Final

Environmental Impact Statement

for T-7A Recapitalization at
Sheppard Air Force Base, Texas

EISX-007-57-UAF-1727441048

MAY 2026

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Cover Photo Credit: Boeing T-7A Red Hawk Website, July 2022.
https://www.boeing.com/defense/t-7a/#/gallery

Cover Photo Note: The aircraft in the foreground is a T-7A “Red Hawk” prototype, and the aircraft in the background is a restored P-51C “Mustang.” The P-51C were flown by the Tuskegee Airmen during World War II and have been retired from service for many decades. The P-51C is not part of this project.

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

Freedom 250

May 26, 2026

MEMORANDUM FOR WHOM IT MAY CONCERN

FROM: SAF/IE
1665 Air Force Pentagon
Washington, DC 20330-1665

SUBJECT: Environmental Impact Statement (EIS) for T-7A Recapitalization at Sheppard Air Force Base (AFB), Texas, Certification of Page Limits and Deadline

This memorandum pertains to the Sheppard AFB T-7A Recapitalization EIS. In accordance with the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, et seq., the Department of the Air Force (DAF) has considered the factors mandated by NEPA in the preparation of this EIS.

I certify that the analysis within the EIS has been tailored to comply with page limits and deadlines. The EIS represents DAF's good-faith effort to prioritize and document the most important considerations required by NEPA within the congressionally mandated page limits. This prioritization reflects DAF's expert judgment. Considerations addressed briefly or unaddressed were, in DAF's judgment, to be comparatively unimportant or frivolous. The resulting EIS represents DAF's good-faith effort to fulfill NEPA's requirements within the Congressional timeline and such effort is substantially complete.

In the DAF's expert opinion, it has thoroughly considered the factors mandated by NEPA. The analysis contained within the EIS is, in DAF's judgment, adequate to inform and reasonably explain the DAF's final decision regarding the proposed action for T-7A recapitalization at Sheppard AFB.

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MICHAEL E. SAUNDERS, P.E., SES, DAF
Principal Deputy Assistant Secretary of the
Air Force (Energy, Installations & Environment)

Cover

Environmental Impact Statement for T-7A Recapitalization at Sheppard AFB, Texas

Responsible Agencies: Lead agency: United States (U.S.) Department of the Air Force (DAF), Air Education and Training Command (AETC) as project proponent. Cooperating agency: U.S. Department of the Army for ownership of Falcon Range.

Affected Locations: Sheppard Air Force Base (AFB) in Wichita County, Texas. The airspace of Military Operating Areas Hollis, Washita, Westover 1, and Westover 2; Restricted Area Falcon Range (R-5601) associated with Fort Sill; and Military Training Routes Instrument Route-103, Visual Route (VR)-158, VR-159, VR-1139, VR-1140, VR-1141, VR-1142, VR-1143, and VR-1146 in southwest Oklahoma and northern and central Texas.

Report Designation: Final Environmental Impact Statement (EIS).

Abstract: DAF has prepared this EIS to address AETC's proposal to recapitalize the T-38C Talon flight training program at Sheppard AFB with T-7A Red Hawk aircraft. This proposal supports the Secretary of the Air Force's strategic basing decisions to recapitalize existing T-38C pilot training installations and is referred to as the Proposed Action. Sheppard AFB is the fifth of five installations to be analyzed environmentally for possible recapitalization. Recapitalization would entail introduction of T-7A aircraft and flight operations at Sheppard AFB and associated special use airspace to replace all T-38C aircraft assigned to the installation; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction and upgrade of operations, support, and maintenance facilities. DAF is considering three alternative ways to implement the Proposed Action (i.e., Alternatives 1, 2, and 3), and the No Action Alternative.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T-38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft, and T-7A operations would be approximately 21 percent greater than Alternative 1. Alternative 3 is intended to provide DAF with flexibility for future capacity needs. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

Alternatives 1, 2, and 3 satisfy the purpose and need for the Proposed Action. Therefore, these three alternatives have been carried forward with the No Action Alternative for analysis in this EIS.

Inquiries: Inquiries regarding this document should be directed to Chinling Chen, AFCEC/CIE, by emailing chinling.chen@us.af.mil. Provide "Sheppard AFB T-7A Recapitalization EIS" in the subject line of the email.

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1. Purpose of and Need for the Proposed Action

1.1 Introduction and Background

This Environmental Impact Statement (EIS) addresses the United States (U.S.) Department of the Air Force (DAF), Air Education and Training Command (AETC) proposal to recapitalize the T-38C Talon flight training program at Sheppard Air Force Base (AFB), Texas, with T-7A Red Hawk aircraft. This EIS analyzes the environmental impacts associated with T-7A recapitalization at Sheppard AFB and its alternatives, including the No Action Alternative. The Department of War (DoW) defines facility recapitalization as "the restoration, modernization, or replacement of facilities or their structural components to extend or restore a facility's lifecycle."

Procedurally, this EIS was prepared in compliance with the National Environmental Policy Act (NEPA), as amended by Public Law 118-5, the *Fiscal Responsibility Act of 2023* (42 United States Code [USC] Sections 4321 et seq.); *Department of Defense National Environmental Policy Act Implementing Procedures*, dated June 30, 2025 (DoD 2025); and *Department of the Air Force National Environmental Policy Act Implementing Procedures*, dated March 2, 2026 (DAF 2026).

An EIS is prepared to provide full and fair discussion of significant environmental impacts and inform decision-makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. The primary intent of an EIS is to ensure agencies consider the environmental impacts of their actions in decision-making. In compliance with NEPA, DAF has prepared this EIS as the appropriate analysis level for the Proposed Action. The analysis summarized in the EIS is intended to provide the deciding official with sufficient information for a final decision.

1.1.1 The T-7A Recapitalization Program

1.1.1.1 Aircraft

The T-38C is a twin-engine, high-altitude, supersonic jet used by DAF and other nations for pilot training. The T-38C trains airmen for various fighter and bomber aircraft assignments, including the B-1B Lancer, F-15C Eagle, F-15E Strike Eagle, F-16 Fighting Falcon, F-22 Raptor, and F-35 Lightning II (DAF 2014).

The T-38 was originally developed in the 1950s with production occurring between 1961 and 1972. The fleet has undergone periodic upgrades over time, including in 2001 when many aircraft were converted to the T-38C variant by installing modern avionics and upgraded propulsion components to provide increased performance and superior reliability (DAF 2014). Nevertheless, as an older aircraft, training with the T-38C does not prepare pilots adequately for the technological advancements of modern fourth and fifth generation fighter aircraft. Furthermore, T-38C aircraft incur greater maintenance requirements as they age. Greater maintenance leads to more individual aircraft downtime, which threatens the

"Fourth generation" refers to those fighter aircraft developed or manufactured with updated variants in the later part of the 20th century, such as the F-15E or the F-16. "Fifth generation" refers to modern fighter aircraft with advanced avionics developed in the early part of the 21st century, such as the F-22 and F-35.

availability of pilot training hours. The T-38C is expected to reach the end of its service life within the next decade.

DAF plans to recapitalize the T-38C fleet with T-7A aircraft to provide a training environment suitable for modern aircraft. Program-wide, DAF expects to procure approximately 350 T-7A aircraft from Boeing and deliver these aircraft to the five T-38C pilot training installations using a geographically phased replacement plan.

1.1.1.2 Why Sheppard AFB?

In a Strategic Basing Decision Memorandum for Record dated February 16, 2018, the Secretary of the Air Force (SECAF) identified Joint Base San Antonio-Randolph as the preferred alternative and Columbus, Laughlin, Vance, and Sheppard AFBs as reasonable alternatives for T-7A recapitalization. DAF pilot training relies on a unique runway structure and special use airspace (SUA) capable of supporting high volume pilot training. As such, the potential locations for T-7A aircraft are limited to the five existing pilot training installations. DAF evaluated each of the five installations using criteria that included mission factors (e.g., weather, ability to meet syllabus requirements), infrastructure capacity, and potential environmental constraints and costs (DAF 2018).

On January 29, 2021, the Acting SECAF approved the preferred sequencing and locations for the installations to possibly undergo T-7A recapitalization. Following AETC recommendations, the Acting SECAF selected Sheppard AFB to be the fifth installation to be analyzed environmentally for possible recapitalization (DAF 2021a). The focus of this EIS is the T-7A recapitalization at Sheppard AFB.

1.2 Location

1.2.1 Sheppard AFB and Airspace

Sheppard AFB. Sheppard AFB is in northern Texas, north of the city of Wichita Falls within Wichita County. The installation occupies 5,338 acres (see **Figure 1-1**). Sheppard AFB is home to the 80th Flying Training Wing (FTW) of AETC's 19th Air Force. The 80 FTW provides Undergraduate Pilot Training (UPT) using the T-38C and T-6 Texan II for basic aircraft control and navigation and specialized training with T-38C aircraft for pilots bound for fighter and bomber aircraft (i.e., Introduction to Fighter Fundamentals [IFF] curricula) (Sheppard AFB 2023).

Sheppard AFB and the Wichita Falls Municipal Airport share a joint-use airfield used by both military and civilian aircraft. The Sheppard AFB/Wichita Falls Municipal Airport airfield has four runways. Sheppard AFB uses three north-northwest/south-southeast parallel runways. The Municipal Airport is located on the southern end of the airfield using the north-south runway to support scheduled air passenger service and general aviation (Sheppard AFB 2011).

SUA. T-38C aircraft stationed at Sheppard AFB use SUA in northern and central Texas and southwest Oklahoma to perform aircraft operations and supplement training. Such airspace is approved by the Federal Aviation Administration (FAA) and managed by DAF. This SUA consists of four Military Operating Areas (MOAs), one Restricted Area, and nine Military Training Routes (MTRs). MOAs separate military activities from other traffic. Restricted Areas are typically used by the military where local controlling

authorities have determined that air traffic must be restricted or prohibited for safety or security concerns. MTRs are flight corridors used by the military to connect MOAs and perform low-altitude, high-speed training. The SUA is designated on published aeronautical charts available online at the following website: https://www.faa.gov/air_traffic/flight_info/aeronav/productcatalog/vfrcharts/sectional.

The SUA where Sheppard AFB T-38C aircraft perform operations is depicted on the Dallas – Ft. Worth sectional aeronautical chart and consists of:

- **MOAs.** Hollis, Washita, Westover 1, and Westover 2.
- **Restricted Area.** Falcon Range (R-5601)[1].
- **MTRs.** Instrument Route (IR)-103, Visual Route (VR)-158, VR-159, VR-1139, VR-1140, VR-1141, VR-1142, VR-1143, and VR-1146.

1.3 Purpose and Need

The purpose of the Proposed Action is to continue the T-7A recapitalization program to prepare pilots to operate modern fourth and fifth generation aircraft.

The need for the Proposed Action is to provide infrastructure and training systems to support the newer T-7A aircraft, allow for enhanced and improved flight and simulator training, and ensure DAF pilot training requirements are met. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth generation aircraft, requiring a modern, capable training platform with capabilities beyond those available with the T-38C. Additionally, training systems provided with the newer T-7A aircraft allow for enhanced and improved flight and simulator training. The T-7A recapitalization program will allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. T-7A recapitalization at Sheppard AFB would allow DAF to continue the geographically phased T-7A recapitalization sequence, ensuring DAF pilot training requirements are met.

1.4 Lead and Cooperating Agencies

DAF is the lead agency for this EIS. AETC is the DAF major command developing this EIS as the proponent for this proposal. The U.S. Department of the Army is a cooperating agency because of their ownership of Falcon Range, where some T-7A flight operations would occur. There are no other cooperating agencies for this EIS.

1.5 Public Participation

Notice of Intent (NOI). A notice announcing DAF's intent to prepare an EIS was published in the *Federal Register* on July 3, 2024. The NOI formally initiated the public scoping process and included a description of the Proposed Action and alternatives; the date, time, and location for the in-person public scoping meetings; and an invitation to federal, state, and local agencies, elected officials, affected Native American tribes, and interested persons (e.g., public) to participate in the scoping process.

[1] Falcon Range is associated with Fort Sill. The range has been owned by the U.S. Department of the Army since 1947 but currently is managed by DAF, specifically the 301st Fighter Wing of the Air Force Reserve based in Fort Worth, Texas.

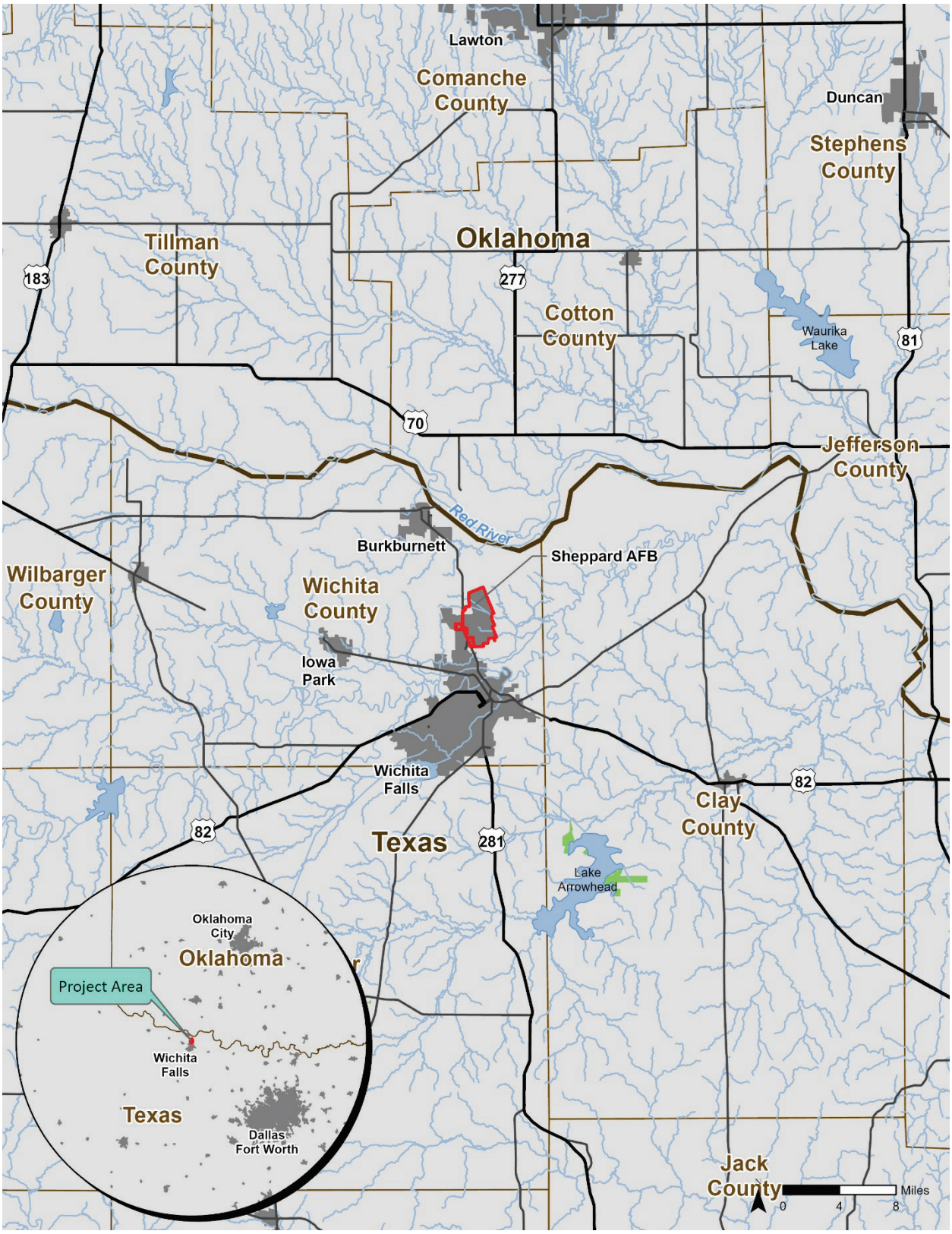


Figure 1-1. Sheppard AFB and Vicinity

Scoping. The scoping process is designed to involve the public early in the assessment process and solicit input from the public and interested agencies on the nature and extent of issues and impacts to be addressed and the methods by which potential impacts are evaluated.

In addition to the NOI, DAF published newspaper advertisements in the Wichita Falls *Times Record News* on July 11 and 18, 2024; issued press releases to local media outlets and via Facebook posts; and mailed letters to potentially interested federal, state, and local agencies, elected officials, and Native American tribes to announce the scoping period. Each newspaper advertisement, press release, and letter briefly described the Proposed Action, solicited comments, and provided the date, time, and location for the in-person public scoping meetings, which were held using an open house format to inform the public of the proposal. The scoping meetings were held in Cannedy Hall of the Wichita Falls Museum of Art at Midwestern State University, located at 2 Eureka Circle in Wichita Falls, Texas, on July 30 and 31, 2024, from 4:00 to 7:00 p.m. central daylight time. The 30-day scoping period began on July 3, 2024, and officially ended on August 12, 2024.

A total of nine comment correspondences were received from eight parties during scoping. These comment correspondences were from three federal agencies, one Native American tribal nation, and four private citizens. A summary of the comments contained in the comment correspondences is provided in **Appendix D**.

Draft EIS Public Comment. DAF initiated a 45-day Draft EIS public comment period on December 19, 2025, when the Notice of Availability for the Draft EIS was published in the *Federal Register*. The public was informed of the Draft EIS public comment period through notices published in the *Times Record News* on December 19, 2025, and January 11, 2026; social media posts; and a memo emailed to potentially interested federal, state, and local agencies, elected officials, and citizens. The Draft EIS comment period ended on February 2, 2026.

A total of two comment correspondences were received from two federal agencies during the Draft EIS public comment period. A summary of the comments contained in the comment correspondences is provided in **Appendix D**.

2. Description of the Proposed Action and Alternatives

2.1 Proposed Action

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. This is the fifth location of the T-7A recapitalization program, as described in **Section 1.1.1**. Recapitalization entails the following elements:

- Replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft.
- Transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A.
- Temporary changes to the number of personnel and dependents in the Sheppard AFB region.
- Construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

2.2 Alternatives

2.2.1 Alternatives to Sheppard AFB

As discussed in **Section 1.1.1**, the Acting SECAF expressed preference for Sheppard AFB to be the fifth of five pilot training installations to undergo possible T-7A recapitalization. Preference was based on several factors, such as minimizing impacts on continued pilot production during the transition of aircraft types, providing the most cost-efficient student production/management plan, and aligning with AETC's student pipeline flow for the UPT and IFF curricula. For these reasons, the Proposed Action identified and evaluated within this EIS focuses on the Sheppard AFB recapitalization effort, and no alternative locations to Sheppard AFB are addressed in this EIS.

2.2.2 Alternative Ways to Implement the Proposed Action

DAF is considering three alternative ways to implement T-7A recapitalization at Sheppard AFB (i.e., Alternatives 1, 2, and 3). These alternatives have different numbers of T-7A aircraft that would be stationed at Sheppard AFB and different numbers of T-7A operations at Sheppard AFB and associated SUA.

2.2.2.1 Proposed Elements Common to All Action Alternatives

2.2.2.1.1 Personnel and Dependents

During the aircraft transition period (i.e., 2034 through 2036), a temporary increase of approximately 100 personnel is projected at Sheppard AFB. This increase would occur during the transition period because DAF would be training pilots with and maintaining two types of aircraft, resulting in a temporary increase in workforce requirements for operations, civilian simulator instructors, and maintenance. The initial increase in workforce would subside as T-38C aircraft are removed from service. After the aircraft transition period, the workforce associated with the T-7A flight training program would be approximately the same as that for the current T-38C flight training program and identical across all action alternatives because of physical space limitations to support additional maintenance and training staff.

Associated with the workforce change is a corresponding change in the number of dependents (e.g., spouses, children, other family members) who would accompany the personnel. DAF estimates that 1.9 dependents accompanied active-duty personnel in 2020 (DAF 2021b). Therefore, an estimated 190 dependents would accompany the 100 additional personnel during the aircraft transition period, for a total of 290 additional people in the Sheppard AFB vicinity from 2034 through 2036. After the aircraft transition period, the dependent population would be approximately the same as current levels and identical across all action alternatives.

2.2.2.1.2 Construction and Renovation Projects

Several construction and renovation projects potentially would occur at Sheppard AFB to provide modern facilities and infrastructure to support T-7A aircraft maintenance, training, and operational requirements. These projects are described in **Table 2-1**, and **Figure 2-1** shows the proposed locations of the projects as currently sited. **Table 2-2** provides the estimated amount of ground disturbance and new impervious surface resulting from each project.

Each new or renovated building potentially would incorporate cost-effective designs and technologies that minimize energy consumption for heating, cooling, lighting, and appliances. Examples of possible designs and technologies include use of insulation, energy-efficient windows, smart thermostats, and LED lighting, among others.

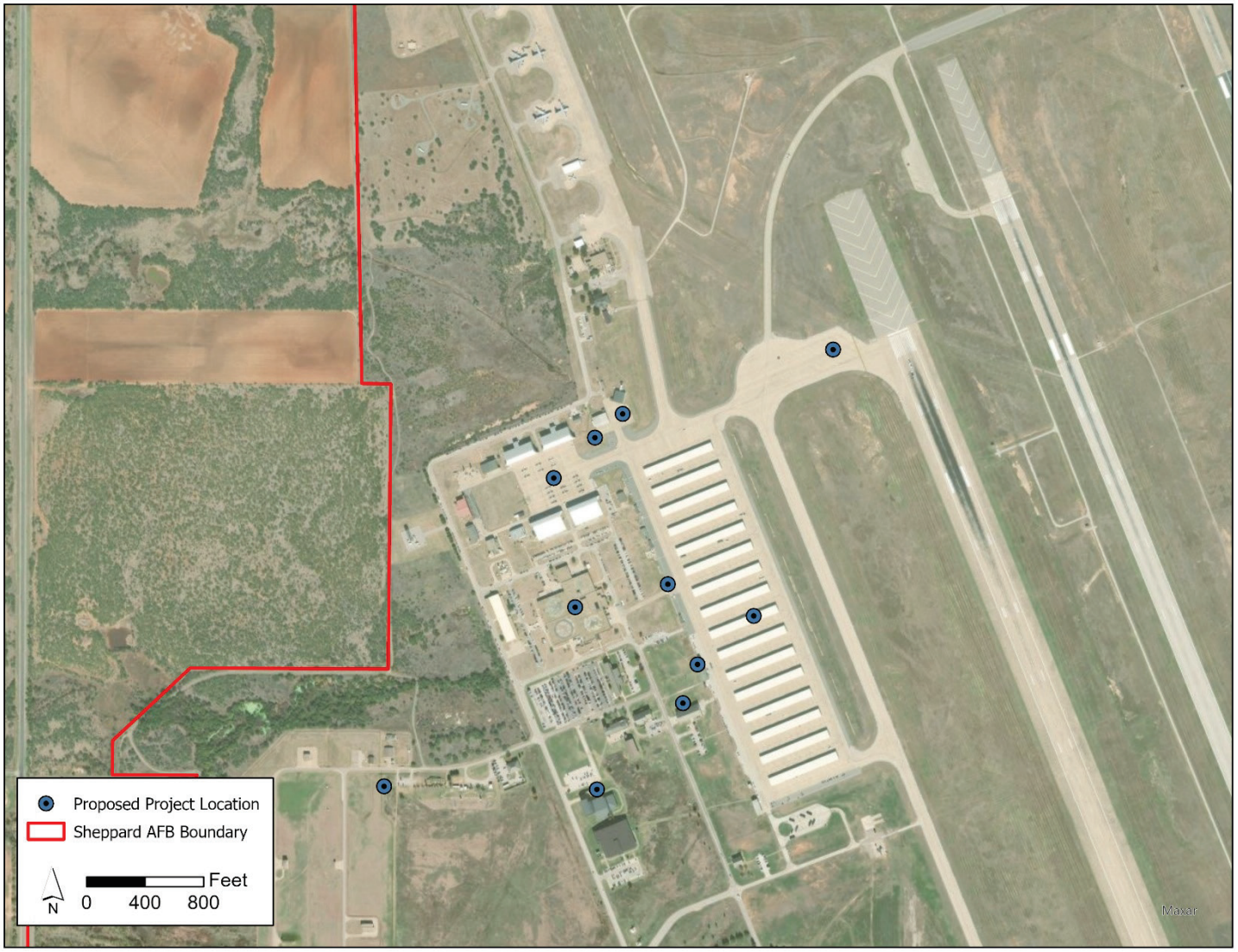
The construction and renovation projects are expected to begin in 2031 and 2032 and be completed prior to the arrival of the first T-7A aircraft in 2034. The exact projects selected for implementation and their timetable for execution will depend on funding levels and priorities in the overall T-7A program.

Table 2-1. Construction and Renovation Projects for Sheppard AFB T-7A Program

Project Name	Project Description
Ground-Based Training System (GBTS) Facility	Expand and renovate Building 2326 to provide a GBTS facility for flight simulation instruction to students and equipment storage space. The building addition would measure 16,000 square feet (ft^2) and be constructed with a reinforced concrete foundation and concrete floor slab, a structural steel frame, and a standing seam metal roof and exterior. The facility would include fire suppression systems, all utilities, pavements, communications, site improvements, and associated supporting facilities to provide a complete and usable facility.
Maintenance Hangar/ Unit Maintenance Training (UMT) Facility	Construct an approximately 51,300 ft^2 aircraft maintenance hangar/UMT facility. The proposed facility would have eight standard-sized aircraft maintenance docks and one oversized maintenance bay. It would also house administrative space, classroom space, a tool crib, and mechanical rooms. It would be constructed with a reinforced concrete foundation, concrete floor slab, structural steel frame, and brick and metal panel exterior walls. The facility would include fire suppression systems, all utilities, pavements, communications, site improvements, and associated supporting facilities to provide a complete and usable facility. A parking area would be associated with this facility.
Ramp Expansion	Construct approximately 60,000 ft^2 of pavement to expand the size of the flightline ramp.

Project Name	Project Description
Hush House Pad	Construct a new hush house pad adjacent to the installation's existing hush house. A hush house is an enclosed unit that contains noise suppressing equipment to accommodate in-frame or out-of-frame aircraft engine testing. Construction would include a reinforced concrete pad approximately 27,500 ft^2 with thick edges and paved shoulders for the hush house enclosure. The concrete pad would have an anchor block in the center to perform full-power engine diagnostics testing of the aircraft engine to keep the aircraft stationary. Approach pavements and supporting utilities would be extended to the proposed hush house pad.
T-7A Shelters (Parts I and II) and Site Work	Replace shelters (sunshades) in two phases and perform associated site construction on the existing T-38C aircraft parking apron to protect T-7A aircraft from adverse weather. Existing T-38C shelters would be removed, and T-7A shelters would be placed on existing pavement appropriately spaced to accommodate the planned T-7A parking requirements on a schedule determined to best support the aircraft transition. Taxi lines would be removed and repainted. Electrical utilities, proper lighting, and tie-downs/grounding points would be installed for each shelter.
Addition to Egress Shop	Construct an addition onto the existing egress shop (Building 2521). The addition would be approximately 3,400 ft^2 and constructed with a reinforced foundation, concrete floor slab, structural steel frame, and standing seam metal roof and exterior.
Jet Blast Deflectors	Install jet blast deflectors on the airfield to protect parked aircraft, personnel, facilities, and pavements from the jet blasts of taxiing aircraft. Approximately 200 linear feet of deflectors would be installed. Final placement would be decided during ramp layout design.
Airfield Reconfiguration	Paint new markings to reconfigure the airfield and install new mooring and anchor rods. The parking layout would be repainted to accommodate the T-7A's larger physical dimensions. The mooring and anchor rods would be installed in the new T-7A parking area.
Renovate Squadron Operations Building, Part I	Perform part I interior renovations to Building 2320 to support squadron operations.
Renovate Squadron Operations Building, Part II	Perform part II interior renovations to Building 2320 to support squadron operations.
Hangar Renovation	Modify interior components of an existing hangar. Possible hangars for modification are Buildings 2404, 2406, 2408, and 2410.
Remove Aboveground Centralized Aircraft Support System (CASS) Service Modules	Remove any T-38C CASS modules where T-7A aircraft would be located using previous T-38C spaces. CASS modules are electrical equipment panels attached to existing T-38C shelters. CASS lines to the rows would be cut and capped and vaults would be filled with concrete.
Compass Rose & Trim Pad	Repair/prepare existing aircraft pavement for a compass rose and trim pad.
Munitions Storage Pad	Construct a 3,600 ft^2 concrete pad and provide utilities for a storage container to store T-7A ejection system explosive components.
Hammerhead Expansion	Expand the existing hammerhead paved area by 3,500 ft^2 to fit the wider wingspan of four T-7A versus four T-38C aircraft, if needed.
Renovate T-7A Parts Warehouse	Perform interior electrical modifications to Building 2518, which is an existing parts warehouse, to store and maintain night vision goggles.

Sources: AFIMSC 2023, AETC 2024b, USACE 2025a, USACE 2025b



Note: Dots represent proposed project locations and may include more than one project at that location.

Figure 2-1. Project Locations

Table 2-2. Estimated Ground Disturbance and New Impervious Surface Area

Project	Construction Element	Current Site Condition	Dimensions (ft^2 / acres)
GBTS Facility	Building Expansion	Pavement and Grass	16,000 / 0.37
Maintenance Hangar/UMT Facility	Building Construction	Grass	51,300 / 1.18
Ramp Expansion	Concrete Pavement	Grass	60,000 / 1.38
Hush House Pad	Concrete Pad	Grass	27,500 / 0.63
Addition to Egress Shop	Building Expansion	Grass	3,400 / 0.08
Munitions Storage Pad	Concrete Pad	Pavement and Grass	3,600 / 0.08
Hammerhead Expansion	Concrete Pavement	Grass	3,500 / 0.08
Total			**165,300 / 3.79**

2.2.2.2 Alternative 1

Alternative 1 addresses DAF's anticipated training needs. Sheppard AFB would receive up to 108 T-7A aircraft and phase in T-7A operations at a level sustaining pilot training while simultaneously phasing out the T-38C. Aircraft and aircraft operations for Alternative 1 are described in the following subsections.

2.2.2.2.1 Aircraft

T-7A aircraft would be delivered to Sheppard AFB from the manufacturer (Boeing) beginning in 2034 and continuing through 2036. As T-7A aircraft are placed into service, T-38C aircraft would be withdrawn from service. The first T-38Cs would be withdrawn in 2034 and the last in 2036. In total, all 131 T-38C aircraft assigned to Sheppard AFB would be withdrawn from service and considered for retirement or repurposed for use at other locations. The potential reuse of T-38C aircraft at other locations is a separate DAF action and subject to separate environmental analysis not addressed by this EIS. **Table 2-3** provides the proposed T-7A delivery and T-38C withdrawal schedule for Alternatives 1 and 2.

Table 2-3. T-38C and T-7A Aircraft Changes for Alternatives 1 and 2

Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Thereafter
Annual Aircraft Withdrawn From/Delivered to Sheppard AFB					
T-38C (withdrawn)	N/A	28	56	47	N/A
T-7A (delivered)	N/A	28	48	32	N/A
Total T-38C/T-7A Aircraft at Sheppard AFB at Year End					
T-38C	131	103	47	0	0
T-7A	0	28	76	108	108
Total Aircraft	**131**	131	123	108	**108**

Source: AETC 2024a
N/A = not applicable

2.2.2.2.2 Aircraft Operations

On a per aircraft basis, the T-7A would perform the same number of operations as the current T-38C, but on an installation-wide basis, total annual T-7A operations in 2037 and later would be approximately 31,400 fewer than current T-38C operations (147,300 versus 178,700) because 23 fewer aircraft would be assigned to the installation. **Table 2-4** provides the approximate number of annual operations for both aircraft types at the Sheppard AFB airfield, and **Table A-2** (see **Appendix A**) provides the approximate number of annual sorties in the Sheppard AFB SUA. The numbers in both tables are based on the 2023 T-38C tempo of operations.

What is an Aircraft Operation?

In **Table 2-4** for Alternative 1 and the corresponding tables for Alternatives 2 and 3, the number of projected aircraft operations is provided as a means to analyze both the air quality and noise impacts from aircraft flights. For the purposes of these tables, an aircraft operation is defined as (1) a single takeoff, (2) a single landing, or (3) a closed pattern. A closed pattern is a "touch-and-go" where an aircraft approaches the airfield, momentarily touches its wheels or flies close to the runway, and departs the airfield for additional flight maneuvers.

Aircraft operations are often discussed using the term "sorties." A single aircraft sortie at an airfield consists of one takeoff and one landing and may include closed patterns. For T-38C flight training at Sheppard AFB, two closed patterns are performed on average per sortie for the IFF curriculum and five closed patterns are performed on average per sortie for the UPT curriculum. Average conditions were used to calculate the operations presented in this EIS, and an identical closed pattern-to-sortie ratio was used for T-7A flight training. In actuality, some sorties flown may include fewer closed patterns while others may include greater closed patterns than average.

An example of how operations were calculated is as follows: If 10,000 UPT sorties were flown in any single year, the table would show a total of 70,000 aircraft operations for that year. These operations would consist of 10,000 takeoffs, 10,000 landings, and 50,000 closed patterns.

Table 2-4. T-38C and T-7A Aircraft Operations at Sheppard AFB Airfield for Alternative 1

Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Operations (Total)[1]					
T-38C	178,668	164,347	92,744	19,435	0
T-7A	0	16,367	79,105	137,752	147,299
Total	**178,668**	180,714	171,849	157,187	**147,299**
Annual Aircraft Operations (Nighttime)[2]					
T-38C	1,473	1,355	765	160	0
T-7A	0	135	652	1,136	1,214
Total	**1,473**	1,490	1,417	1,296	**1,214**

Sources: Sheppard AFB 2011, Sheppard AFB 2024a
[1] Annual aircraft operations (total) is the total number of UPT and IFF training operations at Sheppard AFB.
[2] Annual aircraft operations (nighttime) are the number of operations at Sheppard AFB between 10 p.m. and 7 a.m. provided for noise modeling purposes. The number of nighttime operations are based only on UPT training operations because IFF training does not include nighttime operations. Nighttime operations would be approximately 1 percent of the total UPT aircraft operations.

The Proposed Action includes daytime, evening, and nighttime T-7A operations at the Sheppard AFB airfield. Evening operations are performed from dusk until 10 p.m., and nighttime operations, as defined for aircraft noise modeling, occur between 10 p.m. and 7 a.m. T-38C aircraft already perform operations during all three periods at Sheppard AFB. It is likely that, as times of sunrise and sunset change throughout the seasons, the daily and hourly distribution of flight operations may vary to accommodate training curriculum requirements. At full implementation, up to 1,214 annual nighttime T-7A operations would occur at Sheppard AFB for Alternative 1, which is less than 1 percent of the total annual T-7A operations.

Exact T-7A flight parameters, such as flight tracks, patterns, and altitudes, have not yet been developed and will not be known until DAF begins flying the T-7A for pilot training.

Therefore, at this stage of the proposal, T-7A flight parameters are assumed to be similar to those flown by the T-38C for the No Action Alternative. All routine T-38C and T-7A traffic would use runways in the manner currently used.

T-7A pilot training would use the same SUA currently used by the T-38C. No changes to SUA configurations (i.e., size, shape, or location) or their active times are proposed for T-7A recapitalization. Except where specified in the existing training syllabus, and in accordance with applicable letters of authorization, T-7A aircraft would be limited to sub-sonic speeds in all phases of pilot training (AFCEC/CZN 2021).

2.2.2.3 Alternative 2

Alternative 2 is intended to cover a scenario in which, for either broad strategic or tactical operational reasons, DAF requires a surge or increase in pilot training operations above current plan. Sheppard AFB would receive up to 108 T-7A aircraft and perform operations at a level that is approximately 25 percent greater than Alternative 1.

The number of T-7A aircraft delivered to Sheppard AFB and timeline for operations would be the same as described for Alternative 1 in **Section 2.2.2.2**. The difference from Alternative 1 is that beginning in 2034, T-7A and T-38C aircraft would perform annual operations at Sheppard AFB and associated SUA at an operational tempo that is 25 percent greater than Alternative 1. Total annual T-7A operations in 2037 and later at the installation would be approximately 5,400 greater than current T-38C operations (i.e., 184,100 versus 178,700). T-7A nighttime operations would occur with approximately 1,518 annual nighttime operations at Sheppard AFB. **Table 2-5** provides the approximate number of T-38C and T-7A annual aircraft operations at the Sheppard AFB airfield, and **Table A-3** (see **Appendix A**) provides the approximate number within the Sheppard AFB SUA for Alternative 2.

