of air emissions associated with the Proposed Action would be temporary in nature (limited to the duration of construction activities) and would be caused by fuel combustion in vehicles and construction equipment.

After the construction phase is complete, the proposed B1-B temporary move would generate both criteria pollutant and GHG emissions due to flight activities from take off and landing and close pattern and vehicle emissions from personnel commuting to the base. Electrical power for the hangars would be provided by current infrastructure at the base. Generators would be used to provide portable power options when needed and are included in the analysis. The temporary move of the B1-B aircraft and associated personnel and equipment would occur in 2025. Given this activity is temporary, the steady state emissions are zero (i.e. no project activity or air quality emissions). **Table 3-5** depicts annual netted emissions for the project year (2025) and the operational years afterwards under the Proposed Action. All attainment criteria pollutants are below the insignificance indicators.

Table 3-5. Projected Annual Emissions from the Proposed Action

Pollutant	Proposed Action (ton/year)[1]		NEPA Insignificance Indicator (ton/year)
	2025	Steady State	
VOC	8.952	0.000	250
NO_x	87.211	0.000	250
CO	96.146	0.000	250
SO_x	9.650	0.000	250
PM_{10}	17.158	0.000	250
$PM_{2.5}$	15.788	0.000	250
Pb	0.000	0.000	25
NH_3	0.166	0.000	250

Regulatory Area: Grand Forks, ND- Not in a regulatory area
Notes:
1. 2025 represents the maximum project year. Steady State represents long term operational years.
NO_x = nitrogen oxides, SO_x = sulfur oxides, NH_3 = ammonia,
Source: ACAM version 5.0.23a, run on August 29, 2024 (**Appendix B**).

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

Greenhouse Gas Emissions and Climate Change: CO_2 represents approximately 99.9974 percent of potential GHG emissions from Proposed Action, while CH_4 and N_2O represent approximately 0.0023 percent and 0.0003 percent, respectively (based on weighted averages of USEPA emission factors for natural gas, gasoline, and diesel in 40 CFR Subpart C of Part 98 Appendix Tables C).

Table 3-6 depicts the Proposed Action annual project year (2025) and steady state GHG emissions. The project emissions are below the GHG threshold. **Table 3-7** presents the project GHG emission increases over the applicable state and national baselines. When compared to the national GHG emissions baseline, the increases in annual GHG emissions would represent approximately 0.00017 percent of the national baseline under either construction year or operational years. Additional details of the climate change analysis are found in **Appendix C**.

Table 3-6. Annual GHG Emissions (metric tonne/yr)

	YEAR	CO2e	Threshold	Exceedance
Proposed Action	2025	18133	68,039	No
	2026	0	68,039	No

Table 3-7. Comparison of Greenhouse Gas Emissions

	GHG Emissions Increase Over State Baseline[1]		GHG Emissions Increase Over National Baseline[2]	
	2025	Steady State	2025	Steady State
Propose Action	0.014%	0.000%	0.00017%	0.000000%

Notes:
1. North Dakota = 131,777,975metric tons of CO_2e.
2. Annual national GHG emissions = 10,327,163,597metric tons of CO_2e.

Sources: ACAM version 5.0.23a, run on August 29, 2024 (**Appendix B**).

The USAF addresses the potential future impacts of climate change to both current and future USAF facilities by assessing site-specific potential impacts as part of long-range planning, project design, and permitting activities. Potentially relevant long-term climate change areas of concern for the Proposed Action include increases in flooding and drought. The proposed action alternatives would involve temporary construction of new facilities and B1-B flight operations. Since these activities are on USAF grounds, any potential long-term effects would likely be localized and mostly affect the USAF. Thus, the Proposed Action would have *no long-term impacts* on climate change.

Other Air Quality Considerations: Federal ambient air quality standards do not exist for non-criteria pollutants; therefore, the USAF has not established HAPs insignificance indicators. However, the Preferred Alternative would have minimal stationary or steady state emissions, and thus no significant impacts to HAP emissions.

Similarly, there is no specific insignificance indicator established for assessing the Proposed Action's impact on visibility in Class I Federal areas. However, many pollutants responsible for impairing visibility are regulated by NAAQS either directly (e.g., $PM_{2.5}$) or indirectly (e.g., nitrogen dioxide [NO_2] and SO_2 emissions, which can form visibility-impairing nitrates and sulfates, respectively, once emitted). Because the Proposed Action would result in insignificant increases in criteria pollutants, it is unlikely that it would result in adverse impacts on visibility in Class I Federal areas.

3.5.4.2 No Action Alternative

Under the No Action Alternative, there would be *no impact* to air quality as air emissions at the Project Site would remain the same as compared to the existing condition. There would be no increase over baseline GHG emissions.

3.6 BIOLOGICAL RESOURCES

3.6.1 Affected Environment

The ROI for biological resources on GFAFB includes the area inside the installation boundary as well as the airspace in the vicinity of the base.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

There are nine federal endangered, threatened, and candidate species known to occur in Grand Forks County: the gray wolf (Canis lupus), whooping crane (Grus americana), northern long-eared bat (Myotis septentrionalis), red knot (Calidris canutus rufa), Dakota skipper (Hesperia dacotae), Poweshiek skipperling (Oarisma poweshiek), rusty patched bumble bee (Bombus affinis), Sprague's pipit (Anthus spragueii), and the Monarch butterfly (Danaus plexippus) (DAF, 2020). The Monarch butterfly is a candidate species being considered for protection under the ESA and occurs on GFAFB. Monarch butterflies feed on nectar from many flower species but breed only where there are milkweeds (Asclepias spp.). Monarchs are annual immigrants to North Dakota, arriving as early as mid-May. On GFAFB, Monarch butterflies have been recorded nectaring at sources with wild bergamot (Monarda fistulosa), hoary vervain (Verbena stricta), common milkweed (Asclepias syriaca), narrow-leaved coneflower (Echinacea angustifolia), and thistles (Cirsium). Surveys for endangered, threatened, candidate, and other protected species and their habitats have been performed within the Base boundaries. GFAFB manages threatened and endangered species proactively to avoid species that are legally protected or of concern at the state and/or federal level.

Bald eagles observed at Grand Forks AFB have been documented near the sewage lagoons, occasionally seen feeding in the area. No bald eagle nests are known to occur on base; however a nest is located approximately 3 miles east of the airfield. Noise impacts associated with B-1B flight activity are not in the vicinity of bald eagle nests and will not impact bald eagle nesting success. There are no other federally listed bird species and/or designated critical habitat on Grand Forks

AFB. Three state-classified plant species documented at Grand Forks AFB during a 2009 biological survey do not occur within the proposed relocation project areas. Any construction activities will occur in developed or previously disturbed areas.

Wetlands will not be impacted from the relocation of Ellsworth AFB B-1 bombers. Implementation of the relocation would result in an increase in the number of airfield operations, resulting in increased noise on and near the base similar to what has occurred with other past large aircraft missions. Increased operations would increase the potential for aircraft to strike birds and other wildlife in the air and on the runway. However, continued adherence to the base's BASH Plan would minimize the risk to migratory birds. Significant wildlife impacts would be minor and short term from temporary relocation of Ellsworth AFB B-1 bombers to Grand Forks AFB.

Compliance with Section 7 of the ESA requires consultation with the with the Fish and Wildlife Service. On 11 July 2024, the DAF initiated Section 7 consultation under the ESA for the Proposed Action using the USFWS Information for Planning and Consultation (IPaC) tool. A species list was obtained that identified threatened and endangered species within the Proposed Action area. Two species were identified, the northern long eared bat (federally endangered), and monarch butterfly (candidate species). Based on the analysis no critical habitats were present for both species and determination of "May Affect, Not Likely to Adversely Affect" was reached for the northern long eared bat. A map of the IPaC review area and determination are included in Appendix D.

3.6.2.2 No Action Alternative

Under the No-Action Alternative, no construction or movement of aircraft and operations to GFAFB would occur; therefore, no adverse impacts to biological resources with the implementation of the No Action Alternative.

3.7 CULTURAL RESOURCES

3.7.1 Affected Environment

The ROI for cultural resources includes GFAFB, the land beneath the noise contours, and the area under the flight paths to the PRTC.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Minimal ground disturbing activities will occur at GFAFB because of the temporary B-1B beddown. Construction of the temporary hangars will require anchoring into the existing concrete on the Charlie Ramp. Buildings that will be used by the 28 BW during the relocation have been determined not eligible for inclusion into the National Register of Historic Places (**Table 3-8**). No other ground disturbance or trenching will be required. Additional buildings have been identified for potential office and storage space and include buildings 117, 143, 316, 326, 408, 409, 410, 513, 516, 517 and 528. No major modifications of these facilities would be required and would be shared space with the 319 RW. Any additional facilities not currently identified may be used provided they are not eligible for the NRHP and major modifications are not required.

It is unlikely that any previously undocumented archaeological resources would be encountered during the temporary relocation. The July 2023 Class III Cultural Resources and Traditional cultural Properties Inventory of the airfield to support BASH mitigation projects did not recommend any cultural or traditional cultural properties for inclusion in the National Register of Historic Places and no further work was recommended. The State Historical Preservation Office (SHPO) concurred with this finding on 13 Dec 2023. The project survey was 1,293 acres and covers the same area for the proposed B-1B Beddown at GFAFB. No anticipated impacts to cultural resource would result from temporary relocation of B-1 bombers from EAFB to GFAFB. In the case of unanticipated or inadvertent discoveries, the USAF would comply with Section 106 of the NHPA, as specified in standard operating procedures described in the current Grand Forks AFB Integrated Cultural Resource Management Plan (ICRMP).