Table 2-5. T-38C and T-7A Aircraft Operations at Sheppard AFB Airfield for Alternative 2

Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Operations (Total)[1]					
T-38C	178,668	205,434	115,930	24,294	0
T-7A	0	20,458	98,881	172,190	184,124
Total	**178,668**	225,892	214,811	196,484	**184,124**
Annual Aircraft Operations (Nighttime)[2]					
T-38C	1,473	1,693	965	200	0
T-7A	0	169	815	1,419	1,518
Total	**1,473**	1,862	1,771	1,620	**1,518**

Sources: Sheppard AFB 2011, Sheppard AFB 2024a
[1] Annual aircraft operations (total) is the total number of UPT and IFF training operations at Sheppard AFB.
[2] Annual aircraft operations (nighttime) are the number of operations at Sheppard AFB between 10 p.m. and 7 a.m. provided for noise modeling purposes. The number of nighttime operations are based only on UPT training operations because IFF training does not include nighttime operations. Nighttime operations would be approximately 1 percent of the total UPT aircraft operations.

2.2.2.4 Alternative 3

Alternative 3 is intended to provide DAF with flexibility for future capacity needs. Sheppard AFB would receive up to 131 T-7A aircraft, which is the same number of T-38C aircraft currently stationed at the installation. **Table 2-6** provides Sheppard

AFB's proposed T-7A delivery and T-38C withdrawal schedule for Alternative 3. If Alternative 3 were selected for implementation, the SECAF may later authorize a modification to the number of aircraft at Sheppard AFB.

Table 2-6. T-38C and T-7A Aircraft Changes for Alternative 3

Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Thereafter
Annual Aircraft Withdrawn From/Delivered to Sheppard AFB					
T-38C (withdrawn)	N/A	28	56	47	N/A
T-7A (delivered)	N/A	28	48	48	7
Total T-38C/T-7A Aircraft at Sheppard AFB at Year End					
T-38C	131	103	47	0	0
T-7A	0	28	76	124	131
Total Aircraft	**131**	131	123	124	**131**

Source: AETC 2024a

Table 2-7 provides the approximate number of T-38C and T-7A annual aircraft operations at the Sheppard AFB airfield and **Table A-4** (see **Appendix A**) provides the approximate number within the Sheppard AFB SUA for Alternative 3. On a per aircraft basis, the T-7A would perform the same number of operations as the current T-38C, and because the end state number of T-7A aircraft would be identical to the current number of T-38C aircraft, total annual T-7A operations in 2037 and later would be equal to the current number of T-38C operations (i.e., approximately 178,700). Compared to Alternative 1, total annual T-7A airfield operations would be approximately 21 percent greater than Alternative 1. T-7A nighttime operations would occur with up to 1,473 annual nighttime operations at Sheppard AFB.

Table 2-7. T-38C and T-7A Aircraft Operations at Sheppard AFB Airfield for Alternative 3

Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Operations (Total)[1]					
T-38C	178,668	164,347	92,744	19,435	0
T-7A	0	16,367	79,105	144,571	178,668
Total	**178,668**	180,714	171,849	164,006	**178,668**
Annual Aircraft Operations (Nighttime)[2]					
T-38C	1,473	1,355	765	160	0
T-7A	0	135	652	1,192	1,473
Total	**1,473**	1,490	1,417	1,352	**1,473**

Sources: Sheppard AFB 2011, Sheppard AFB 2024a

[1] Annual aircraft operations (total) is the total number of UPT and IFF training operations at Sheppard AFB.

[2] Annual aircraft operations (nighttime) are the number of operations at Sheppard AFB between 10 p.m. and 7 a.m. provided for noise modeling purposes. The number of nighttime operations are based only on UPT training operations because IFF training does not include nighttime operations. Nighttime operations would be approximately 1 percent of the total UPT aircraft operations.

Alternative 3 also includes construction of additional shelters on existing pavement of the aircraft parking ramp to accommodate the 23 additional T-7A aircraft, compared to

Alternative 1. All other aspects of Alternative 3 would be identical to those described for Alternative 1 in **Section 2.2.2.2**.

2.3 No Action Alternative

The No Action Alternative assesses environmental consequences that may occur if the Proposed Action is not implemented. The No Action Alternative serves as a reference against which the impacts of the Proposed Action and other potential action alternatives can be evaluated.

For the No Action Alternative, DAF would not implement T-7A recapitalization at Sheppard AFB. Sheppard AFB's existing fleet of T-38C aircraft would continue to be used in their current capacity. No changes to current flight operations would occur even though T-38C aircraft will reach the end of their service lives within the next decade. Maintenance requirements for these aircraft would continue to increase. The retention and continued use of the T-38C aircraft would not change the number of personnel on Sheppard AFB. The number and types of T-38C aircraft operations would remain the same, consistent with the current training curriculum and operations shown in **Table 2-4** and **Table A-2** (see **Appendix A**) for 2023 conditions. The SUA (MOAs, Falcon Range, and MTRs) for T-38C operations, identified in **Section 1.2.1**, would continue to be used at the same tempo and in a similar manner. No construction or renovation projects would be undertaken to support the T-7A program at Sheppard AFB.

T-7A aircraft manufacturing has been contracted. If the No Action Alternative were selected, DAF would re-evaluate their T-7A strategic basing decisions and may implement all or a portion of the basing requirements proposed for Sheppard AFB at an undetermined installation.

2.4 Identification of the Preferred Alternative

Following the Draft EIS public comment period, DAF selected Alternative 3 (i.e., addressing recapitalization at Sheppard AFB with up to 131 T-7A aircraft and performing T-7A operations at a level that is approximately 21 percent greater than Alternative 1) as its preferred alternative because Alternative 3 provides sufficient T-7A aircraft to facilitate Sheppard AFB's projected pilot training requirement.

2.5 Environmental Comparison of the Alternatives

Table 2-8 provides a summary of the environmental impacts associated with each alternative.

Table 2-8. Summary of Environmental Impacts

Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Brief Description of the Alternatives			
T-7A recapitalization at Sheppard AFB would occur with up to 108 T-7A aircraft and phase in T-7A operations at a level sustaining pilot training while simultaneously phasing out the T-38C.	T-7A recapitalization at Sheppard AFB would occur with up to 108 T-7A aircraft and T-7A operations at a level 25 percent greater than Alternative 1.	T-7A recapitalization at Sheppard AFB would occur with up to 131 T-7A aircraft and T-7A operations at a level approximately 21 percent greater than Alternative 1.	T-7A recapitalization at Sheppard AFB would not occur. T-38C training would continue in its current capacity.
Air Quality			
Short-term, not significant, adverse impacts would occur in the Sheppard AFB region of influence (ROI) from construction and temporary increases in personnel during the aircraft transition period, and long-term, not significant, adverse and beneficial impacts would occur in the Sheppard AFB and SUA ROIs from operation of expanded facilities and aircraft flight and maintenance operations. The proposed aircraft operations would result in annual net increases and decreases in criteria pollutants and greenhouse gases (GHGs) depending on the location, year, and pollutant in question. Starting in 2036, net annual nitrogen oxides (NO_X) emissions in the Sheppard AFB ROI would exceed the insignificance indicator; however, considering the type and context of such emissions, an exceedance of National Ambient Air Quality Standards (NAAQS) would not occur. Air emissions within the counties subject to the General Conformity Rule would not exceed the applicable *de minimis* level threshold. Net GHG emissions would not be significant.	Impacts from construction, operation of expanded facilities, and temporary increases in personnel would be identical to Alternative 1. Long-term, adverse and beneficial impacts would occur in the Sheppard AFB and SUA ROIs from aircraft operations and be greater than those from Alternative 1 but remain not significant. Although carbon monoxide (CO) emissions within the Sheppard AFB ROI would exceed the insignificance indicator in 2034 due to increased T-38C operations, the steady state (i.e., 2037 and later) annual net CO emissions would decrease by more than 1,000 tons per year (tpy) demonstrating a long-term, beneficial impact. Like Alternative 1, net annual NO_X emissions in the Sheppard AFB ROI would exceed the insignificance indicator starting in 2036 but would not contribute to an exceedance of NAAQS. Air emissions within the counties subject to the General Conformity Rule would not exceed the applicable *de minimis* level threshold. Although net GHG emissions would be greater than Alternative 1, they would remain not significant.	Construction air emissions would be slightly greater than Alternative 1 due to the additional shelters but would still have a not significant impact. Impacts from operation of expanded facilities and temporary increases in personnel would be identical to Alternative 1. Long-term, not significant adverse and beneficial impacts from aircraft operations would occur in the Sheppard AFB and SUA ROIs and be greater than those from Alternative 1 but slightly less than Alternative 2. Like Alternatives 1 and 2, net annual NO_X emissions in the Sheppard AFB ROI would exceed the insignificance indicator starting in 2036 but would not contribute to an exceedance of NAAQS. Air emissions within the counties subject to the General Conformity Rule would not exceed the applicable *de minimis* level threshold. Net GHG emissions would not be significant.	No impacts would occur.

Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Noise			
Short- and long-term, not significant, adverse impacts on the noise environment would occur. Short-term impacts would be from noise generated by heavy equipment during construction. All construction would be within the Sheppard AFB boundary, be collocated with other existing noise-compatible activities, and end with the facility construction phase. No construction-related noise impacts to on- or off-installation residences are anticipated. Long-term impacts are from the introduction of T-7A aircraft. The estimated on- and off-installation land area within the 65 decibels (dB) or greater Day-Night Average Sound Level (DNL) would increase by 1,831 acres from existing conditions. The estimated on- and off-installation population within the 65 or greater DNL would increase by 556 from existing conditions. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural. Alternative 1 would result in up to 8.6 additional speech-interfering events per daytime hour at four Points of Interest (POIs) and a decrease of up to 2.4 events at five POIs as compared to existing conditions. No on- or off-installation populations would be exposed to a DNL of at least 80 dB; therefore, the potential for hearing loss (PHL) is not anticipated. Any increases in noise associated with SUA sorties, including at Falcon Range, would not be significant.	Construction-related noise levels would be the same as those described for Alternative 1. The estimated on- and off-installation land area within the 65 dB or greater DNL would increase by 2,990 acres from existing conditions. The estimated on- and off-installation population within the 65 or greater DNL would increase by 1,787 from existing conditions. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural. Alternative 2 would result in between 0.1 and 11.3 additional speech-interfering events per daytime hour across relevant POI as compared to existing conditions. No on- or off-installation populations would be exposed to a DNL of at least 80 dB; therefore, the PHL is not anticipated. Any increases in noise associated with SUA sorties, including at Falcon Range, would not be significant.	Construction-related noise levels would be the same as those described for Alternative 1; however, construction noise could last slightly longer due to the construction of the additional T-7A shelters to accommodate the greater number of aircraft. The estimated on- and off-installation land area within the 65 dB or greater DNL would increase by 2,830 acres from existing conditions. The estimated on- and off-installation population within the 65 or greater DNL would increase by 1,543 from existing conditions. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural. Alternative 3 would result in between 0 and 10.9 additional speech-interfering events per daytime hour across relevant POI as compared to existing conditions. No on- or off-installation populations would be exposed to a DNL of at least 80 dB; therefore, the PHL is not anticipated. Any increases in noise associated with SUA sorties, including at Falcon Range, would not be significant.	No impacts would occur.

Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Land Use			
No significant impacts would occur from construction and renovation projects. Projects would be compatible with land use areas and sited, designed, and constructed consistent with the Sheppard AFB Installation Development Plan (IDP). Noise from aircraft operations would result in no significant impacts on land use and land use compatibility. An increase of approximately 1,471 acres of off-installation land would fall within the 65 dB or greater DNL noise zone when compared to existing conditions resulting in a slight increase in incompatible land uses and the number of individuals living within the noise zones. Off-installation areas where noise zones would occur are similar to existing conditions and the increase in off-installation acreage is associated with Open/Recreation/Agriculture/ Low-Density Residential. Therefore, although there may be an increase in what could potentially be considered incompatible land uses, it would not be considered a significant impact. Aircraft operations at Falcon Range would result in an increase of approximately 523 off-range acres within the 65 dB or greater DNL noise zone. Because all areas within the noise zones are considered Open/Recreation/Agriculture/Low-Density Residential, which are compatible with these noise levels, this change would not be a significant impact on land use compatibility.	Construction-related land use impacts would be the same as Alternative 1. Noise generated from aircraft operations would be slightly greater than those described for Alternative 1. An increase of approximately 2,470 acres of off-installation land would fall within the 65 dB or greater DNL noise zone when compared to existing conditions resulting in an increase in incompatible land uses and the number of individuals living within the noise zones. Off-installation areas where noise zones would occur are similar to existing conditions and the increase in off-installation acreage is associated with Open/Recreation/ Agriculture/Low-Density Residential. Therefore, although there may be an increase in what could potentially be considered incompatible land uses, it would not be considered a significant impact. Aircraft operations at Falcon Range would result in an increase of approximately 1,067 off-range acres within the 65 dB or greater DNL noise zone. Because all areas within the noise zones are considered Open/Recreation/ Agriculture/Low-Density Residential, which are compatible with these noise levels, this change would not be a significant impact on land use compatibility.	Construction-related land use impacts would be the same as Alternative 1. Noise generated from aircraft operations would be slightly greater than those described for Alternative 1. An increase of approximately 2,331 acres of off-installation land would fall within the 65 dB or greater DNL noise zone when compared to existing conditions resulting in an increase in incompatible land uses and the number of individuals living within the noise zones. Off-installation areas where noise zones would occur are similar to existing conditions and the increase in off-installation acreage is associated with Open/Recreation/Agriculture/Low-Density Residential. Therefore, although there may be an increase in what could potentially be considered incompatible land uses, it would not be considered a significant impact. Aircraft operations at Falcon Range would result in an increase of approximately 988 off-range acres within the 65 dB or greater DNL noise zone. Because all areas within the noise zones are considered Open/Recreation/ Agriculture/Low-Density Residential, which are compatible with these noise levels, this change would not be a significant impact on land use compatibility.	No impacts would occur.

Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Biological Resources			
Short- and long-term, not significant, adverse impacts on vegetation and wildlife would occur at Sheppard AFB from the construction projects. Long-term, not significant, adverse impacts on wildlife may occur from Bird/Wildlife Aircraft Strike Hazard (BASH) incidents and noise from the proposed aircraft operations. Alternative 1 would have no effect on the 10 special status species with the potential to occur on Sheppard AFB or with potential for flight at the same altitude as the proposed T-7A operations within the SUA.	Short- and long-term impacts would be the same as those described for Alternative 1. The increase in operations would slightly raise the potential for BASH incidents but result in similar overall impacts.	Short- and long-term impacts would be the same as those described for Alternative 1. The increase in operations would slightly raise the potential for BASH incidents but result in similar overall impacts and be identical to baseline conditions.	No impacts would occur.
Cultural Resources			
The only aspects of the Proposed Action with potential to effect historic properties are the construction and renovation projects. DAF determined that these projects would have no effect on historic properties and consulted with the Texas State Historic Preservation Officer (SHPO). The SHPO concurred with this determination on January 3, 2025.	Impacts would be the same as those described for Alternative 1.	Impacts would be the same as those described for Alternative 1.	No impacts would occur
Hazardous Materials and Wastes			
The additional quantities of hazardous materials, wastes, and petroleum products required for construction and aircraft maintenance during the aircraft transition period would result in short-term, not significant, adverse impacts. Their quantities would return to current levels by 2037, resulting in no long-term impacts. Short-term, not significant, adverse impacts could occur from the renovation of Buildings 2320, 2404, 2406, 2408, and 2410 because these buildings potentially contain toxic substances in building materials. Long-term, not significant, beneficial impacts would occur from renovation of these buildings by reducing the potential for future human exposure to toxic substances. No impacts on or from legacy environmental contamination, per- and polyfluoroalkyl substances (PFAS), or radon would occur.	Impacts would remain not significant but be slightly greater than those described for Alternative 1, because the 25 percent increase in aircraft operations would require additional quantities of hazardous materials, wastes, and petroleum products (most notably jet fuel) to be delivered, stored, used, and disposed of appropriately at Sheppard AFB.	Impacts would remain not significant but be slightly greater than those described for Alternative 1 and identical to baseline levels. Compared to Alternative 1, the approximately 21 percent increase in operations and up to 23 additional aircraft to maintain would require additional quantities of hazardous materials, wastes, and petroleum products (most notably jet fuel) to be delivered, stored, used, and disposed of appropriately at Sheppard AFB. However, the number of T-7A aircraft and flight operations would be the same as baseline levels.	No impacts would occur.

Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Safety			
Short-term, not significant, adverse impacts on contractor safety would occur during construction and renovation. No adverse impacts on the safety of military personnel or civilians would occur. Environmental health and safety risks would not disproportionately impact children. No adverse impacts on flight safety would occur. Annual flight operations at Sheppard AFB would decrease by approximately 31,000 operations at full implementation, resulting in a slightly lower potential for aircraft mishaps compared to existing conditions. All aircraft operations would continue to be performed in accordance with standard flight rules and local operating procedures and policies. The clear zones (CZs) and accident potential zones (APZs) would remain unchanged.	Impacts on contractor and mission safety would be the same as those described for Alternative 1. Long-term, not significant, adverse impacts on flight safety would occur from 25 percent increased aircraft operations compared to Alternative 1, which would result in an increased potential for BASH incidents and other mishaps. The CZs and APZs would remain unchanged.	Impacts on contractor and mission safety would be the same as those described for Alternative 1. Impacts on flight safety would be greater than those described for Alternative 1, but identical to current conditions. Alternative 3 would not increase the potential for mishaps, and individuals living within APZs I and II would not be at an additional risk. The CZs and APZs would remain unchanged.	No impacts would occur.
Water Resources			
Short- and long-term, not significant, indirect, adverse impacts on groundwater and surface water could occur. Construction would increase impervious surface area by approximately 165,300 ft^2 (3.79 acres), which could potentially decrease groundwater recharge and increase stormwater runoff. Temporary increases in hazardous materials and petroleum product use would negligibly increase the potential for an accidental release to occur and for the contamination to reach nearby groundwater aquifers and surface water features. No direct impacts on wetlands would occur. With exception of the proposed GBTS facility, all the proposed construction and renovation projects would occur within a floodplain. Construction within a floodplain is unavoidable, and there are no practicable alternatives for the proposed projects outside of a floodplain.	Impacts would be similar to those described for Alternative 1. Increased aircraft operations would slightly increase the potential for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface water.	Impacts would be similar to those described for Alternative 2. Compared to Alternatives 1 and 2, the 23 additional aircraft to maintain would slightly increase the potential for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface water. The project to install sufficient shelters for all T-7A aircraft would occur on the Sheppard AFB aircraft parking ramp, which is an entirely existing impervious surface, and would result in no additional impervious surface area or impacts on water resources.	No impacts would occur.

2.6 Mitigation Measures

Land Use. Alternatives 1, 2, and 3 would expand noise contours and increase existing land uses subject to noise levels that may be deemed incompatible, but impacts would not be considered significant because the majority of land uses that would be impacted by the noise contours would be the Open/Recreation/Agriculture/Low-Density Residential land use category. The mitigation measures discussed below would be implemented between DAF and/or the local municipalities to further enhance compatible development around Sheppard AFB.

DAF is committed to working with Wichita County and the city of Wichita Falls, Texas, as well as the North Texas Regional Planning Commission, the city of Burkburnett, and others to analyze compatible land use surrounding Sheppard AFB under T-7A operating conditions. Additionally, this working relationship would extend to the municipalities surrounding Fort Sill and Falcon Range, including the city of Lawton. As part of that commitment, DAF would partner with local governments to perform the following tasks:

- Prepare an Air Installations Compatible Use Zones (AICUZ) Study update at an appropriate time to be determined to address any changes in land area within the greater than 65 dB DNL noise contours for Sheppard AFB and potentially with Falcon Range, as appropriate.
- Coordinate with state and local agencies on recommendations regarding compatible land use and potential encroachment concerns inside and outside of the DNL footprint, as applicable (i.e., large-scale developments, transportation projects that could encourage development, or tall structures such as cell towers that could penetrate airfield imaginary surfaces).
- Encourage municipalities to promote the most compatible land use by updating local zoning ordinances and building construction standards, especially for high-noise areas.

Floodplains. Because all the proposed construction and renovation projects, except the GBTS facility, would be constructed within a floodplain, each project would be designed to avoid and minimize floodplain impacts and flood damage to facilities to the extent possible. For the proposed maintenance hangar/UMT facility, the floor and any associated flood-susceptible utilities would be constructed a minimum of 3 feet above the 100-year flood elevation. Doing so would require an earthen rise to be placed beneath the facility measuring approximately 3 to 5 feet above the site's current elevation and approximately 3 feet above the eastern taxiway elevation (USACE 2025b). Similar floodplain mitigation measures would be developed for the other proposed projects as their designs advance.

3. Affected Environment and Environmental Consequences

This section describes the affected environmental resources and current conditions. It also presents an analysis of the potential environmental consequences from the three action alternatives and the No Action Alternative.

This section also addresses mitigation measures and best management practices (BMPs) necessary to implement the Proposed Action. Mitigation measures are actions that avoid, minimize, or compensate for effects caused by a proposed action, and BMPs are existing policies, practices, and measures that reduce the environmental impacts of activities, functions, or processes. The mitigation measures required for the Proposed Action minimize adverse land use and floodplain impacts and are described in **Sections 3.3.3** and **3.8.3**. The BMPs are described within each resource area in **Section 3**. None of the BMPs described herein are needed to bring an impact below the threshold of significance.

DAF used the scoping process to identify environmental issues to be carried forward for analysis and de-emphasize insignificant issues. The environmental resources analyzed in detail in this EIS are air quality, noise, land use, biological resources, cultural resources, hazardous materials and wastes, safety, and water resources. The environmental resources not analyzed in detail in this EIS are airspace, geological resources, infrastructure and transportation, and socioeconomics. The rationale explaining why those four resources were dismissed from detailed analysis in this EIS is provided below.

Airspace. SUA consists of defined-dimension airspace wherein activities must be confined because of their nature, limitations are imposed upon aircraft operations that are not a part of those activities, or both. SUA is defined by latitude and longitude, in terms of floor and ceiling altitudes, and by time for which the airspace is active. Descriptions of the SUA used for T-38C and proposed for T-7A training at Sheppard AFB are provided in **Table A-1** (see **Appendix A**).

No changes to SUA configurations (e.g., shape, size, altitudes) or their active times are proposed for T-7A recapitalization. Should DAF desire to change the configurations of these SUA following T-7A recapitalization or as a result of new training practices with other aircraft, separate NEPA analysis would be performed in conjunction with the FAA when the scope of that effort is better understood. The proposed changes to military flight operations would have no impact on commercial flight operations occurring at the Wichita Falls Municipal Airport.

Impacts on environmental resources within the SUA are analyzed, as appropriate, in those discussions (e.g., air quality, noise, biological resources). In **Table A-1,** the altitudes and time of use are provided because they are components of the air emissions estimates and noise modeling, and the counties are used to assess General Conformity applicability and listed species range (see **Appendix A**).

Geological Resources. The Proposed Action would have no significant impacts on geological resources. No impacts on regional geology and local topography would occur. Construction would be small enough in scope (see **Table 2-1**) that it would not alter geological structures or features. The projects would occur on mostly flat land, and

no appreciable changes to local topography would occur. Wichita County, Texas, has a low potential for damaging earthquakes, with 2 to 4 damaging earthquakes expected per 10,000 years (USGS 2024). Therefore, seismic hazards would have no impact on new construction.

The soils within the footprint of the proposed project areas are Deandale silt loam, 1 to 3 percent slopes and Urban land (USDA NRCS 2024). The projects would occur within highly urbanized areas where these soil complexes have been disturbed from previous construction and landscaping and little natural soil structure remains. Appropriate geotechnical surveys would be completed during project design to ensure that soil limitations are identified and addressed, as necessary. Deandale silt loam is classified as prime farmland soil, but the inherent mission of Sheppard AFB makes farming impracticable on the installation. Therefore, there would be no loss of farmable land from construction, and the Farmland Protection Policy Act is not applicable to the Proposed Action.

Construction projects would disturb soil, potentially resulting in the loss of structure, compaction, and erosion of soil as well as changes to local water infiltration and drainage patterns. Soil erosion and sediment control measures would be implemented, as appropriate, and could include installing silt fencing and sediment traps, applying water to disturbed soil to prevent wind erosion, and vegetating disturbed areas as soon as possible. Erosion and Sediment Control Plans would be prepared and implemented, as necessary, to reduce soil erosion and sedimentation. Stormwater control measures that favor infiltration would be implemented to minimize the potential for erosion and sediment production from storm events (see **Section 3.8.2** for water resources impacts).

Infrastructure and Transportation. No significant impacts on infrastructure components—such as airfield pavements and utilities (i.e., electrical, natural gas, liquid fuels, communications, water supply, wastewater, stormwater systems, and solid waste management)—and the transportation system and road network at Sheppard AFB would result from the Proposed Action. Most airfield pavements at Sheppard AFB are in fair or satisfactory condition and would not require repairs for the Proposed Action. The Proposed Action would not appreciably degrade pavement quality to the point where it results in premature failure.

The liquid fuels system at Sheppard AFB is in excellent operational condition, and the installation is expected to have sufficient fuel storage and delivery capabilities to accommodate the Proposed Action. The utility systems at Sheppard AFB have the available capacity to support the construction and renovation projects and temporary increase in personnel on the installation. Construction contractors would recycle solid waste generated during construction and renovation in accordance with applicable federal, state, and installation policies to maximize landfill diversion rates and dispose of non-recyclable debris at a permitted waste facility.

Construction traffic would be temporary and compose a relatively small percentage of the installation's total traffic. The additional 100 personnel during the aircraft transition period and their dependents of driving age would increase traffic on installation and regional roads slightly through daily commutes and everyday vehicle movements. Traffic would return to current conditions following construction and the aircraft transition period.

Socioeconomics. The Proposed Action would have not significant socioeconomic impacts. As of July 2023, Wichita County, Texas, is home to 130,180 people and experienced an approximately 0.6 percent positive population change between 2020 and 2023 (USCB 2024). The demand for housing, schools, health care, and other public services in Wichita County would slightly increase from 2034 to 2036 during the aircraft transition period from the addition of the estimated 100 personnel and their 190 dependents. This temporary and 0.2 percent increase would be negligible given the population size of Wichita County. The temporary and slight increase in demand for housing, schools, health care, and other public services would be followed by a permanent return to approximately the same level of demand for these services after 2036 when the aircraft transition period ends. Therefore, the temporary addition of approximately 290 new residents (compared to current levels) would not have a significant socioeconomic impacts.

Beneficial impacts on the local economy would occur from the sale of construction materials and employment of local construction workers for the construction and renovation projects. The increase in tax revenue and regional availability of building materials and labor would not be affected noticeably because of the limited scope and temporary duration of each project.

3.1 Air Quality

Criteria Pollutants, National Ambient Air Quality Standards, and the General Conformity Rule. Air quality is defined by the concentration of various pollutants in the atmosphere. The six pollutants that are the main indicators of air quality, called "criteria pollutants," are CO, sulfur dioxide, nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter (measured less than or equal to 10 microns in diameter [PM_{10}] and less than or equal to 2.5 microns in diameter [$PM_{2.5}$]), and lead. CO, sulfur oxides (SO_X), NO_X, lead, and some particulates are emitted directly into the atmosphere from emissions sources. NO_X, O_3, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. Volatile organic compound (VOC) and NO_X emissions are precursors of O_3 and are used to represent O_3 generation.

Under the Clean Air Act (CAA) (42 USC Chapter 85), the U.S. Environmental Protection Agency (USEPA) established NAAQS (40 Code of Federal Regulations [CFR] Part 50) for criteria pollutants. The NAAQS were established to protect against acute and chronic adverse health and welfare effects from poor air quality. Each state has the authority to adopt air quality standards stricter than those established for the federal NAAQS. Texas and Oklahoma accept the federal NAAQS (30 Texas Administrative Code Section 101; Oklahoma Administrative Code 252:100).

Areas that are and have historically been in compliance with the NAAQS, or have not been evaluated for NAAQS compliance, are designated as attainment or unclassifiable areas. Areas that violate one or more federal air quality standards are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas. Nonattainment and maintenance areas are required to adhere to a State Implementation Plan to reach attainment or ensure continued attainment.

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas. A general conformity determination is required when nonattainment and maintenance pollutants (or their precursors) total emissions exceed specified thresholds, called *de minimis* level thresholds, that are specified at 40 CFR Section 93.153. The General Conformity Rule does not apply to federal actions occurring in attainment areas.

GHGs. GHGs are gas emissions that trap heat in the atmosphere and include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tropospheric O_3, and several fluorinated and chlorinated gaseous compounds. GHGs are expressed relative to a reference gas, CO_2, based on their ability to trap heat in the atmosphere, and the results are added to calculate the total equivalent CO_2 (CO_2e).

USEPA implements the GHG Reporting Program, requiring certain facilities to report GHG emissions from stationary sources, if such emissions exceed 25,000 metric tons of CO_2e per year (40 CFR Part 98). Major source permitting requirements for GHGs are triggered when a facility exceeds the major threshold of 100,000 metric tpy for stationary source CO_2e emissions. For a facility that is already a major source of criteria pollutants under USEPA's Prevention of Significant Deterioration (PSD) program, major modification permitting requirements, including incorporating best available and economically feasible emissions controls for GHGs, would be triggered by a net change of 75,000 tpy for stationary source CO_2e emissions.

3.1.1 Affected Environment

The Proposed Action could impact air quality over a large spatial area, which has been broken down into two separate ROIs based on the physical distribution of the emissions sources associated with the Proposed Action. The two ROIs for the air quality analysis are the Sheppard AFB ROI, within which all Sheppard AFB airfield operations (i.e., takeoffs, landings, and closed patterns) and construction actions would occur, and the SUA ROI, which contains the MOAs, MTRs, and Falcon Range within which quantifiable T-7A operations would occur[2].

USEPA Region 6 regulates air quality in Texas and Oklahoma. State agencies regulating air quality within the ROIs include the Texas Commission on Environmental Quality (TCEQ) and the Oklahoma Department of Environmental Quality.

Sheppard AFB is in Wichita County, Texas, which is within the Abilene-Wichita Falls Intrastate Air Quality Control Region (AQCR) (40 CFR Section 81.132). **Table 3-1** provides the most recent available annual emissions inventory (calendar year [CY] 2020) for Wichita County. USEPA has designated Wichita County, which contains the Sheppard AFB ROI, as attainment/unclassifiable for all criteria pollutants (USEPA 2025a).

[2] As shown in **Tables A-2**, **A-3**, and **A-4** (see **Appendix A**), T-7A sorties for VR-1139 and VR-1140 are not quantifiable. As a result, these MTRs were excluded from the SUA ROI, and T-7A air emissions produced for both MTRs would be inconsequential.

Table 3-1. Annual Emissions Inventory for Wichita County (CY 2020)

VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e[1] (tpy)
8,416	7,253	13,616	644	4,610	1,346	0.15	1,295,750

Source: USEPA 2023
[1] To calculate the total CO_2e, all GHGs are multiplied by their heat-trapping ability, as published in 40 CFR Part 98 (revised April 2024) (CO_2 = 1; CH_4 = 28; N_2O = 265; sulfur hexafluoride = 23,500), and the results are added together.

The SUA ROI covers 64 counties in Texas and Oklahoma. These counties span eight AQCRs that are the following:

- Abilene-Wichita Falls Intrastate AQCR (40 CFR Section 81.132)
- Amarillo-Lubbock Intrastate AQCR (40 CFR Section 81.133)
- Austin-Waco Intrastate AQCR (40 CFR Section 81.134)
- Central Oklahoma Intrastate AQCR (40 CFR Section 81.47)
- Metropolitan Dallas-Fort Worth Intrastate AQCR (40 CFR Section 81.39)
- Northwestern Oklahoma Intrastate AQCR (40 CFR Section 81.126)
- Southeastern Oklahoma Intrastate AQCR (40 CFR Section 81.123)
- Southwestern Oklahoma Intrastate AQCR (40 CFR Section 81.125).

Table 3-2 outlines the attainment status and applicable *de minimis* level thresholds for the counties within the SUA ROI. Two of the counties coinciding with VR-1146 (i.e., Denton and Wise, Texas) are within the Dallas-Fort Worth (DFW) O_3 nonattainment area, which USEPA has designated as severe nonattainment for the 2008 O_3 NAAQS and serious nonattainment for the 2015 O_3 NAAQS. Therefore, the General Conformity Rule is applicable to NO_X and VOC emissions (because they are precursors for O_3) within these two counties. As outlined in 40 CFR Section 93.153(b), the applicable *de minimis* level threshold for these pollutants is 50 tpy for NO_X and VOC in serious O_3 nonattainment areas and 25 tpy for NO_X and VOC in severe O_3 nonattainment areas. For this general conformity analysis, the more stringent threshold of 25 tpy is applied. The remaining 62 counties within the SUA ROI have been designated as attainment/ unclassifiable for all criteria pollutants, so the General Conformity Rule is not applicable to emissions within those counties (USEPA 2025a).

Table 3-2. Air Attainment Status for Counties within the SUA ROI

County, State	SUA Designation	Attainment Standard	*de minimis* Level Threshold
Denton County, Texas	VR-1146	2008 8-hour O_3 standard (75 ppb): Severe nonattainment	25 tpy for NO_X 25 tpy for VOC
		2015 8-hour O_3 standard (70 ppb): Serious nonattainment	50 tpy for NO_X 50 tpy for VOC
Wise County, Texas	VR-1146	2008 8-hour O_3 standard (75 ppb): Severe nonattainment	25 tpy for NO_X 25 tpy for VOC
		2015 8-hour O_3 standard (70 ppb): Serious nonattainment	50 tpy for NO_X 50 tpy for VOC
All other counties	All other SUA	Attainment/unclassifiable	None

Sources: USEPA 2025a, 40 CFR Section 93.153(b)
ppb = parts per billion
Note: The USEPA finalized the 2015 NAAQS for O_3 on October 1, 2015, lowering the standard from 75 to 70 ppb. The previous (2008) standard of 75 ppb may remain in effect in some areas until those areas attain the standard and a formal redesignation process is completed.

Sheppard AFB is considered a minor source of air emissions and operates under permit-by-rule as specified in Title 30 *Texas Administrative Code*, Chapter 106, which means Sheppard AFB is not subject to the Title V Operating Permit Program under the

CAA. Construction of new or modification of existing stationary sources at the installation that would exceed permit-by-rule limitations are authorized through the TCEQ New Source Review permitting process. Sheppard AFB is not subject to regulations imposed on stationary sources within 10 kilometers of Class I Federal Areas, as identified in 40 CFR Part 81, Subpart D, because no such areas are within 10 kilometers of the installation. Texas does not require permitting of mobile source emissions (e.g., aircraft and vehicle operations).

Existing stationary air emission sources at the installation include external combustion engines (e.g., boilers), internal combustion engines (e.g., emergency generators), abrasive blasting, fuel storage tanks, chemical usage, and surface coating operations (Sheppard AFB 2024b). The primary sources of air emissions near the project areas and flightline include burning fossil fuels (e.g., diesel, jet fuel) for aircraft engine testing and operations, vehicle operations, and aerospace ground support equipment use; fueling activities; heating facilities; and powering emergency generators.

GHGs. In 2020, Wichita County produced 1,122,802 tons of GHGs (composed of CO_2, CH_4, and N_2O), equivalent to 1,295,750 tons of CO_2e. In that same year, Texas produced approximately 569.2 million tons of CO_2e. Wichita County's CO_2e emissions comprised approximately 0.2 percent of the state's CO_2e emissions in 2020 (USEPA 2023). CO_2e emissions from stationary sources at Sheppard AFB do not exceed the USEPA GHG Reporting program's reporting threshold of 25,000 metric tpy; therefore, Sheppard AFB is not required to report annual CO_2e emissions to USEPA.

Weather Trends. North-central Texas is characterized by hot, humid summers and mild winters. Spring is the peak season for severe weather including thunderstorms, hail, and tornadoes.

Weather trends in north-central Texas, including Wichita County, include higher temperatures and more frequent heat waves; heat waves at earlier and later times in the year, such as June and September; increasingly severe droughts; and a greater likelihood of extreme weather events including tornadoes and flash flooding, which can disrupt natural ecosystems and built infrastructure and lead to human-health effects. These weather trends at Sheppard AFB may increase infrastructure maintenance requirements due to increases in wind speed, drought, and dust accumulation. Sheppard AFB has a high vulnerability rating for tornadoes and is within an area that frequently experiences extreme drought conditions (Sheppard AFB 2016).