No adverse impacts to tribal resources are anticipated. North and South flight patterns to the PRTC will occur over Fort Berthold, Standing Rock and Cheyenne River reservations at altitudes greater than 20,000 feet. No low-level flight operations will occur outside of the PRTC when utilizing the PRTC for training. GFAFB consulted with 24 tribes to determine whether there are any historic properties of religious or cultural significance within the project area.

Table 3-8. APE for facilities and resources planned for use at GFAFB during temporary aircraft relocation

APE Facilities	Proposed Undertaking Intended Use	Planned Modifications	Construction Date	Eligibility Status Document Ref
408	Base Supply Warehouse. Joint use with 319 RW. Hazardous Waste Storage	None Planned	1964	Determined Not Eligible; 2011 Survey
520	Snow Removal and Deicing Equipment- Joint use with 319 RW	None Planned	1958	Determined Not Eligible; 2011 Survey
521	Snow Removal and Deicing Equipment- Joint use with 319 RW	None Planned	1958	Determined Not Eligible; 2011 Survey

522	Portion of hangar available for LRS vehicles. Joint use with 319 RW Pavements Maintenance Facility.	None Planned	1957	Determined Not Eligible; 2011 Survey
556	Operations and Mission Planning Office Space/Air crew flight equipment storage. Joint use with 319 RW	HVAC Repair Electrical Repair	1983	Less than 50 years
601	Hangar- joint use with 319 RW	None Planned	1959	Determined Not Eligible; 2011 Survey
603	Hangar -joint use with 319 RW	None Planned	1959	Determined Not Eligible; 2011 Survey
605	Hangar -joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
607	Joint Use with 319 RW-Office Space	None Planned	1959	Determined Not Eligible; 2011 Survey
609	Joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
613	Hangar	Hangar Door Modification for B1 Maintenance	1962	Determined Not Eligible; 2011 Survey
633	Fire Station- Fire truck and 10 personnel from EAFB to assist GFAFB Fire Department	None Planned	2011	Less than 50 years
661	Joint use with 319 RW2 Bays for AGE storage	None Planned	1988	Less than 50 years
668	Equipment Storage-CTK	None Planned	1986	Less than 50 years
670	LRS Part Storage and Supply	None Planned	1990	Less than 50 years
739	Munition Storage- 75% of space available	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
740	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation

743	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
744	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
745	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
746	Munition Storage	None Planned	1982	Determined Not Eligible; 2008 EA & Consultation
Potential Additional Facilities				
117	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1959	Determined Not Eligible; 2011 Survey
143	Administrative Space / Storage. Joint use with 319 RW.	None Planned	2002	Less than 50 years
232	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1957	Determined Not Eligible; 2011 Survey
316	Administrative Space / Storage. Joint use with 319 RW.	None Planned	1976	Less than 50 years
326	Administrative Space / SFS Training Space. Joint use with 319 RW.	None Planned	1998	Less than 50 years
409	Storage. Joint use with 319 RW.	None Planned	1964	Determined Not Eligible; 2011 Survey
410	CE Project Management Space. Joint use with 319 RW.	None Planned	1957	Determined Not Eligible; 2011 Survey
513	Administrative Facility / Storage. Joint use with 319 RW.	None Planned	1963	Determined Not Eligible; 2011 Survey
516	Administrative Facility / Storage. Joint use with 319 RW	None Planned	1961	Determined Not Eligible; 2011 Survey
517	Satellite Fire Station. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
523	Administrative Facility / Storage. Joint use with 319 RW	None Planned	1957	Determined Not Eligible; 2011 Survey

528	Base Operations. Joint use with 319 RW.	None Planned	1957	Determined Not Eligible; 2011 Survey
621	Base Operations. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
622	Base Operations. Joint use with 319 RW.	None Planned	1961	Determined Not Eligible; 2011 Survey
New Construction				
Temporary Hangar (3) on Charlie Ramp Parking Apron Pavement	Aircraft Maintenance	New Construction, temporary hangars on concrete aprons		Determined Not Eligible; 2016 Survey, SITS#32GF3662
Airfield Areas	Infrastructure modifications	Connection to existing power at GFAFB		Determined Not Eligible; 2023 Airfield Cultural Survey for BASH

3.7.2.2 No Action Alternative

The relocation and any construction related activities would not occur under the No Action Alternative; therefore, there would be no change to cultural resources at Grand Forks AFB.

3.8 WATER RESOURCES

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations.

3.8.1 Affected Environment

The ROI for direct and indirect effects to water resources in GFAFB, Turtle River, and the 100-year floodplain adjacent to the Turtle River.

The majority of the area is covered with impermeable surfaces or has been graded so that drainage ditches collect surface water. The surface water flows from south to north before flowing west towards the Turtle River. Stormwater drainage in the project area is managed through a network of underground pipes and catch basins that direct runoff to drainage ditches. Two drainage ditches in the project area have the potential to contain the following significant materials (based on the definition of General Storm Water Permit, Part VI): propylene glycol (deicer), fuels (jet fuel, diesel, motor vehicle gasoline), oils and lubricants, used oils, and hazardous chemicals under CERCLA Section 101(14) (40 CFR Part 302) (Grand Forks AFB, 2020b).

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Temporary relocation of the B-1B is not anticipated to affect water quality. No surface waters are located in the project area. However, Turtle River is located adjacent to the project area with potential for runoff to drain to Turtle River through drainage ditches. Impacts to surface waters would be minimized through following GFAFB's management plans. GFAFB maintains a Storm Water Pollution Prevention Plan which requires industrial shop personnel to implement best management practices to prevent contamination of stormwater from fuels or other hazardous fluids or materials. Stormwater protection compliance provisions and practices at Grand Forks are very similar to those at Ellsworth AFB. The Ellsworth AFB maintenance teams perform POL servicing and are highly trained in monitoring for, responding to and cleaning up leaks and spills. The successful implementation of such practices has resulted in zero detectable POL in stormwater discharges from EAFB since July 2019. Personnel also receive extensive aircraft deicing training, guided by a current Aircraft Deicing Operational Instruction and a dedicated Iceman supervisor to ensure compliance. Standard procedures at GFAFB for aircraft deicing include the following measures to minimize impacts to surface and ground water:

- Utilize vacuum sweeper trucks to remove deicing fluid from pavements
- Block or close storm sewer grates
- Utilize formulations that do not include ethylene glycol
- Store deicing/anti-icing fluids in covered area or building
- Maximize natural melting by orienting aircraft in direct sun, away from prevailing winds when possible
- Adjust fluid/water ratios to fit specific weather conditions. Warmer conditions require less deicing fluid. This minimizes deicing fluid waste and potential environmental impacts.
- Utilize only qualified personnel. Personnel should be certified or qualified to perform deicing/anti-icing operations, including stormwater pollution prevention awareness training.

Crews are trained to minimize use of aircraft deicing fluid (ADF) and recover spent ADF, to the extent practicable, using one of two unit-owned glycol recovery vehicles (GRVs). The

successful implementation of these practices has resulted in minimizing the Biological Oxygen Demand in stormwater discharges to an average of 17 mg/L from FY19 to FY23. Washing of aircraft on open aprons is not allowed without installation approval and unless wastewater can be recovered for proper disposal. GFAFB maintains permits for both Wastewater and Stormwater. Practices required by these permits and the associated plans (SWPPP, SPCC, FRP) will need to be followed at a minimum. Adherence to GFAFB environmental permits, plans and BMPs will minimize risk associated with the Proposed Action; therefore, impacts to water resources at GFAFB from the should be negligible.

3.8.2.2 No Action Alternative

The relocation would not occur resulting in no increases in construction; therefore, there would be no change to the existing Water Resources on Grand Forks AFB. Ellsworth AFB flight operations would be grounded during the runway closure.

Ground surface disturbance and vegetation clearance associated with construction of the temporary hangars would not occur. Construction of temporary hangars would occur on existing concrete surfaces. There would be no increase in disturbed soils or sedimentation into nearby water bodies. No additional impervious surface would be added during construction. Additionally, no wetlands would be impacted during the relocation period; therefore, the Proposed Action would not impact water resources at GFAFB.

3.9 SAFETY AND OCCUPATIONAL HEALTH

3.9.1 Affected Environment

This section addresses safety with respect to flight operations, aircraft ground support and maintenance activities which include, the handling, use and storage of munitions and ordnance. Occupational safety includes considerations associated with ground operations and maintenance activities that support military flight operations and considers the safety of personnel and facilities on the ground that may be placed at risk from flight operations in the vicinity of the airfield and in the airspace. Safety zones on the installation, which include Clear Zones and Quantity-Distance (Q-D) arcs, restrict the public's exposure to areas where there is a higher potential for aircraft accidents and inadvertent detonations of ordnance or other explosive materials, respectively. Although ground and flight safety are addressed separately, risks associated with safety-of-flight issues and occupational safety concerns are interrelated in the immediate vicinity of the airfield's runways.

Safety addresses the ground safety, explosive safety, and flight safety associated with the proposed temporary relocation to GFAFB. Ground safety considers issues associated with facility construction/modification, operations and maintenance activities, emergency response, and anti-terrorism/force protection (AT/FP). Ground safety also considers the safety of personnel, facilities, and the public that may be placed at risk from flight operations in the vicinity of the airfield and

in the airspace. Although ground and flight safety are addressed independently, it should be noted that in the immediate vicinity of the runway, risks associated with safety-of-flight issues are interrelated with ground safety concerns.

Aircraft Safety. Current aircraft based at GFAFB include the unmanned RQ-4 Global Hawk which has several flights per day. Previous missions and aircraft included the KC-135 and B-1B. Flight safety considers aircraft flight risks such as midair collision, bird/wildlife strike hazard, and in-flight emergency. The Air Force has safety procedures and aircraft-specific emergency procedures based on the aircraft design, which are produced by the original equipment manufacturer of the aircraft. Basic airmanship procedures also exist for handling any deviations to air traffic control procedures due to an in-flight emergency; these procedures are defined in AFI 11-202 [Volume 3], *General Flight Rules* and established aircraft flight manuals. The Flight Crew Information File is a safety resource for aircrew day-to-day operations which is composed of air and ground operation rules and procedures.

The DoD establishes Clear Zones and Accident Potential Zones for flight operations. Extending a combined total of 15,000 feet from the end of each runway along the runway's extended centerline, Clear Zones and APZs define the areas where an aircraft accident is likely to occur, if one were to occur. The CZ extends to the north and south of the runway and has the highest accident potential of airfield safety zones, with 27 percent of airfield accidents studied occurring in this zone (Grand Forks AFB, 2018a). The CZ is a 3,000- by 3,000-ft square area centered on and abutting each end of the north-south oriented runway as required under UFC 3-260-01, *Airfield and Helicopter Planning and Design*, which provides standardized airfield and airspace criteria for geometric layout, design, and construction. Open space (undeveloped) and agricultural uses (excluding raising livestock) are the only uses deemed compatible in a CZ, and development within the 413 acres of CZs is prohibited in accordance with UFC 3-260-01 (Grand Forks AFB, 2017).

APZ I is an area with less accident potential than the CZ, with 10 percent of accidents studied occurring in this zone. APZ II, with 6 percent accident potential, has less accident potential than APZ I (Grand Forks AFB, 2018a). While the potential for aircraft accidents in APZs I and II does not warrant land acquisition by the Air Force, land use planning and controls are strongly encouraged in these areas for the protection of the public. APZs I and II extend off Base north and south of the Base, beginning where the CZ ends, and extending an additional 5,000 feet (APZ I) and 7,000 feet (APZ II). APZ I extends across the Base boundary, and APZ II lies entirely outside the boundaries of the Installation. An Air Installation Compatible Use Zone Study (AICUZ) conducted in 1995 indicated that land use within the APZs are undeveloped or in agricultural production, and current conditions are similar (Grand Forks AFB, 2017, 2018).

All contractors performing construction and demolition activities at GFAFB are responsible for following federal and state of North Dakota safety regulations and are required to conduct constructions and demolition activities in a manner that does not increase risk to workers or public.

All construction contractors at GFAFB must follow ground safety regulations and worker's compensation programs to avoid posing any risks to workers or personnel on- or off-Base.

Construction contractors are responsible for reviewing potentially hazardous workplace operations, monitoring exposure to workplace chemicals (e.g., asbestos, lead, hazardous materials), physical hazards (e.g., noise propagation, slips, trips, falls), and biological agents (e.g., infectious waste, wildlife, poisonous plants).Construction contractors are required to recommend and evaluate controls (e.g., preventative ,administrative, engineering) to ensure personnel are properly protected and to implement a medical surveillance program to perform occupational health physicals for those workers subject to any accidental chemical exposures.

Occupational Safety

Occupational safety includes safety considerations associated with ground and industrial operations, operational activities, and motor vehicle use. Ground accidents can occur from the use of equipment or materials and maintenance functions. Day-to-day operations and maintenance activities conducted by the 28 BW are performed in accordance with applicable DAF safety regulations, published Air Force Technical Orders, and Air Force Occupational Safety and Health (AFOSH) requirements set forth in Department of Air Force Instruction (DAFI) 91-202, The US Air Force Mishap Prevention Program, and Department of Air Force Manual (DAFMAN) 91-203, Air Force Occupational Safety, Fire and Health Standards.

Explosive Safety

Defense Explosives Safety Regulation 6055.09_AFMAN 91-201, *Explosives Safety Standards,* establishes the size of the clearance zone around facilities used to store, handle, and maintain munitions based on the quantity-distance (QD) criteria. Defined distances are maintained between munitions storage areas and a variety of other types of facilities. These distances, called ESQD arcs (Military Quantity Distance Arcs), areas sociated with the munitions storage area and hot cargo pads, the Clear Zones associated with the runway, and the noise zones associated with airfield operations (Grand Forks AFB, 2017). Within these ESQD arcs, development is either restricted or prohibited. Buildings located in the vicinity of ESQD arcs include Buildings 541, 542, 753, 655, and 661 as well as Hangar 600.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Flight operations would follow the GFAFB Bird/Wildlife Aircraft Strike Hazard (BASH) plan and recommendations to reduce the likelihood of wildlife strikes on aircraft. All aircraft would be operated in accordance with standard USAF flight rules.

No changes would occur to the approved ESQD arcs or surfaced Danger Zones if munitions are transported to GFAFB from EAFB. Defense Explosives Safety Regulation 6055.09_AFMAN 91-

201, *Explosives Safety Standards,* establishes the size of the clearance zone around facilities used to store, handle, and maintain munitions based on the quantity-distance (QD) criteria. Defined distances are maintained between munitions storage areas and a variety of other types of facilities.

Contractors and construction workers would be required to follow State and Federal laws and regulations and use appropriate protection gear to minimize exposure to health and safety hazards.

Adherence to GFAFB plans and Air Force protocols would reduce the risk of injury or accidents regarding flight safety, munitions handling and construction projects during the relocation period. Issues related to safety would be moderate and short term.

3.9.2.2 No Action Alternative

Under the No Action Alternative, the temporary relocation of B-1B operations, or construction activities would occur. Safety on Grand Forks AFB would remain unchanged, and the implementation of the No Action Alternative would result in no significant impacts to safety.

3.10 GEOLOGY AND SOILS

3.10.1 Affected Environment

The ROI for direct and indirect effects to geological resources is Grand Forks AFB. Grand Forks AFB and the surrounding area is located within the Central Lowland Physiographic Province along the flat former glacial Lake Agassiz Plain. Precambrian-aged bedrock, overlain by surficial deposits, dips gently towards the center of the Williston Structural Basin in the west (Grand Forks AFB, 2020b). Silt and clay are the predominant surficial deposits at Grand Forks AFB and are approximately 225 feet thick with occasional sand and gravel lenses (Grand Forks AFB, 2020b).

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Activities associated with the Proposed Action would occur on previously disturbed ground. Ground clearing, grading, excavation and soil disturbance will not occur; therefore, the Proposed Action will not result in adverse affects.

3.10.2.2 No Action Alternative

The relocation and any construction related activities would not occur under the No Action Alternative; therefore, there would be no change to geology and soils at Grand Forks AFB.

3.11 SOCIOECONOMICS

3.11.1 Affected Environment

The ROI for socioeconomics includes GFAFB and the surrounding environs, which incorporate portions of Grand Forks County, ND.

3.11.2 Populations and Environmental Justice

Grand Forks County has seen a population increase since 2010, but it is more modest than the growth of the state of North Dakota (**Table 3-9**). Grand Forks County increased in population by 8.9 percent between 2010 and 2022, compared to a 15.9 percent increase for North Dakota. Both Grand Forks County and North Dakota grew more rapidly than the United States, which saw a population increase of 7.9 percent during the same time period. Grand Forks AFB is composed of two United States Census block groups (BGs), Census Tract (CT) 119 BG 1 and CT 119 BG 2 and is bordered by CT 114 BG 2 and CT 120 BG 1. CT 119 BG 1 reported a significant increase in population between 2010 and 2022, increasing 103.7 percent from 766 residents to 1,560 residents. This population increase reflects the assignment of the RQ- 4 Global Hawks and the designation of the wing as the 319 ABW after the transfer of the KC-135 tanker mission to Kadena Air Base, Japan, as part of the 2005 Base Realignment and Closure Commission (BRAC) recommendation (Grand Forks AFB, 2017). A decrease in population of 65.5 percent was noted in CT 119 BG 2 over the same time period. CT 114 BG 2 and CT 120 BG 1 both reported population increases at 11.5 and 16.3 percent growth, respectively. One small population center, Emerado, is located to the southeast of the Installation.

Table 3-9. Population in the GFAFB Region of Influence as Compared to North Dakota and the United States (2010-2022)

Geographic Area	2010	2022	Total Growth 2010-2022 (Percent
CT 114 BG2	1,394	1,555	11.5
CT 119 BG1	766	1,560	103.7
CT 119 BG2	1,601	553	-65.5
CT 120 BG1	789	918	16.3
Grand Forks County	66,991	72,927	8.9
North Dakota	672,591	779,261	15.9
United States	308,745,538	333,287,562	7.9

An evaluation of minority and low-income populations in the vicinity of Grand Forks AFB, which includes portions of USCB CT 114 BG 2, CT 119 BG 1, CT 119 BG 2, and CT 120 BG 1, forms a baseline for the evaluation of the potential for disproportionate impacts on these populations from the Proposed Action. CTs are small, relatively permanent statistical subdivisions of a county as delineated by the USCB, while BGs are subdivisions within the larger CT. Detailed data on race and age was available from the 2020 Census; poverty status data was available based on American Community Survey estimates from 2022. The percentage of minorities in the population in 2020 was higher in CT 119BG 1 (23.2 percent) and BG 2 (22.5 percent) than the percentages in neighboring BGs CT 114 BG 2 and CT 120 BG 1, Grand Forks County, and North Dakota. CT 119 BG 1 and BG 2 are the BGs that comprise Grand Forks AFB. Although these BGs have a higher percent minority than the neighboring BGs, they have a lower percent minority than the United States as a whole (40.7 percent) (**refer to Table 3-10**) (USCB, 2022).