Wichita County has historically experienced an average of 65 days per year with a maximum temperature greater than 95 degrees Fahrenheit, which is expected to increase to up to 105 days per year by 2065 and up to 135 days per year by the end of the century (CMRA 2025). High temperatures can cause adverse health effects, such as heat stroke and dehydration, and can affect cardiovascular and nervous systems, especially in vulnerable populations (i.e., children, elderly, sick, and low-income populations). Warmer air also can increase the formation of ground-level O_3, which has a variety of health effects, including aggravation of lung diseases and increased risk of death from heart or lung disease.

3.1.2 Environmental Consequences

Effects on air quality are evaluated by comparing the annual net change in emissions for each criteria pollutant against the General Conformity Rule *de minimis* level

thresholds for nonattainment or maintenance pollutants, or against insignificance indicators as defined by the *Air Force Air Quality Environmental Impact Analysis Process Guide, Volume II – Advanced Assessments*, for attainment pollutants. Insignificance indicators are applied to emissions of pollutants designated as attainment or unclassified to provide an indication of the significance of potential impacts on air quality. The DAF insignificance indicator is the 250 tpy PSD major source threshold, as identified by USEPA, and is applied to all attainment/unclassified criteria pollutants emissions, except lead. The PSD insignificance indicator for lead is 25 tpy. The PSD thresholds do not denote a significant impact; however, they do provide a threshold to identify actions that have insignificant impacts on air quality. Any action with net criteria pollutant emissions below the insignificance indicators is considered so insignificant that the action will not cause or contribute to an exceedance of one or more NAAQS.

Based on compliance with NAAQS, the General Conformity Rule is applicable to NO_X and VOC emissions from aircraft operations within a portion of the SUA ROI, specifically within VR-1146. The applicable *de minimis* level threshold for these pollutants is 25 tpy per 40 CFR Section 93.153(b). For the attainment pollutants within the SUA ROI, the PSD insignificance indicator (i.e., 250 tpy for all criteria pollutants, besides lead, and 25 tpy for lead) was used to determine impact significance.

Separate assessments were performed for each ROI. The DAF Air Conformity Applicability Model (ACAM), version 5.0.24a, was used to estimate the net annual air emissions from the Proposed Action. The potential for air quality impacts was assessed in accordance with DAF Manual 32-7002, *Environmental Compliance and Pollution Prevention* (DAF 2025a) and the General Conformity Rule (40 CFR Part 93 Subpart B), as applicable. The mixing zone is a three-dimensional vertical column of air generally up to 3,000 feet AGL where criteria pollutant emissions, due to atmospheric mixing and dispersion, have the greatest potential to directly impact human health and air quality. As such, emissions estimations for criteria pollutants that are shown throughout this analysis include only those that would occur within the mixing zone below 3,000 feet AGL.

Within the Sheppard AFB ROI, it was assumed all construction would be completed prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

DAF applies the PSD major modification GHG permitting threshold of 75,000 tpy (68,039 metric tpy) of CO_2e emissions as an insignificance indicator for GHG impacts. Any action with net GHG emissions below the insignificance indicator is considered too insignificant to warrant further analysis. The GHG analysis considers GHG emissions at all altitudes regardless of whether the emissions occur within the mixing zone. Per DAF guidance, the GHG analysis qualitatively assesses whether elements of the Proposed Action would be affected by weather trends.

Appendix B contains the ACAM record of air analysis reports for each ROI for all action alternatives. Additional air quality analysis supporting documentation, including the detailed ACAM reports containing the air emission calculations, can be downloaded from the project website at https://sheppard.t-7anepadocuments.com/documents, and paper copies are available upon request.

3.1.2.1 Alternative 1

Alternative 1 would result in short- and long-term, not significant, adverse and beneficial impacts on air quality. The short-term (i.e., 2031 and 2032), adverse impacts would occur from construction in the Sheppard AFB ROI. The long-term (2033 and later), adverse and beneficial impacts would occur from annual net changes in criteria pollutants and GHGs in the Sheppard AFB and SUA ROIs. The T-38C and T-7A aircraft engines emit individual air pollutants at different rates. As such, the aircraft replacement would result in a steady-state net increase of VOC, NO_X, SO_X, and CO_2e, and a net decrease of CO, PM_{10}, and $PM_{2.5}$ in both ROIs.

Table 3-3 shows the estimated net change in annual air emissions in the Sheppard AFB ROI from Alternative 1[3]. Emissions would occur from construction activities (2031 and 2032), operation of expanded facilities (2033 and later), increased personnel during the aircraft transition period (2034 through 2036), and T-7A airfield and maintenance operations (2034 and later). Removal of T-38C airfield and maintenance operations would cause a reduction of CO, PM_{10}, and $PM_{2.5}$ within the Sheppard AFB ROI. Long-term, operational air emissions within the Sheppard AFB ROI, as shown in **Table 3-3**, would continue indefinitely.

Table 3-3. Sheppard AFB ROI – Estimated Net Annual Air Emissions from Alternative 1

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)
2031 (construction)	4.904	10.892	17.239	0.028	16.479	0.316	0.000	2,720
2032 (construction)	1.734	4.898	7.971	0.014	0.152	0.130	0.000	1,310
2033 (operations)	0.163	0.255	1.851	0.003	0.027	0.019	0.000	393
2034 (operations)	13.151	40.740	-53.603	1.772	-1.645	-1.471	0.000	5,113
2035 (operations)	45.838	167.265	-480.851	5.520	-14.619	-13.187	0.000	15,447
2036 (operations)	70.323	279.975	-959.110	8.038	-28.728	-25.929	0.000	22,468
2037 and later (operations)	67.305	292.905	-1,123.426	7.401	-33.382	-30.141	0.000	20,711
Annual Maximum	70.323	292.905	17.239	8.038	16.479	0.316	0.000	22,468
Insignificance Indicator[1]	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**

[1] Wichita County is in attainment/unclassifiable for all criteria pollutants; therefore, the insignificance indicator of 250 tpy (25 tpy for lead) was applied.

During construction, criteria pollutants and GHGs emissions would be directly produced from operation of heavy construction equipment, construction of and renovation of buildings and infrastructure, heavy-duty diesel vehicles hauling supplies and debris to and from the project areas, construction workers commuting daily to and from the project areas in their personal vehicles, and ground disturbance. All such emissions would be temporary in nature and produced only during the estimated 2-year construction period. As shown in **Table 3-3**, construction emissions (2031 and 2032) would not exceed the insignificance indicators; therefore, the short-term, adverse impacts would not be significant. In addition, the estimated emissions from construction

[3] The Sheppard AFB ROI air emission estimates for all three action alternatives were recalculated after the Draft EIS was released for public comment to correct an overestimation in the time-in-mode values. The overestimation was identified through DAF review rather than public comment provided on the Draft EIS and was corrected by removing duplicate T-7A and T-38C closed patterns that also were counted in the landing and takeoff cycles. The revised air emissions are provided in the Final EIS and, in general, are less than those in the Draft EIS.

do not account for BMPs, which could reduce uncontrolled emissions. Construction contractors would employ BMPs, to the greatest extent practicable, as follows:

1. Electricity from the installation would be used preferentially over the use of generators. All generator use would be pre-approved by the installation air quality manager and adhere to applicable operating procedures.
2. All non-road diesel equipment would comply with the Federal Clean Air Non-road Diesel Rule, which regulates emissions from non-road diesel engines and sulfur content in non-road diesel fuel.
3. All stockpiles of excavated materials located within construction areas would be covered completely with tarping and weighed down sufficiently to prevent uncontrolled dust and material from entering the atmosphere.
4. Dust suppression techniques would be used during construction to reduce air pollution. Recommended methods include application of water, soil stabilizers, or vegetation; use of wind break enclosures; use of covers on soil stockpiles and dump truck loads; use of silt fences; and suspension of earth-movement activities during high-wind conditions (gusts exceeding 25 miles per hour).
5. Measures to reduce diesel emissions would be implemented to the greatest extent feasible. These measures could include switching to cleaner fuels, retrofitting current equipment with emission reduction technologies, repowering older equipment with modern engines, replacing older vehicles, and reducing idling through operator training and contracting policies.

An increase of 100 personnel is projected during the aircraft transition period from 2034 through 2036. During this period, an increase of emissions would be produced from additional personnel commuting daily to and from Sheppard AFB in their personal vehicles. These emissions are expected to be minimal and temporary, as staffing levels would return to current levels following the aircraft transition period.

The pollutant of greatest concern from aircraft operations is NO_X, which is emitted when fuel is burned at high temperatures. The majority of operational NO_X emissions would result from aircraft operations to an altitude of 3,000 feet AGL and across several square miles that compose airspace overlying Sheppard AFB. At or higher than this altitude, the projected NO_X emissions would be dispersed through the atmosphere to the point where they would not result in substantial ground-level impacts on a localized area. The annual net change of NO_X emissions in the Sheppard AFB ROI would exceed the 250 tpy insignificance indicator in 2036 by approximately 30 tpy and in 2037 and later years by approximately 43 tpy (17 percent of the insignificance indicator). Given this exceedance is relatively small, a significant impact is unlikely.

Projected NO_X emissions resulting from Alternative 1 were compared to the most recent comprehensive emissions inventory for Wichita County (i.e., CY 2020) to determine the relative magnitude of these emissions. The estimated increase of NO_X emissions in the Sheppard AFB ROI would represent approximately 4 percent of the total NO_X emissions generated in Wichita County in 2020 (292.905 ÷ 7,253 x 100 = 4.04 percent).

Design values are metrics representing air pollution concentrations. These values are derived from monitoring sites within a county and are used to indicate compliance with the NAAQS based on 3-year averages, which is the basis for USEPA attainment/ nonattainment designations. Wichita County and its surrounding counties have been

designated attainment/unclassified for NO_2, and as such, there are no monitoring sites or design values available for these areas. There are no air monitoring sites within approximately 90 miles of Sheppard AFB. Design values from nearby areas with similar geographic and emission characteristics can be considered representative of conditions in Wichita County. **Table 3-4** summarizes the NO_2 design values in these areas and applicable NAAQS.

Table 3-4. NO_2 NAAQS and Design Values Representative of Wichita County

Criteria Pollutant	Averaging Period	NAAQS	2021 to 2023 Design Values	
			Oklahoma City[1]	Eagle Mountain Lake[2]
NO_2	1-hour	100 ppb	44 ppb	41 ppb
	Annual	53 ppb	12 ppb	6 ppb

Source: USEPA 2024a
ppb = parts per billion
[1] Air monitor located in Oklahoma City, Oklahoma, approximately 100 miles northeast of Sheppard AFB.
[2] Air monitor located in Eagle Mountain Lake, Texas, approximately 90 miles southeast of Sheppard AFB.

The NO_2 design values for the two representative areas are considered to be well below the corresponding NAAQS. The highest representative NO_2 design values are 44 parts per billion (ppb) for the 1-hour NAAQS and 12 ppb for the annual NAAQS in Oklahoma City, Oklahoma, demonstrating there is a substantial headroom of 56 ppb (1-hour) and 41 ppb (annual) before the NO_2 NAAQS would be exceeded. In addition, there are no known violations or monitored exceedances of the NAAQS in Wichita County, surrounding counties, or within representative areas; therefore, the USEPA treats these areas as having adequate air quality.

Due to the elevated release height and large spatial dispersion of aircraft emissions occurring at altitudes up to 3,000 feet AGL, aircraft operations are not expected to result in significant increases in ground-level NO_X concentrations. For T-7A operations, more than 85 percent of NO_X emissions occur during flying operations, while the remaining NO_X emissions occur during ground operations (e.g., engine testing and maintenance). Emissions at flying altitudes disperse rapidly throughout the atmosphere and are generally not considered contributors to local exceedances of the 1-hour or annual NO_2 NAAQS, consistent with USEPA modeling guidance and practices for aviation-related projects.

Considering the NO_2 design values of representative nearby areas are well below the applicable NAAQS, the attainment/unclassified status of Wichita County and its surrounding counties, the effective dispersion of air pollutants emitted at higher altitudes, and that the county's NO_X emissions would increase by approximately 4 percent, the addition of 292.905 tpy of NO_X from Alternative 1 is not expected to be substantial enough to approach or exceed the NO_2 NAAQS for Wichita County or surrounding areas.

O_3 is a secondary pollutant formed when NO_X and VOCs react in the presence of sunlight. In urban areas, it generally is formed by the mixing of multiple precursor streams, such as the convergence of high-density NO_X emissions from mobile sources, power plants, and manufacturing industries alongside VOCs emissions from mobile sources.

All counties in the Abilene-Wichita Falls Intrastate AQCR have been designated as attainment or unclassified for O_3. No counties within that AQCR, including Wichita County, contain O_3 monitoring sites, and O_3 design values for the region are not available. **Table 3-5** presents design values for monitoring stations within 100 miles of Sheppard AFB.

Table 3-5. O_3 NAAQS and Design Values Near Sheppard AFB

Criteria Pollutant	Averaging Period	NAAQS	2022 to 2024 Design Values					
			Metropolitan Dallas-Fort Worth Intrastate ACQR				Southwestern Oklahoma Intrastate AQCR	Central Oklahoma Intrastate AQCR
O_3	8-hour	70 ppb	75 ppb[1]	82 ppb[2]	80 ppb[3]	80 ppb[3]	70 ppb[4]	73 ppb[5]

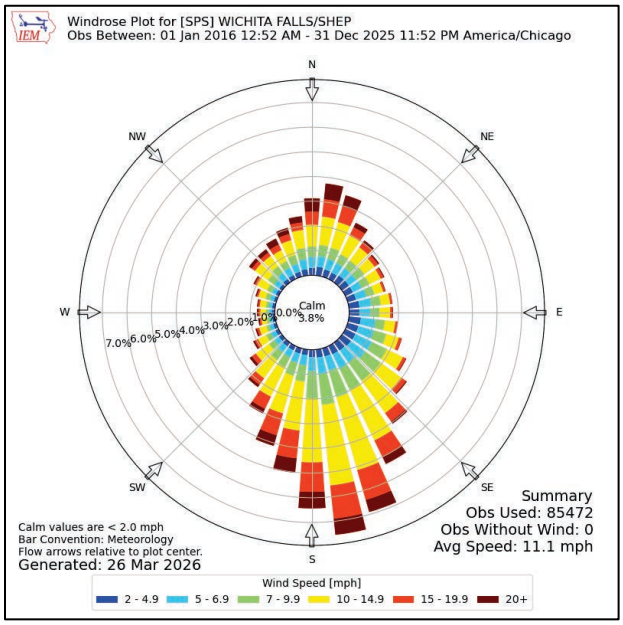
Sources: USEPA 2025b, 40 CFR Sections 81.39, 81.47, 81.125
[1] Air monitor located in Parker County, Texas, approximately 83 miles south-southeast of Sheppard AFB.
[2] Air monitor located in Tarrant County, Texas, approximately 89 miles southeast of Sheppard AFB.
[3] Two air monitors located in Denton County, Texas, approximately 90 miles southeast and 96 miles east-southeast of Sheppard AFB, respectively.
[4] Air monitor located in Comanche County, Oklahoma, approximately 43 miles north of Sheppard AFB.
[5] Air monitor located in McClain County, Oklahoma, approximately 87 miles northeast of Sheppard AFB.

Although one monitor in Oklahoma, located south of Oklahoma City, reported a design value above the 70 ppb NAAQS in 2024, all counties in Oklahoma remain designated as attainment or unclassified for O_3. USEPA has not determined that this elevated O_3 concentration represents persistent, spatially representative violations sufficient to warrant a nonattainment designation. USEPA attainment decisions are informed by multi-year design value trends and regional analyses, and a single exceedance year at one or more monitors does not, by itself, indicate that an area will be designated nonattainment in the future. However, if measured concentrations of O_3 should continue to exceed the NAAQS at Oklahoma City or begin to exceed the NAAQS at other nearby monitors, USEPA may consider these near-nonattainment counties for nonattainment designation in the future.

The four nearest monitors in Texas all reported design values above the 70 ppb NAAQS in 2024. These sites are within the DFW area, approximately 80 to 100 miles southeast of Sheppard AFB, which has been designated by USEPA as serious nonattainment for the O_3 NAAQS. As of December 2025, the O_3 design value for the overall DFW region was 83 ppb, which indicates the area continues to exceed the O_3 NAAQS (Air North Texas 2026).

The NO_X emissions shown in **Table 3-3** would occur entirely within Wichita County, which is between 80 and 100 miles from the Oklahoma City and DFW areas. NO_X emitted from aircraft operations at Sheppard AFB would disperse rapidly across a large spatial area covering a vertical column of 3,000 feet and be subject to chemical transformation that would limit the amount of NO_X available to participate in O_3-forming reactions at distant downwind locations. Unlike on-road mobile sources, which lack plume rise and disperse at ground level, aircraft emissions, particularly emissions from jet engines, possess appreciable thermal buoyancy and momentum (Pandey et al. 2023). Emissions occurring at altitudes up to 3,000 feet AGL and near the mixing height ceiling are subject to higher wind speeds and enhanced vertical mixing, which facilitate more rapid dispersion.

Further, prevailing wind conditions at Sheppard AFB, as shown in **Figure 3-1**, are predominantly from the south and the south-southeast, which means DFW is upwind of the installation and emissions from T-7A operations would generally disperse away from the O_3 nonattainment area. There is also a smaller, but noticeable contribution of wind from the north-northeast direction, which means Oklahoma City may occasionally be upwind from Sheppard AFB. Wind speeds are typically between 5 and 15 miles per hour, with an average speed of 11.1 miles per hour. Stronger winds (15 to 20 miles per hour) occur most often from the south, indicating southerly winds tend to be more intense. Calm wind conditions occur approximately 3.8 percent of the time (IEM 2026). These wind characteristics, which generally result in atmospheric net transport away from DFW and Oklahoma City, further reduce the potential for Sheppard AFB's NO_X emissions to react with emissions from other high-density mobile sources and industries and form O_3 as well as for O_3 formed in Wichita County to migrate toward DFW and Oklahoma City. As a result, NO_X emissions from Alternative 1 would not be expected to materially influence regional O_3 formation or monitored O_3 design values in surrounding counties.



Source: IEM 2026

Figure 3-1. Wind Rose for Sheppard AFB

In conclusion, Alternative 1 would result in NO_X emissions within the Sheppard AFB ROI that are approximately 17 percent greater than the 250 tpy insignificance indicator. These emissions are not expected to result in an exceedance of the NAAQS for NO_2. With respect to the NAAQS for O_3, the combination of meteorological conditions (i.e., predominant south-southeasterly winds), aircraft emissions plume behavior including vertical distribution, and spatial dispersion over the notable distance from Sheppard AFB ensures these emissions are highly attenuated before reaching the DFW or Oklahoma City areas. As a result, Alternative 1 is unlikely to affect monitored O_3 concentrations or trigger a nonattainment designation in areas that are not already designated nonattainment. Therefore, significant impacts on air quality within the Sheppard AFB ROI from Alternative 1 would not occur.

Table 3-6 shows the estimated net change in annual air emissions for the SUA ROI for Alternative 1. Over the entire SUA ROI, the insignificance indicators for all criteria pollutants would not be exceeded. Because the insignificance indicator would not be exceeded and emissions within the SUA ROI would be spread across 64 counties and 8 AQCRs, Alternative 1 is unlikely to cause or contribute to an exceedance of one or more NAAQS in any one air quality management area, and long-term, adverse impacts would not be significant.

Table 3-6. SUA ROI – Estimated Net Annual Air Emissions from Alternative 1

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)[1]
2034	0.666	10.872	-3.467	0.223	-0.095	-0.086	<0.001	4,764
2035	3.139	52.841	-21.591	0.931	-0.630	-0.568	<0.001	18,795
2036	5.390	91.769	-40.430	1.522	-1.200	-1.082	<0.001	32,238
2037 and later	5.704	97.988	-45.645	1.545	-1.371	-1.235	<0.001	32,759
Annual Maximum	5.704	97.888	-3.467	1.545	-0.095	-0.086	<0.001	32,759
Insignificance Indicator	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] Whereas criteria pollutants are calculated for aircraft operations that occur within the mixing zone (below 3,000 feet AGL), CO_2e is calculated for aircraft operations at all altitudes.

The net annual NO_X emissions starting in 2035 would exceed the *de minimis* level threshold of 25 tpy; however, the *de minimis* level threshold is only applicable to emissions that would occur in the DFW O_3 nonattainment area (i.e., Denton and Wise Counties), which are intersected only by VR-1146. To get a better understanding of the potential for the *de minimis* level thresholds to be exceeded in the applicable nonattainment area, a separate emissions assessment was performed to isolate aircraft VOC and NO_X emissions within VR-1146. These emissions are shown in **Table 3-7**. When isolated, the total net change in annual VOC and NO_X emissions that may occur in the DFW O_3 nonattainment area from Alternative 1 would not exceed the *de minimis* level threshold.

Table 3-7. SUA ROI – VOC and NO_X Emissions within VR-1146 from Alternative 1

Year	VOC (tpy)	NO_X (tpy)
2034	0.063	1.033
2035	0.307	5.140
2036	0.527	8.928
2037 and later	0.558	9.530
Annual Maximum	0.558	9.530
de minimis Level Threshold	25	25
Exceeds *de minimis* Level Threshold?	**No**	**No**

Table 3-3 and **Table 3-6** show that Alternative 1 would result in an annual net decrease of CO, PM_{10}, and $PM_{2.5}$ for both the Sheppard AFB and SUA ROIs. Any reduction of air emissions from operations would result in long-term, not significant, beneficial impacts on air quality.

GHGs. As shown in **Table 3-3**, construction for Alternative 1 would produce a total of approximately 4,030 metric tons of CO_2e, which is the GHG footprint of 940 passenger vehicles driven for 1 year or 541 homes' energy use for 1 year (USEPA 2024b). During the highest CO_2e emissions year during construction, (i.e., 2031), approximately 2,720 metric tons of CO_2e would be produced, representing 0.2 percent of the 2020

annual CO_2e emissions in Wichita County and less than 0.001 percent of the 2020 annual CO_2e emissions in Texas. Operations in the Sheppard AFB ROI for Alternative 1 would result in a steady-state net increase of 20,711 metric tpy of CO_2e, which represents approximately 1.8 percent of annual CO_2e emissions in Wichita County, and less than 0.005 percent of annual CO_2e emissions in Texas. By comparison, 20,711 metric tons of CO_2e is approximately the GHG footprint of 4,831 passenger vehicles driven for 1 year or 2,781 homes' energy use for 1 year (USEPA 2024b). The steady-state net increase in annual CO_2e emissions within the SUA ROI would be approximately 32,759 metric tpy (see **Table 3-6**), which is the GHG footprint of 7,641 passenger vehicles driven for 1 year or 4,399 homes' energy use for 1 year (USEPA 2024b).

As shown in **Table 3-3** and **Table 3-6**, the net change of GHG emissions from Alternative 1 in both ROIs for all years would not exceed the 68,039 metric tpy insignificance indicator for CO_2e. Therefore, net GHG emissions would be considered insignificant. **Table 3-8** provides a relative comparison of Alternative 1's net annual operational GHG emissions with Alternative 2, Alternative 3, United States, state, and county estimated emissions. When compared to the three action alternatives, Alternative 1 would result in the least amount of GHG emissions. Enhanced energy efficiency from renovation of buildings, lower GHG-emitting technology used in modern building systems, reduced embodied carbon in modern construction materials, and other sustainable building practices could result in lower energy demand when compared to existing conditions, and indirectly offset the predicted increases in operational CO_2e emissions from the Proposed Action.

Table 3-8. Relative Comparison of the Proposed Action and No Action Alternative's Estimated Net Annual Steady State GHG Emissions

Reference Scale	CO_2e (tpy)	Comparison to Reference Scale
Sheppard AFB ROI		
Global	46,451,390,000[1]	203,466,776.3%
United States	5,109,653,000[2]	22,381,345.8%
Texas	569,180,180[2]	2,493,127.9%
Wichita County	1,295,750[2]	5,675.7%
Alternative 1 – Sheppard AFB ROI	22,830	100.0%
Alternative 2 – Sheppard AFB ROI	40,550	177.6%
Alternative 3 – Sheppard AFB ROI	38,150	167.1%
No Action Alternative – Sheppard AFB ROI	0	0.0%
SUA ROI		
Global	46,451,390,000[1]	128,635,014.3%
United States	5,109,653,000[2]	14,149,851.8%
Oklahoma and Texas	663,711,271[2]	1,837,975.3%
Counties within the SUA	38,675,518[2]	107,101.8%
Alternative 1 – SUA ROI	36,111	100.0%
Alternative 2 – SUA ROI	55,252	153.0%
Alternative 3 – SUA ROI	52,414	145.1%
No Action Alternative – SUA ROI	0	0.0%

Source: USEPA 2023

[1] Based on report that U.S. GHG emissions accounted for 11 percent of global GHG emissions in 2020 (Climate Watch 2023).

[2] To calculate the total CO_2e, all GHGs are multiplied by their heat-trapping ability, as published in 40 CFR Part 98 (revised April 2024) (CO_2 = 1; CH_4 = 28; N_2O = 265; sulfur hexafluoride = 23,500), and the results are added together.

Stationary source GHG emissions would increase from the added heating requirements for the new GBTS and UMT facilities and for the 3,400 ft^2 addition to the egress shop. However, the increase in operational GHG emissions were estimated to be less than 250 metric tpy, which would not cause Sheppard AFB to exceed USEPA's annual 25,000 metric tpy reporting threshold. Therefore, Sheppard AFB would continue to be exempt from reporting annual GHG emissions to the USEPA.

Weather Trends. Weather trends in north-central Texas are described in **Section 3.1.1**. These trends are unlikely to affect DAF's ability to implement Alternative 1. **Table 3-9** outlines these trends and their effects on the Proposed Action, including Alternative 1. The weather trends with the greatest potential to affect the Proposed Action are higher temperatures; more extreme weather events, such as flooding and tornado potential; and greater drought severity, all of which has the potential to damage infrastructure. Higher temperatures can cause aircraft to operate less efficiently, leading to greater fuel burn requirements. The Proposed Action is only indirectly dependent on any of the elements associated with these future weather trends (e.g., meteorological changes). At the time of this analysis, no future weather scenario would have significant effects on any element of the Proposed Action.

Table 3-9. Effects of Weather Trends on the Proposed Action

Weather Trends	Effects on the Proposed Action
Increased temperature with more frequent and intense heat waves	Minor
Changes in precipitation patterns, including more severe droughts	Minor
Higher likelihood of extreme weather events, including tornadoes and flooding	Minor

3.1.2.2 Alternative 2

For Alternative 2, short-term, not significant, adverse impacts on air quality from construction and temporary personnel increases and long-term, not significant, adverse impacts on air quality from operation of expanded facilities would occur and be identical to those described for Alternative 1.

Annual operations of T-38C and T-7A aircraft within the Sheppard AFB and SUA ROIs for Alternative 2 would be 25 percent greater than those described for Alternative 1. For Alternative 2, long-term (i.e., 2034 and later), adverse and beneficial impacts would occur from annual net changes in criteria pollutants and GHGs in the Sheppard AFB and SUA ROIs. The proposed aircraft replacement would result in a steady-state net increase of VOC, NO_X, SO_X, and CO_2e, and a net decrease of CO, PM_{10}, and $PM_{2.5}$ in both ROIs.

Table 3-10 shows the estimated net change in annual air emissions in the Sheppard AFB ROI from Alternative 2. Emissions from T-38C and T-7A airfield and maintenance operations (2034 and later) would be greater than those described for Alternative 1. CO emissions for Alternative 2 would temporarily exceed the insignificance indicator of 250 tpy by approximately 30 percent in 2034, largely due to the increased T-38C operations at the start of the aircraft transition period (see **Section 2.2.2.3** and **Table A-3** in **Appendix A**) for further explanation on the surge in pilot training for Alternative 2). However, the steady-state (i.e., 2037 and later) annual net CO emissions would decrease by nearly 1,000 tpy by the end of the transition period, demonstrating a net beneficial impact in the long-term.

Table 3-10. Sheppard AFB ROI – Estimated Net Annual Air Emissions from Alternative 2

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)
2031 (construction)	4.904	10.892	17.239	0.028	16.479	0.316	0.000	2,720
2032 (construction)	1.734	4.898	7.971	0.014	0.152	0.130	0.000	1,310
2033 (operations)	0.163	0.255	1.851	0.003	0.027	0.019	0.000	393
2034 (operations)	47.760	56.365	325.798	5.994	7.481	6.736	0.000	16,594
2035 (operations)	88.952	215.032	-202.071	10.753	-8.605	-7.791	0.000	29,713
2036 (operations)	120.014	356.402	-792.460	14.007	-26.088	-23.581	0.000	38,777
2037 and later (operations)	116.554	372.593	-993.250	13.270	-31.820	-28.770	0.000	36,786
Annual Maximum	120.014	372.593	325.798	14.007	16.479	6.736	0.000	38,777
Insignificance Indicator[1]	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**

[1] Wichita County is in attainment/unclassifiable for all criteria pollutants; therefore, the insignificance indicator of 250 tpy (25 tpy for lead) was applied.

As with Alternative 1, the pollutant of greatest concern from aircraft operations for Alternative 2 is NO_X. The annual net change of NO_X emissions in the Sheppard AFB ROI would exceed the 250 tpy insignificance indicator in 2036 by approximately 106 tpy and in 2037 and later years by approximately 123 tpy (49 percent of the insignificance indicator).

Projected NO_X emissions from Alternative 2 were compared to the most recent comprehensive emissions inventory for Wichita County (i.e., CY 2020) to determine the relative magnitude of these emissions. The net increase of NO_X emissions in the Sheppard AFB ROI would represent approximately 5 percent of the total NO_X emissions generated in Wichita County in 2020 (372.593÷ 7,253 x 100 = 5.14 percent). The majority of operational NO_X emissions would result from aircraft operations to an altitude of 3,000 feet AGL and across several square miles that compose airspace overlying Sheppard AFB. At or higher than this altitude, the projected NO_X emissions would be dispersed through the atmosphere to the point where they would not result in substantial ground-level impacts on a localized area.

As described in **Section 3.1.2.1**, when considering the highest representative NO_2 design values of 44 ppb (1-hour) and 12 ppb (annual) in nearby areas representative of Wichita County, there is a substantial headroom of 56 ppb (1-hour) and 41 ppb (annual) before the NO_2 NAAQS would be exceeded. In addition, there are no known violations or monitored exceedances of the NAAQS in Wichita County, surrounding counties, or within representative areas. Considering the NO_2 design values of representative nearby areas are well below the applicable NAAQS (see **Table 3-4**), the attainment/unclassified status of Wichita County and its surrounding counties, the effective dispersion of air pollutants emitted at higher altitudes, and that the county's NO_X emissions would increase by a small percent, the addition of 372.593 tpy of NO_X from Alternative 2 is not expected to approach or exceed the NO_2 NAAQS for Wichita County or surrounding areas.

Further, although Alternative 2 would result in NO_X emissions within the Sheppard AFB ROI that are approximately 27 percent greater than those for Alternative 1 and 49 percent greater than the 250 tpy insignificance indicator, the combination of meteorological conditions (i.e., predominant south-southeasterly winds), aircraft emissions plume behavior including vertical distribution, and spatial dispersion over the

notable distance from Sheppard AFB, and the notable distance from Sheppard AFB ensures these emissions are highly attenuated before reaching the DFW or Oklahoma City areas (see analysis in **Section 3.1.2.1**). As a result, Alternative 2 is unlikely to affect monitored O_3 concentrations or trigger a nonattainment designation. Therefore, significant impacts on air quality within the Sheppard AFB ROI would not occur.

Table 3-11 shows the estimated net change in annual air emissions for the SUA ROI for Alternative 2. Over the entire SUA ROI, the insignificance indicators for all criteria pollutants would not be exceeded. Because the insignificance indicators would not be exceeded and emissions within the SUA ROI would be spread across 64 counties and 8 AQCRs, Alternative 2 is unlikely to cause or contribute to an exceedance of one or more NAAQS in any one air quality management area and long-term, adverse impacts would not be significant.

Table 3-11. SUA ROI – Estimated Net Annual Air Emissions from Alternative 2

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)[1]
2034	1.163	14.516	8.532	0.721	0.348	0.310	<0.001	15,136
2035	4.247	66.901	-14.185	1.601	-0.324	-0.296	<0.001	32,671
2036	7.071	115.702	-37.749	2.344	-1.037	-0.938	<0.001	49,486
2037 and later	7.470	123.584	-44.266	2.377	-1.250	-1.129	<0.001	50,124
Annual Maximum	7.470	123.584	8.532	2.377	0.348	0.310	<0.001	50,124
Insignificance Indicator	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] Whereas criteria pollutants are calculated for aircraft operations that occur within the mixing zone (below 3,000 feet AGL), CO_2e is calculated for aircraft operations at all altitudes.

As with Alternative 1, the net change in annual NO_X emissions that may occur in the DFW O_3 nonattainment area from Alternative 2 (i.e., VOC and NO_X emissions from aircraft operations within VR-1146) would not exceed the *de minimis* level threshold (see **Table 3-12**).

Table 3-12. SUA ROI – VOC and NO_X Emissions within VR-1146 from Alternative 2

Year	VOC (tpy)	NO_X (tpy)
2034	0.112	1.420
2035	0.416	6.553
2036	0.689	11.259
2037 and later	0.732	12.065
Annual Maximum	0.732	12.065
de minimis Level Threshold	25	25
Exceeds *de minimis* Level Threshold?	**No**	**No**

Table 3-10 and **Table 3-11** show that Alternative 2 would result in an annual net decrease of CO, PM_{10}, and $PM_{2.5}$ for both the Sheppard AFB and SUA ROIs. Any reduction of air emissions from operations would result in long-term, not significant, beneficial impacts on air quality.

GHGs. GHG emissions from construction and facility operations (i.e., 2031 through 2033) for Alternative 2 would be identical to those described for Alternative 1 and would be considered insignificant. As with Alternative 1, new stationary source GHG emissions would not cause Sheppard AFB to exceed USEPA's annual 25,000 metric tpy reporting threshold.

Operations in the Sheppard AFB ROI for Alternative 2 would result in a steady-state net increase of annual CO_2e emissions by 36,786 metric tpy (see **Table 3-10**), which represents approximately 3.1 percent of annual CO_2e emissions in Wichita County, and less than 0.008 percent of annual CO_2e emissions in Texas. By comparison, 36,786 metric tons of CO_2e is approximately the GHG footprint of 8,561 passenger vehicles driven for 1 year or 4,940 homes' energy use for 1 year (USEPA 2024b). The steady-state net increase in annual CO_2e emissions within the SUA ROI would be approximately 50,124 metric tpy (see **Table 3-11**), which is the GHG footprint of 11,692 passenger vehicles driven for 1 year or 6,732 homes' energy use for 1 year (USEPA 2024b).

As shown in **Table 3-10** and **Table 3-11**, the net change of GHG emissions from Alternative 2 in both ROIs for all years would not exceed the 68,039 metric tpy insignificance indicator for CO_2e. Therefore, net GHG emissions would be considered insignificant. As shown in **Table 3-8**, Alternative 2's GHG emissions in the Sheppard AFB and SUA ROIs would be 77.6 percent and 53.0 percent greater, respectively, than those from Alternative 1.

Weather Trends. Weather trends in north-central Texas, described in **Section 3.1.1**, are unlikely to affect the ability to implement Alternative 2. As outlined in **Table 3-9**, no future weather trends would have appreciable effects on any element of Alternative 2.

3.1.2.3 Alternative 3

As with Alternatives 1 and 2, Alternative 3 would result in short-term, not significant, adverse impacts on air quality from construction activities. Air emissions from construction for Alternative 3 would be slightly greater in 2032 than those estimated for Alternatives 1 and 2 due to the construction of sufficient shelters for the 23 additional T-7A aircraft beyond Alternatives 1 and 2. The net change in annual emissions within the Sheppard AFB ROI from construction for Alternative 3 would not exceed the insignificance indicator of 250 tpy for any criteria pollutant (25 tpy for lead); therefore, short-term, adverse impacts on air quality within the Sheppard AFB ROI would not be significant. As identified in **Section 3.1.2.1**, construction contractors would employ BMPs, to the greatest extent practicable, to reduce criteria pollutant emissions from construction activities. Short-term, not significant, adverse impacts on air quality from temporary personnel increases, and long-term, not significant, adverse impacts on air quality from operation of expanded facilities would be identical to those described for Alternative 1.