Table 3-10. Total Population and Populations of Concern

Geographic Area	Total Population	Percent Minority	Percent Hispanic or Latino	Percent Below Poverty	Percent Youth
CT 114 BG 2	1,555	3.8	2.8	3.4	27.6
CT 119 BG 1	1,560	23.2	18.5	3.1	35.6
CT 119 BG 2	553	22.5	16.1	14.7	49.9
CT 120 BG 1	918	9.3	4.1	5.7	26.7
Grand Forks County	72,927	14.3	5.1	14.2	20.1
North Dakota	779,261	16.8	4.4	11.5	23.2
United States	333,287,562	40.7	18.9	11.5	21.7

Source: USCB, 2020 – Hispanic or Latino, and Not Hispanic or Latino by Race; Sex by Age; Poverty Status in the Past 12 Months by Sex By Age
Notes:
Hispanic and Latino denote a place of origin and percent youth are all persons under the age of 18.
a. Source: USCB, 2022 – Poverty Status of Individuals in the Past 12 Months by Living Arrangement
CT = census tract; BG = block group

The percentage of the overall population that were children in the state of North Dakota (23.2 percent) and the United States (21.7 percent) were similar to the percentages found in Grand Forks County. CT 114 BG 2 and CT 120 BG1 were slightly higher at 27.6 and 26.7 percent respectively. CT 119 BG 1 and CT 119 BG 2 were substantially higher at 35.6 and 49.9 percent respectively (USCB, 2020). The higher values in these two CTs are a result of the presence of military families on the Installation (Table 3-9) (USCB, 2020). Each of the BGs in the vicinity of Grand Forks AFB reported a percentage of the population below poverty at a lower level than that of Grand Forks County, North Dakota, and the United States apart from CT 119 BG 2 at 14.7 percent. Grand Forks County overall has a percentage of the population below poverty that is higher than the state of North Dakota (11.5 percent) and the United States (11.5 percent) (USCB, 2022).

3.11.3 Environmental Consequences

3.11.3.1 Proposed Action

Environmental justice populations based on the percentage of the population classified as belonging to a minority group are in CT 119 BG 1 and CT 119 BG 2, both of which are entirely contained by Grand Forks AFB. These BGs report higher minority populations than the surrounding areas, Grand Forks County, and North Dakota due to the diversity of the Air Force personnel who are housed at the Installation. Under the Proposed Action, the temporary relocation would not result in a disproportionate impact on minorities, low-income, and youth populations because these actions would not impact the availability of, community resources, and community services in the ROI. The activities proposed would not disproportionately affect the availability of these resources to minorities, low-income populations, or children. Aircraft noise levels would

increase along the airfield and western portion of the base but would not likely result in adverse impacts to minority populations and children in the BGs.

3.11.3.2 No Action Alternative

The relocation activities would not occur under the No Action Alternative; therefore, there would be no impact to minority populations or youth within the ROI.

3.12 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

3.12.1 Affected Environment

The ROI for hazardous material and hazardous waste is GFAFB.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

GFAFB is currently classified as a small quantity generator (SQG) of hazardous waste. SQGs produce more than 100 kg but less than 1000 kg/month. In 2023, Grand Forks AFB produced 1,873 kg for the year and an average of 156 kg/month. The relocation of aircraft from Ellsworth AFB to Grand Forks AFB will generate increased hazardous waste. Although no adverse impacts are anticipated to result from the increased volumes, this increase will change Grand Forks AFB from a SQG to a large quantity generator (LQG) during the relocation period. GFAFB formerly operated as an LQG prior to the departure of the KC-135 mission (AFCEC 2014a). The GFAFB HWMP (Hazardous Waste Management Plan) would be updated to reflect any change in generator status, disposal procedures, and any changes in waste accumulation points.

EAFB is Large Quantity Hazardous Waste Generator, so all EAFB industrial shop personnel receive training in and are proficient in Hazardous Waste, Accumulation Point and Used Oil management. EAFB's Hazardous Waste Contingency Plan and Quick Response Guides will contribute to site and emergency responses. EAFB operations would rely upon the 319 CES HAZMART to support Hazardous Material tracking and processing of waste containers, as needed by 319 CES Hazardous Waste Management Plan. To minimize consumption and waste generation, all EAFB industrial shops have personnel assigned to perform monthly inventory of all issued hazardous materials.

No anticipated demolition would occur during the temporary relocation of Ellsworth AFB B-1 bombers to Grand Forks AFB. Solid waste generated from the proposed construction and renovation activities would consist of building materials such as metals (e.g., conduit, piping, and

wiring), and lumber. Disposal of the debris would be through an integrated Construction and Demolition (C&D) debris diversion approach or removal to landfills. The integrated C&D debris diversion approach includes reuse, recycling, volume reduction/energy recovery, and similar diversion actions. The DoD has set a target C&D debris diversion rate of 60 percent by fiscal year 15 (DoD 2012). Contractors would be required to comply with Federal, state, and local regulations for the collection and disposal of municipal solid waste from the base. C&D debris, including debris contaminated with hazardous waste, asbestos-containing materials (ACM), lead-based paint (LBP), or other hazardous components, would be managed in accordance with AFI32-7042, "Waste Management". 28 BW personnel would implement material management practices identified in the GFAFB Stormwater Pollution Prevention Plan (SWPPP). Various material and storage site practices would apply, e.g. "All chemical material containers must be stored under cover and all chemical material containers 55-gallons or greater require sufficient secondary containment." Hazardous waste management would fall under the GFAFB Hazardous Waste Management Plan. Adherence to the GFAFB HWMP would minimize impacts from the handling and disposal of hazardous substances and ensure compliance with state and federal hazardous materials regulations (Grand Forks AFB, 2020c). Potential impacts from the accidental release of such products would be minimized by following response procedures specified in GFAFB Spill Prevention, Control, and Countermeasure Plan (SPCC) (Grand Forks AFB, 2015). Therefore, short-term, negligible to minor, adverse impacts would be anticipated to result from the use of hazardous materials and petroleum products during the proposed construction of temporary hangars and B-1B operations.

3.12.3.2 No Action Alternative

The temporary relocation would not occur under the No Action Alternative; therefore, there would be no change to the hazardous materials and waste management at GFAFB.

4 REFERENCES

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USCB. 2022b. American Community Survey, 5-Year Estimates, .DP05:Demographic.

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14Feb2008. ND SHPO 97-0527BT: Demolition of 35 Buildings in the munitions storage area {T152N R53W Section 36} Grand Forks Air Force Base, North Dakota

2011. Final Cultural Resource Survey of Historic Places Evaluation of Historic Buildings, Structures and Sites at Grand Forks Air Force Base, Grand Forks County, ND

Oct 2011. ND SHPO 97-0527CJ: “Draft Final Cultural Resource Survey of Historic Places, Evaluation of Historic Buildings, Structures and Sites and Grand Forks Air Force Base, Grand Forks County, North Dakota”

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20 May 2016. ND SHPO REF: 97-0527CM GF AFB “Grand Forks Air Force Base Class III Intensive Architectural Resources Inventory, Grand Forks County, North Dakota”

APPENDICES

APPENDIX A – Agency Consultation and Coordination Point of Contact POC) List

APPENDIX B B1-B Temporary Move to GF AFB Air Analysis ACAM Report

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

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: GRAND FORKS AFB
State: North Dakota
County(s): Grand Forks
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: The Temporary Movement of B-1 Aircraft and flight Operations to Grand Forks AFB

c. Project Number/s (if applicable):

d. Projected Action Start Date: 12 / 2024

e. Action Description:

The Proposed Action would temporarily relocate approximately seventeen (17) B-1B aircraft, 1,000 personnel, munitions and support equipment to Grand Forks AFB (GFAFB), ND, for approximately 10 months. The Proposed Action would occur during the period that EAFB's runway is closed for repairs.

f. Point of Contact:

Name: Caitlin Shaw
Title: Contractor
Organization: AECOM
Email:
Phone Number:

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

____ applicable
__X__ not applicable

Total reasonably foreseeable 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" (hsba.e., no net gain/loss in emission stabilized and the action is fully implemented) emissions. The ACAM analysis uses the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the *USAF Air Emissions Guide for Air Force Stationary Sources*, the *USAF Air Emissions Guide for Air Force Mobile Sources*, and the *USAF Air Emissions Guide for Air Force Transitory Sources*.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of the proposed Action's potential impacts to local air quality. The insignificance indicators are trivial (de minimis) rate thresholds that have been demonstrated to have little to no impact to air quality. These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold and 25 ton/yr for lead for actions

occurring in areas that are "Attainment" (hsba.e., not exceeding any National Ambient Air Quality Standard (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 pollutants is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators, refer to *Level II, Air Quality Quantitative Assessment, Insignificance Indicators*.

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

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.055	250	No
NOx	0.453	250	No
CO	0.564	250	No
SOx	0.001	250	No
PM 10	0.018	250	No
PM 2.5	0.017	250	No
Pb	0.000	25	No
NH3	0.002	250	No

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	8.952	250	No
NOx	87.211	250	No
CO	96.146	250	No
SOx	9.650	250	No
PM 10	17.158	250	No
PM 2.5	15.788	250	No
Pb	0.000	25	No
NH3	0.166	250	No

2026 - (Steady State)

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

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

Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Constructing Temporary Hanger #1
3.	Construction / Demolition	Construction of Temporary Hanger #2
4.	Construction / Demolition	Construction of Temporary Hanger #3
5.	Personnel	Personnel Temporary Moving to GFAFB
6.	Aircraft	B1-B Take Off and Landing Emissions
7.	Aircraft	B-1B Close Pattern Emissions
8.	Emergency Generator	Emergency Generators for Bathrooms
9.	Tanks	Generator Tanks

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

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

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

- Activity Title: Constructing Temporary Hanger #1

- Activity Description:
Construction of temporary hangers. There will be three hangers. Emissions here are per building.

- Activity Start Date
Start Month: 12
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 2
End Month: 2025

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.054818
SO_x	0.000917
NO_x	0.453304
CO	0.563981

Pollutant	Total Emissions (TONs)
PM 10	0.018234
PM 2.5	0.016769
Pb	0.000000
NH_3	0.002301

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.004258
N_2O	0.004102

Pollutant	Total Emissions (TONs)
CO_2	109.895023
CO_2e	111.223728

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)

Pollutant	Total Emissions (TONs)

CH_4	0.004258
N_2O	0.004102

CO_2	109.895023
CO_2e	111.223728

2.1 Building Construction Phase

2.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2024

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

2.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 26250
Height of Building (ft): 45
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	5	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

- 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

- 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

- Vendor Trips Vehicle Mixture (%)

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

2.1.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21025	0.00487	2.13057	1.68023	0.08573	0.07887
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.29170	0.00487	2.75083	3.61458	0.15732	0.14473
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.54567	0.00793	4.37292	2.88066	0.17997	0.16558
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.53415	0.00735	3.78255	4.55763	0.13078	0.12031

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

Cranes Composite [HP: 367] [LF: 0.29]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.53174	529.34210
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02138	0.00428	527.03976	528.84843
Generator Sets Composite [HP: 14] [LF: 0.74]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.31451	570.26482
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02150	0.00430	529.93313	531.75173
Welders Composite [HP: 46] [LF: 0.45]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.28951	570.23973

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.32423	0.00164	0.18839	4.67168	0.00709	0.00627	0.05137
LDGT	0.26259	0.00202	0.24275	4.15561	0.00792	0.00700	0.04384
HDGV	0.79150	0.00447	0.77241	11.87327	0.02627	0.02324	0.09152
LDDV	0.13560	0.00122	0.14912	4.61422	0.00327	0.00300	0.01574
LDDT	0.22019	0.00140	0.48349	4.65403	0.00584	0.00538	0.01712
HDDV	0.14593	0.00436	2.63368	1.48893	0.05565	0.05120	0.06542
MC	2.21317	0.00195	0.77330	13.04831	0.02295	0.02031	0.05450

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

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.02414	0.00547	323.36597	325.59499
LDGT	0.02207	0.00712	399.86926	402.53738
HDGV	0.05934	0.02536	883.12347	892.15208
LDDV	0.06939	0.00063	360.51746	362.44038

LDDT	0.05211	0.00089	413.08060	414.64931
HDDV	0.03499	0.16140	1295.52135	1344.49209
MC	0.10189	0.00270	394.15258	397.50316

2.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL}* 0.002205) / 2000

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

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

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

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

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

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

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

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

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

- Vender Trips Emissions per Phase

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

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

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

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

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

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

- Activity Title: Construction of Temporary Hanger #2

- Activity Description:

- Activity Start Date
Start Month: 12
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 2
End Month: 2025

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.054818
SO_x	0.000917
NO_x	0.453304
CO	0.563981

Pollutant	Total Emissions (TONs)
PM 10	0.018234
PM 2.5	0.016769
Pb	0.000000
NH_3	0.002301

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.004258
N_2O	0.004102

Pollutant	Total Emissions (TONs)
CO_2	109.895023
CO_2e	111.223728

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH_4	0.004258

Pollutant	Total Emissions (TONs)
CO_2	109.895023

N_2O	0.004102	CO_2e	111.223728

3.1 Building Construction Phase

3.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2024

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

3.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 26250
Height of Building (ft): 45
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	5	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

- 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

- 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

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC

POVs	0	0	0	0	0	100.00	0

3.1.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21025	0.00487	2.13057	1.68023	0.08573	0.07887
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.29170	0.00487	2.75083	3.61458	0.15732	0.14473
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
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Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.53415	0.00735	3.78255	4.55763	0.13078	0.12031

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

Cranes Composite [HP: 367] [LF: 0.29]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.53174	529.34210
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02138	0.00428	527.03976	528.84843
Generator Sets Composite [HP: 14] [LF: 0.74]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.31451	570.26482
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02150	0.00430	529.93313	531.75173
Welders Composite [HP: 46] [LF: 0.45]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.28951	570.23973

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.32423	0.00164	0.18839	4.67168	0.00709	0.00627	0.05137
LDGT	0.26259	0.00202	0.24275	4.15561	0.00792	0.00700	0.04384
HDGV	0.79150	0.00447	0.77241	11.87327	0.02627	0.02324	0.09152
LDDV	0.13560	0.00122	0.14912	4.61422	0.00327	0.00300	0.01574
LDDT	0.22019	0.00140	0.48349	4.65403	0.00584	0.00538	0.01712
HDDV	0.14593	0.00436	2.63368	1.48893	0.05565	0.05120	0.06542
MC	2.21317	0.00195	0.77330	13.04831	0.02295	0.02031	0.05450

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

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.02414	0.00547	323.36597	325.59499
LDGT	0.02207	0.00712	399.86926	402.53738
HDGV	0.05934	0.02536	883.12347	892.15208
LDDV	0.06939	0.00063	360.51746	362.44038
LDDT	0.05211	0.00089	413.08060	414.64931

HDDV	0.03499	0.16140	1295.52135	1344.49209
MC	0.10189	0.00270	394.15258	397.50316

3.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

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

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

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

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

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

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

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

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

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

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

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

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

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

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

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

- Activity Title: Construction of Temporary Hanger #3

- Activity Description:

- Activity Start Date
Start Month: 12
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 2
End Month: 2025

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.054818
SO_x	0.000917
NO_x	0.453304
CO	0.563981

Pollutant	Total Emissions (TONs)
PM 10	0.018234
PM 2.5	0.016769
Pb	0.000000
NH_3	0.002301

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.004258
N_2O	0.004102

Pollutant	Total Emissions (TONs)
CO_2	109.895023
CO_2e	111.223728

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH_4	0.004258
N_2O	0.004102

Pollutant	Total Emissions (TONs)
CO_2	109.895023
CO_2e	111.223728

4.1 Building Construction Phase

4.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 12
Start Quarter: 1
Start Year: 2024

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

4.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 26250
Height of Building (ft): 45
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	5	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

- 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

- 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

- Vendor Trips Vehicle Mixture (%)

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

4.1.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21025	0.00487	2.13057	1.68023	0.08573	0.07887
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.29170	0.00487	2.75083	3.61458	0.15732	0.14473
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.54567	0.00793	4.37292	2.88066	0.17997	0.16558
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.53415	0.00735	3.78255	4.55763	0.13078	0.12031

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

Cranes Composite [HP: 367] [LF: 0.29]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.53174	529.34210
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02138	0.00428	527.03976	528.84843
Generator Sets Composite [HP: 14] [LF: 0.74]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.31451	570.26482
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02150	0.00430	529.93313	531.75173
Welders Composite [HP: 46] [LF: 0.45]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.28951	570.23973

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.32423	0.00164	0.18839	4.67168	0.00709	0.00627	0.05137
LDGT	0.26259	0.00202	0.24275	4.15561	0.00792	0.00700	0.04384
HDGV	0.79150	0.00447	0.77241	11.87327	0.02627	0.02324	0.09152
LDDV	0.13560	0.00122	0.14912	4.61422	0.00327	0.00300	0.01574
LDDT	0.22019	0.00140	0.48349	4.65403	0.00584	0.00538	0.01712
HDDV	0.14593	0.00436	2.63368	1.48893	0.05565	0.05120	0.06542
MC	2.21317	0.00195	0.77330	13.04831	0.02295	0.02031	0.05450

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

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.02414	0.00547	323.36597	325.59499
LDGT	0.02207	0.00712	399.86926	402.53738
HDGV	0.05934	0.02536	883.12347	892.15208
LDDV	0.06939	0.00063	360.51746	362.44038
LDDT	0.05211	0.00089	413.08060	414.64931
HDDV	0.03499	0.16140	1295.52135	1344.49209

MC	0.10189	0.00270	394.15258	397.50316

4.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

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

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

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

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

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

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

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

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

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

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

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

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

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

5. Personnel

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Personnel Temporary Moving to GFAFB

- Activity Description:

- Activity Start Date
Start Month: 2
Start Year: 2025

- Activity End Date
Indefinite: No
End Month: 11
End Year: 2025

- Activity Emissions of Criteria Pollutants:

Pollutant	Total Emissions (TONs)
VOC	1.119404
SO_x	0.006590
NO_x	0.747359
CO	15.489713