Annual operations for T-7A aircraft within the Sheppard AFB and SUA ROIs for Alternative 3 would be approximately 21 percent greater than those described for Alternative 1. For Alternative 3, long-term (i.e., 2034 and later), adverse and beneficial impacts would occur from annual net changes in criteria pollutants and GHGs in the Sheppard AFB and SUA ROIs. The proposed aircraft replacement would result in a steady-state net increase of VOC, NO_X, SO_X, and CO_2e and a net decrease of CO, PM_{10}, and $PM_{2.5}$ in both ROIs.

Table 3-13 shows the estimated net change in annual air emissions in the Sheppard AFB ROI from Alternative 3. Steady-state net annual emissions from T-7A airfield and maintenance operations (2037 and later) would be greater than those described for Alternatives 1 but slightly less than those described for Alternative 2. This is due to the

greater number of aircraft that would be delivered to Sheppard AFB for Alternative 3 when compared to Alternatives 1 and 2, and similar, but fewer operations when compared to Alternative 2.

Table 3-13. Sheppard AFB ROI – Estimated Net Annual Air Emissions from Alternative 3

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)
2031 (construction)	4.904	10.892	17.239	0.028	16.479	0.316	0.000	2,720
2032 (construction)	1.734	4.917	7.989	0.014	0.154	0.131	0.000	1,324
2033 (operations)	0.163	0.255	1.851	0.003	0.027	0.019	0.000	393
2034 (operations)	13.151	40.740	-53.603	1.772	-1.645	-1.471	0.000	5,113
2035 (operations)	45.845	167.265	-480.837	5.520	-14.619	-13.187	0.000	15,447
2036 (operations)	80.162	298.697	-925.863	9.357	-28.063	-25.326	0.000	26,019
2037 and later (operations)	109.907	367.025	-1,017.989	12.597	-31.200	-28.140	0.000	34,609
Annual Maximum	109.907	367.025	17.239	12.597	16.479	0.316	0.000	34,609
Insignificance Indicator[1]	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**

[1] Wichita County is in attainment/unclassifiable for all criteria pollutants; therefore, the insignificance indicator of 250 tpy (25 tpy for lead) was applied.

As with Alternatives 1 and 2, the pollutant of greatest concern from aircraft operations for Alternative 3 is NO_X. The annual net change of NO_X emissions in the Sheppard AFB ROI would exceed the 250 tpy insignificance indicator in 2036 by approximately 49 tpy and in 2037 and later years by approximately 117 tpy (47 percent of the insignificance indicator).

Projected NO_X emissions from Alternative 3 were compared to the most recent comprehensive emissions inventory for Wichita County (i.e., CY 2020) to determine the relative magnitude of these emissions. The net increase in NO_X emissions in the Sheppard AFB ROI would represent approximately 5 percent of the total NO_X emissions generated in Wichita County in 2020 (367.025 ÷ 7,253 x 100 = 5.06 percent). The majority of operational NO_X emissions would result from aircraft operations to an altitude of 3,000 feet AGL and across several square miles that compose airspace overlying Sheppard AFB. At or higher than this altitude, the projected NO_X emissions would be dispersed through the atmosphere to the point where they would not result in substantial ground-level impacts on a localized area.

As described in **Section 3.1.2.1**, when considering the highest representative NO_2 design values of 44 ppb (1-hour) and 12 ppb (annual) in nearby areas representative of Wichita County, there is a substantial headroom of 56 ppb (1-hour) and 41 ppb (annual) before the NO_2 NAAQS would be exceeded. In addition, there are no known violations or monitored exceedances of the NAAQS in Wichita County, surrounding counties, or within representative areas. Considering the NO_2 design values of representative nearby areas are well below the applicable NAAQS (see **Table 3-4**), the attainment/ unclassified status of Wichita County and its surrounding counties, and the effective dispersion of air pollutants emitted at higher altitudes, the addition of 367.025 tpy of NO_X from Alternative 3 is not expected to approach or exceed the NO_2 NAAQS for Wichita county or surrounding areas.

Further, although Alternative 3 would result in NO_X emissions within the Sheppard AFB ROI that are approximately 25 percent greater than those for Alternative 1 and 47 percent greater than the 250 tpy insignificance indicator, the combination of

meteorological conditions (i.e., predominant south-southeasterly winds), aircraft emissions plume behavior including vertical distribution, and spatial dispersion over the notable distance from Sheppard AFB, and the notable distance from Sheppard AFB ensures these emissions are highly attenuated before reaching the DFW or Oklahoma City areas (see analysis in **Section 3.1.2.1**). As a result, Alternative 3 is unlikely to affect monitored O_3 concentrations or trigger a nonattainment designation. Therefore, significant impacts on air quality within the Sheppard AFB ROI would not occur.

Table 3-14 shows the estimated net change in annual air emissions for the SUA ROI for Alternative 3. Over the entire SUA ROI, the insignificance indicator for all criteria pollutants would not be exceeded. Because the insignificance indicator would not be exceeded and emissions within the SUA ROI would be spread across 64 counties and 8 AQCRs, Alternative 3 is unlikely to cause or contribute to an exceedance of one or more NAAQS in any one air quality management area and long-term, adverse impacts would not be significant.

Table 3-14. SUA ROI – Estimated Net Annual Air Emissions from Alternative 3

Year	VOC (tpy)	NO_X (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (metric tpy)[1]
2034	0.666	10.872	-3.467	0.223	-0.095	-0.086	<0.001	4,764
2035	3.139	52.841	-21.591	0.931	-0.630	-0.568	<0.001	18,795
2036	5.719	96.526	-40.156	1.677	-1.177	-1.061	<0.001	35,467
2037 and later	7.198	119.616	-44.398	2.251	-1.265	-1.142	<0.001	47,549
Annual Maximum	7.198	119.616	-3.467	2.251	-0.095	-0.086	<0.001	47,549
Insignificance Indicator	250	250	250	250	250	250	25	68,039
Exceeds Insignificance Indicator?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] Whereas criteria pollutants are calculated for aircraft operations that occur within the mixing zone (below 3,000 feet AGL), CO_2e is calculated for aircraft operations at all altitudes.

As with Alternatives 1 and 2, the net change in annual NO_X emissions that may occur in the DFW O_3 nonattainment area from Alternative 3 (i.e., VOC and NO_X emissions from aircraft operations within VR-1146) would not exceed the *de minimis* level threshold (see **Table 3-15**).

Table 3-15. SUA ROI – VOC and NO_X Emissions within VR-1146 from Alternative 3

Year	VOC (tpy)	NO_X (tpy)
2034	0.063	1.033
2035	0.307	5.140
2036	0.556	9.351
2037 and later	0.704	11.644
Annual Maximum	0.704	11.644
de minimis Level Threshold	25	25
Exceeds *de minimis* Level Threshold?	**No**	**No**

Table 3-13 and **Table 3-14** show that Alternative 3 would result in an annual net decrease of CO, PM_{10}, and $PM_{2.5}$ for both the Sheppard AFB and SUA ROIs. Any reduction of air emissions from operations would result in long-term, not significant, beneficial impacts on air quality.

GHGs. Construction for Alternative 3 would produce a total of approximately 4,044 metric tons of CO_2e, which is 0.3 percent greater than the GHG emissions that would be produced from Alternatives 1 and 2 over the same construction period. As shown in **Table 3-13**, GHG emissions from construction would not exceed the insignificance indicator of 68,039 metric tpy and therefore would be considered insignificant. As with

Alternatives 1 and 2, increased stationary source GHG emissions would not cause Sheppard AFB to exceed USEPA's annual 25,000 metric tpy reporting threshold.

Operations in the Sheppard AFB ROI for Alternative 3 would result in a steady-state net increase of 34,609 metric tpy of CO_2e (see **Table 3-13**), which represents approximately 2.9 percent of annual CO_2e emissions in Wichita County and less than 0.007 percent of annual CO_2e emissions in Texas. By comparison, 34,069 metric tons of CO_2e is approximately the GHG footprint of 7,947 passenger vehicles driven for 1 year or 4,575 homes' energy use for 1 year (USEPA 2024b). The steady-state net increase in annual CO_2e emissions within the SUA ROI would be approximately 47,549 metric tpy (see **Table 3-11**), which is the GHG footprint of 11,091 passenger vehicles driven for 1 year or 6,386 homes' energy use for 1 year (USEPA 2024b).

As shown in **Table 3-13** and **Table 3-14**, the net change of GHG emissions from Alternative 3 in both ROIs for all years would not exceed the 68,039 metric tpy insignificance indicator for CO_2e. Therefore, net GHG emissions would be considered insignificant. As shown in **Table 3-8**, Alternative 3's GHG emissions in the Sheppard AFB and SUA ROIs would be 67.1 percent and 45.1 percent greater, respectively, than those from Alternative 1.

Weather Trends. Weather trends in north-central Texas, described in **Section 3.1.1**, are unlikely to affect the ability to implement Alternative 3. As outlined in **Table 3-9**, no future weather trends would have appreciable effects on any element of Alternative 3.

3.1.2.4 No Action Alternative

The No Action Alternative would not result in impacts on air quality at Sheppard AFB or within the MTRs, MOAs, or Falcon Range. No construction would occur, and there would be no changes in aircraft operations. Air quality conditions, including ongoing GHG emissions, would remain unchanged compared to the existing conditions described in **Section 3.1.1**.

3.2 Noise

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's quality of life, such as aircraft operations, construction, or vehicular traffic.

Sound varies by intensity and frequency. Sound pressure level, described in dBs, is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighting" of decibels, approximates a frequency response expressing humans' perception of sound. This EIS uses only A-weighted decibels (dBA), thus, for brevity, only "dB" is cited within the text. Sounds encountered in daily life and their A-weighted sound levels are shown in **Table 3-16.**

Table 3-16. Common Sounds and Their Levels

Common Outdoor Sounds	Sound Level (dBA)	Common Indoor Sounds
Car horn at 3 feet	100	Rock band
Gas lawnmower at 3 feet	90	Food blender at 3 feet
Noisy urban environment	80	Garbage disposal
Busy highway at 50 feet	70	Vacuum cleaner at 10 feet
Commercial area	60	Normal speech at 3 feet
Quiet urban environment	50	Dishwasher in next room
Quiet rural environment	40	Theater, large conference room

Source: FAA 2022

Aircraft noise events are seldom steady; therefore, noise metrics have been developed to describe exposure from single events and cumulative exposure from multiple events. Single-event metrics include:

- Maximum Sound Level (L_{max}) – L_{max} is the maximum sound level of the event in dBA.
- Sound Exposure Level (SEL) – SEL is a measure of the total energy of an acoustic event. It represents the level of a 1-second-long constant sound that would generate the same energy as the actual time-varying noise event, such as an aircraft overflight. SEL provides a measure of the net effect of a single acoustic event, but it does not directly represent the sound level at any given time. SEL is presented typically in dBA.

The sound from multiple aircraft events must also be described, giving rise to the following metrics to describe a cumulative noise environment:

- Equivalent Sound Level (L_{eq}) – L_{eq} describes the constant sound level having the same acoustic energy as the time-varying sound over the same period. The period of interest is usually 24-hours ($L_{eq(24h)}$), or an 8-hour school-day ($L_{eq(8h)}$). $L_{eq(24h)}$ is used to assess the potential for long-term hearing loss for individuals living on and adjacent to airfields. An outdoor $L_{eq(8h)}$ of 60 dB is used to screen for potential classroom learning interference.
- DNL – DNL is the average sound energy in a 24-hour period with an adjustment added to the nighttime levels. DNL is equal to $L_{eq(24h)}$ for the same period if there are no nighttime activities. Due to their potential to be particularly intrusive, noise events occurring between 10 p.m. and 7 a.m. are assessed an additional 10 dB adjustment when calculating DNL. DNL is a useful descriptor for aircraft noise because it averages ongoing yet intermittent noise, and it measures total sound energy over a 24-hour period. DNL provides a measure of the overall acoustical environment, but similar to SEL, it does not directly represent the perceived sound level at any given time. For well-distributed sound, $L_{eq(24h)}$ is approximately 6.4 dB lower than DNL.
- Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}) for SUA operations – L_{dnmr} is identical to DNL but includes an onset-rate adjustment for high-speed, low-altitude aircraft events causing startle and assesses SUA operations over the average flying day during the busiest month to account for the sporadic nature of SUA events.
- Number of events (at or) above a specified threshold (NA). As its name implies, the NA metric describes the number of events that meet or exceed a user-specified decibel threshold in the period of interest. L_{max} or SEL thresholds can be used with NA.

  - NA75L_{max} is the total number of events that meet or exceed 75 dB L_{max}. NA75L_{max} is used to assess the potential for outdoor daytime speech interference or school-day classroom speech interference.
  - NA90SEL is the total number of events that exceed 90 dB SEL. NA90SEL is used in assessing the potential for nighttime sleep disturbance.
- Time (at or) above a specified threshold (TA). As its name implies, the TA metric describes the time (in minutes) the specified threshold is met or exceeded in the period of interest. Only an L_{max} threshold can be used with TA.
  - TA75L_{max} is the total time that meets or exceeds 75 dB. TA75L_{max} is typically used in assessing the potential for classroom learning interference, along with NA75L_{max} and $L_{eq(8h)}$.

For DAF NEPA documents, DNL is the primary aircraft noise metric. The DoW's guidelines for the use of supplemental metrics (DNWG 2009) were used to identify relevant supplemental metrics, other than SEL, L_{max}, and L_{eq}, used in this EIS. These metrics are provided in **Table 3-17** and are explained further in the following paragraphs.

Table 3-17. Guideline Values (Outdoor Values) for Supplemental Noise Metrics

Application	Metric	Unit	Time Period	Recommended Outdoor Thresholds for Reporting Purposes
Speech Interference	NA	Number of Events	15-hour day (DNL daytime; 7 a.m. to 10 p.m.)	75 dB L_{max}
Sleep Disturbance	NA	Number of Events	9-hour night (DNL nighttime; 10 p.m. to 7 a.m.)	90 dB SEL
Classroom Speech Interference	L_{eq}	Decibel	School hours (typically 8-hours)	60 dB (for screening)
Classroom Speech Interference	NA	Number of Events	School hours (typically 8-hours)	75 dB L_{max}
Classroom Speech Interference	TA	Time (minutes)	School hours (typically 8-hours)	75 dB L_{max}
Potential for Hearing Loss	PHL	Decibel	Yearly DNL (Average Annual Day)	80 dB (for screening)
Potential for Hearing Loss	PHL	Decibel	Yearly $L_{eq(24h)}$ (Average Annual Day)	80 dB $L_{eq(24h)}$
Wildlife Impacts	L_{max}	Decibel	Overall	(Species specific)

Source: DNWG 2009

Speech Interference. The threshold at which aircraft noise begins to interfere with speech intelligibility is 50 dB indoors, and speech interference is often described in terms of NA75L_{max} to account for 25 dB of noise attenuation provided by buildings, such as houses and schools (DNWG 2009).

Sleep Disturbance. The number of awakenings or arousals is the easiest measurable effect from noise on human sleep. The potential for sleep disturbance was assessed for residential areas only and used the NA90SEL metric.

Classroom Speech Interference. Classroom speech interference is assessed only for the hours of instruction. The classroom speech interference analysis in this EIS is based on 8 hours of daily classroom instruction, occurring entirely within the DNL daytime period. It was also assumed that schools are operational year-round. First, a screening analysis with the L_{eq} metric is applied to identify schools that may be impacted by speech interference. Schools with outdoor L_{eq} less than 60 dB are screened out and would not likely be affected. For schools with L_{eq} greater than or equal to 60 dB, NA and TA metrics are computed with an L_{max} threshold of 60 dB. The number of average hourly classroom speech interference events were computed by

dividing the number of events above the threshold by 8, then computed the time (in seconds per hour) of classroom speech interference.

PHL. PHL applies to people living long-term (40 years) in high noise environments. The initial screening criterion for assessing PHL is people exposed to DNL greater than or equal to 80 dB. The threshold for assessing PHL is people exposed to an $L_{eq(24h)}$ of at least 80 dB. PHL is quantified by reporting the number of people exposed to $L_{eq(24h)}$ within 1-dB increments above 80 dB (i.e., 80 to 81 dB, etc.). Those 1-dB increments in $L_{eq(24h)}$ are associated with average Noise Induced Permanent Threshold Shifts (NIPTS) and tenth percentile NIPTS, which describe a person's permanent change in hearing threshold or level. The tenth percentile NIPTS is the NIPTS exceeded by 10 percent of the population, and it is reserved for the most sensitive individuals (DNWG 2013). In addition, the Occupational Safety and Health Administration (OSHA) and DAF have adopted a 140-dB instantaneous noise level threshold as the threshold for short-term exposure that may induce hearing loss.

Wildlife Impacts. **Section 3.3.3** provides information on noise impacts on wildlife.

Damage to Structures. Noise from low-level aircraft overflights can cause buildings under their flight path to vibrate, which the occupants experience as the structure shaking and windows rattling. However, based on experimental data and models, noise and vibrations from subsonic aircraft overflights do not cause structural damage to buildings. An impulsive-type noise (i.e., blast noise or sonic boom) above 140 dB is required to generate sufficient energy to damage structures (Siskind et al. 1980 and Siskind et al. 1989).

Regulatory Review and Land Use Planning. The Noise Control Act of 1972 directs federal agencies to comply with applicable federal, state, and local noise control regulations. The Noise Control Act specifically exempts aircraft operations and military training activities from state and local noise ordinances. There are no federal, state, or local noise regulations applicable directly to the Proposed Action. Air Force Handbook (AFH) 32-7084, *AICUZ Program Manager's Guide*, denotes that land use guidelines for noise exposure at military airfields are provided in Department of Defense (DoD) Instruction 4165.57, *Air Installations Compatible Use Zones*, Appendix 3C. **Table 3-18** provides a general overview of recommended aircraft operations' noise limits for land use planning purposes.

Table 3-18. Recommended Noise Limits for Land Use Planning

General Level of Noise	Aircraft Noise (DNL)	General Recommended Uses
Low	<65 dB	Noise sensitive land uses acceptable
Moderate	65 to 75 dB	Noise sensitive land uses normally not recommended
High	>75 dB	Noise sensitive land uses not recommended

Source: DAF 2017

Noise exposure from aircraft operations were calculated using the NOISEMAP[4] suite of computer programs, which was developed and is used by DAF for this purpose. The legacy core program within the suite, NMAP Version 7.3, was used to calculate the

[4] The Department of the Navy submitted a report to Congress in November 2021 that addresses the accuracy of the NOISEMAP modeling results versus real-time aircraft sound monitoring. The report concluded that the DoW approved noise models operate as intended and provide an accurate prediction of noise exposure levels from aircraft operations for use in impact assessments and long-term land use planning (DON 2021). This report is available to view on the project website at https://sheppard.t-7anepadocuments.com/documents.

noise exposure in terms of DNL for existing and proposed average annual daily aircraft flight and ground run-up operations at Sheppard AFB. MOA Range NOISEMAP Version 3.0, also part of the NOISEMAP suite, was used to calculate noise exposure in terms of L_{dnmr} from average day aircraft operations during the busiest month for applicable SUA, such as MOAs, MTRs, and Falcon Range.

A component of NOISEMAP is NOISEFILE. NOISEFILE is a comprehensive database of measured military and civil aircraft noise data. The NOISEFILE version used for this EIS contained flight and ground run-up noise measurements that were recorded in August 2019 from a T-7A prototype.

Acreage and population within bands of cumulative noise exposure (typically DNL) were calculated for Sheppard AFB. In order to estimate the number of people residing within the noise contours, existing parcel boundary land use maps were overlain on 2020 U.S. Census Blocks that depict the smallest Census enumeration unit. "Populated Area" data polygons were then created by combining Census blocks with the residential land use concentrating population and housing unit values into the residential portion of the census block where people live. For example, the population in some areas is concentrated along a road rather than over several square miles of open or undeveloped land.

Using Geographic Information System (GIS) tools, the noise contours were intersected with these "Residential/Census" data for each DNL contour interval. The resultant wholly or partially encompassed Residential/Census areas were identified, and the proportion of total area within the contour interval was calculated to determine the estimated residential population and housing unit counts ascribed to that interval.

3.2.1 Affected Environment

This section outlines background noise, aircraft noise, and noise abatement procedures at Sheppard AFB and the associated SUA. The aircraft noise discussion is based on CY 2023 aircraft operations as established through interviews and flight data received in preparation of the Noise Model Operational Data Documentation (NMODD) (HMMH 2025).

3.2.1.1 Sheppard AFB

3.2.1.1.1 Aircraft Noise

Approximately 351,442 annual flight operations (i.e., single take-offs, landings, and patterns combined) are performed at Sheppard AFB by homebased and transient military aircraft, and civilian aircraft. Most of Sheppard AFB's annual flight operations result from homebased T-6 Texan II (single-engine turboprop) and T-38C (twin-engine afterburning jet trainer, capable of supersonic flight) aircraft. Homebased T-38C aircraft perform 178,668 operations, which represents 51 percent of the total annual flight operations at Sheppard AFB. All T-38C departures use afterburners for their takeoff roll (HMMH 2025).

Nighttime operations by T-6 and T-38C aircraft represent approximately 1.6 percent of the overall annual flight operations at the installation. Approximately 1,472 T-38C operations occur during the DNL nighttime period (10 p.m. to 7 a.m.), which is less than 1 percent of total T-38C aircraft operations (HMMH 2025).

Figure 3-2 shows the DNL contours for 2023 conditions at Sheppard AFB, which are plotted in 5-dB increments, ranging from 65 to 80 dB DNL. These noise levels, which are often shown graphically as contours on maps, are not discrete lines that sharply divide louder areas from land largely unaffected by noise. Instead, they are part of a planning tool that depicts the general noise environment around the installation based on typical aviation activities. Areas with DNL less than 65 dB can also experience levels of appreciable (single-event) noise, depending on number of operations or weather conditions. In addition, DNL contours may vary from year to year due to fluctuations in operational numbers due to unit deployments, funding levels, and other factors.

The noise exposure conditions include modeling of CY 2023 aircraft operations and maintenance run-up activity, including activity in the existing hush house. The 65 dB DNL contour at Sheppard AFB extends approximately 2.7 miles out from the centerline of Runway 15C/33C in the northern direction to FM 1177, and 3 miles out from the centerline of Runway 15R/33L in the southern direction, just past River Road. The contour is approximately 2.3 miles wide at its widest point.

Table 3-19 and **Table 3-20** provide the estimated land acreage and population exposed to noise levels 65 dB DNL or greater, respectively. There are approximately 4,292 acres and 276 residents off installation and 3,186 acres and 413 residents on installation exposed to DNL of at least 65 dB. The off-installation population currently exposed to 65 dB DNL or greater for existing conditions is consistent with the 2011 Sheppard AFB AICUZ Study (Sheppard AFB 2011).

Table 3-19. Acreage within DNL Contour Bands for Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation (acres)	Off-Installation (acres)	Total (acres)
65 to 70	723	2,908	3,631
70 to 75	803	1,121	1,924
75 to 80	761	257	1,018
≥80	899	6	905
Total	**3,186**	**4,292**	**7,478**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds.

Table 3-20. Estimated Population within DNL Contour Bands for Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation (persons)	Off-Installation (persons)	Total (persons)
65 to 70	408	254	662
70 to 75	5	22	27
75 to 80	0	0	0
≥80	0	0	0
Total	**413**	**276**	**689**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks.
2. DNL bands are exclusive of upper bounds

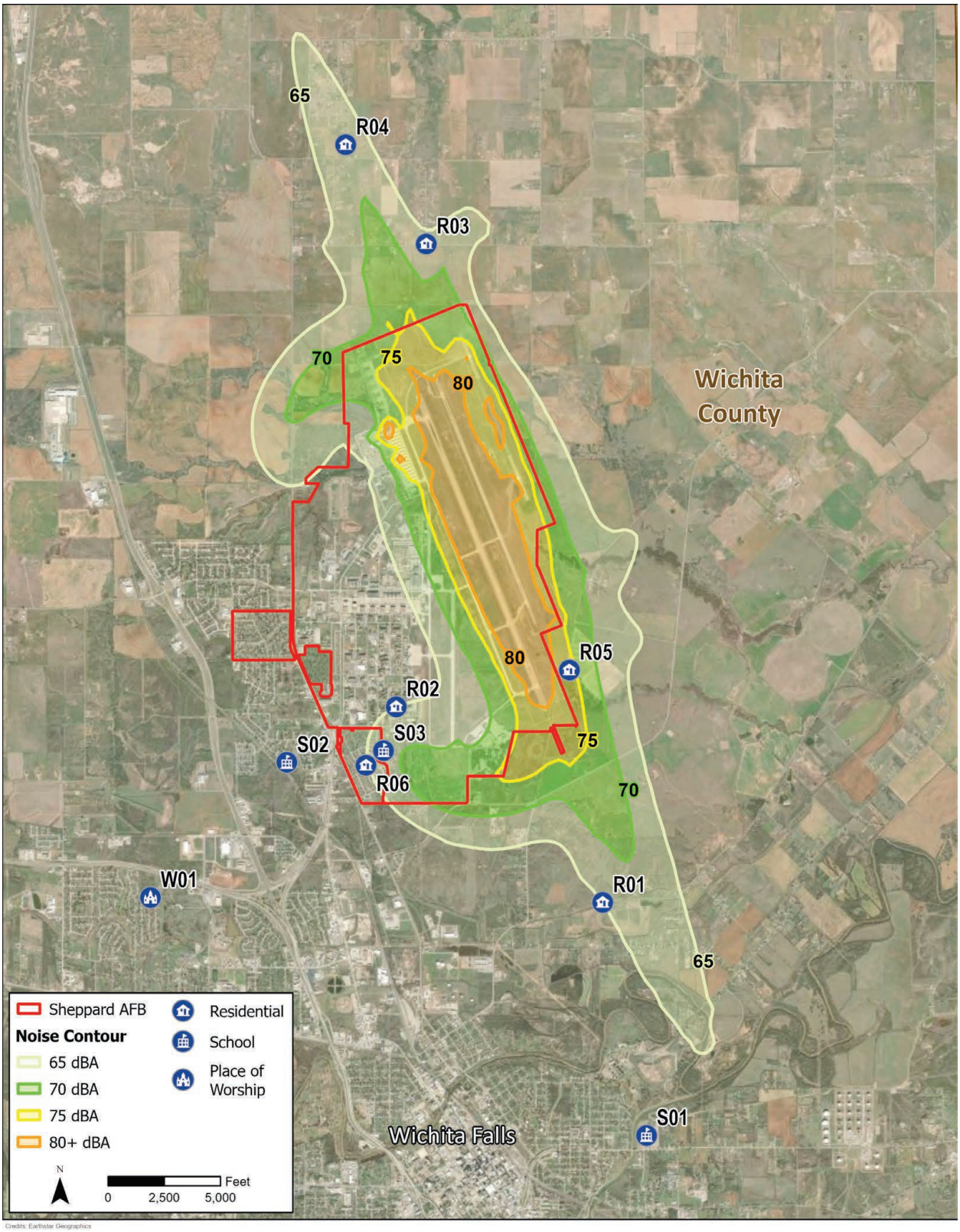


Figure 3-2. Aircraft Noise Contours for Existing Conditions at Sheppard AFB

The population exposed to a DNL of at least 80 dB have a PHL. The population estimation method yields that there are no on- or off-installation people exposed to DNL greater than or equal to 80 dB (see **Section 3.2.1.1.2)**.

Noise-sensitive locations typically include residential areas, schools, places of worship, and hospitals. Based on data collected from Sheppard AFB personnel and a review of GIS data for schools in the area affected by the 65 dB DNL contour, 10 representative noise sensitive locations, also known as POIs, were identified (see **Figure 3-2)**. These POIs consist of six residential areas, three schools, and one place of worship. Centralized locations were identified within residential areas to represent adjacent residences and neighborhoods and are identified as Residential Areas 1 through 6 (POIs RO1 through R06).

Table 3-21 provides the existing DNL for the 10 POI. POIs R02, R03, R04, R05, R06, and S03 were determined to be within a DNL greater than 65 dB and thus considered incompatible land uses. The other five POI (R01, R06, S01, S02, and W01) are within DNL less than 65 dB.

Table 3-21. Overall DNL at Representative Locations for Existing Conditions at Sheppard AFB

ID	On or Off Sheppard AFB?	Representative Location	Type	DNL (dB)
R01	Off	Representative of residences south of airfield	Residential	64.9
R02	On	Representative of on-installation residences west of airfield	Residential	**65.2**
R03	Off	Representative of residential south-Cashion community	Residential	**66.3**
R04	Off	Representative of residential mid-Cashion community	Residential	**68.2**
R05	Off	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	Residential	**77.5**
R06	On	Nehls Boulevard, on installation west of Runway 18/36	Residential	64.9
S01	Off	Booker T. Washington Elementary and Jr. High School	School	56.3
S02	Off	Haynes Elementary School	School	53.3
S03	On	Sheppard Elementary School	School	**67.6**
W01	Off	Freedom Baptist Church	Worship	46.6

Source: HMMH 2025
Note: DNLs of at least 65 dB are shown in **bold**.

3.2.1.1.2 Supplemental Metrics Analyses

Supplemental metrics exhibit noise exposure related to potential noise effects, including speech interference, classroom speech interference, sleep disturbance, and PHL. These analyses focus on specific POI in the vicinity of Sheppard AFB described in **Section 3.2.1.1**.

Speech Interference. **Table 3-22** provides the number of aircraft events greater than (or equal to) 75 dB L_{max} outdoors for relevant POI near Sheppard AFB that occur from 7 a.m. to 10 p.m. ($NA75L_{max,day}$). Speech interference at the POIs range from zero to approximately 16.2 events per daytime hour.

Table 3-22. Outdoor Speech Interference for Existing Conditions at Sheppard AFB

ID	Representative Location	Events Per Daytime Hour
R01	Representative of residences south of airfield	2.3
R02	Representative of on-installation residences west of airfield	6.8
R03	Representative of residential south-Cashion community	16.2
R04	Representative of residential mid-Cashion community	3.7
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	15.1
R06	Nehls Boulevard, on installation west of Runway 18/36	6.3
S01	Booker T. Washington Elementary and Jr. High School	2.3
S02	Haynes Elementary School	6.3
S03	Sheppard Elementary School	6.3
W01	Freedom Baptist Church	0.0

Source: HMMH 2025
Notes: NA75L_{max}; POI assessed for DNL daytime (7 a.m. to 10 p.m.)

Classroom Speech Interference. The L_{eq} for the hours of classroom instruction assumes evenly distributed flight and run-up operations throughout the day for whole hour increments. A school's operating hours are used as the surrogate for the hours of classroom instruction. For the schools in this EIS, 8 hours was determined to be most common, thus $L_{eq(8h)}$ or "school-day L_{eq}" was computed for screening. The results for potential classroom speech interference for each of the schools are provided in **Table 3-23**.

Table 3-23. Screening for Potential Classroom Speech Interference for Existing Conditions at Sheppard AFB

ID	Representative School	School-Day $L_{eq(8h)}$ (dB)
S01	Booker T. Washington Elementary and Jr. High School	57.8
S02	Haynes Elementary School	55.0
S03	Sheppard Elementary School	**69.3**

Source: HMMH 2025
Note: **Bold** values exceed the 60 dB $L_{eq(8h)}$ screening threshold.

POI S03 would have $L_{eq(8h)}$ greater than 60 dB, warranting NA and TA analyses to determine the number of events per hour and time interrupted per hour. POI S01 also is included in the NA and TA analyses to provide a baseline because its $L_{eq(8h)}$ would exceed 60 dB for Alternatives 1, 2, and 3. POI S02 does not exceed the screening metric of 60 dB for any alternative and, therefore, is not included in additional analysis for NA and TA. The NA and TA metrics for the two schools noted are provided in **Table 3-24.** POI S01 experiences 2.32 events per hour and 32 seconds per hour above 75 dB L_{max}. POI S03 experiences 6.28 events per hour and 15 seconds per hour above 75 dB L_{max}.

Table 3-24. Potential for Classroom Speech Interference for Existing Conditions at Sheppard AFB

ID	Representative School	NA75L_{max} (events/hour)	TA75L_{max} (seconds/hour)
S01	Booker T. Washington Elementary and Jr. High School	2.32	32
S03	Sheppard Elementary School	6.28	15

Source: HMMH 2025
Notes: **NA75L_{max}** is the number of events at or above the 75 dB L_{max} threshold.
TA75L_{max} is the time at or above the 75 dB L_{max} threshold.

Sleep Disturbance. The sleep disturbance analysis only includes the residential POI during nighttime hours (10 p.m. to 7 a.m.). All six residential POI experience sleep disturbing events per night, on average. **Table 3-25** provides the average number of sleep disturbing events occurring each night ranging from 0.35 within POI R04 to 2.04 within POI R03.

Table 3-25. Potential for Sleep Disturbance for Existing Conditions at Sheppard AFB

ID	Representative Location	Average Hourly Nighttime Events
R01	Representative of residences south of airfield	0.62
R02	Representative of on-installation residences west of airfield	0.70
R03	Representative of residential south-Cashion community	2.04
R04	Representative of residential mid-Cashion community	0.35
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	1.94
R06	Nehls Boulevard, on installation west of Runway 18/36	0.70

Source: HMMH 2025
Note: **NA90SEL** is the number of events at or above the 90 dB SEL.

PHL. No on- or off-installation population are exposed to a DNL greater than or equal to 80 dB at Sheppard AFB (see **Section 3.2.1.1.2**); therefore, an $L_{eq(24h)}$ analysis is not required for PHL.

Individual aircraft events at Sheppard AFB do not generate instantaneous noise levels above 140 dB for the off-installation population; therefore, hearing damage is not anticipated from existing conditions.

Damage to Structures. Individual aircraft events at Sheppard AFB do not generate impulsive-style noise levels above 140 dB; therefore, there is no potential damage to structures from aircraft noise.

3.2.1.1.3 Existing Noise Abatement Procedures for Sheppard AFB

This section provides an overview of the existing noise abatement procedures and strategies that have been developed primarily through the installation's AICUZ program and the community's Joint Land Use Study (JLUS).

3.2.1.1.3.1 AICUZ Program

Sheppard AFB has an active AICUZ program that informs the public about its aircraft noise environment and recommends specific actions for local jurisdictions with planning and zoning authority that can enhance the health, safety, and welfare of those living near the installation. To implement the AICUZ program, the installation is required to take the following actions:

- Prepare periodic AICUZ study updates to quantify aircraft noise zone areas and provide compatible land use recommendations to local municipalities.
- Coordinate with federal, state, and local agencies and community leaders to maintain public awareness of the AICUZ program.
- Promote encroachment partnering projects to achieve long-term encroachment protection.
- Use hush house and test cell buildings to suppress noise from high power maintenance engine runs.
- Minimize flight and maintenance operations during nighttime periods.

The current AICUZ study for Sheppard AFB was published in 2011 (Sheppard AFB 2011) and is considered a noise management measure that describes the DAF's planning perspective for compatible land use (DAF 2017). It does not represent the true noise environment currently being experienced in the areas around Sheppard AFB. In support of the preparation of this EIS, an NMODD (HMMH 2025) validated current aircraft operations to establish an accurate representation of modeled noise levels in the Sheppard AFB area (see **Section 3.2.1.1.1**).

As outlined in the AICUZ study, DAF strives to be a good neighbor and actively pursues operational measures to control aircraft noise effectively. Noise abatement procedures apply to flight operations and engine run-up and maintenance operations conducted on the installation. To the greatest extent possible, flights are routed over sparsely populated areas to reduce exposure to noise. As part of DAF regulations, installation commanders are required to periodically review existing traffic patterns, instrument approaches, weather constrictions, and operating practices in relation to populated areas and other local situations.

3.2.1.1.3.2 Sheppard AFB JLUS

In 2014, the city of Wichita Falls completed a JLUS in collaboration with DAF and the communities surrounding Sheppard AFB (City of Wichita Falls 2014). The community's JLUS adopted the noise contour footprint based on the 2011 Sheppard AFB AICUZ study for local planning purposes. This EIS uses information from the JLUS for assessment of land use impacts in **Section 3.3**; however, for assessment of aircraft noise impacts, the conditions described in **Section 3.2.1.1.1** reflects CY 2023 aircraft operations, tracks, and operating specifics such as altitudes, power settings, and other related data representing the most accurate noise conditions currently being experienced within the community.

3.2.1.2 SUA

The SUA modeled in this noise analysis is the MOAs, MTRs, and Falcon Range within which quantifiable T-7A operations would occur (see **Tables A-2**, **A-3**, and **A-4** in **Appendix A**). VR-1139 and VR-1140 were excluded from this noise analysis because they would not be used enough to produce quantifiable and consequential noise levels. Primarily, Sheppard AFB-homebased aircraft use the modeled SUA, but that does not preclude the possibility of occasional use by other DoW aviation assets in the region.