Pollutant	Total Emissions (TONs)
PM 10	0.027530
PM 2.5	0.024368
Pb	0.000000
NH_3	0.161643

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Total Emissions (TONs)
CH_4	0.083083
N_2O	0.021612

Pollutant	Total Emissions (TONs)
CO_2	1304.634948
CO_2e	1313.140861

5.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel: 900
Civilian Personnel: 100
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 15

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week
Civilian Personnel: 5 Days Per Week
Support Contractor Personnel: 5 Days Per Week
Air National Guard (ANG) Personnel: 4 Days Per Week
Reserve Personnel: 4 Days Per Month

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

5.4 Personnel Emission Factor(s)

- On Road Vehicle Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.31594	0.00161	0.16729	4.51263	0.00693	0.00613	0.04987
LDGT	0.25073	0.00198	0.21566	3.93374	0.00768	0.00680	0.04195
HDGV	0.77562	0.00448	0.70962	11.34066	0.02629	0.02326	0.09005
LDDV	0.13893	0.00121	0.15581	4.91441	0.00354	0.00326	0.01587
LDDT	0.22420	0.00138	0.48887	4.72990	0.00560	0.00516	0.01688
HDDV	0.13260	0.00428	2.46822	1.44119	0.04741	0.04362	0.06624
MC	2.21285	0.00195	0.77102	12.87912	0.02295	0.02031	0.05492

- On Road Vehicle Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.02298	0.00519	317.46904	319.58592
LDGT	0.02077	0.00668	392.04788	394.55517
HDGV	0.05730	0.02432	885.17869	893.84905
LDDV	0.07065	0.00063	358.45252	360.40674
LDDT	0.05175	0.00089	406.74802	408.30753
HDDV	0.03495	0.16322	1273.96207	1323.47453
MC	0.10027	0.00270	394.28437	397.59437

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

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: B1-B Take Off and Landing Emissions

- Activity Description:

- Activity Start Date
Start Month: 2
Start Year: 2025

- Activity End Date
Indefinite: No
End Month: 11
End Year: 2025

- Activity Emissions of Criteria Pollutants:

Pollutant	Total Emissions (TONs)
VOC	2.489339
SO_x	4.621926
NO_x	55.040022
CO	46.567592

Pollutant	Total Emissions (TONs)
PM 10	10.100399
PM 2.5	9.027447
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Total Emissions (TONs)

Pollutant	Total Emissions (TONs)

CH_4	580.637278
N_2O	580.176459

CO_2	13061.576798
CO_2e	13103.716071

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

Pollutant	Total Emissions (TONs)
VOC	1.363135
SO_x	4.048005
NO_x	37.827220
CO	42.224093

Pollutant	Total Emissions (TONs)
PM 10	9.696359
PM 2.5	8.639532
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses [LTO Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
CH_4	580.600929
N_2O	580.169193

Pollutant	Total Emissions (TONs)
CO_2	12165.560399
CO_2e	12204.623666

- Activity Emissions of Criteria Pollutants [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	1.126204
SO_x	0.573921
NO_x	17.212803
CO	4.343499

Pollutant	Total Emissions (TONs)
PM 10	0.404040
PM 2.5	0.387914
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
CH_4	0.036349
N_2O	0.007266

Pollutant	Total Emissions (TONs)
CO_2	896.016400
CO_2e	899.092405

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: B-1B
Engine Model: F101-GE-102
Primary Function: Transport - Bomber
Aircraft has After burn: Yes
Number of Engines: 4

- Aircraft & Engine Surrogate

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

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	1117.00	0.16	1.07	4.10	24.46	2.18	1.96
Approach	4533.00	0.02	1.07	9.16	1.03	4.21	3.79
Intermediate	6557.00	0.04	1.07	13.15	0.85	1.35	1.21
Military	7828.00	0.12	1.07	12.83	0.83	1.68	1.51
After Burn	15314.00	1.46	1.07	16.92	43.49	2.87	2.58

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	1117.00	0.13	0.03	3203.44	3214.64
Approach	4533.00	0.13	0.03	3203.44	3214.64
Intermediate	6557.00	0.13	0.03	3203.44	3214.64
Military	7828.00	0.13	0.03	3203.44	3214.64
After Burn	15314.00	0.13	0.03	3203.44	3214.64

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 17
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 1212
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.5
Approach [Approach] (mins): 3.28
Climb Out [Intermediate] (mins): 1.6
Takeoff [Military] (mins): 0.35
Takeoff [After Burn] (mins): 0.35

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

- Trim Test

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

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

- Aircraft Emissions for Flight Operation Cycles per Year

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

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

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

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

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

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

6.4 Auxiliary Power Unit (APU)

6.4.1 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	2	No	GTCP 165-9	

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

- Auxiliary Power Unit (APU) Criteria Pollutant Emission Factors (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
GTCP 165-9	272.6	0.493	0.289	1.216	3.759	0.131	0.037

- Auxiliary Power Unit (APU) Greenhouse Gasses Emission Factors (lb/hr)

Designation	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
GTCP 165-9	272.6	0.1	0.0	909.0	910.8

6.4.3 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

6.5 Aerospace Ground Equipment (AGE)

6.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 1212

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	2.5	No	Bomb Lift	MJ-40
1	2.2	No	Generator Set	A/M32A-86D
1	4	No	Heater	H1
1	2.4	No	Heater/Air Conditioner	B-1B Heater/Air Conditioner
1	0.5	No	Light Cart	NF-2
1	0.5	No	Start Cart	A/M32A-95

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

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

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
MJ-40	0.0	0.210	0.219	0.340	0.210	0.060	0.055
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006
B-1B Heater/Air Conditioner	17.1	0.258	0.121	7.659	1.409	0.152	0.148
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010
A/M32A-95	0.0	0.070	0.264	1.470	5.860	0.110	0.107

- Aerospace Ground Equipment (AGE) Greenhouse Gasses Emission Factors (lb/hr)

Designation	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
MJ-40	0.0	0.0	0.0	151.7	152.2
A/M32A-86D	6.5	0.0	0.0	145.6	146.1
H1	0.4	0.0	0.0	8.8	8.8
B-1B Heater/Air Conditioner	17.1	0.0	0.0	385.7	387.0
NF-2	0.0	0.0	0.0	23.7	23.8
A/M32A-95	0.0	0.0	0.0	204.4	205.1

6.5.3 Aerospace Ground Equipment (AGE) Formula(s)

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

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

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: B-1B Close Pattern Emissions

- Activity Description:

- Activity Start Date
Start Month: 2
Start Year: 2025

- Activity End Date
Indefinite: No
End Month: 11
End Year: 2025

- Activity Emissions of Criteria Pollutants:

Pollutant	Total Emissions (TONs)
VOC	0.478804
SO_x	1.174815
NO_x	11.700829
CO	20.394420

Pollutant	Total Emissions (TONs)
PM 10	2.886573
PM 2.5	2.595425
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Total Emissions (TONs)
CH_4	911.666626
N_2O	911.578329

Pollutant	Total Emissions (TONs)
CO_2	3520.419157
CO_2e	3529.540369

- Activity Emissions of Criteria Pollutants [CP Flight Operations part]:

Pollutant	Total Emissions (TONs)
VOC	0.478804
SO_x	1.174815
NO_x	11.700829
CO	20.394420

Pollutant	Total Emissions (TONs)
PM 10	2.886573
PM 2.5	2.595425
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses [CP Flight Operations part]:

Pollutant	Total Emissions (TONs)
CH_4	911.666626
N_2O	911.578329

Pollutant	Total Emissions (TONs)
CO_2	3520.419157
CO_2e	3529.540369

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: B-1B
Engine Model: F101-GE-102
Primary Function: Transport - Bomber
Aircraft has After burn: Yes
Number of Engines: 4

- Aircraft & Engine Surrogate

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

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	1117.00	0.16	1.07	4.10	24.46	2.18	1.96
Approach	4533.00	0.02	1.07	9.16	1.03	4.21	3.79
Intermediate	6557.00	0.04	1.07	13.15	0.85	1.35	1.21
Military	7828.00	0.12	1.07	12.83	0.83	1.68	1.51
After Burn	15314.00	1.46	1.07	16.92	43.49	2.87	2.58

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	1117.00	0.13	0.03	3203.44	3214.64
Approach	4533.00	0.13	0.03	3203.44	3214.64
Intermediate	6557.00	0.13	0.03	3203.44	3214.64
Military	7828.00	0.13	0.03	3203.44	3214.64
After Burn	15314.00	0.13	0.03	3203.44	3214.64

7.3 Flight Operations

7.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 17
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 606
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 16.5
Approach [Approach] (mins): 3.28

Climb Out [Intermediate] (mins): 2.3
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 1.1

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

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

7.3.2 Flight Operations Formula(s)

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

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

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

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

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

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

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

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

8. Emergency Generator

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Emergency Generators for Bathrooms

- Activity Description:

- Activity Start Date
Start Month: 2
Start Year: 2025

- Activity End Date
Indefinite: No
End Month: 11
End Year: 2025

- Activity Emissions of Criteria Pollutants:

Pollutant	Total Emissions (TONs)
VOC	4.564998
SO_x	3.845070
NO_x	18.816300
CO	12.566016

Pollutant	Total Emissions (TONs)
PM 10	4.106862
PM 2.5	4.106862
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Total Emissions (TONs)
CH_4	0.075751
N_2O	0.015150

Pollutant	Total Emissions (TONs)
CO_2	1881.630000
CO_2e	2176.146000

8.2 Emergency Generator Assumptions

- Emergency Generator
Type of Fuel used in Emergency Generator: Diesel
Number of Emergency Generators: 4

- Default Settings Used: No

- Emergency Generators Consumption
Emergency Generator's Horsepower: 135

Average Operating Hours Per Year (hours): 7272

8.3 Emergency Generator Emission Factor(s)

- Emergency Generators Criteria Pollutant Emission Factor (lb/hp-hr)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3
0.00279	0.00235	0.0115	0.00768	0.00251	0.00251		

- Emergency Generators Greenhouse Gasses Pollutant Emission Factor (lb/hp-hr)

CH_4	N_2O	CO_2	CO_2e
0.000046297	0.000009259	1.15	1.33

8.4 Emergency Generator Formula(s)

- Emergency Generator Emissions per Year

$AE_{POL} = (NGEN * HP * OT * EF_{POL}) / 2000$

AE_{POL}: Activity Emissions (TONs per Year)
NGEN: Number of Emergency Generators
HP: Emergency Generator's Horsepower (hp)
OT: Average Operating Hours Per Year (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hp-hr)

9. Tanks

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Generator Tanks

- Activity Description:

- Activity Start Date
Start Month: 2
Start Year: 2025

- Activity End Date
Indefinite: No
End Month: 11
End Year: 2025

- Activity Emissions of Criteria Pollutants:

Pollutant	Total Emissions (TONs)
VOC	0.190028
SO_x	0.000000
NO_x	0.000000
CO	0.000000

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

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Total Emissions (TONs)
CH_4	0.000000
N_2O	0.000000

Pollutant	Total Emissions (TONs)
CO_2	0.000000
CO_2e	0.000000

9.2 Tanks Assumptions

- Chemical

Chemical Name: Fuel oil no. 2
Chemical Category: Petroleum Distillates
Chemical Density: 7.1
Vapor Molecular Weight (lb/lb-mole): 130
Stock Vapor Density (lb/ft^3): 0.000129553551395334
Vapor Pressure: 0.0055
Vapor Space Expansion Factor (dimensionless): 0.068

- Tank

Type of Tank: Horizontal Tank
Tank Length (ft): 50
Tank Diameter (ft): 40
Annual Net Throughput (gallon/year): 2336493

9.3 Tank Formula(s)

- Vapor Space Volume

$VSV = (PI / 4) * D^2 * L / 2$

VSV: Vapor Space Volume (ft^3)
PI: PI Math Constant
D^2: Tank Diameter (ft)
L: Tank Length (ft)
2: Convertion Factor (Vapor Space Volume is assumed to be one-half of the tank volume)

- Vented Vapor Saturation Factor

$VVSF = 1 / (1 + (0.053 * VP * L / 2))$

VVSF: Vented Vapor Saturation Factor (dimensionless)
0.053: Constant
VP: Vapor Pressure (psia)
L: Tank Length (ft)

- Standing Storage Loss per Year

$SSL_{VOC} = 365 * VSV * SVD * VSEF * VVSF / 2000$

SSL_{VOC}: Standing Storage Loss Emissions (TONs)
365: Number of Daily Events in a Year (Constant)
VSV: Vapor Space Volume (ft^3)
SVD: Stock Vapor Density (lb/ft^3)
VSEF: Vapor Space Expansion Factor (dimensionless)
VVSF: Vented Vapor Saturation Factor (dimensionless)
2000: Conversion Factor pounds to tons

- Number of Turnovers per Year

$NT = (7.48 * ANT) / ((PI / 4.0) * D * L)$

NT: Number of Turnovers per Year

7.48: Constant
ANT: Annual Net Throughput
PI: PI Math Constant
D^2: Tank Diameter (ft)
L: Tank Length (ft)

- Working Loss Turnover (Saturation) Factor per Year

WLSF = (18 + NT) / (6 * NT)

WLSF: Working Loss Turnover (Saturation) Factor per Year
18: Constant
NT: Number of Turnovers per Year
6: Constant

- Working Loss per Year

WL_{VOC} = 0.0010 * VMW * VP * ANT * WLSF / 2000

0.0010: Constant
VMW: Vapor Molecular Weight (lb/lb-mole)
VP: Vapor Pressure (psia)
ANT: Annual Net Throughput
WLSF: Working Loss Turnover (Saturation) Factor
2000: Conversion Factor pounds to tons

APPENDIX C ACAM SCGHG REPORT

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide. This report provides a summary of GHG emissions and SC GHG analysis.

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: GRAND FORKS AFB
State: North Dakota
County(s): Grand Forks
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: The Temporary Movement of B-1 Aircraft and flight Operations to Grand Forks AFB
c. Project Number/s (if applicable):

d. Projected Action Start Date: 12 / 2024

e. Action Description:

The Proposed Action would temporarily relocate approximately seventeen (17) B-1B aircraft, 1,000 personnel, munitions and support equipment to Grand Forks AFB (GFAFB), ND, for approximately 10 months. The Proposed Action would occur during the period that EAFB's runway is closed for repairs.

f. Point of Contact:

Name: Caitlin Shaw
Title: Contractor
Organization: AECOM
Email:
Phone Number:

2. Analysis: Total combined direct and indirect GHG emissions associated with the action were estimated through ACAM on a calendar-year basis from the action start through the expected life cycle of the action. The life cycle for Air Force actions with "steady state" emissions (SS, net gain/loss in emission stabilized and the action is fully implemented) is assumed to be 10 years beyond the SS emissions year or 20 years beyond SS emissions year for aircraft operations related actions.

GHG Emissions Analysis Summary:

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (NO2). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO2e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; however, it provides a threshold to identify actions that are insignificant (de minimis, too trivial or minor to merit consideration). Actions with a net change in GHG (CO2e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant any further analysis. Note that actions with a net change in GHG (CO2e) emissions above the insignificance indicator (threshold) are only considered potentially significant and require further assessment to determine if the action poses a significant impact. For further detail on insignificance indicators see Level II, Air Quality Quantitative Assessment, Insignificance Indicators (April 2023).

The following table summarizes the action-related GHG emissions on a calendar-year basis through the projected life cycle of the action.

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**	**Threshold**	**Exceedance**
2024	100	0.00386295	0.00372134	101	68,039	No
2025	18,133	1353.94753481	1353.33835917	18,457	68,039	No
2026 [SS Year]	0	0	0	0	68,039	No

The following U.S. and State's GHG emissions estimates (next two tables) are based on a five-year average (2016 through 2020) of individual state-reported GHG emissions (Reference: State Climate Summaries 2022, NOAA National Centers for Environmental Information, National Oceanic and Atmospheric Administration. https://statesummaries.ncics.org/downloads/).

State's Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2024	65,566,755	277,200	45,032	65,888,988
2025	65,566,755	277,200	45,032	65,888,988
2026 [SS Year]	0	0	0	0

U.S. Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2024	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2025	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2026 [SS Year]	0	0	0	0

GHG Relative Significance Assessment:

A Relative Significance Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the degree (intensity) of the proposed action's effects. The Relative Significance Assessment provides real-world context and allows for a reasoned choice against alternatives through a relative comparison analysis. The analysis weighs each alternative's annual net change in GHG emissions proportionally against (or relative to) global, national, and regional emissions.

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

However, the affected area (context) of GHG/climate change is global. Therefore, the intensity or degree of the proposed action's GHG/climate change effects are gauged through the quantity of GHG associated with the action as

compared to a baseline of the state, U.S., and global GHG inventories. Each action (or alternative) has significance, based on their annual net change in GHG emissions, in relation to or proportionally to the global, national, and regional annual GHG emissions.

To provide real-world context to the GHG and climate change effects on a global scale, an action's net change in GHG emissions is compared relative to the state (where action will occur) and U.S. annual emissions. The following table provides a relative comparison of an action's net change in GHG emissions vs. state and U.S. projected GHG emissions for the same time period.

Total GHG Relative Significance (mton)					
		CO2	**CH4**	**N2O**	**CO2e**
2024-2036	State Total	131,133,511	554,400	90,064	131,777,975
2024-2036	U.S. Total	10,272,908,358	51,253,823	3,001,415	10,327,163,597
2024-2036	Action	18,233	1353.951398	1353.342081	18,558
Percent of State Totals		0.01390381%	0.24421903%	1.50263776%	0.01408245%
Percent of U.S. Totals		0.00017748%	0.00264166%	0.04509013%	0.00017970%

From a global context, the action's total GHG percentage of total global GHG for the same time period is: 0.00002408%.*

* Global value based on the U.S. emits 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, https://www.c2es.org/content/international-emissions).

Climate Change Assessment (as SC GHG):

On a global scale, the potential climate change effects of an action are indirectly addressed and put into context through providing the theoretical SC GHG associated with an action. The SC GHG is an administrative and theoretical tool intended to provide additional context to a GHG's potential impacts through approximating the long-term monetary damage that may result from GHG emissions affect on climate change. It is important to note that the SC GHG is a monetary quantification, in 2020 U.S. dollars, of the theoretical economic damages that could result from emitting GHGs into the atmosphere.

The SC GHG estimates are derived using the methodology and discount factors in the "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990," released by the Interagency Working Group on Social Cost of Greenhouse Gases (IWG SC GHGs) in February 2021.