3.2.1.2.1 MOAs and MTRs

Table 3-26 provides the CY 2023 SUA usage by T-38C aircraft homebased at Sheppard AFB. All of the existing condition sorties using SUA occur during the L_{dnmr} daytime hours. For the MOAs, the modeled flight areas consist primarily of subareas within each MOA to account for differing UPT and IFF training evolutions. The maximum L_{dnmr} for any subarea within each MOA is shown in **Table 3-26**. The entire lengths of the MTRs were modeled with their established route widths. The four MOAs and seven MTRs have L_{dnmr} less than 65 dB for existing conditions and compatible with all underlying land uses.

Table 3-26. Modeled SUA and Sorties for Existing Conditions

SUA	Altitudes	Busiest Month	T-38C Busiest Month Sorties	Annual Sorties	Maximum L_{dnmr} (dB)
Hollis MOA	11,000 to 18,000 feet above MSL	March	42	184	<35
Westover 1 MOA	9,000 to 18,000 feet above MSL	April	1,068	10,137	43.4
Westover 2 MOA	10,000 to 18,000 feet above MSL	May	350	2,589	38.8
Washita MOA	8,000 to 18,000 feet above MSL	August	528	5,098	<35
Falcon Range	Surface to 7,999 feet above MSL	August	285	2,749	See Note
IR-103	100 feet AGL to 5,000 feet above MSL	June	4	36	41.6
VR-158	500 feet AGL to 5,000 feet above MSL	October	10	48	<35
VR-159	500 feet AGL to 5,000 feet above MSL	October	72	559	<35
VR-1141	200 feet AGL to 1,500 feet AGL	August	11	55	<35
VR-1142	200 feet AGL to 1,500 feet AGL	March	18	68	<35
VR-1143	200 feet AGL to 1,500 feet AGL	April	50	343	<35
VR-1146	200 feet AGL to 1,500 feet AGL	August	31	123	<35

Source: HMMH 2025
MSL = mean sea level
Note: Noise model results for Falcon Range are discussed below with a modeled set of contours and POI due to high-speed, low-altitude tactical patterns.

3.2.1.2.2 Falcon Range

Falcon Range is primarily used for simulated air-to-ground targeting with T-38C aircraft from Sheppard AFB, but other military aircraft types may occasionally use the range, such as the MC-12, F-16, F-18, and B-1 at high altitude. The utilization by other aircraft is random and unscheduled, with sortie counts below levels that would be estimated to affect cumulative noise exposure.

Figure 3-3 shows a point labeled as “Target T-1”, which is a common reference mark that T-38C use for target practice. Aircraft follow discrete flight tracks in their approach and departure with little to no horizontal dispersion, much like airfield closed patterns.

Figure 3-3 shows L_{dnmr} contours for existing conditions at Falcon Range. The existing 65 dB L_{dnmr} contour extends nearly 4 miles west from the boundary of the range to the border of Comanche County. The contour extends approximately 0.6 mile southwest from the boundary of the range. These contours are primarily due to high-speed, low-altitude tactical patterns.

The acreage and population associated with the L_{dnmr} contour bands are provided in **Table 3-27**. The off-range acreage of 2,641 exposed to L_{dnmr} of at least 65 dB contains an estimated population of 21. No population would be exposed to L_{dnmr} greater than or equal to 80 dB.

Table 3-27. Off-Range Acreage and Estimated Population within L_{dnmr} Contour Bands for Existing Conditions at Falcon Range

L_{dnmr} Contour Band (dB)	Off-Range Acreage	Off-Range Population
65 to 70	1,385	11
70 to 75	885	8
75 to 80	371	2
≥80	0	0
Total	**2,641**	**21**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks.
2. DNL bands are exclusive of upper bounds

Due to the acreage and population within contour bands of 65 L_{dnmr} or higher, a set of 10 POI was established for the area surrounding Falcon Range. The POI are shown in **Figure 3-3**, and the identification, location and existing condition L_{dnmr} are listed in **Table 3-28**. All 10 POI are residential; no schools, hospitals, or worship centers were noted within the contour bands. POIs FR03, FR05, FR06, FR07, FR08, FR09, and FR10 have L_{dnmr} greater than 65 dB ranging from 68.2 dB at residences north of NW Townley Road to 74.1 dB at residences west of Indiahoma Road. POIs FR01, FR02, and FR04 have a modeled L_{dnmr} of over 63 dB.

Table 3-28. POI Locations and L_{dnmr} for Existing Conditions at Falcon Range

ID	Representative Location[1]	Type	L_{dnmr} (dB)[2]
FR01	North of NW Cross Road	Residential	63.1
FR02	NW Carsol Road/NW 277th Street	Residential	63.3
FR03	South of NW Carlson Road	Residential	**70.7**
FR04	East of 257th Street	Residential	63.3
FR05	West end of Mountain View Road	Residential	**73.1**
FR06	Representative Residential South of NW Mountain View Road	Residential	**72.7**
FR07	South of NW Mountain View Road	Residential	**71.3**
FR08	West of Indiahoma Road	Residential	**74.1**
FR09	Representative North of NW Townley Road	Residential	**68.2**
FR10	Representative South of NW Rogers Road	Residential	**72.7**

Source: HMMH 2025
[1] All locations are off range.
[2] L_{dnmr} greater than 65 dB are shown in **bold**.

Because these POI are all residential and below 80 L_{dnmr}, only the supplement metric for daytime speech interference is provided. Nighttime sorties do not occur at Falcon Range; therefore, no sleep disturbance events would be experienced.

Speech Interference. **Table 3-29** provides the number of aircraft events greater than (or equal to) 75 dB L_{max} outdoors for relevant POI near Falcon Range that occur from 7 a.m. to 10 p.m. ($NA75L_{max,day}$). The speech interference for residential areas ranges from 1.7 to nearly 2.9 events per daytime hour.

Table 3-29. Potential for Outdoor Speech Interference for Existing Conditions at Falcon Range

ID	Representative Location	Events Per Daytime Hour
FR01	North of NW Cross Road	1.7
FR02	NW Carsol Road/NW 277th Street	1.7
FR03	South of NW Carlson Road	1.7
FR04	East of 257th Street	2.8
FR05	West end of Mountain View Road	2.8
FR06	Representative Residential South of NW Mountain View Road	2.8
FR07	South of NW Mountain View Road	2.2
FR08	West of Indiahoma Road	2.3
FR09	Representative North of NW Townley Road	2.9
FR10	Representative South of NW Rogers Road	2.3

Source: HMMH 2025
Notes: $NA75L_{max}$; POI assessed for DNL daytime (7 a.m. to 10 p.m.)

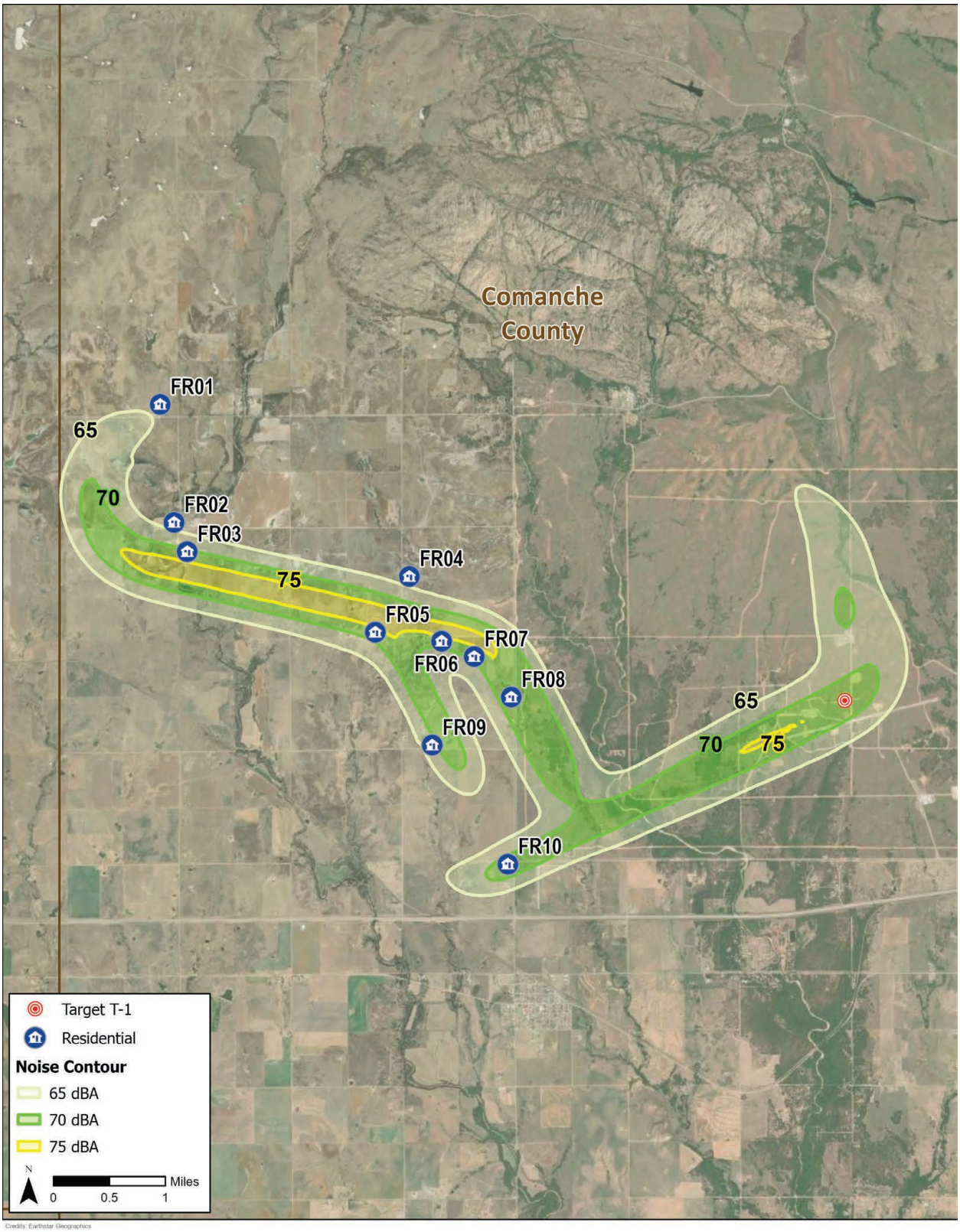


Figure 3-3. Aircraft Noise Contour Bands for Existing Conditions at Falcon Range

3.2.2 Environmental Consequences

This section discusses noise from construction, noise from aircraft, potential changes to land use compatibility, and potential noise effects to humans due to implementing the Proposed Action. Baseline conditions represent the No Action Alternative. The action alternatives are compared to the existing aircraft operational noise environment discussed above, to determine the changes and relative impacts from potential aircraft noise levels. Changes in noise would be considered significant if they would (1) lead to a violation of any federal, state, or local noise ordinance; (2) substantially increase areas of incompatible land use outside the installations; or (3) have the potential to cause permanent hearing loss to nearby residents.

As noted in **Section 2.2.2.2.2**, exact T-7A flight parameters, such as flight tracks, patterns, and altitudes, have not yet been developed and will not be known until DAF begins flying the T-7A for pilot training. Therefore, at this stage of the proposal, T-7A flight parameters are assumed to be similar to those flown by the T-38C for the No Action Alternative. Power settings for modeling purposes were calculated using a power converter workbook based on recent testing of the T-7A aircraft. Unlike the T-38C, the T-7A would use the afterburner for only 5 percent of its departures, compared to the T-38C's 100 percent of departures. The T-7A would shut off its afterburners at approximately the same altitude and distance as the T-38C.

The T-7A aircraft has distinctly different operating characteristics than the T-38C, and, if the T-7A is introduced, DAF would determine the safest, most efficient, and least intrusive flight operations for T-7A training at Sheppard AFB. Once the T-7A aircraft begin to arrive at Sheppard AFB, DAF would have the opportunity to (1) analyze and adjust T-7A flying patterns and operational settings, (2) update the installation's AICUZ study, and (3) support the community in updating a JLUS for the installation and surrounding community. These potential actions would allow DAF to continue its active AICUZ program at Sheppard AFB, which strives to pursue operational measures to effectively control aircraft noise and recommend specific actions for local jurisdictions to enhance the health, safety, and welfare of those living near the installation.

3.2.2.1 Alternative 1

Alternative 1 would result in short- and long-term, not significant, adverse impacts on the noise environment. Short-term impacts would be due to noise generated by heavy equipment during construction. Long-term impacts would occur from the introduction of the T-7A aircraft. Long-term increase in operational noise would occur for Alternative 1, resulting in an increased area of incompatible land use for some off-installation residential properties around Sheppard AFB; however, the homes are pre-existing and experience existing noise levels of 64.9 dB DNL.

3.2.2.1.1 Sheppard AFB

3.2.2.1.1.1 Construction Noise

Construction and renovation would require the use of heavy equipment that would generate short-term increases in noise near the project areas. Maximum noise levels associated with common construction equipment at 50 feet generally range from 73 dB

for a power generator to 101 dB for a pile driver.[5] With multiple types of equipment operating concurrently, noise levels can be higher within several hundred feet of active construction and demolition areas.

DoD Instruction 4715.13, *DoD Operational Noise Program*, does not indicate a threshold of significance for construction noise impacts (DoD 2020). This instruction does not reference other construction noise guidance; therefore, this analysis refers to Federal Highway Administration guidance for evaluating construction noise. Federal Highway Administration policy considers an hourly Equivalent Sound Level ($L_{eq(h)}$) of 67 dB an exterior impact for residential and recreational uses (23 CFR Part 772, Table 1).

Construction activities would include the laydown area for modular construction and general requirements for equipment access and material delivery; the storage of materials, equipment, and tools; employee access and vehicle parking; utility impairment requirements; and safety requirements. Nighttime and weekend work is not planned as a part of the construction schedule.

All construction and renovation in support of the Proposed Action would be within the Sheppard AFB boundary, be collocated with other existing noise-compatible activities, and end with the facility construction and modification phase.

Figure 2-1 shows the project area locations. The distance between the construction areas and the nearest off-installation POI (R03) would be approximately 8,400 feet. POI R02, on-installation housing, would be slightly more than 9,000 feet from the nearest construction site. There would be no anticipated noise impacts to on- or off-installation residents from construction activities.

Based on estimated equipment usage percentages, noise levels were calculated at 860, 1,000, and 1,300 feet from on-site construction and staging of construction vehicles, as shown in **Table 3-30**. Temporary construction noise is not expected to result in significant impacts on any POI. Project construction is anticipated to produce L_{max} of approximately 58 dB at 1,300 feet from the site. At these distances, the on-installation POI would still experience L_{max} related to construction activities below the 67 dB criterion. Routine BMPs, to include noise abatement components such as engine mufflers, enclosures, vibration isolators, or other sound dampening supplements, would be employed to reduce construction noise. BMPs may also include vehicle inspections and maintenance as well as defined hours of operation for construction equipment.

In addition, various facilities within the Sheppard AFB operations area, including flightline activity where routine daily activities contribute to a higher-than-normal ambient noise level, are within 2,000 feet of the construction areas. The $L_{eq(h)}$ would remain below the 67 dB criterion for a significant noise impact at residential or recreational facilities. Operation of the new facilities at Sheppard AFB is not expected to generate any additional noise levels.

[5] 50 feet is the standard reference distance used in U.S. Department of Transportation, Federal Highway Administration guidance, including guidance for the evaluation of construction equipment noise (USDOT 2006).

Table 3-30. Estimated Noise Levels for Proposed Construction Equipment at Nearby Properties

Equipment Description	Equipment Usage (percent) [1]	Noise Level Measured at 50 feet, L_{max} (dB) [2]	L_{max} at 1,300 feet from Construction Site (dB)	Hourly L_{eq} at 1,300 feet from Construction Site (dB)	L_{max} at 1,000 feet from Construction Site (dB)	Hourly L_{eq} at 1,000 feet from Construction Site (dB)	L_{max} at 860 feet from Construction Site (dB)	Hourly L_{eq} at 860 feet from Construction Site (dB)
Paver	50	77	51	46	51	48	53	50
Dump Truck	40	76	50	44	50	47	52	48
Pickup Truck	40	75	49	43	49	45	50	46
Roller	20	80	54	45	54	47	55	48
Bulldozer	40	82	56	49	56	52	57	53
Excavator	40	81	55	48	55	51	56	52
Chain Saw	20	84	58	48	58	51	59	52
Compactor (ground)	20	83	57	48	57	50	59	52
Concrete Saw	20	90	64	54	64	57	65	58
Crane	16	81	55	44	55	47	56	48
		Total	**64[3]**	**58[4]**	**64[3]**	**61[4]**	**65[3]**	**62[4]**

Note: An hourly L_{eq} of at least 67 dB would result in a noise impact.
[1] Usage percentage is the amount of time that a piece of equipment is anticipated to be in operation during each hour of a 24-hour day.
[2] *Federal Highway Administration Roadway Construction Noise Model User's Guide*, Table 1, column "Actual Measured L_{max} @ 50 feet (dBA, slow)" (USDOT 2006).
[3] Total L_{max} is the value for the loudest piece of equipment (i.e., concrete saw).
[4] Total L_{eq} is the combined average dB level of anticipated simultaneously operated equipment.

3.2.2.1.1.2 Aircraft Noise

For Alternative 1, approximately 320,074 total flight operations (i.e., single take-offs, landings, and patterns combined) would be performed at Sheppard AFB each year, which is an average of about 877 flight operations per day. Most of Sheppard AFB's annual flight operations (53 percent) would be performed by homebased T-6 Texan II aircraft. T-7A aircraft (single-engine jet trainer; capable of supersonic flight) would represent 46 percent of the annual flight operations. The rest of the annual flight operations would be performed by various transient or civilian aircraft types. No homebased T-38C aircraft would remain after the full complement of T-7A aircraft is received and operational. The current operational levels for T-6, transient, and civilian aircraft were used for the Alternative 1 noise analysis.

Nighttime flight operations by T-6 and T-7A aircraft would account for 5,501 of the anticipated total of 6,068 annual nighttime operations at Sheppard AFB. The 1,214 annual nighttime T-7A flight operations would represent less than 1 percent of the total annual daytime and nighttime T-7A flight operations and approximately 20 percent of the total annual nighttime flight operations performed by all aircraft types at Sheppard AFB.

The T-7A aircraft are proposed for arrival and immediate use beginning in 2034. The increase in T-7A aircraft and associated training operations would be incremental through 2036. In 2037, the number of T-7A aircraft operations would stabilize. During the period from 2034 through 2036, area and population within the 65 dB DNL contour would increase incrementally.

On a per aircraft basis, T-7A aircraft would perform similar numbers of arrivals, departures, and closed patterns as current T-38C aircraft. Due to the decrease from 131 T-38C aircraft to 108 T-7A aircraft, annual flight operations would decrease to 147,299, which is nearly 18 percent less than 2023 levels.

Modeling for Alternative 1 noise exposure also includes maintenance run-up activity by the existing aircraft types homebased at the installation and the proposed T-7A, including activity in the proposed hush house. Alternative 1 would replace the existing hush house facility, which is located at the north end of the airfield's aircraft parking area. The proposed hush house would be located in the same location. All flight and run-up activity data has been taken into consideration during modeling of the noise contours (HMMH 2025).

Noise levels on and adjacent to Sheppard AFB with the proposed T-7A aircraft were calculated based on full implementation of Alternative 1 in 2037. **Figure 3-4** shows the modeled DNL contours for Alternative 1. With full implementation of Alternative 1, the 65 dB DNL contour at Sheppard AFB would extend approximately 3.8 miles from the south end of Runway 15R/33L, 3.0 miles from the north end of Runway 15C/33C, and 2.6 miles wide in the east-west direction at its widest point. The Alternative 1 65 dB contour would extend 0.3 mile farther north, 0.8 mile south, and 0.3 mile wider east-west than the existing 65 dB contour. Aircraft DNL less than 65 dB is generally compatible with all land uses.

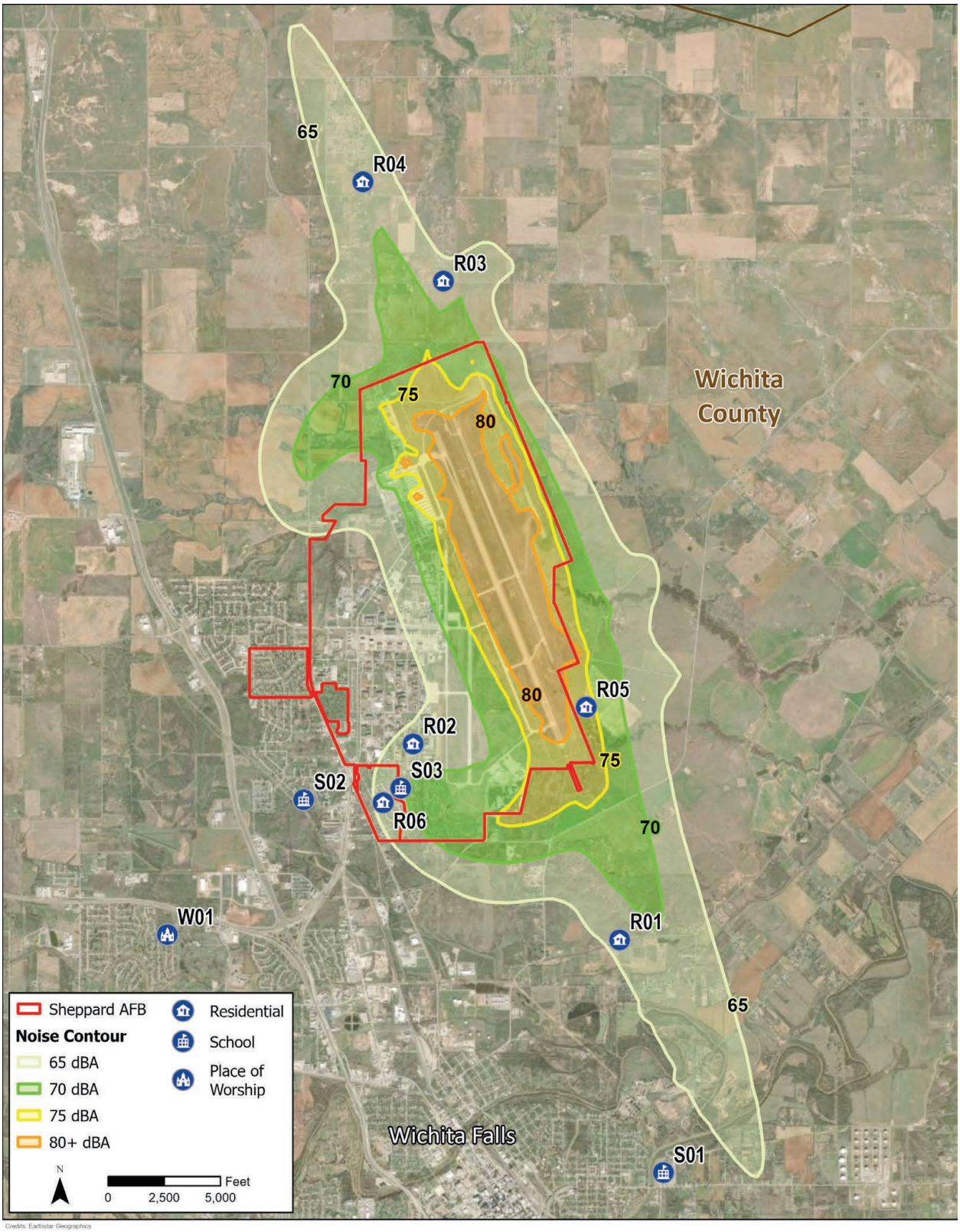


Figure 3-4. Aircraft Noise Contour Bands for Alternative 1 at Sheppard AFB

Table 3-31 and **Table 3-32** provide the land acreage and population exposed to DNL of at least 65 dB for Alternative 1 at Sheppard AFB, respectively. On- and off-installation acreage contained within the 65 dB DNL contour would be approximately 3,546 and 5,763 acres, respectively. This would amount to an increase of 1,471 acres off-installation within the 65 dB DNL as compared to existing conditions. Alternative 1 would expose 429 people off-installation to DNL of at least 65 dB, an increase of 153 people.

Table 3-31. Acreage within DNL Contour Bands for Alternative 1 and Change in Acreage from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Acreage	Off-Installation Acreage	Total Acreage	Change in On-Installation Acreage	Change in Off-Installation Acreage	Change in Total Acreage
65 to 70	827	3,953	4,780	104	1,045	1,149
70 to 75	963	1,477	2,440	160	356	516
75 to 80	806	326	1,132	45	69	114
≥80	950	7	957	51	1	52
Total	**3,546**	**5,763**	**9,309**	**360**	**1,471**	**1,831**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds.

Table 3-32. Estimated Population within DNL Contour Bands for Alternative 1 and Change in Population from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Population	Off-Installation Population	Total Population	Change in On-Installation Population	Change in Off-Installation Population	Change in Total Population
65 to 70	801	397	1,198	393	143	536
70 to 75	15	32	47	10	10	20
75 to 80	0	0	0	0	0	0
≥80	0	0	0	0	0	0
Total	**816**	**429**	**1,245**	**403**	**153**	**556**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks at full implementation of Alternative 1 with the full complement of T-7A aircraft.
2. DNL bands are exclusive of upper bounds.

Population exposed to DNL of at least 80 dB would have a PHL. The population estimation method, described in **Section 3.2,** yields that no off-installation population would be exposed to DNL greater than or equal to 80 dB. See **Section 3.2.2.1.1.3** for further analysis on PHL.

Figure 3-5 shows a comparison of the Sheppard AFB 65 dB DNL contours modeled for each scenario (i.e., baseline conditions and Alternatives 1, 2, and 3). Compared to baseline conditions, Alternative 1 would result in a general expansion of the 65 dB DNL contour around the entirety of the existing 65 dB DNL contour line. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural.

Table 3-33 provides the DNL for the 10 POI for Alternative 1. All six modeled POI residential areas would be exposed to DNL greater than 65 dB and would be considered incompatible land uses. Four of the six residential areas are exposed to DNL greater than 65 dB DNL for existing conditions and the other two residential POI that would be newly exposed to greater than 65 dB DNL currently are exposed to 64.9 dB DNL. Because the actual increase of DNL noise levels at these two POI is less than 2 dB and would likely not be perceptible, the increase would not be significant. Residential POI R05 would continue to be exposed to noise levels greater than 75 dB DNL and POI S03 would continue to be exposed to DNL greater than 65 dB.

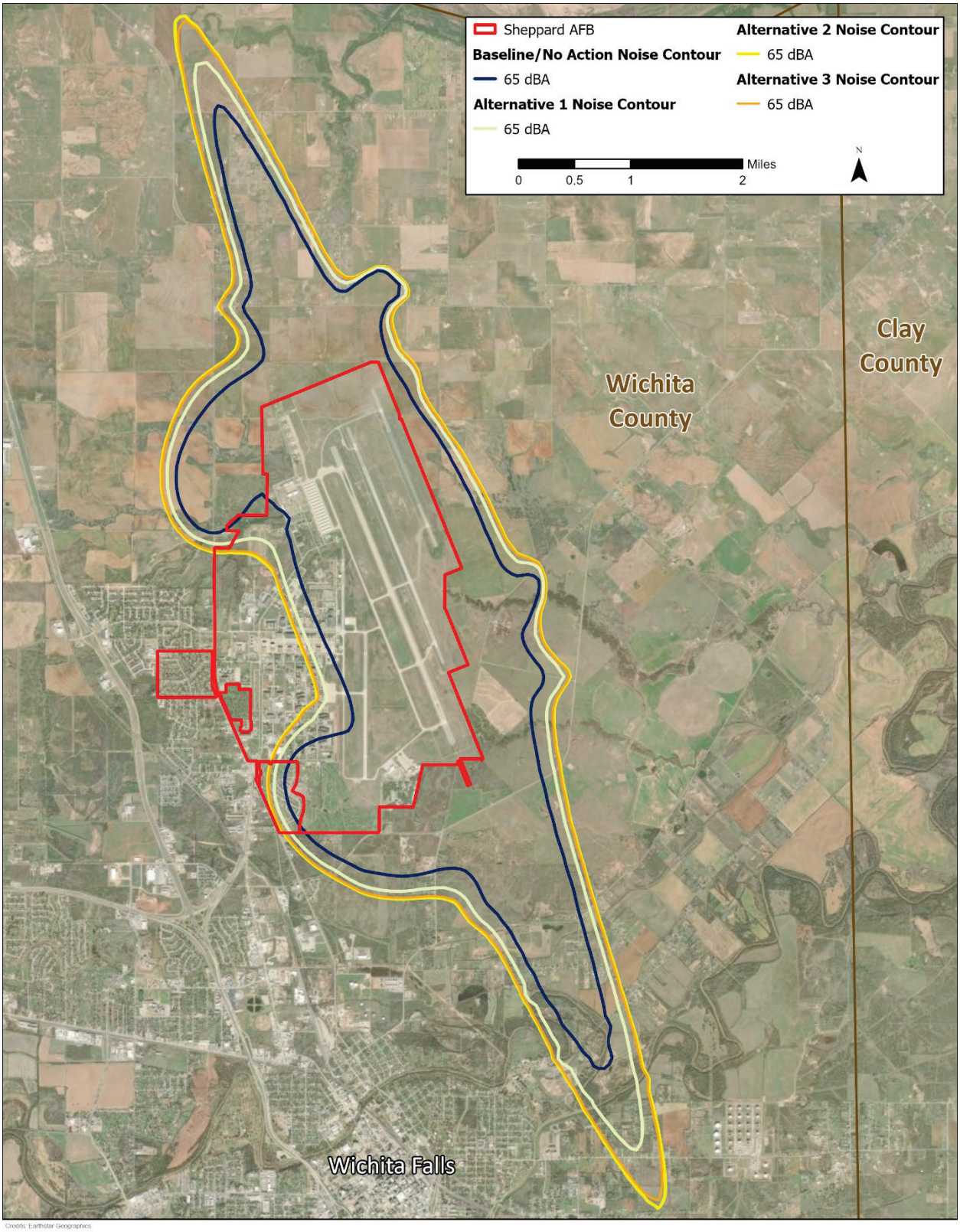


Figure 3-5. Comparison of the 65 dB DNL Contours for Action Alternatives and Baseline Conditions at Sheppard AFB

Table 3-33. Overall DNL at Representative Locations for Alternative 1 at Sheppard AFB

ID	Representative Location	Existing Conditions DNL (dB)	Alternative 1 DNL (dB)	Change in DNL (dB)
R01	Representative of residences south of airfield	64.9	**66.6**	+1.7
R02	Representative of on-installation residences west of airfield	**65.2**	**66.9**	+1.7
R03	Representative of residential south-Cashion community	**66.3**	**67.2**	+0.9
R04	Representative of residential mid-Cashion community	**68.2**	**68.8**	+0.6
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	**77.5**	**77.6**	+0.1
R06	Nehls Boulevard, on installation west of Runway 18/36	64.9	**66.7**	+1.8
S01	Booker T. Washington Elementary and Jr. High School	56.3	58.9	+2.6
S02	Haynes Elementary School	53.3	56.4	+3.1
S03	Sheppard Elementary School	**67.6**	**69.0**	+1.4
W01	Freedom Baptist Church	46.6	49.2	+2.6

Source: HMMH 2025
Note: **Bold** data values indicate DNL greater than or equal to 65 dB.

The six residential areas would be exposed to DNL increases between approximately 0.1 and 1.8 dB. The three schools would be exposed to DNL increases between approximately 1.4 and 2.6 dB. The increased noise levels would be due to the introduction of the T-7A despite the decreased number of annual aircraft operations.

3.2.2.1.1.3 Supplemental Metrics Analyses

The supplemental metrics required analysis of potential noise exposure effects, including speech interference, classroom speech interference, sleep disturbance, and hearing loss. These analyses focus on specific POI in the vicinity of Sheppard AFB and are described in **Section 3.2.1.1.1**.

Speech Interference. **Table 3-34** provides the number of speech interference events per daytime hour for Alternative 1. The speech interference for the six residential areas would range from approximately 3 to 19 events per daytime hour. Residential POIs R01, R02, and R03 would experience an increase of up to 8.6 speech-interfering events per daytime hour, and POIs R04, R05, and R06 would experience a decrease of up to 2.4 hourly speech-interfering events. The increases and decreases and ranges in numbers of events that would be experienced are mainly due to the difference in aircraft engines and their respective frequencies resulting in differing SEL at each individual location (HMMH 2025). POI S03 would experience a 0.5 increase in the number of speech-interfering events per daytime hour.

Table 3-34. Potential for Speech Interference for Alternative 1 at Sheppard AFB

ID	Representative Location	Existing Events per Daytime Hour	Alternative 1 Events per Daytime Hour	Change in Events per Daytime Hour
R01	Representative of residences south of airfield	2.3	10.9	+8.6
R02	Representative of on-installation residences west of airfield	6.8	10.8	+4.0
R03	Representative of residential south-Cashion community	16.2	19.0	+2.8
R04	Representative of residential mid-Cashion community	3.7	3.1	-0.6
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	15.1	12.7	-2.4
R06	Nehls Boulevard, on installation west of Runway 18/36	6.3	5.2	-1.1
S01	Booker T. Washington Elementary and Jr. High School	2.3	2.2	-0.1
S02	Haynes Elementary School	6.3	5.2	-1.1
S03	Sheppard Elementary School	6.3	6.8	+0.5
W01	Freedom Baptist Church	0.0	0	0

Source: HMMH 2025
Note: NA75L_{max}; POI assessed for daytime hours (7 a.m. to 10 p.m.).

Classroom Speech Interference. The L_{eq} for the hours of classroom instruction assumes evenly distributed flight and run-up operations throughout the day for whole hour increments. A school's operating hours are used as the surrogate for the hours of classroom instruction. For the schools in this EIS, 8 hours of instruction was determined to be the most common, thus $L_{eq(8h)}$ or "school-day L_{eq}" is used to screen the school noise exposures and calculate the number of events per hour and seconds per hour of disturbance. The results for each school are presented in **Table 3-35**.

Table 3-35. Screening for Potential Classroom Speech Interference for Alternative 1 at Sheppard AFB

ID	Representative School	School-Day L_{eq} (dB)
S01	Booker T. Washington Elementary and Jr. High School	**60.5**
S02	Haynes Elementary School	58.1
S03	Sheppard Elementary School	**70.7**

Source: HMMH 2025
Note: **Bold** values exceed the 60 dB $L_{eq(8h)}$ screening threshold.

POI S01 and S03 would have $L_{eq(8h)}$ greater than 60 dB, warranting NA and TA analyses to determine the number of events per hour and time interrupted per hour. POI S02 does not exceed the screening metric of 60 dB and, therefore, is not included in additional analysis for NA and TA. The metrics for the number of events and time at or above the specified thresholds for the two affected schools are provided in **Table 3-36** and **Table 3-37**, respectively. POI S03 would experience an increase of approximately 0.55 events per hour and POI S01 would experience a minor decrease of 0.13 events per hour. The two schools would have an increase of up to 28 seconds per hour in classroom disturbance (at or) above 75 dB L_{max}.

Table 3-36. Number of Events of Classroom Speech Interference for Alternative 1 at Sheppard AFB

ID	Representative School	Existing Conditions $NA75L_{max}$ (events/hour)	Alternative 1 $NA75L_{max}$ (events/hour)	Change in $NA75L_{max}$ (events/hour)
S01	Booker T. Washington Elementary and Jr. High School	2.32	2.19	-0.13
S03	Sheppard Elementary School	6.28	6.83	+0.55

Source: HMMH 2025
Note: **$NA75L_{max}$** is the number of events at or above the 75 dB L_{max} threshold.

Table 3-37. Time of Classroom Speech Interference for Alternative 1 at Sheppard AFB

ID	Representative School	Existing Conditions $TA75L_{max}$ (seconds/hour)	Alternative 1 $TA75L_{max}$ (seconds/hour)	Change in $TA75L_{max}$ (seconds/hour)
S01	Booker T. Washington Elementary and Jr. High School	32	60	+28
S03	Sheppard Elementary School	15	18	+3

Source: HMMH 2025
Note: **$TA75L_{max}$** is the time at or above the 75 dB L_{max} threshold.

Sleep Disturbance. **Table 3-38** provides the number of average annual hourly nighttime events that would meet or exceed 90 dB SEL at the six residential POI for Alternative 1. Alternative 1 would result in an increase of up to 0.34 potential sleep-disturbing events per hour at POI R04 and a decrease in potential sleep-disturbing events per hour at the five remaining residential POIs, relative to existing conditions. POI R04 would experience an average 0.69 hourly nighttime events.

Table 3-38. Potential for Sleep Disturbance for Alternative 1 at Sheppard AFB

ID	Representative Residential Areas	Existing Conditions Average Hourly Nighttime Events (NA90SEL)	Alternative 1 Average Hourly Nighttime Events (NA90SEL)	Change in Average Hourly Nighttime Events (NA90SEL)
R01	Representative of residences south of airfield	0.62	0.51	-0.11
R02	Representative of on-installation residences west of airfield	0.70	0.58	-0.12
R03	Representative of residential south-Cashion community	2.04	1.98	-0.06
R04	Representative of residential mid-Cashion community	0.35	0.69	+0.34
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	1.94	1.60	-0.34
R06	Nehls Boulevard, on installation west of Runway 18/36	0.70	0.58	-0.12

Source: HMMH 2025
Note: **NA90SEL** is the number of events at or above the 90 dB SEL.

The specified average number of events noted would not likely occur in evenly spaced increments throughout the night, nor would they likely occur every night. Nighttime flights would occur as the training syllabus directs and would likely occur in "grouped" sessions, meaning that several overflights may occur during a short period of time on one specific night. It is not possible to forecast when nighttime events would occur due to scheduling changes, aircraft maintenance, weather, and other unpredictable events; therefore, this analysis portrays the impact with operations averaged throughout the night, for each night. Sheppard AFB would operate night flights in a manner to minimize nighttime aircraft noise to the community, to the maximum extent practicable.

PHL. As shown in **Table 3-32**, no on- or off-installation population would be exposed to DNL greater than or equal to 80 dB. Therefore, no PHL would be anticipated for Alternative 1.

Damage to Structures. Individual aircraft events at Sheppard AFB would not generate impulsive-style aircraft noise levels above 140 dB; therefore, damage to structures from Alternative 1 would not likely occur.

3.2.2.1.2 SUA

3.2.2.1.2.1 MOAs and MTRs

Sorties within the modeled MOAs and MTRs would have only minor differences from existing conditions resulting from the replacement of T-38C aircraft with T-7A aircraft. T-6 sorties would remain the same as existing conditions. Due to operational hours of the SUA, nighttime operations would stay around the airfield and not enter the MOAs and MTRs.

None of the modeled MOAs or MTRs would have L_{dnmr} greater than 65 dB due to a combination of infrequent operations for the MTRs and the altitudes of the operations. The greatest L_{dnmr} would be at the IR-103 and VR-158 overlap at 43.2 dB. Therefore, any increases in noise associated with MOA or MTR sorties would not introduce any incompatibilities and would not be significant.

3.2.2.1.2.2 Falcon Range

Noise levels around Falcon Range would generally increase for Alternative 1 but would have a not significant impact. **Figure 3-6** shows L_{dnmr} contours for proposed range operations at Falcon Range for Alternative 1 in relation to the target designated as T-1 within Falcon Range. The 75 dB L_{dnmr} contour band for Alternative 1 would decrease by approximately 1 dB in all directions as there would be approximately 18 percent fewer operations as compared to existing conditions. The 65 dB L_{dnmr} contour band would increase by 1 to 2 dB in all directions compared to existing conditions because the T-7A has greater SEL at distances than the T-38C. This SEL increase would offset any L_{dnmr} reduction expected due to the lower number of operations.

The acreage and population associated with the L_{dnmr} contour bands are provided in **Table 3-39** and **Table 3-40**, respectively. The off-range acreage within the 65 dB or greater L_{dnmr} for Alternative 1 is 3,164 and contains an estimated population of 24. This represents an increase of 523 acres and 3 people over existing conditions. No population would be exposed to L_{dnmr} greater than or equal to 80 dB.

Table 3-39. Off-Range Acreage within L_{dnmr} Contour Bands for Alternative 1 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Acreage	Alternative 1 Off-Range Acreage	Change in Acreage within L_{dnmr} Contour Bands
65 to 70	1,385	1,904	+519
70 to 75	885	1,012	+127
75 to 80	371	248	-123
≥80	0	0	0
Total	**2,641**	**3,164**	**+523**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds

Table 3-40. Off-Range Estimated Population within L_{dnmr} Contour Bands for Alternative 1 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Population	Alternative 1 Off-Range Population	Change in Population within L_{dnmr} Contour Bands
65 to 70	11	15	+4
70 to 75	8	7	-1
75 to 80	2	2	0
≥80	0	0	0
Total	**21**	**24**	**+3**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks.
2. DNL bands are exclusive of upper bounds

The 10 residential POI and their respective dB L_{dnmr} are listed in **Table 3-41**. Alternative 1 would result in minor increases or decreases in noise levels across the POI locations. All residential POI would continue to be within the same L_{dnmr} contour band as baseline conditions. Noise level impacts around Falcon Range would not be significant.

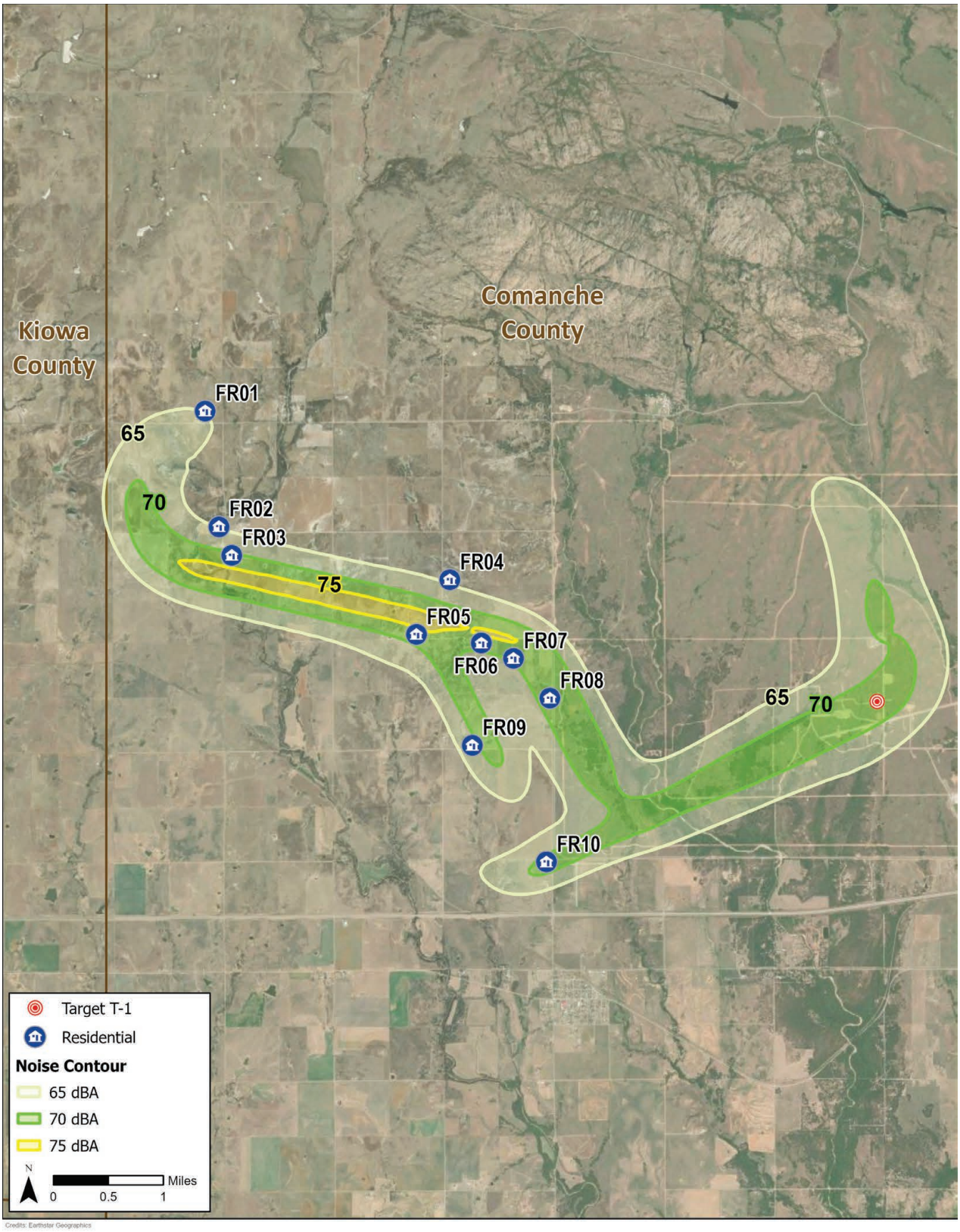


Figure 3-6. Aircraft Noise Contour Bands for Alternative 1 at Falcon Range

Table 3-41. POI Locations and L_{dnmr} for Alternative 1 at Falcon Range

ID	Representative Location [1]	Existing Condition L_{dnmr} dB	Alternative 1 Condition L_{dnmr} dB [2]	Change in L_{dnmr} dB
FR01	North of NW Cross Road	63.1	64.4	+1.3
FR02	NW Carsol Road/NW 277th Street	63.3	64.9	+1.6
FR03	South of NW Carlson Road	**70.7**	**70.7**	0
FR04	East of 257th Street	63.3	64.8	+1.5
FR05	West end of Mountain View Road	**73.1**	**72.8**	-0.3
FR06	Representative Residential South of NW Mountain View Road	**72.7**	**72.2**	-0.5
FR07	South of NW Mountain View Road	**71.3**	**71.1**	-0.2
FR08	West of Indiahoma Road	**74.1**	**73.1**	-1.0
FR09	Representative North of NW Townley Road	**68.2**	**68.2**	0
FR10	Representative South of NW Rogers Road	**72.7**	**71.6**	-1.1

Source: HMMH 2025
[1] All locations are off range.
[2] L_{dnmrs} greater than 65 dB are shown in **bold**.

Speech Interference. **Table 3-42** provides the number of aircraft events for Alternative 1 greater than (or equal to) 75 dB L_{max} outdoors for POI near Falcon Range that occur from 7 a.m. to 10 p.m. ($NA75L_{max,day}$). The number of speech-interfering events per daytime hour would increase or decrease slightly or remain the same for all residential POI. The number of events would range from 1.4 to 2.9 speech-interfering events per daytime hour.

Table 3-42. Potential for Outdoor Speech Interference for Alternative 1 Conditions at Falcon Range

ID	Representative Location	Existing Conditions Events Per Daytime Hour	Alternative 1 Events Per Daytime Hour	Change in Number of Events
FR01	North of NW Cross Road	1.7	1.4	-0.3
FR02	NW Carsol Road/NW 277th Street	1.7	1.4	-0.3
FR03	South of NW Carlson Road	1.7	1.4	-0.3
FR04	East of 257th Street	2.8	2.8	0
FR05	West end of Mountain View Road	2.8	2.8	0
FR06	Representative Residential South of NW Mountain View Road	2.8	2.8	0
FR07	South of NW Mountain View Road	2.2	2.9	+0.7
FR08	West of Indiahoma Road	2.3	2.9	+0.6
FR09	Representative North of NW Townley Road	2.9	2.8	-0.1
FR10	Representative South of NW Rogers Road	2.3	2.8	+0.5

Source: HMMH 2025
Note: Speech Interference at each POI assessed for daytime hours (7 a.m. to 10 p.m.).

3.2.2.2 Alternative 2

Alternative 2 would result in short- and long-term, not significant, adverse impacts on the noise environment. Short-term impacts would be due to noise generated by heavy equipment during construction. Long-term impacts would occur from the introduction of the T-7A aircraft. The number of new T-7A aircraft would be the same as potentially received for Alternative 1, but the total number of T-7A aircraft operations would increase by 25 percent over that of Alternative 1. Long-term changes in operational noise would be similar to those described for Alternative 1 with only slight increases.

3.2.2.2.1 Sheppard AFB

3.2.2.2.1.1 Construction Noise

Construction-related noise levels and impacts for Alternative 2 would be the same as those described for Alternative 1.

3.2.2.2.1.2 Aircraft Noise

For Alternative 2, approximately 356,900 total flight operations (i.e., single take-offs, landings, and patterns combined) would be performed at Sheppard AFB each year, which is an average of almost 978 flight operations per day. The total 184,124 annual T-7A aircraft operations would account for 52 percent of the total operations. The rest of the annual flight operations would be performed by homebased T-6, various transient, or civilian aircraft types. No T-38C operations would remain after the full complement of T-7A aircraft is received and operational. The current operational levels for T-6, transient, and civilian aircraft were used for the Alternative 2 noise analysis.

Nighttime flight operations by T-6 and T-7A aircraft would account for 5,805 of the anticipated total of 6,372 annual nighttime operations at Sheppard AFB. The 1,518 annual nighttime T-7A flight operations would represent less than 1 percent of the total annual daytime and nighttime T-7A flight operations and approximately 24 percent of the total annual nighttime flight operations performed by all aircraft types at Sheppard AFB.

The T-7A aircraft are proposed for arrival and immediate use beginning in 2034. The increase in T-7A aircraft and associated training operations would be incremental through 2036. In 2037, the number of T-7A aircraft operations would stabilize. During the period from 2034 through 2036, the area and population within the 65 dB DNL contour would increase incrementally.

On a per aircraft basis, T-7A aircraft would perform 25 percent more aircraft operations than Alternative 1 using the same number (108) of T-7A aircraft. The annual operations would total 184,124, or about 6,000 more than baseline conditions.

Alternative 2 includes modeling proposed maintenance run-up activity similar to Alternative 1 but adjusted for the 25 percent increase in total aircraft operations (HMMH 2025). Noise levels on and adjacent to Sheppard AFB were calculated based on full implementation of Alternative 2 in 2037. **Figure 3-7** shows the modeled DNL contours for Alternative 2. With full implementation of Alternative 2, the baseline 65 dB DNL contour at Sheppard AFB would extend approximately 4.4 miles from the south end of Runway 15R/33L, 3.5 miles from the north end of Runway 15C/33C, and 3.0 miles wide in the east-west direction at its widest point. The Alternative 2 65-dB contour would extend 0.8 mile farther north, 1.4 miles south, and 0.7 mile wider east-west than the baseline 65 dB contour. Aircraft DNL less than 65 dB is generally compatible with all land uses.

Table 3-43 and **Table 3-44** provide the land acreage and population exposed to DNL of at least 65 dB for Alternative 2 at Sheppard AFB, respectively. On- and off-installation acreage contained within the 65 dB DNL contour would be approximately 3,706 and 6,762 acres, respectively. This would amount to an increase of 2,470 acres off-installation within the 65 dB DNL as compared to existing conditions. Alternative 2 would expose 588 people off installation to a DNL of at least 65 dB, an increase of 312 people.

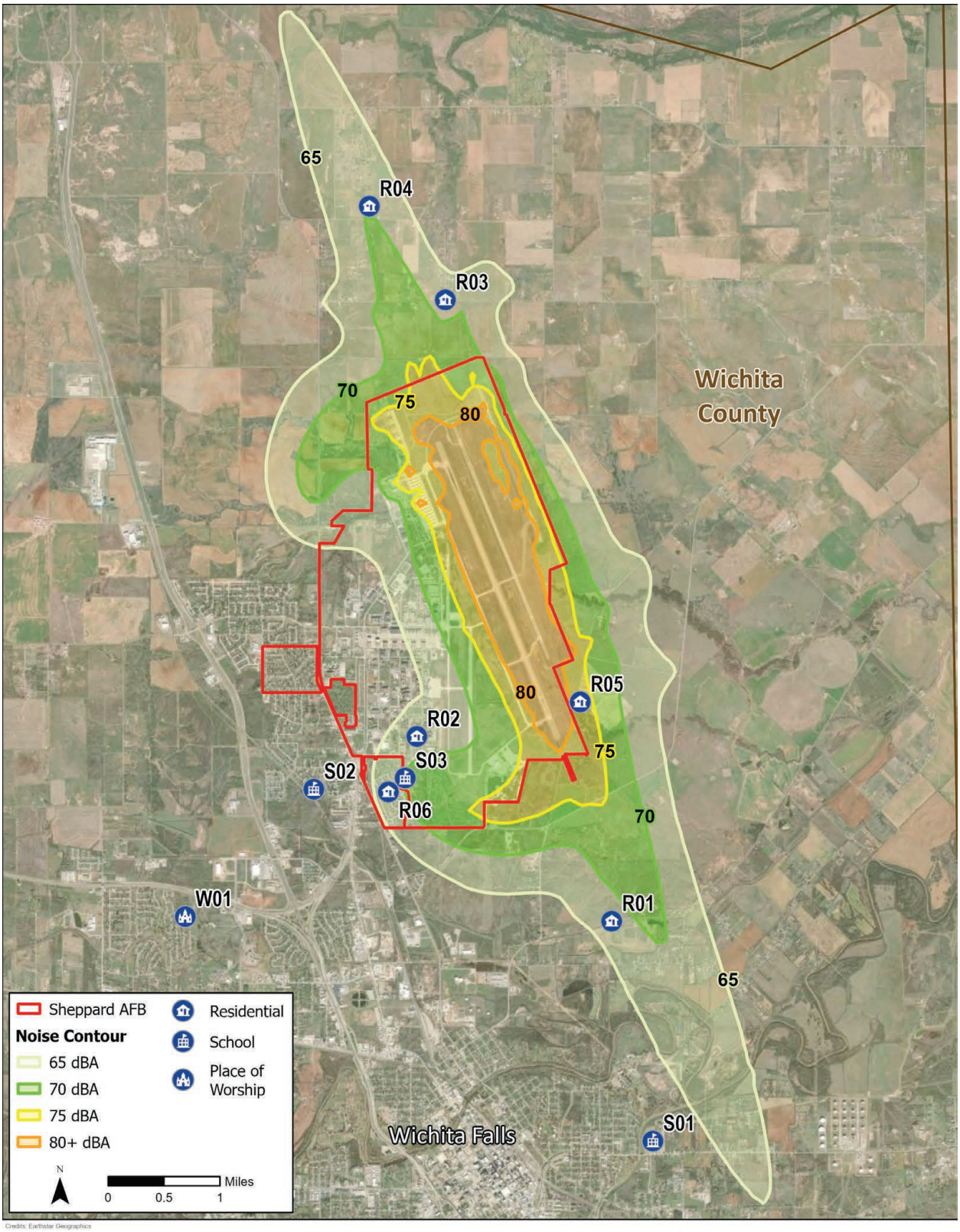


Figure 3-7. Aircraft Noise Contour Bands for Alternative 2 at Sheppard AFB

Table 3-43. Acreage within DNL Contour Bands for Alternative 2 and Change in Acreage from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Acreage	Off-Installation Acreage	Total Acreage	Change in On-Installation Acreage	Change in Off-Installation Acreage	Change in Total Acreage
65 to 70	828	4,484	5,312	105	1,576	1,681
70 to 75	958	1,803	2,761	155	682	837
75 to 80	817	458	1,275	56	201	257
≥80	1,103	17	1,120	204	11	215
Total	**3,706**	**6,762**	**10,468**	**520**	**2,470**	**2,990**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds.

Table 3-44. Estimated Population within DNL Contour Bands for Alternative 2 and Change in Population from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Population	Off-Installation Population	Total Population	Change in On-Installation Population	Change in Off-Installation Population	Change in Total Population
65 to 70	1,849	525	2,374	1,441	271	1,712
70 to 75	39	63	102	34	41	75
75 to 80	0	0	0	0	0	0
≥80	0	0	0	0	0	0
Total	**1,888**	**588**	**2,476**	**1,475**	**312**	**1,787**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks at full implementation of Alternative 2 with the full complement of T-7A aircraft.
2. DNL bands are exclusive of upper bounds.

Population exposed to DNL of at least 80 dB would have a PHL. The population estimation method, described in **Section 3.2,** yields that no off-installation population would be exposed to DNL greater than or equal to 80 dB. See **Section 3.2.2.2.1.3** for further analysis on PHL.

Figure 3-5 shows a comparison of the Sheppard AFB 65 dB DNL contours modeled for each scenario (i.e., baseline conditions and Alternatives 1, 2, and 3). Alternative 2 would result in a general expansion of the 65 dB DNL contour around the entirety of the baseline 65 dB DNL contour line. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural.

Table 3-45 provides the DNL for the 10 POI around Sheppard AFB for Alternative 2. All six modeled POI residential areas would be exposed to DNL greater than 65 dB and would be considered incompatible land uses. Four of the six residential areas are already exposed to a DNL greater than 65 dB DNL, and the other two residential POI that would be newly exposed to greater than 65 dB DNL are exposed to 64.9 dB DNL for existing conditions. Residential POI R05 would continue to be exposed to noise levels greater than 75 dB DNL. POI S03 would continue to be exposed to DNL greater than 65 dB.

Table 3-45. Overall DNL at Representative Locations for Alternative 2 at Sheppard AFB

ID	Representative Location	Existing Conditions DNL (dB)	Alternative 2 DNL (dB)	Change in DNL (dB)
R01	Representative of residences south of airfield	64.9	**67.5**	+2.6
R02	Representative of on-installation residences west of airfield	**65.2**	**67.9**	+2.7
R03	Representative of residential south-Cashion community	**66.3**	**67.7**	+1.4
R04	Representative of residential mid-Cashion community	**68.2**	**69.7**	+1.5
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	**77.5**	**78.5**	+1.0
R06	Nehls Boulevard, on installation west of Runway 18/36	64.9	**67.6**	+2.7
S01	Booker T. Washington Elementary and Jr. High School	56.3	59.9	+3.6
S02	Haynes Elementary School	53.3	57.3	+4.0
S03	Sheppard Elementary School	**67.6**	**69.9**	+2.3
W01	Freedom Baptist Church	46.6	50.2	+3.6

Source: HMMH 2025
Note: **Bold** data values indicate DNL greater than or equal to 65 dB.

The six residential areas would be exposed to DNL increases between approximately 1.0 and 2.7 dB. The three schools would be exposed to DNL increases between approximately 2.3 and 4.0 dB. The increased noise levels would be due to the introduction of the T-7A and the 25 percent increase in annual aircraft operations over Alternative 1.

3.2.2.2.1.3 Supplemental Metrics Analyses

Supplemental metrics exhibit noise exposure related to potential noise effects, including speech interference, classroom speech interference, sleep disturbance, and PHL. These analyses focus on specific POI in the vicinity of Sheppard AFB described in **Section 3.2.1.1.1**.

Speech Interference. **Table 3-46** provides the number of speech interference events per daytime hour for Alternative 2. The speech interference for the six residential areas would range from approximately 4 to 20 events per daytime hour. All of the selected residential area POI would experience an increase of events per daytime hour ranging from 0.1 to 11.3 additional speech-interfering events as compared to existing conditions. All three POI schools would experience an increase in number of events per daytime hour ranging from 0.2 to 2.2 events as compared to existing conditions.

Table 3-46. Potential for Speech Interference for Alternative 2 at Sheppard AFB

ID	Representative Location	Existing Events per Daytime Hour	Alternative 2 Events per Daytime Hour	Change in Events per Daytime Hour
R01	Representative of residences south of airfield	2.3	13.6	+11.3
R02	Representative of on-installation residences west of airfield	6.8	13.5	+6.7
R03	Representative of residential south-Cashion community	16.2	20.0	+3.8
R04	Representative of residential mid-Cashion community	3.7	3.8	+0.1
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	15.1	15.9	+0.8
R06	Nehls Boulevard, on installation west of Runway 18/36	6.3	6.5	+0.2
S01	Booker T. Washington Elementary and Jr. High School	2.3	2.7	+0.4
S02	Haynes Elementary School	6.3	6.5	+0.2
S03	Sheppard Elementary School	6.3	8.5	+2.2
W01	Freedom Baptist Church	0.0	0	0

Source: HMMH 2025
Notes: **NA75L$_{max}$**; POI assessed for daytime (7 a.m. to 10 p.m.).

Classroom Speech Interference. The L_{eq} for the hours of classroom instruction assumes evenly distributed flight and run-up operations throughout the day for whole hour increments. The results for each school for Alternative 2 are presented in **Table 3-47** with two schools, POI S01 and S03, exceeding the 60 dB school-day L_{eq} threshold.

Table 3-47. Screening for Potential Classroom Speech Interference for Alternative 2 at Sheppard AFB

ID	Representative School	School-Day L_{eq} (dB)
S01	Booker T. Washington Elementary and Jr. High School	**61.5**
S02	Haynes Elementary School	59.1
S03	Sheppard Elementary School	**71.6**

Source: HMMH 2025
Note: **Bold** values exceed the 60 dB $L_{eq(8h)}$ screening threshold.

POI S01 and S03 would have $L_{eq(8h)}$ greater than 60 dB, warranting NA and TA analyses to determine the number of events per hour and time interrupted per hour. POI S02 does not exceed the screening metric of 60 dB and, therefore, is not included in additional analysis for NA and TA. The metrics for the number of events and time, both, at or above the specified thresholds for the affected schools are provided in **Table 3-48** and **Table 3-49**, respectively. POI S03 would experience an increase of approximately 2.25 potential speech-interfering events per hour and POI S01 would experience an increase of 0.42 events per hour as compared to existing conditions. The hourly classroom speech interference would be up to 43 seconds per hour greater than existing conditions.

Table 3-48. Number of Events of Classroom Speech Interference for Alternative 2 at Sheppard AFB

ID	Representative School	Existing Conditions $NA75L_{max}$ (events/hour)	Alternative 2 $NA75L_{max}$ (events/hour)	Change in $NA75L_{max}$ (events/hour)
S01	Booker T. Washington Elementary and Jr. High School	2.32	2.74	+0.42
S03	Sheppard Elementary School	6.28	8.53	+2.25

Source: HMMH 2025
Note: **$NA75L_{max}$** is the number of events at or above the 75 dB L_{max} threshold.

Table 3-49. Time of Classroom Speech Interference for Alternative 2 at Sheppard AFB

ID	Representative School	Existing Conditions $TA75L_{max}$ (seconds/hour)	Alternative 2 $TA75L_{max}$ (seconds/hour)	Change in $TA75L_{max}$ (seconds/hour)
S01	Booker T. Washington Elementary and Jr. High School	32	75	+43
S03	Sheppard Elementary School	15	23	+8

Source: HMMH 2025
Note: **$TA75L_{max}$** is the time at or above the 75 dB L_{max} threshold.

Sleep Disturbance. **Table 3-50** provides the number of average annual hourly nighttime events that would meet or exceed 90 dB SEL at the six residential POI for Alternative 2. Alternative 2 would result in a minor increase of potential sleep-disturbing events at all residential POI relative to existing conditions with the largest being an increase of 0.51 average hourly events occurring at POI R04.

Table 3-50. Potential for Sleep Disturbance for Alternative 2 at Sheppard AFB

ID	Representative Residential Areas	Existing Conditions Average Hourly Nighttime Events (NA90SEL)	Alternative 2 Average Hourly Nighttime Events (NA90SEL)	Change in Average Hourly Nighttime Events (NA90SEL)
R01	Representative of residences south of airfield	0.62	0.64	+0.02
R02	Representative of on-installation residences west of airfield	0.70	0.73	+0.03
R03	Representative of residential south-Cashion community	2.04	2.05	+0.01
R04	Representative of residential mid-Cashion community	0.35	0.86	+0.51
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	1.94	2.00	+0.06
R06	Nehls Boulevard, on installation west of Runway 18/36	0.70	0.73	+0.03

Source: HMMH 2025
Note: **NA90SEL** is the number of events at or above the 90 dB SEL.

The specified average number of events noted would not likely occur in evenly spaced increments throughout the night, nor would they likely occur every night. Nighttime flights would occur as the training syllabus directs and would likely occur in "grouped" sessions, meaning that several overflights may occur during a short period of time on one specific night. It is not possible to forecast when nighttime events would occur due to scheduling changes, aircraft maintenance, weather, and other unpredictable events; therefore, this analysis portrays the impact with operations averaged throughout the night, for each night. Sheppard AFB would operate night flights in a manner to minimize nighttime aircraft noise to the community, to the maximum extent practicable.

PHL. As shown in **Table 3-44**, no on- or off-installation population would be exposed to DNL greater than or equal to 80 dB. Therefore, no PHL would be anticipated for Alternative 2.

Damage to Structures. Individual aircraft events at Sheppard AFB would not generate impulsive-style aircraft noise levels above 140 dB; therefore, damage to structures from Alternative 2 would not likely occur.

3.2.2.2.2 SUA

3.2.2.2.2.1 MOAs and MTRs

For Alternative 2, sorties within the modeled MOAs and MTRs have only minor differences from the existing conditions due to the replacement of T-38C aircraft with T-7A aircraft at Sheppard AFB. Due to current operational hours of the SUA, nighttime operations would stay around the airfield and not enter the MOAs and MTRs.

None of the modeled MOAs or MTRs would have L_{dnmr} greater than 65 dB due to a combination of infrequent operations for the MTRs and the altitudes of the operations. The greatest L_{dnmr} would be at the IR-103, VR-159, and VR-1143 overlap at 44.1 dB. Therefore, any increases in noise associated with MOA or MTR sorties would not introduce any incompatibilities and would not be significant.

3.2.2.2.2.2 Falcon Range

Noise levels around Falcon Range would generally increase for Alternative 2 but would have a not significant impact. **Figure 3-8** shows L_{dnmr} contours for Alternative 2 proposed range operations. The 75 dB L_{dnmr} contour band for Alternative 2 would increase by up to 1 dB as compared to existing conditions. The 65 dB L_{dnmr} contour band would increase by 2 to 3 dB compared to existing conditions.

The acreage and population associated with the L_{dnmr} contour bands for Alternative 2 at Falcon Range are provided in **Table 3-51** and **Table 3-52**, respectively. The off-range acreage within the 65 dB L_{dnmr} for Alternative 2 is 3,708 and contains an estimated population of 29. This represents an increase of 1,067 acres over existing conditions and an increase of 8 people within the 65 dB L_{dnmr}. No population would be exposed to L_{dnmr} greater than or equal to 80 dB.

Table 3-51. Off-Range Acreage within L_{dnmr} Contour Bands for Alternative 2 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Acreage	Alternative 2 Off-Range Acreage	Change in Acreage within L_{dnmr} Contour Bands
65 to 70	1,385	2,178	+793
70 to 75	885	1,144	+259
75 to 80	371	386	+15
≥80	0	0	0
Total	**2,641**	**3,708**	**+1,067**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds

Table 3-52. Off-Range Estimated Population within L_{dnmr} Contour Bands for Alternative 2 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Population	Alternative 2 Off-Range Population	Change in Population within L_{dnmr} Contour Bands
65 to 70	11	17	+6
70 to 75	8	10	+2
75 to 80	2	2	0
≥80	0	0	0
Total	**21**	**29**	**+8**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks.
2. DNL bands are exclusive of upper bounds

The 10 residential POI and their respective dB L_{dnmr} are listed in **Table 3-53**. Alternative 2 would result in minor increases or decreases in noise levels across the POI locations as compared to existing conditions. Residential POIs FR01, FR02, and FR04 would increase to a level that would place them within the expanded 65 to 70 dB L_{dnmr} contour band in which they were not previously included. This would create an incompatibility in land use for these residential POI. All other residential POI at Falcon Range would continue to be within the same L_{dnmr} contour band as baseline conditions. The area within the noise contour bands is rural and sparsely populated with the POI representing single or small cluster residences with no dense residential areas or populations. The increase in area and noise levels would present a not significant impact.

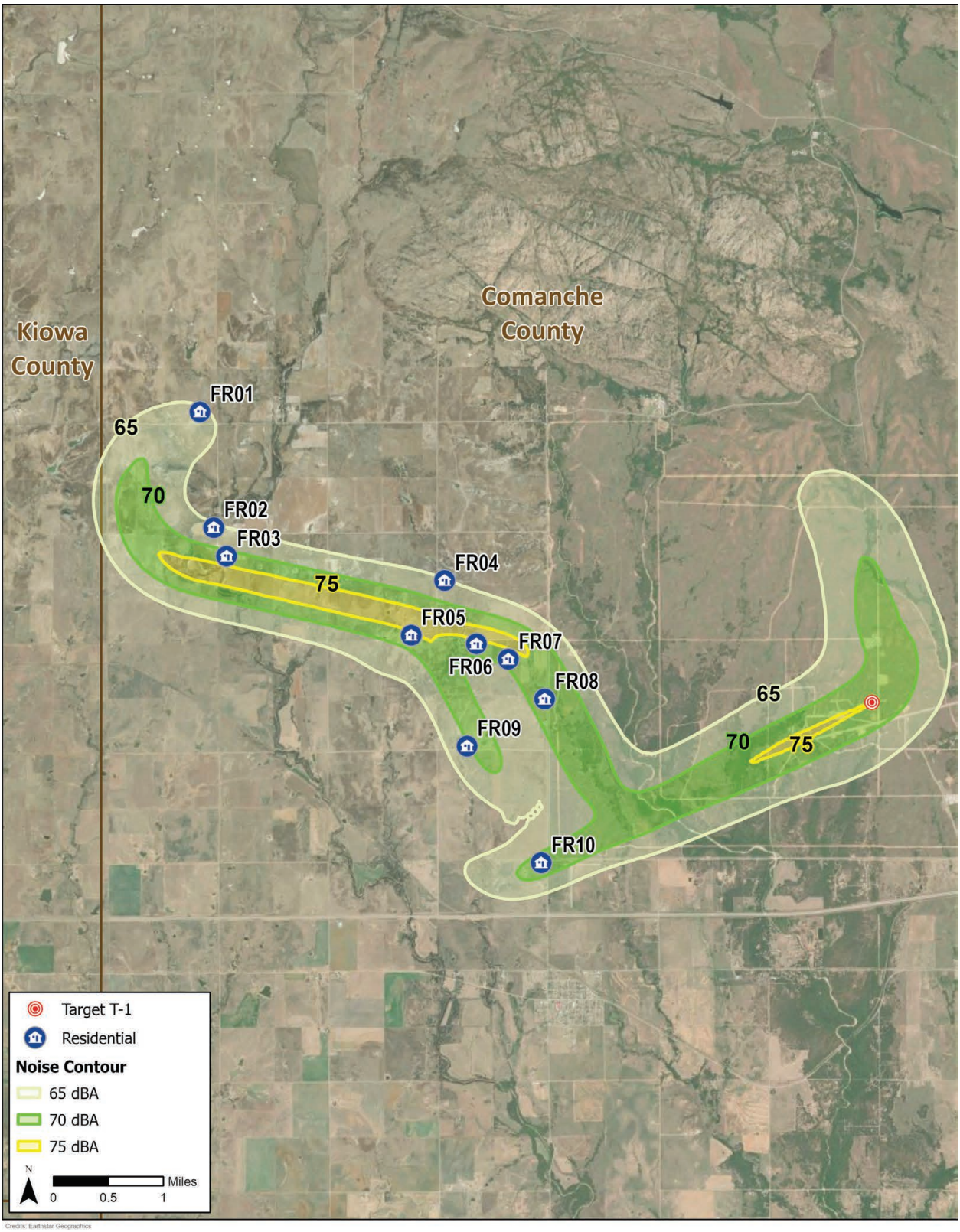


Figure 3-8. Aircraft Noise Contour Bands for Alternative 2 at Falcon Range

Table 3-53. POI Locations and L_{dnmr} for Alternative 2 at Falcon Range

ID	Representative Location [1]	Existing Condition L_{dnmr} dB	Alternative 2 Condition L_{dnmr} dB [2]	Change in L_{dnmr} dB
FR01	North of NW Cross Road	63.1	**65.4**	+2.3
FR02	NW Carsol Road/NW 277th Street	63.3	**65.8**	+2.5
FR03	South of NW Carlson Road	**70.7**	**71.7**	+1.0
FR04	East of 257th Street	63.3	**65.8**	+2.5
FR05	West end of Mountain View Road	**73.1**	**73.8**	+0.7
FR06	Representative Residential South of NW Mountain View Road	**72.7**	**73.2**	+0.5
FR07	South of NW Mountain View Road	**71.3**	**72.1**	+0.8
FR08	West of Indiahoma Road	**74.1**	**74.1**	0.0
FR09	Representative North of NW Townley Road	**68.2**	**69.2**	+1.0
FR10	Representative South of NW Rogers Road	**72.7**	**72.6**	-0.1

Source: HMMH 2025
[1] All locations are off range.
[2] L_{dnmrs} greater than 65 dB are shown in **bold**.