The speciated IWG Annual SC GHG Emission associated with an action (or alternative) are first estimated as annual unit cost (cost per metric ton, $/mton). Results of the annual IWG Annual SC GHG Emission Assessments are tabulated in the IWG Annual SC GHG Cost per Metric Ton Table below:

IWG SC GHG Discount Factor: 2.5%

IWG Annual SC GHG Cost per Metric Ton ($/mton [In 2020 $])			
YEAR	**CO2**	**CH4**	**N2O**
2024	$82.00	$2,200.00	$29,000.00
2025	$83.00	$2,200.00	$30,000.00
2026 [SS Year]	$84.00	$2,300.00	$30,000.00

Action-related SC GHG were estimated by calendar-year for the projected action's lifecycle. Annual estimates were found by multiplying the annual emission for a given year by the corresponding IWG Annual SC GHG Emission value (see table above).

Action-Related Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$8.17	$0.01	$0.11	$8.29
2025	$1,505.03	$2,978.68	$40,600.15	$45,083.86
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

The following two tables summarize the U.S. and State's Annual SC GHG by calendar-year. The U.S. and State's Annual SC GHG are in 2020 dollars and were estimated by each year for the projected action lifecycle. Annual SC GHG estimates were found by multiplying the U.S. and State's annual five-year average GHG emissions for a given year by the corresponding IWG Annual SC GHG Cost per Metric Ton value.

State's Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$5,376,473.93	$609,840.49	$1,305,934.19	$7,292,248.61
2025	$5,442,040.69	$609,840.49	$1,350,966.40	$7,402,847.58
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

U.S. Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$421,189,242.68	$56,379,205.70	$43,520,521.44	$521,088,969.82
2025	$426,325,696.86	$56,379,205.70	$45,021,229.08	$527,726,131.63
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

Relative Comparison of SC GHG:

To provide additional real-world context to the potential climate change impact associate with an action, a Relative Comparison of SC GHG Assessment is also performed. While the SC GHG estimates capture an indirect approximation of global climate damages, the Relative Comparison of SC GHG Assessment provides a better perspective from a regional and global scale.

The Relative Comparison of SC GHG Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the SC GHG as the degree (intensity) of the proposed action's effects. The Relative Comparison Assessment provides real-world context and allows for a reasoned choice among alternatives through a relative contrast analysis which weighs each alternative's SC GHG proportionally against (or relative to) existing global, national, and regional SC GHG. The below table provides a relative comparison between an action's SC GHG vs. state and U.S. projected SC GHG for the same time period:

Total SC-GHG ($K [In 2020 $])					
		CO2	**CH4**	**N2O**	**GHG**
2024-2036	State Total	$10,818,514.62	$1,219,680.99	$2,656,900.58	$14,695,096.19
2024-2036	U.S. Total	$847,514,939.54	$112,758,411.39	$88,541,750.52	$1,048,815,101.45
2024-2036	Action	$1,513.20	$2,978.69	$40,600.26	$45,092.15
Percent of State Totals		0.01398715%	0.24421903%	1.52810605%	0.30685171%
Percent of U.S. Totals		0.00017855%	0.00264166%	0.04585437%	0.00429934%

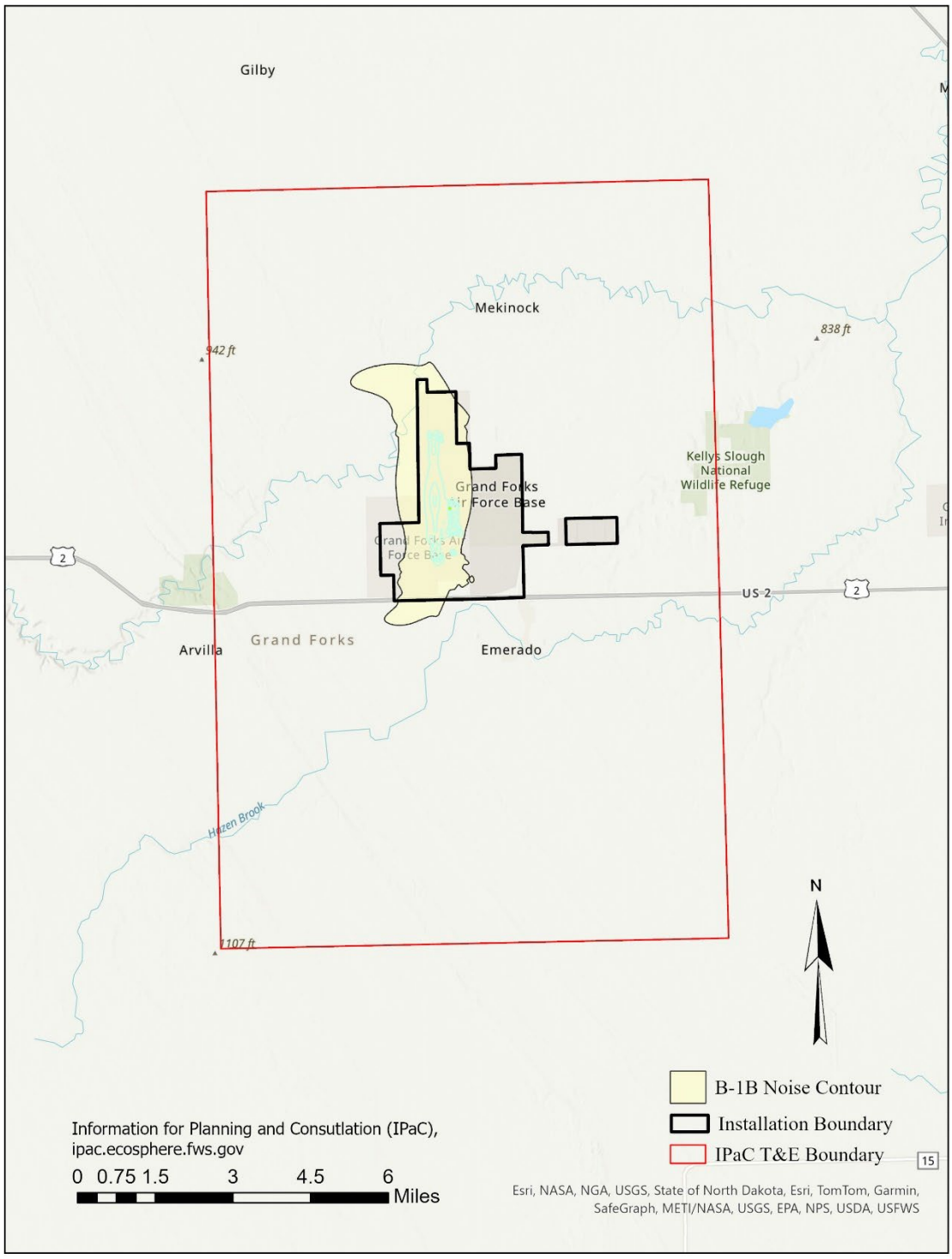
From a global context, the action's total SC GHG percentage of total global SC GHG for the same time period is: 0.00057611%.*

* Global value based on the U.S. emits 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, https://www.c2es.org/content/international-emissions).

Caitlin Shaw, Contractor	Oct 21 2024
Name, Title	**Date**

APPENDIX D. IPaC Review Area and Determination

Attachment 1



United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Dakota Ecological Services Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926
Phone: (701) 250-4481 Fax: (701) 355-8513

In Reply Refer To: 07/31/2024 17:53:50 UTC
Project code: 2024-0114830
Project Name: Ellsworth Temporary Relocation to Grand Forks

Federal Nexus: yes
Federal Action Agency (if applicable): Air Force

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Ellsworth Temporary Relocation to Grand Forks'

Dear John Carreiro:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on July 31, 2024, for 'Ellsworth Temporary Relocation to Grand Forks' (here forward, Project). This project has been assigned Project Code 2024-0114830 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of "May Affect, Not Likely to Adversely Affect" the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your

IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the North Dakota Ecological Services Field Office and reference Project Code 2024-0114830 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Ellsworth Temporary Relocation to Grand Forks

2. Description

The following description was provided for the project 'Ellsworth Temporary Relocation to Grand Forks':

> Ellsworth B-1 Flight Operations would temporarily move from Ellsworth AFB to Grand Forks AFB during runway closure.
> Time Frame: February - November 2025

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@47.94245855,-97.3883049068763,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of "may affect, but not likely to adversely affect" for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when white-nose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

9. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

   If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer "No" below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project's action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a "no effect" determination for the northern long-eared bat.

   Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer "No" and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

   No

10. [Semantic] Is the action area located within 0.5 miles of a known northern long-eared bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered

    No

11. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

    No

12. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

    No

13. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    (If unsure, answer "Yes.")

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

14. Will the action cause effects to a bridge?

    No

15. Will the action result in effects to a culvert or tunnel?

    No

16. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

    No

17. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

18. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

    Note: The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

    Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

    No

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

23. Will the action include drilling or blasting?

    No

24. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    Yes

25. Will the military training affect suitable northern long-eared bat summer habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

26. Will the proposed action involve the use of herbicide or other pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

27. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

28. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

    Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

29. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

30. Will the action result in the use of prescribed fire?

    No

31. Will the action cause noises that are louder than ambient baseline noises within the action area?

    Yes

32. Will the action cause noises during the active season in suitable summer habitat that are louder than anthropogenic noises to which the affected habitat is currently exposed? Answer 'no' if the noises will occur only during the inactive period.

    Note: Inactive Season dates for areas within a spring staging/fall swarming area can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

PROJECT QUESTIONNAIRE

Will all project activities by completed by November 30, 2024?

No

IPAC USER CONTACT INFORMATION

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