Speech Interference. **Table 3-54** provides the number of aircraft events for Alternative 2 greater than (or equal to) 75 dB L_{max} outdoors for POI near Falcon Range that occur from 7 a.m. to 10 p.m. ($NA75L_{max,day}$). The number of speech interference events per daytime hour would have a minor increase or remain the same for all residential POI. The number of events would range from 1.7 to 3.6 events per daytime hour.

Table 3-54. Potential for Outdoor Speech Interference for Alternative 2 Conditions at Falcon Range

ID	Representative Location	Existing Conditions Events Per Daytime Hour	Alternative 2 Events Per Daytime Hour	Change in Number of Events
FR01	North of NW Cross Road	1.7	1.7	0
FR02	NW Carsol Road/NW 277th Street	1.7	1.7	0
FR03	South of NW Carlson Road	1.7	1.7	0
FR04	East of 257th Street	2.8	3.5	+0.7
FR05	West end of Mountain View Road	2.8	3.5	+0.7
FR06	Representative Residential South of NW Mountain View Road	2.8	3.5	+0.7
FR07	South of NW Mountain View Road	2.2	3.6	+1.4
FR08	West of Indiahoma Road	2.3	3.6	+1.3
FR09	Representative North of NW Townley Road	2.9	3.5	+0.6
FR10	Representative South of NW Rogers Road	2.3	3.5	+1.2

Source: HMMH 2025
Notes: $NA75L_{max}$; POI assessed for daytime (7 a.m. to 10 p.m.).

3.2.2.3 Alternative 3

Alternative 3 would result in short- and long-term, not significant, adverse impacts on the noise environment. Short-term impacts would be due to noise generated by heavy equipment during construction. Long-term impacts would occur from the introduction of the T-7A aircraft. The number of new T-7A aircraft and associated aircraft operations would be the same as existing T-38C conditions. However, due to the change in aircraft, long -term changes in operational noise would increase in areas of incompatible land use for pre-existing residences on and adjacent to Sheppard AFB, but based on existing noise levels, the impact would not be significant.

3.2.2.3.1 Sheppard AFB

3.2.2.3.1.1 Construction Noise

Construction noise levels and impacts for Alternative 3 would be the same as those described for Alternative 1. However, construction-related noise for Alternative 3 could last slightly longer than Alternatives 1 due to the potential construction of additional T-7A shelters on the Sheppard AFB aircraft parking ramp to accommodate the larger number of T-7A aircraft.

3.2.2.3.1.2 Aircraft Noise

For Alternative 3, the total number of flight operations (i.e., single take-offs, landings, and patterns combined) would be the same as performed at Sheppard AFB each year for existing conditions. The current complement of 131 T-38C aircraft would be replaced with 131 T-7A aircraft and no T-38C operations would remain after the full complement of T-7A aircraft is received and operational. The current operational levels for T-6, transient, and civilian aircraft were used for the Alternative 3 noise analysis. Nighttime flight operations by T-7A aircraft at Sheppard AFB would be at the same number currently flown by T-38C aircraft due to an equal number of aircraft.

The T-7A aircraft are proposed for arrival and immediate use beginning in 2034. The increase in T-7A aircraft and associated training operations would be incremental into 2037. In 2037, the number of T-7A aircraft operations would stabilize to the full rate of Alternative 3 implementation. During the period from 2034 through 2036, the area and population within the 65 dB DNL contour would increase incrementally.

Alternative 3 includes modeling proposed maintenance run-up activity at numbers similar to existing conditions, but with the run-up location adjusted slightly east of the existing pad.

Noise levels on and adjacent to Sheppard AFB with the proposed T-7A aircraft were calculated based on full implementation of Alternative 3 in 2037. **Figure 3-9** shows the modeled DNL contours for Alternative 3. With full implementation of Alternative 3 in 2037, the 65 dB DNL contour at Sheppard AFB would extend approximately 4.3 miles from the south end of Runway 15R/33L, 3.5 miles from the north end of Runway 15C/33C, and 3.0 miles wide in the east-west direction at its widest point. The Alternative 3 65-dB contour would extend 0.8 mile farther north, 1.3 miles south, and 0.7 mile wider east-west than the baseline 65 dB contour. Aircraft DNL less than 65 dB is generally compatible with all land uses.

Table 3-55 and **Table 3-56** provide the land acreage and population exposed to DNL of at least 65 dB for Alternative 3 at Sheppard AFB, respectively. On- and off-installation acreage contained within the 65 dB DNL contour would be approximately 3,685 and 6,623 acres, respectively. Alternative 3 would expose 571 people off installation to DNL of at least 65 dB, an increase of 295 people as compared to existing conditions.

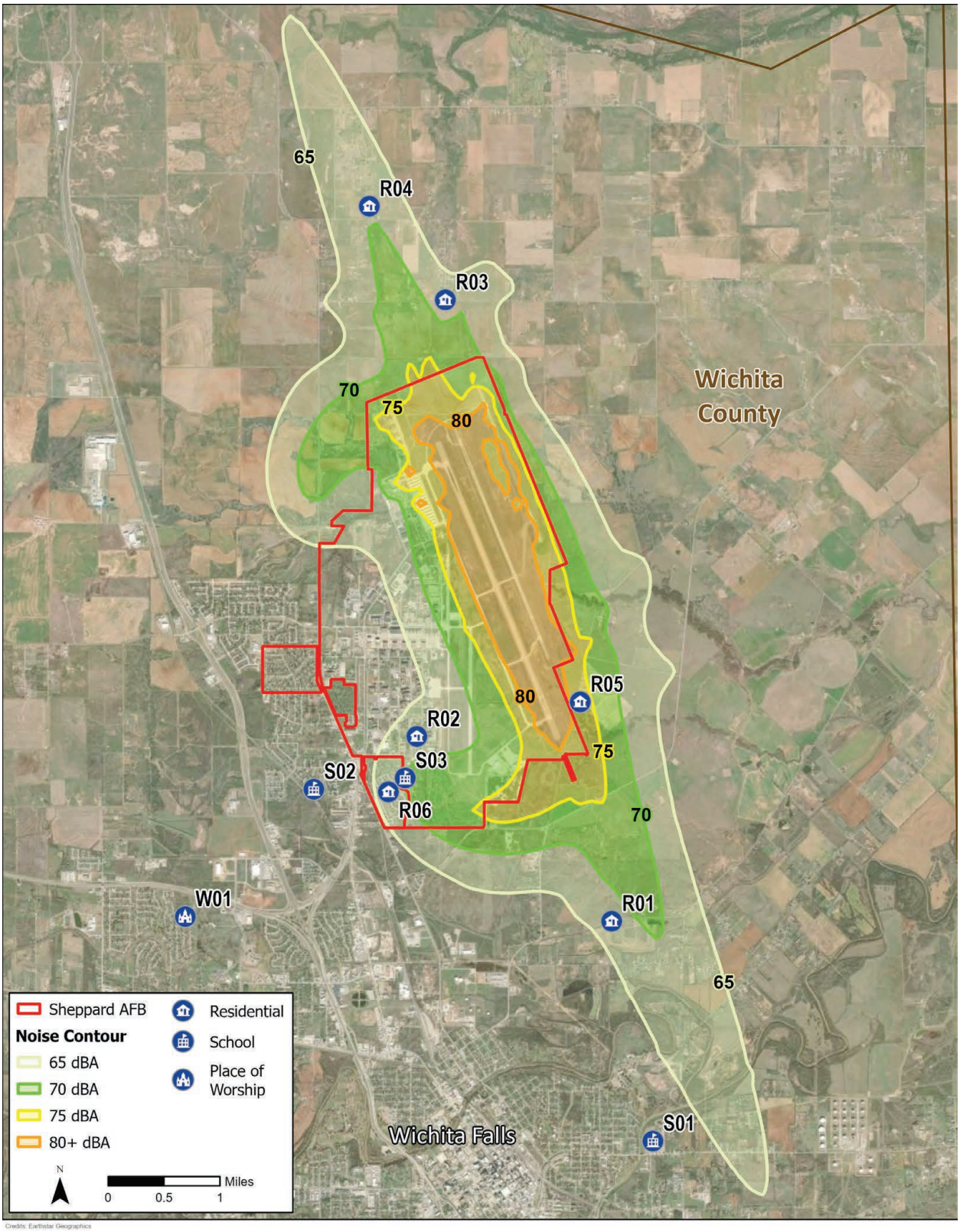


Figure 3-9. Aircraft Noise Contour Bands for Alternative 3 at Sheppard AFB

Table 3-55. Acreage within DNL Contour Bands for Alternative 3 and Change in Acreage from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Acreage	Off-Installation Acreage	Total Acreage	Change in On-Installation Acreage	Change in Off-Installation Acreage	Change in Total Acreage
65 to 70	828	4,415	5,243	105	1,507	1,612
70 to 75	964	1,751	2,715	161	630	791
75 to 80	810	441	1,251	49	184	233
≥80	1,083	16	1,099	184	10	194
Total	**3,685**	**6,623**	**10,308**	**499**	**2,331**	**2,830**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds.

Table 3-56. Estimated Population within DNL Contour Bands for Alternative 3 and Change in Population from Existing Conditions at Sheppard AFB

DNL Contour Band (dB)	On-Installation Population	Off-Installation Population	Total Population	Change in On-Installation Population	Change in Off-Installation Population	Change in Total Population
65 to 70	1,631	514	2,145	1,223	260	1,483
70 to 75	30	57	87	25	35	60
75 to 80	0	0	0	0	0	0
≥80	0	0	0	0	0	0
Total	**1,661**	**571**	**2,232**	**1,248**	**295**	**1,543**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks at full implementation of Alternative 1 with the full complement of T-7A aircraft.
2. DNL bands are exclusive of upper bounds.

Population exposed to DNL of at least 80 dB would have a PHL. The population estimation method, described in **Section 3.2,** yields that no off-installation population would be exposed to DNL greater than or equal to 80 dB. See **Section 3.2.2.3.1.3** for further analysis on PHL.

Figure 3-5 shows a comparison of the Sheppard AFB 65 dB DNL contours modeled for each scenario (i.e., baseline conditions and Alternatives 1, 2, and 3). Alternative 3 would result in a general expansion of the 65 dB DNL contour around the entirety of the baseline 65 dB DNL contour line. These newly exposed areas encompass numerous land uses, including residential, commercial, undeveloped, and agricultural.

Table 3-57 provides the DNL for the 10 POI around Sheppard AFB for Alternative 3. All six modeled POI residential areas would be exposed to DNL greater than 65 dB and would be considered incompatible land uses. Four of the six residential areas are already exposed to DNL greater than 65 dB DNL, and the other two residential POI that would be newly exposed to greater than 65 dB DNL currently are exposed to 64.9 dB DNL. Residential POI R05 would continue to be exposed to noise levels greater than 75 dB DNL. One of the three schools, POI S03, would continue to be exposed to DNL greater than 65 dB.

Table 3-57. Overall DNL at Representative Locations for Alternative 3 at Sheppard AFB

ID	Representative Location	Existing Conditions DNL (dB)	Alternative 3 DNL (dB)	Change in DNL (dB)
R01	Representative of residences south of airfield	64.9	**67.4**	+2.5
R02	Representative of on-installation residences west of airfield	**65.2**	**67.8**	+2.6
R03	Representative of residential south-Cashion community	**66.3**	**67.6**	+1.3
R04	Representative of residential mid-Cashion community	**68.2**	**69.5**	+1.3
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	**77.5**	**78.4**	+0.9
R06	Nehls Boulevard, on installation west of Runway 18/36	64.9	**67.5**	+2.6
S01	Booker T. Washington Elementary and Jr. High School	56.3	59.7	+3.4
S02	Haynes Elementary School	53.3	57.2	+3.9
S03	Sheppard Elementary School	**67.6**	**69.8**	+2.2
W01	Freedom Baptist Church	46.6	50.1	+3.5

Source: HMMH 2025
Note: **Bold** data values indicate DNL greater than or equal to 65 dB.

The six residential areas would be exposed to DNL increases of up to 2.6 dB. The three schools would be exposed to DNL increases of up to 3.9 dB. The increased noise levels would be due to the introduction of the T-7A.

3.2.2.3.1.3 Supplemental Metrics Analyses

The supplemental metrics required analyses of noise exposure relating to potential noise effects, including speech interference, classroom speech interference, sleep disturbance, and PHL. These analyses focus on specific POI in the vicinity of Sheppard AFB described in **Section 3.2.1.1.1**.

Speech Interference. **Table 3-58** provides the number of speech interference events per daytime hour for Alternative 3. Alternative 3 would result in up to approximately 10.9 additional speech-interfering events per hour across the relevant POI as compared to existing conditions.

Table 3-58. Potential for Speech Interference for Alternative 3 at Sheppard AFB

ID	Representative Location	Existing Events per Daytime Hour	Alternative 3 Events per Daytime Hour	Change in Events per Daytime Hour
R01	Representative of residences south of airfield	2.3	13.2	+10.9
R02	Representative of on-installation residences west of airfield	6.8	13.1	+6.3
R03	Representative of residential south-Cashion community	16.2	19.9	+3.7
R04	Representative of residential mid-Cashion community	3.7	3.7	0
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	15.1	15.4	+0.3
R06	Nehls Boulevard, on installation west of Runway 18/36	6.3	6.3	0
S01	Booker T. Washington Elementary and Jr. High School	2.3	2.7	+0.4
S02	Haynes Elementary School	6.3	6.3	0
S03	Sheppard Elementary School	6.3	8.3	+2.0
W01	Freedom Baptist Church	0.0	0	0

Source: HMMH 2025
Note: NA75L_{max}; POI assessed for daytime (7 a.m. to 10 p.m.).

Classroom Speech Interference. The results for each school for Alternative 3 are presented in **Table 3-59** with two schools, POIs S01 and S03, exceeding the 60 dB school-day L_{eq} threshold.

Table 3-59. Screening for Potential Classroom Speech Interference for Alternative 3 at Sheppard AFB

ID	Representative School	School-Day L_{eq} (dB)
S01	Booker T. Washington Elementary and Jr. High School	**61.3**
S02	Haynes Elementary School	58.9
S03	Sheppard Elementary School	**71.5**

Source: HMMH 2025
Note: **Bold** values exceed the 60 dB $L_{eq(8h)}$ screening threshold.

POI S01 and S03 would have $L_{eq(8h)}$ greater than 60 dB, warranting NA and TA analyses to determine the number of events per hour and time interrupted per hour. POI S02 does not exceed the screening metric of 60 dB and, therefore, is not included in additional analysis for NA and TA. The metrics for the number of events and time at or above the specified thresholds for the two affected schools are provided in **Table 3-60** and **Table 3-61**, respectively. The two schools would experience approximately 2.7 to 8.2 events per hour, which would be an increase in average hourly events as compared to existing conditions. The two schools would have an increase of approximately 41 and 7 seconds per hour in classroom disturbance (at or) above 75 dB L_{max}.

Table 3-60. Number of Events of Classroom Speech Interference for Alternative 3 at Sheppard AFB

ID	Representative School	Existing Conditions $NA75L_{max}$ (events/hour)	Alternative 3 $NA75L_{max}$ (events/hour)	Change in $NA75L_{max}$ (events/hour)
S01	Booker T. Washington Elementary and Jr. High School	2.32	2.66	+0.34
S03	Sheppard Elementary School	6.28	8.28	+2.00

Source: HMMH 2025
Note: **$NA75L_{max}$** is the number of events at or above the 75 dB L_{max} threshold.

Table 3-61. Time of Classroom Speech Interference for Alternative 3 at Sheppard AFB

ID	Representative School	Existing Conditions $TA75L_{max}$ (seconds/hour)	Alternative 3 $TA75L_{max}$ (seconds/hour)	Change in $TA75L_{max}$ (seconds/hour)
S01	Booker T. Washington Elementary and Jr. High School	32	73	+41
S03	Sheppard Elementary School	15	22	+7

Source: HMMH 2025
Note: **$TA75L_{max}$** is the time at or above the 75 dB L_{max} threshold.

Sleep Disturbance. **Table 3-62** provides the number of average annual hourly nighttime events that would meet or exceed 90 dB SEL at the six residential POI for Alternative 3. Alternative 3 would result in an increase of less than 0.1 potential sleep-disturbing events per hour, on average, across all residential POI, relative to existing conditions.

Table 3-62. Potential for Sleep Disturbance for Alternative 3 at Sheppard AFB

ID	Representative Residential Areas	Existing Conditions Average Hourly Nighttime Events (NA90SEL)	Alternative 3 Average Hourly Nighttime Events (NA90SEL)	Change in Average Hourly Nighttime Events (NA90SEL)
R01	Representative of residences south of airfield	0.62	0.62	0
R02	Representative of on-installation residences west of airfield	0.70	0.71	+0.01
R03	Representative of residential south-Cashion community	2.04	2.04	0
R04	Representative of residential mid-Cashion community	0.35	0.84	+0.49
R05	Residence on Old Friberg Road, west of Emmert Road. Potential location for future mobile home park.	1.94	1.94	0
R06	Nehls Boulevard, on installation west of Runway 18/36	0.70	0.70	0

Source: HMMH 2025
Note: **NA90SEL** is the number of events at or above the 90 dB SEL.

The specified average number of events noted would not likely occur in evenly spaced increments throughout the night, nor would they likely occur every night. Nighttime flights would occur as the training syllabus directs and would likely occur in "grouped" sessions, meaning that several overflights may occur during a short period of time on one specific night. It is not possible to forecast when nighttime events would occur due to scheduling changes, aircraft maintenance, weather, and other unpredictable events; therefore, this analysis portrays the impact with operations averaged throughout the night, for each night. Sheppard AFB would operate night flights in a manner to minimize nighttime aircraft noise to the community, to the maximum extent practicable.

PHL. As shown in **Table 3-56**, no on- or off-installation population would be exposed to DNL greater than or equal to 80 dB. Therefore, no PHL would be anticipated for Alternative 3.

Damage to Structures. Individual aircraft events at Sheppard AFB would not generate impulsive-style aircraft noise levels above 140 dB; therefore, damage to structures from Alternative 3 would not likely occur.

3.2.2.3.2 SUA

3.2.2.3.2.1 MOAs and MTRs

For Alternative 3, sorties within the modeled MOAs and MTRs have only minor differences from the existing conditions due to the replacement of T-38C aircraft with T-7A aircraft at Sheppard AFB. Due to current operational hours of the SUA, nighttime operations would stay around the airfield and not enter the MOAs and MTRs.

None of the modeled MOAs or MTRs would have L_{dnmr} greater than 65 dB due to a combination of infrequent operations for the MTRs and the altitudes of the operations. The greatest L_{dnmr} would be at the IR-103, VR-159, and VR-1143 overlap at 44.0 dB. Therefore, any increases in noise associated with MOA or MTR sorties would not introduce any incompatibilities and would not be significant.

3.2.2.3.2.2 Falcon Range

Noise levels around Falcon Range would generally increase for Alternative 3 but would have a not significant impact. **Figure 3-10** shows L_{dnmr} contours for Alternative 3 proposed range operations. The 65 dB L_{dnmr} contour band for Alternative 3 would increase by 2 to 3 dB in all directions compared to existing conditions.

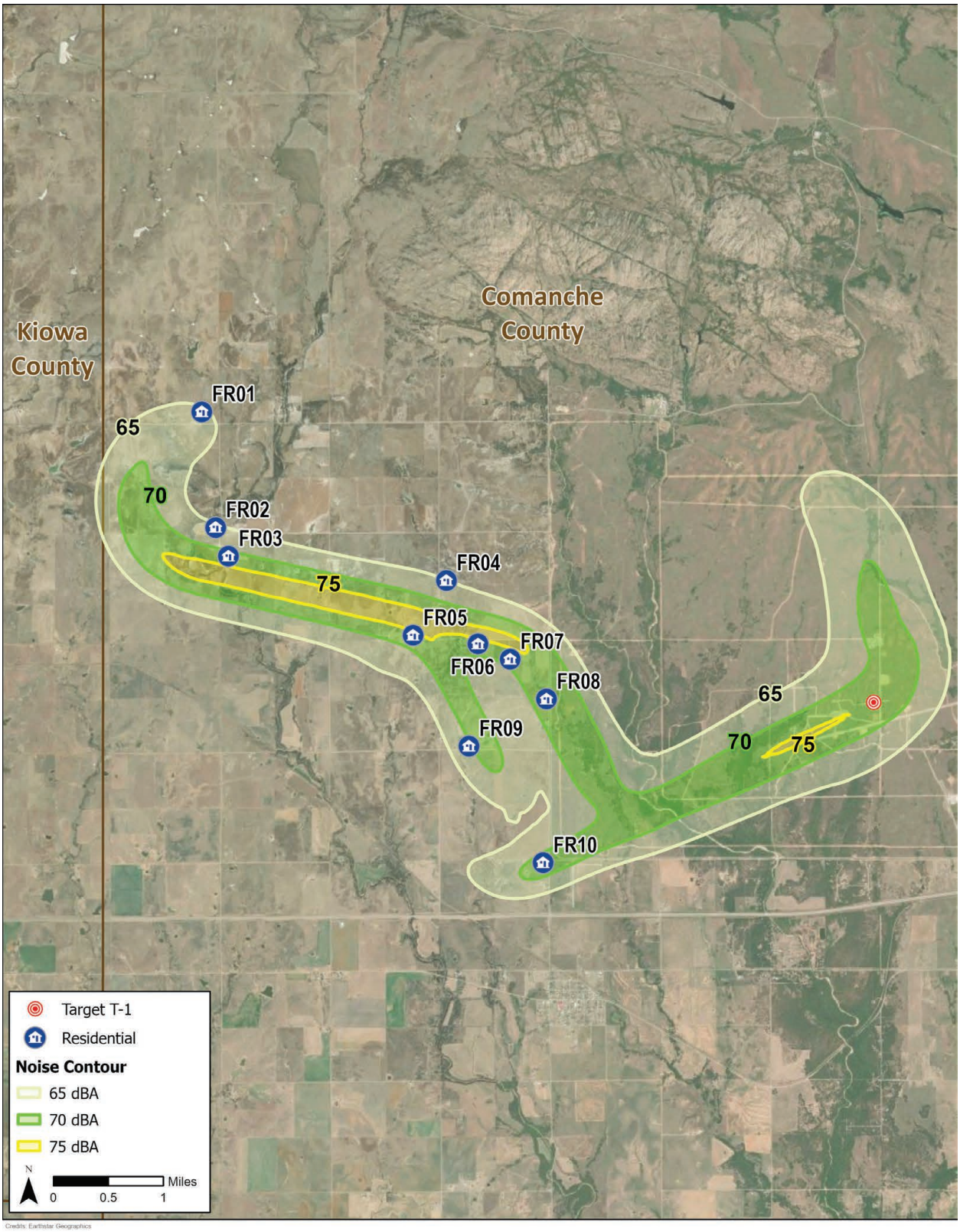


Figure 3-10. Aircraft Noise Contour Bands for Alternative 3 at Falcon Range

The acreage and population associated with the L_{dnmr} contour bands for Alternative 3 at Falcon Range are provided in **Table 3-63** and **Table 3-64**, respectively. The off-range acreage within the 65 dB L_{dnmr} for Alternative 3 is 3,629 and contains an estimated population of 28. This represents an increase of 988 acres over existing conditions and an increase of 7 people within the 65 dB L_{dnmr}. No population would be exposed to L_{dnmr} greater than or equal to 80 dB.

Table 3-63. Off-Range Acreage within L_{dnmr} Contour Bands for Alternative 3 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Acreage	Alternative 2 Off-Range Acreage	Change in Acreage within L_{dnmr} Contour Bands
65 to 70	1,385	2,071	+751
70 to 75	885	1,144	+256
75 to 80	371	352	-19
≥80	0	0	0
Total	**2,641**	**3,629**	**+988**

Source: HMMH 2025
Note: DNL bands are exclusive of upper bounds

Table 3-64. Off-Range Estimated Population within L_{dnmr} Contour Bands for Alternative 3 at Falcon Range

L_{dnmr} Contour Band (dB)	Existing Conditions Off-Range Population	Alternative 2 Off-Range Population	Change in Population within L_{dnmr} Contour Bands
65 to 70	11	16	+5
70 to 75	8	10	+2
75 to 80	2	2	0
≥80	0	0	0
Total	**21**	**28**	**+7**

Source: HMMH 2025
Notes: 1. Estimated population based on area within individual census blocks.
2. DNL bands are exclusive of upper bounds

The 10 residential POI and their respective dB L_{dnmr} are listed in **Table 3-65**. Alternative 3 would result in minor increases or decreases in noise levels across the POI locations as compared to existing conditions. Residential POIs FR01, FR02, and FR04 would experience an increase in L_{dnmr} that would place them within the 65 to 70 dB L_{dnmr} contour band in which they were not previously included. This would create an incompatibility in land use for these POI. All other residential POI at Falcon Range would continue to be within the same L_{dnmr} contour band as existing conditions. The area within the noise contour bands is rural and sparsely populated with the POI representing single or small cluster residences with no dense residential areas or populations. The increase in area and noise levels would present a not significant impact.

Table 3-65. POI Locations and L_{dnmr} for Alternative 3 at Falcon Range

ID	Representative Location [1]	Existing Condition L_{dnmr} dB	Alternative 3 Condition L_{dnmr} dB [2]	Change in L_{dnmr} dB
FR01	North of NW Cross Road	63.1	**65.2**	+2.1
FR02	NW Carsol Road/NW 277th Street	63.3	**65.7**	+2.4
FR03	South of NW Carlson Road	**70.7**	**71.6**	+0.9
FR04	East of 257th Street	63.3	**65.7**	+2.4
FR05	West end of Mountain View Road	**73.1**	**73.6**	+0.5
FR06	Representative Residential South of NW Mountain View Road	**72.7**	**73.0**	+0.3
FR07	South of NW Mountain View Road	**71.3**	**71.9**	+0.6
FR08	West of Indiahoma Road	**74.1**	**74.1**	-0.2
FR09	Representative North of NW Townley Road	**68.2**	**69.0**	+0.8
FR10	Representative South of NW Rogers Road	**72.7**	**72.4**	-0.31

Source: HMMH 2025
[1] All locations are off range.
[2] L_{dnmr} greater than 65 dB are shown in **bold**.

Speech Interference. **Table 3-66** provides the number of aircraft events for Alternative 3 greater than (or equal to) 75 dB L_{max} outdoors for POI near Falcon Range that occur from 7 a.m. to 10 p.m. ($NA75L_{max,day}$). The number of speech interference events per daytime hour would have a minor increase or remain the same for all residential POI as compared to existing conditions. The number of events would range from 1.7 to 3.5 events per daytime hour.

Table 3-66. Potential for Outdoor Speech Interference for Alternative 3 Conditions at Falcon Range

ID	Representative Location	Existing Conditions Events Per Daytime Hour	Alternative 3 Events Per Daytime Hour	Change in Number of Events
FR01	North of NW Cross Road	1.7	1.7	0
FR02	NW Carsol Road/NW 277th Street	1.7	1.7	0
FR03	South of NW Carlson Road	1.7	1.7	0
FR04	East of 257th Street	2.8	3.4	+0.6
FR05	West end of Mountain View Road	2.8	3.4	+0.6
FR06	Representative Residential South of NW Mountain View Road	2.8	3.4	+0.6
FR07	South of NW Mountain View Road	2.2	3.5	+1.3
FR08	West of Indiahoma Road	2.3	3.5	+1.2
FR09	Representative North of NW Townley Road	2.9	3.4	+0.5
FR10	Representative South of NW Rogers Road	2.3	3.4	+1.1

Source: HMMH 2025
Notes: $NA75L_{max}$; POI assessed for daytime (7 a.m. to 10 p.m.).

3.2.2.4 No Action Alternative

The No Action Alternative would not result in impacts on the noise environment. No facility construction would occur, and there would be no changes in aircraft operations. Noise exposure would remain unchanged compared to the existing conditions described in **Section 3.2.1**.

3.3 Land Use

Land use refers to the human use or modification of lands for various purposes and the management of those uses. Land use classifications refer to real property descriptions that indicate either natural conditions or the types of human activity occurring on a land parcel.

Primary objectives of land use management and planning are to ensure orderly and appropriate growth and compatibility between uses among adjacent property parcels or areas. Various administrative tools (i.e., policy plans, zoning ordinances, easements, subdivision regulations, deed restrictions, and covenants) are typically used to manage the development of land and facilitate desired use patterns, including protection of specially designated or environmentally sensitive uses.

Land use classifications denote predominant uses and/or characteristics of real property to provide a basis for spatial analysis and comparisons. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. Descriptive classifications for human development and activity include residential, commercial, industrial, military, agricultural, institutional, transportation, communications and utilities, and recreational.

The regulatory setting for land use includes federal, state, and local statutes, regulations, plans, policies, and programs applicable to land use management on installations and adjacent areas. Primary DAF directives and guidance applicable to the Proposed Action include the following:

Federal Interagency Committee on Urban Noise. In 1980, the Federal Interagency Committee on Urban Noise published guidelines (FICUN 1980) relating DNL to compatible land uses. This committee was composed of representatives from DoW, Transportation, Housing and Urban Development, USEPA, and the Veterans Administration. Since the issuance of these guidelines, federal agencies have generally adopted them for their noise analyses.

Following the lead of the committee, DoW and FAA adopted the concept of land use compatibility as the accepted measure of aircraft noise effect. FAA included the committee's guidelines in the Federal Aviation Regulations. Although these guidelines are not mandatory, they provide the best means for determining noise impact in airport communities. In general, residential land uses normally are not compatible with outdoor DNL values above 65 dBA, and the extent of land areas and populations exposed to DNL of 65 dBA and higher provides the best means for assessing the noise impacts of alternative aircraft actions. In some cases, a change in noise level, rather than an absolute threshold, may be a more appropriate measure of impact.

DAF Instruction (DAFI) 32-1015, Integrated Installation Planning, and AFH 32-7084, AICUZ Program Manager's Guide. DAFI 32-1015 establishes the AICUZ discretionary program to promote compatible land use surrounding military airfields. The goal of the AICUZ program is to protect the health, safety, and welfare of people living near an airfield, while preserving the operational integrity of the defense flying mission. Components of the AICUZ program, as defined in AFH 32-7084, include CZ, APZ, hazards to air navigation (building height and obstruction criteria), and noise zones.

Installations use the AICUZ program to provide land use compatibility guidelines and recommendations to areas exposed to increased safety risks and noise near airfields. Aircraft noise zones, APZs, and height restrictions for nearby structures are usually identified in installation-specific AICUZ studies. These studies provide information on

off-installation land uses and identify uses that are compatible, incompatible, or conditionally compatible (may require noise attenuation measures) with installation noise and accident zones. In accordance with DAFI 32-1015, land use can be deemed incompatible with an installation if it adversely affects the utility of DAF training and readiness missions, thereby affecting the ability of an installation to fulfill its mission. Adoption or codification of AICUZ recommendations as planning measures is at the discretion of local authority.

DAFI 32-1015 also establishes the Comprehensive Planning Program, which is designed to establish a framework for land use decision making regarding development of DAF installations. The program incorporates operational, environmental, urban planning, and related considerations to identify and assess development alternatives and ensure compliance with applicable laws, regulations, and policies. Under DAFI 32-1015, all major installations are required to develop an IDP to guide land use management and decisions (DAF 2025b).

3.3.1 Affected Environment

This section outlines land use planning documents and resources at the installation and surrounding community in the vicinity of Sheppard AFB and the associated SUA, specifically Falcon Range.

3.3.1.1 Sheppard AFB

Installation Land Use. Sheppard AFB completed a comprehensive IDP in 2016 to promote the installation leadership's strategic vision. The vision of the IDP is focused on the achievement of the goals and objectives for future development at the installation (Sheppard AFB 2016). The Proposed Action directly involves construction and renovation activities in the Flightline District, 80 FTW Campus District, and Base Support/Industrial District of the IDP. These areas include the airfield, taxiways, parking aprons and mission related flightline facilities, as well as administration and training areas. Specifically, of the 16 proposed construction and renovation project locations listed in **Table 2-1**, 8 are in the 80 FTW Campus District, 7 are in the Flightline District, and 1 is in the Base Support/Industrial District.

Sheppard AFB JLUS. The JLUS for Sheppard AFB and its auxiliary airfield at Frederick Regional Airport was completed in May 2014. It included a policy committee and technical working group with representatives from the cities of Burkburnett and Wichita Falls, Oncor Electric, Wichita and Tillman Counties, North Texas Regional Planning Commission, Sheppard Military Affairs Committee, and other stakeholders (City of Wichita Falls 2014).

Overall, the Sheppard AFB JLUS provides detailed descriptions of the types of tools that can be deployed, including advice as to when, where, and how to use them. It offers suggestions on how awareness and collaboration can be enhanced to the benefit of the communities surrounding Sheppard AFB and preserving the mission and capabilities of the installation. The cornerstone of the guidance provided in the study centers around the establishment of the JLUS Implementation Coordination Committee. This committee is tasked with continuing to address the issues presented in the JLUS with the involvement of Sheppard AFB and other stakeholders.

Some topic areas outlined in the JLUS that should be considered and require coordination in an effort to maintain a mutually beneficial relationship between the local municipalities and Sheppard AFB include Energy Development, Water Quality/Quantity, Air Quality, Transportation/Roadway Capacity, Land Use, Agriculture, Cultural Resources, Housing, Economic Development, Safety, Airfield/Flight Operations, and Noise.

***Sheppard AFB AICUZ Study*.** The most recent AICUZ study for Sheppard AFB was completed in 2011 (Sheppard AFB 2011), which identified off-installation land use within CZs, APZs, and the 65 dB DNL noise contour. The 2011 AICUZ Study was an update of the 1999 AICUZ Study Amendment for Sheppard AFB. It provided new noise contours with an updated description of several aircraft changes at the installation.

As part of this EIS, new baseline noise contours were modeled for Sheppard AFB; therefore, impacts from the Proposed Action on land use and noise are compared with the new baseline noise contours rather than the noise contours identified in the 2011 AICUZ Study. Although there are some differences between the baseline noise contours and the 2011 AICUZ noise contours, they are generally similar in size and shape. In addition, because there are no proposed changes to the CZ or APZs associated with Sheppard AFB as part of this action, those are not discussed within this section.

***2023 Baseline Noise Contours*.** The 2023 baseline noise contours developed for this EIS (presented in **Section 3.2.1.1.1**) are shown in **Figure 3-11** along with current land use data. The off-installation land use data was obtained from the city of Wichita Falls, which includes parcel data for both the city of Wichita Falls and Wichita County. The acreages of off-installation land areas covered by the baseline noise contours are presented in **Table 3-67**. The vast majority of land area covered is the Open/ Recreation/Agriculture/Low-Density Residential land use (at nearly 87 percent), and the Residential land use accounted for 10.8 percent of the off-installation land area.

Table 3-67. Sheppard AFB Off-Installation Land Uses within the Baseline Noise Zones

Category	Noise Zones (acres)				
	65 to 70 dB DNL	70 to 75 dB DNL	75 to 80 dB DNL	Greater than 80 dB DNL	Total Acreage
Residential	426.3	2.7	18.9	0.0	447.9
Commercial	0.5	0.3	0.0	0.0	0.8
Open/Recreation/Agriculture/Low-Density Residential	2,308.6	1,060.3	227.3	5.9	3,602.1
Industrial	63.4	7.8	0.0	0.0	71.1
Other	2.7	11.6	8.4	<0.1	22.7
Total	**2,801.4**	**1,082.8**	**254.5**	**6.0**	**4,144.7**

Sources: HMMH 2025, City of Wichita Falls 2025
Note: The baseline noise zone acreage presented in this table with a total of 4,144.7 acres differs slightly from the 4,292 acres noted in the Final NMODD (HMMH 2025) and presented in **Table 3-19**. This difference results from how water features and other land use elements were categorized within the source GIS data. For understanding the predominant land uses within the noise zones, this difference does not affect the results or conclusions.

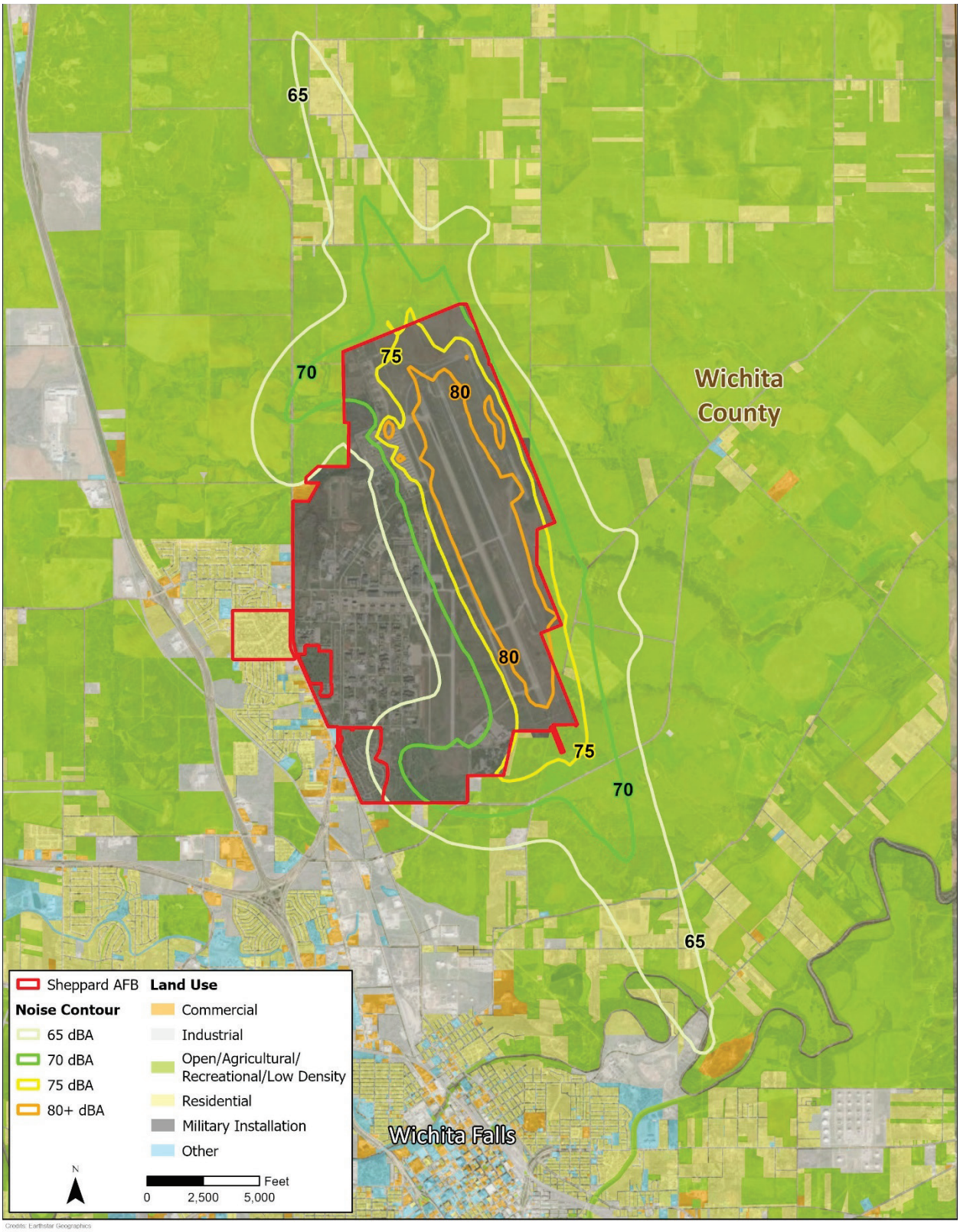


Figure 3-11. Baseline Noise Contours and Land Use for Sheppard AFB

3.3.1.2 SUA

The component of SUA that was evaluated with respect to noise and potential land use compatibility concerns is Falcon Range. Located approximately 50 miles from Sheppard AFB near Cache, Oklahoma, Falcon Range is an airspace unit that is designated as one of the ranges in the vicinity of Fort Sill (ASCOG 2018).

Fort Sill JLUS (2018). The Fort Sill JLUS analyzes land use compatibility relating to noise and air operations at Falcon Range. Represented in the policy committee and technical working group for this JLUS were both Fort Sill and Sheppard AFB, as well as the cities of Lawton, Frederick, and Elgin, among others. In this collaborative effort, a compatibility assessment was produced and analyzed within the JLUS. Specifically, land use compatibility concerns were raised, thus allowing for the discussion of potential solutions and recommendations. One of the central recommendations offered in the JLUS was the formation of the Fort Sill JLUS Coordination Committee. This keeps with the prioritization of a collective effort and continued dialogue between Fort Sill and the surrounding communities.

Concerns discussed in the JLUS specific to Falcon Range included (1) concern regarding the risk of stray ordnance landing off-installation on areas regulated by local municipalities, and (2) potential future development on the western end of Falcon Range, adjacent to Indiahoma Road. Specifically, the study references potential hazards that could coincide with incompatible development.

***Baseline Noise Contours*.** As part of the development of the noise contours associated with the evaluation of the alternatives, noise contours for existing conditions, as well as the various alternatives being proposed were developed for Falcon Range using the L_{dnmr} noise metric. This is discussed in more detail in **Section 3.2.1.2.2**; however, L_{dnmr} is identical to DNL but includes an onset-rate adjustment for highspeed, low-altitude aircraft events causing startle and assesses SUA operations over the average flying day during the busiest month to account for the sporadic nature of SUA events. The noise contours presented in **Section 3.2.1.2.2** are shown in **Figure 3-12** for Falcon Range.

Land use data was not available for this area of Comanche County, Oklahoma; however, certain parcel data was available, along with aerial imagery, which was utilized to assign general land use categories. The off-range land areas associated with the L_{dnmr} existing conditions at Falcon Range were estimated to be 100 percent the Open/Recreation/Agriculture/Low-Density Residential land use category (see **Table 3-68**). Although there are some residences in this area, the houses are on large parcels of open or agricultural land.

Table 3-68. Falcon Range Off-Range Land Use within the Baseline Noise Contours

Category	Noise Zones (acres)				
	65 to 70 dB L_{dnmr}	70 to 75 dB L_{dnmr}	75 to 80 dB L_{dnmr}	Greater than 80 dB L_{dnmr}	Total Acreage
Residential	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0
Open/Recreation/Agriculture/Low-Density Residential	1,385	885	371	0.0	2,641
Industrial	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0
Total	**1,385**	**885**	**371**	**0.0**	**2,641**

Source: HMMH 2025

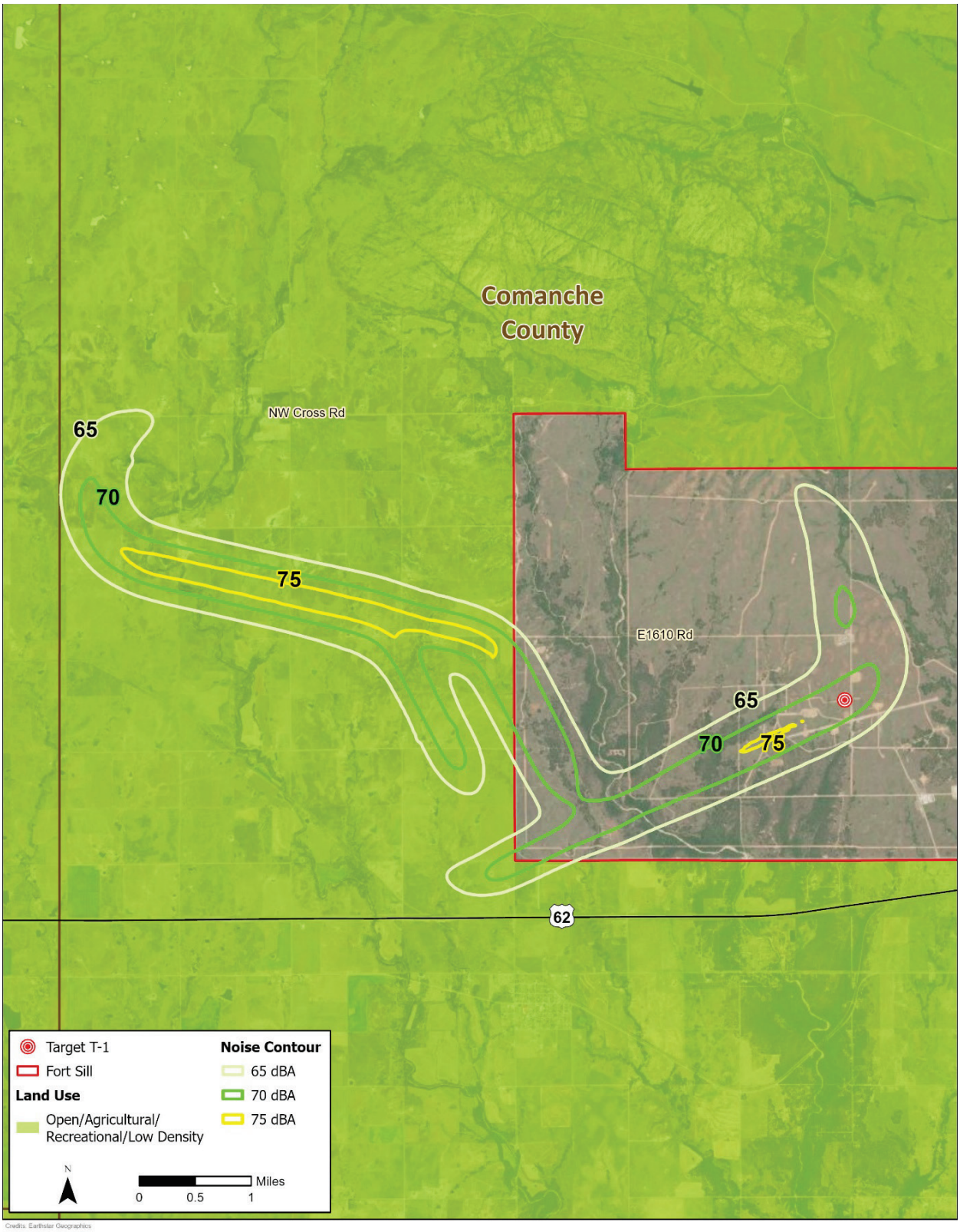


Figure 3-12. Baseline Noise Contours and Land Use for Falcon Range

3.3.2 Environmental Consequences

Land use impacts would be considered significant if the effect was any of the following:

1. Inconsistent or noncompliant with land use management plans or policies
2. Precluded the viability of existing land use
3. Precluded continued use or occupation of an area
4. Incompatible with adjacent land use to the extent public health or safety is threatened
5. Conflicted with planning criteria established to ensure the safety and protection of human life.

The noise contours for the three action alternatives are compared to existing conditions.

3.3.2.1 Alternative 1

3.3.2.1.1 Sheppard AFB

***Construction Compatibility*.** Alternative 1 would involve physical on-installation construction and renovation projects at Sheppard AFB. These projects would be largely compatible and consistent with applicable land use plans and regulations and would have no significant impact on land use. According to the Sheppard AFB IDP, the installation has 12 different future planning districts on the installation, and the construction and renovation projects would occur in three of these land uses. The three land uses and associated number of projects are eight projects in the 80 FTW Campus District, seven in the Flightline District, and one in the Base Support/Industrial District. For all proposed facilities being constructed, the precise site layout plan is still being developed; however, each project would be sited, designed, and constructed consistent with Sheppard AFB's IDP.

Airspace Compatibility. No changes in airspace configurations or boundaries are proposed; therefore, the Proposed Action would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for Sheppard AFB would remain unchanged.

Noise Compatibility. The primary impact of Alternative 1 on land use would be associated with noise generated by T-7A aircraft operations in the vicinity of Sheppard AFB, particularly takeoff and landing operations, because the T-7A aircraft feature louder operating characteristics in comparison to T-38C aircraft.

NOISEMAP was used to complete the noise analysis and develop estimated areas and population within the noise contours. **Figure 3-13** presents the noise contours and associated land uses for Alternative 1. Residential is suggested as incompatible with any noise zone above 65 dB DNL. Although local conditions regarding the need for housing may require continued residential use in these zones, residential use is discouraged in the DNL 65 to 70 dB and strongly discouraged in DNL 70 to 75 dB. Existing residential development is considered as pre-existing, non-conforming land use.

Table 3-32 provides the estimated on- and off-installation population within the 65 dB DNL and greater for Alternative 1 and the change in population from existing conditions. Alternative 1 would expose approximately 556 additional on- and off-installation people to a DNL of 65 dB or greater.

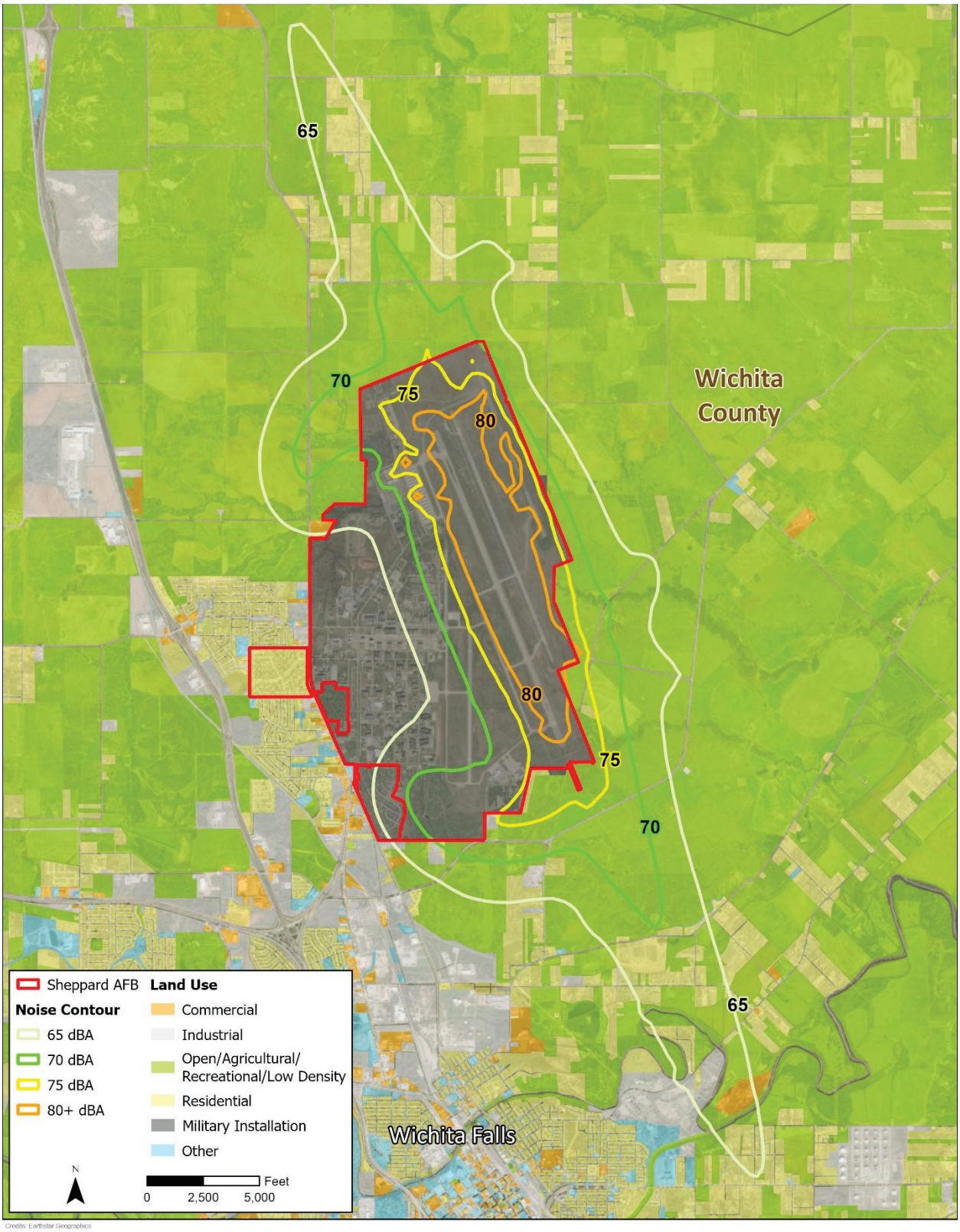


Figure 3-13. Alternative 1 Noise Contours and Land Use for Sheppard AFB

Table 3-69 provides the estimated change in on- and off-installation acreage within the 65 dB DNL and greater noise bands for Alternative 1. Overall, there would be an increase of over 1,471 off-installation acres within the 65 dB or greater DNL, which is an increase of approximately 34 percent when compared to existing conditions. The highest increase in off-installation acreage is in the 65 to 70 dB DNL noise contour (1,045 acres), which is also the largest percentage increase.

Table 3-69. Change in Acreage within the Alternative 1 Noise Bands for Sheppard AFB

Noise Band	Change in Acreage within Noise Bands			
	On Installation	Percent Change	Off Installation	Percent Change
65 to 70 dB DNL	104	14.4%	1,045	35.9%
70 to 75 dB DNL	160	19.9%	356	31.8%
75 to 80 dB DNL	45	5.9%	69	26.8%
Greater than 80 dB DNL	51	5.7%	1	16.7%
Total	**360**	**11.3%**	**1,471**	**34.3%**

Source: HMMH 2025

Residential land uses currently represent approximately 11 percent of the total off-installation land uses and approximately 12 percent for Alternative 1. This would represent a slight increase in land uses that could be considered incompatible. Additionally, the off-installation areas where noise zones would be located for Alternative 1 are similar to existing conditions and the increase in off-installation acreage is associated with the Open/Recreation/Agriculture/Low-Density Residential land use category. Therefore, although there may be some increase in what could potentially be considered incompatible land uses, this would not be considered a significant impact on land use compatibility.

3.3.2.1.2 SUA

Figure 3-14 shows the noise contours for Alternative 1 at Falcon Range. The Falcon Range noise analysis for Alternative 1 shows an additional four people would potentially live within the proposed 65 to 70 L_{dnmr} contour band and one less person would live within the 70 to 75 L_{dnmr} contour band. However, visual review of aerial maps shows no additional residential structures within the expanded contours of Alternative 1. There is no change in estimated population for the 75 dB DNL or greater noise contours on or off the range.

For Alternative 1, estimated changes in off-range acreage for the Falcon Range noise contours are presented in **Table 3-70**. Overall, there would be an increase of over 523 off-range acres, which is an increase of approximately 20 percent when compared to existing conditions. The highest increase in off-range acreage is in the 65 to 70 dB L_{dnmr} contour (519 acres) and the 70 to 75 L_{dnmr} contour actually showed a decrease of 123 acres.

Table 3-70. Off-Range Land Use within the Alternative 1 Noise Bands for Falcon Range

Noise Band	Change in Acreage within Noise Bands		
	Alternative 1 Off-Range	Acreage Change	Percent Change
65 to 70 dB L_{dnmr}	1,904	519	37.5%
70 to 75 dB L_{dnmr}	1,012	127	14.4%
75 to 80 dB L_{dnmr}	248	-123	-33.2%
Greater than 80 dB L_{dnmr}	0	0	0
Total	**3,164**	**523**	**19.8%**

Source: HMMH 2025

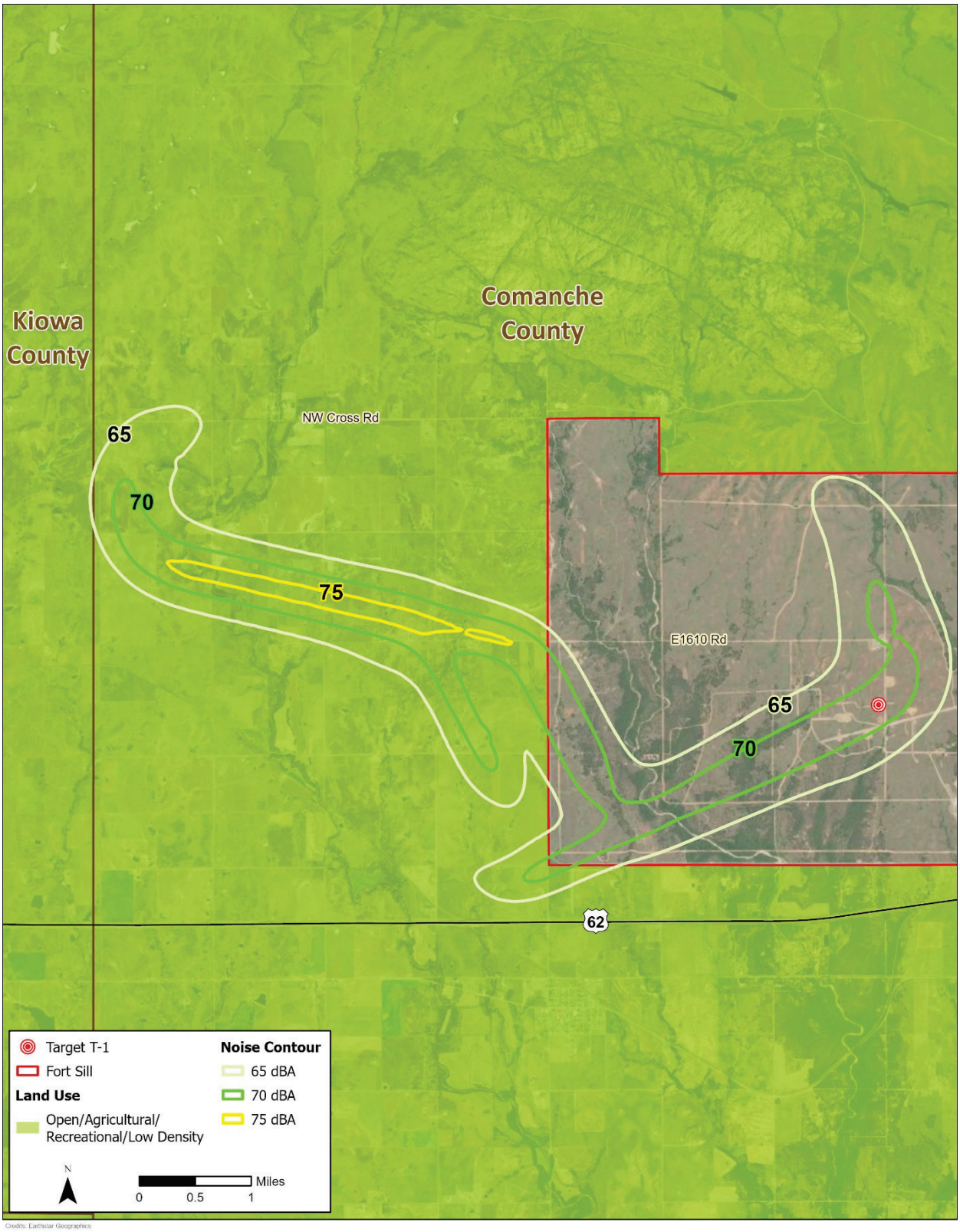


Figure 3-14. Alternative 1 Noise Contours and Land Use for Falcon Range

As noted in **Section 3.3.1.2**, land use data was not available for this area of Comanche County, Oklahoma; however, for the purposes of this analysis, all areas were considered Open/Recreation/Agriculture/Low-Density Residential land use.

Despite the increase in acreage within the Falcon Range noise contours for Alternative 1, the majority of the increase is within the 65 to 70 L_{dnmr} contour. Because all areas within the noise contours are considered Open/Recreation/Agriculture/Low-Density Residential, which are considered compatible with these noise levels, this would not be a significant impact on land use compatibility.

3.3.2.2 Alternative 2

3.3.2.2.1 Sheppard AFB

***Construction Compatibility*.** Impacts on installation land use from construction and renovation for Alternative 2 would be identical to those impacts for Alternative 1.

Airspace Compatibility. No changes in SUA configurations or boundaries are proposed; therefore, Alternative 2 would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for Sheppard AFB would remain unchanged.

Noise Compatibility. Like Alternative 1, the primary impact of Alternative 2 on land use would be associated with noise generated by T-7A aircraft operations because the T-7A aircraft feature louder operating characteristics compared to T-38C aircraft. **Figure 3-15** shows the noise contours and associated land uses for Alternative 2.

Table 3-43 and **Table 3-44** provides the estimated on- and off-installation population from existing conditions. Alternative 2 would expose approximately 1,787 additional on- and off-installation people to a DNL of 65 dB or greater.

The noise impacts on land uses surrounding the installation for Alternative 2 would be slightly greater than those described for Alternative 1 (see **Table 3-71**). Overall, there would be an increase of approximately 2,470 acres of off-installation land, with the largest increase in acreage being in the 65 to 70 dB DNL noise contour (1,576 acres), but the largest percentage increase would be in the 80 dB DNL or greater noise contour (which increased by only 11 acres but represents a 183 percent increase over existing conditions).

Table 3-71. Change in Acreage within the Alternative 2 Noise Bands for Sheppard AFB

Noise Band	Change in Acreage within Noise Bands			
	On Installation	Percent Change	Off Installation	Percent Change
65 to 70 dB DNL	105	14.5%	1,576	54.2%
70 to 75 dB DNL	155	19.3%	682	60.8%
75 to 80 dB DNL	56	7.4%	201	78.2%
Greater than 80 dB DNL	204	22.7%	11	183.3%
Total	**520**	**16.3%**	**2,470**	**57.5%**

Source: HMMH 2025

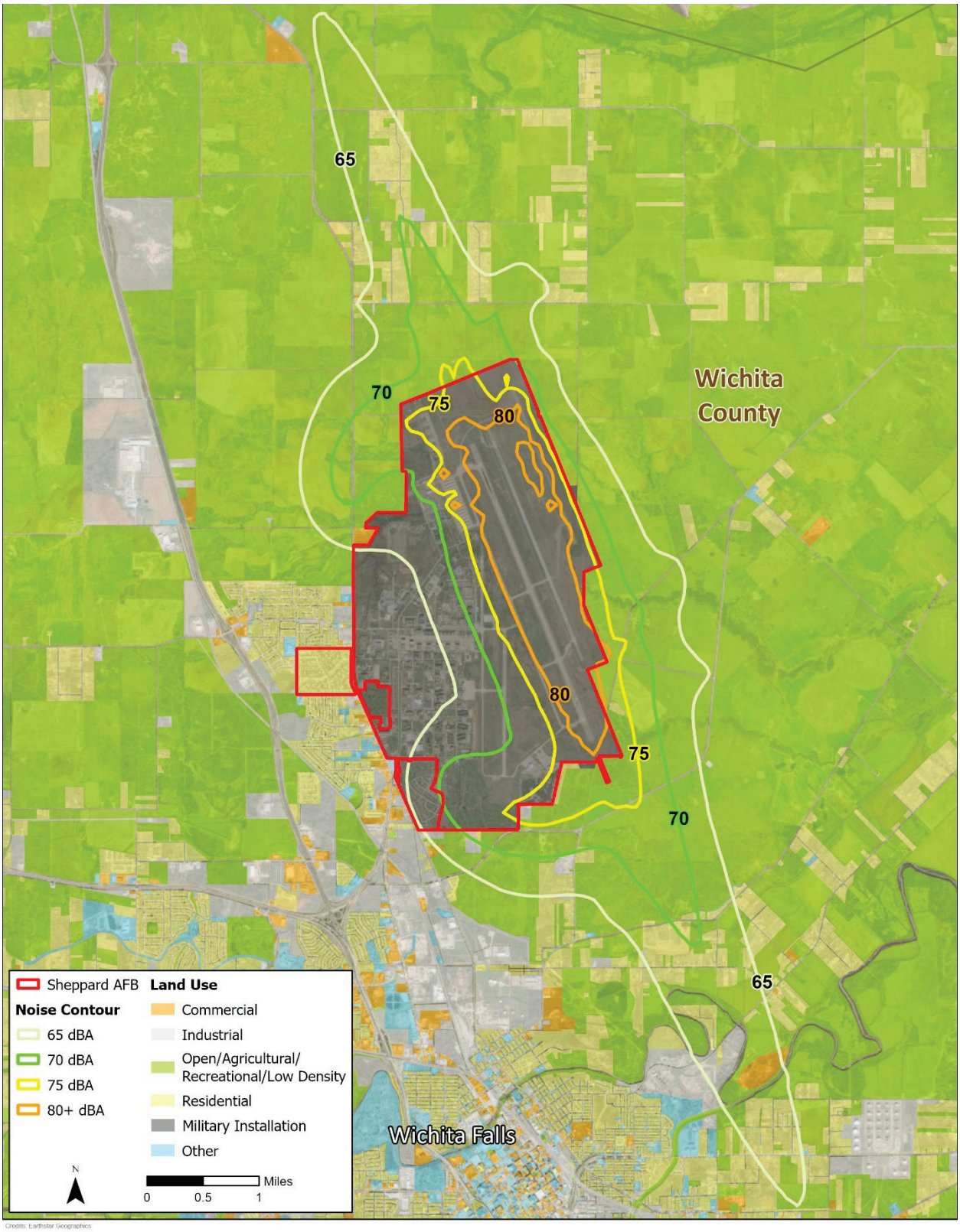


Figure 3-15. Alternative 2 Noise Contours and Land Use for Sheppard AFB

Residential uses represent approximately 13 percent of the total off-installation land uses for Alternative 2. As a result, there could be an increase in incompatible land uses within the Alternative 2 noise zones and the number of individuals living in them. However, the off-installation areas where these contours would be located are similar to existing conditions and the increase in off-installation acreage is associated with the Open/Recreation/Agriculture/Low-Density Residential land use category. Therefore, although the overall off-installation acreage does increase, Alternative 2 would not result in a significant impact on land use compatibility.

3.3.2.2.2 SUA

The Falcon Range noise analysis for Alternative 2 shows an additional 6 people potentially live within the proposed 65 to 70 L_{dnmr} noise zone and two additional people potentially live within the 70 to 75 L_{dnmr} noise zone. However, visual review of aerial maps shows no additional residential structures within the expanded contours of Alternative 2. There is no change in the estimated population in any of the 75 dB DNL or greater noise zones on or off the range. The Falcon Range noise contours for Alternative 2 are depicted in **Figure 3-16**.

Table 3-72 provides the estimated changes in off-range acreage within the noise contours at Falcon Range for Alternative 2. Overall, there would be an increase of over 1,067 off-range acres, which is an increase of approximately 40 percent when compared to existing conditions. The highest increase in off-range acreage is in the 65 to 70 dB L_{dnmr} noise contour (793 acres).

Table 3-72. Off-Range Land Use within the Alternative 2 Noise Bands for Falcon Range

Noise Band	Change in Acreage within Noise Bands		
	Alternative 2 Off-Range	Acreage Change	Percent Change
65 to 70 dB L_{dnmr}	2,178	793	57.3%
70 to 75 dB L_{dnmr}	1,144	259	29.3%
75 to 80 dB L_{dnmr}	386	15	4.0%
Greater than 80 dB L_{dnmr}	0	0	0.0%
Total	**3,708**	**1,067**	**40.4%**

Source: HMMH 2025

As noted in **Section 3.3.1.2**, land use data was not available for this area of Comanche County, Oklahoma; however, for the purposes of this analysis, all areas were considered Open/Recreation/Agriculture/Low-Density Residential land use.

Despite the increase in acreage within the noise contours at Falcon Range for Alternative 2, the majority of the increase is within the 65 to 70 L_{dnmr} noise contour. Because all areas within the noise contours are considered Open/Recreation/ Agriculture/Low-Density Residential, which are considered compatible with these noise levels, this would not be a significant impact on land use compatibility.

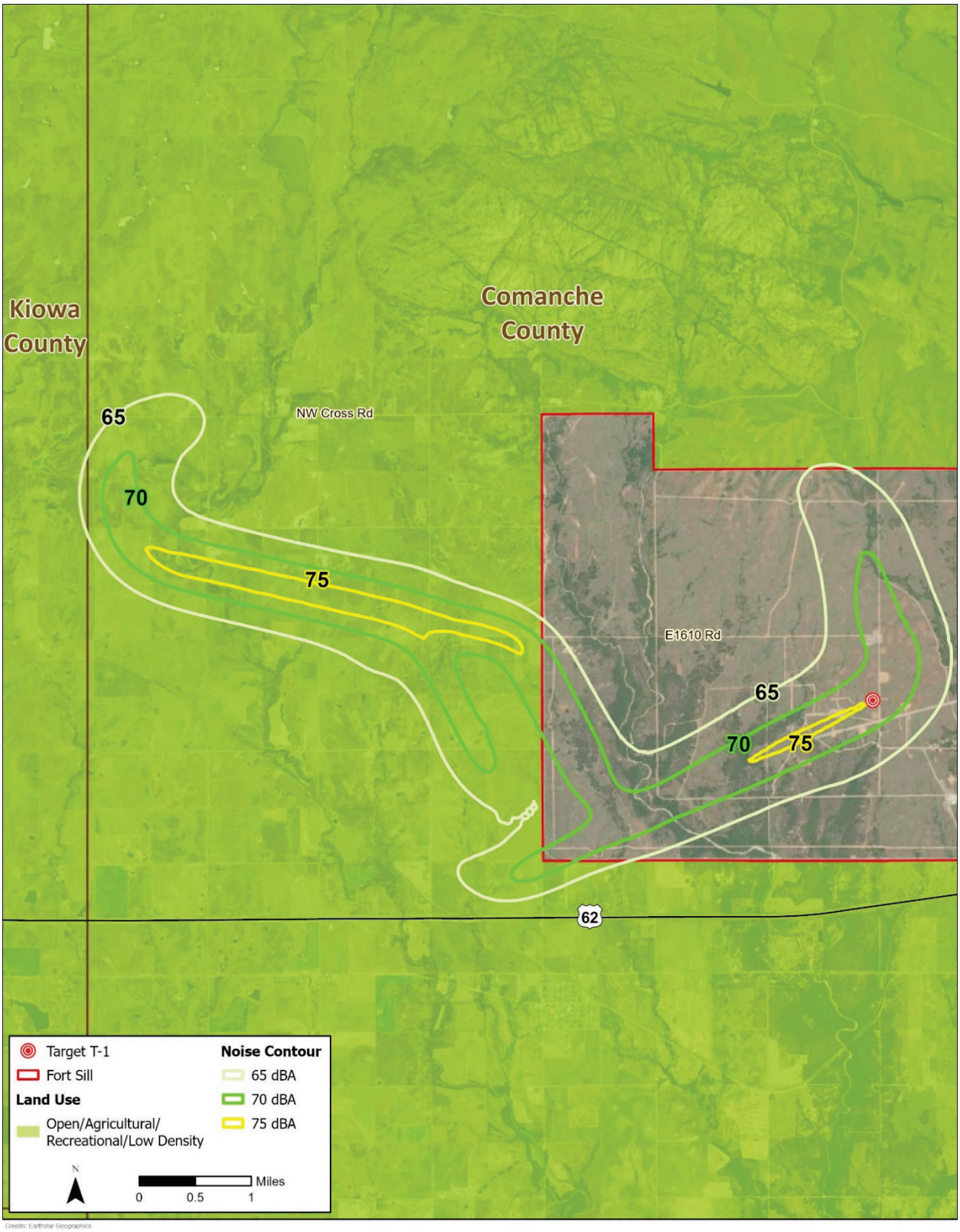


Figure 3-16. Alternative 2 Noise Contours and Land Use for Falcon Range

3.3.2.3 Alternative 3

3.3.2.3.1 Sheppard AFB

***Construction Compatibility*.** Impacts on installation land use from construction and renovation for Alternative 3 would be identical to those impacts for Alternative 1.

Airspace Compatibility. No changes in SUA configurations or boundaries are proposed; therefore, Alternative 3 would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for Sheppard AFB would remain unchanged.

Noise Compatibility. **Figure 3-17** shows the noise contours and associated land uses for Alternative 3**. Table 3-56** provides the estimated change in on- and off-installation population within the 65 dB DNL and greater for Alternative 3 and the change in population from existing conditions. Alternative 3 would expose approximately 1,543 additional on- and off-installation people to a DNL of 65 dB or greater.

The noise impacts to land uses surrounding the installation for Alternative 3 would be greater than those described for Alternative 1, but less than those for Alternative 2 (see **Table 3-73**). Overall, there would be an increase in 2,331 acres of off-installation land, with the largest acreage number in the 65 to 70 dB DNL noise contour (1,507 acres), but the largest percentage increase in the 80 dB DNL or greater noise contour (which increased by only 10 acres but represented a 167 percent increase over existing conditions).

Table 3-73. Change in Acreage within the Alternative 3 Noise Bands for Sheppard AFB

Noise Band	Change in Acreage within Noise Bands			
	On Installation	Percent Change	Off Installation	Percent Change
65 to 70 dB DNL	105	14.5%	1,507	51.8%
70 to 75 dB DNL	161	20.0%	630	56.2%
75 to 80 dB DNL	49	6.4%	184	71.6%
Greater than 85 dB DNL	184	20.5%	10	166.7%
Total	**499**	**15.7%**	**2,331**	**54.3%**

Source: HMMH 2025

Similar to Alternative 2, residential uses represent approximately 13 percent of the total off-installation land uses for Alternative 3. As a result, there could be an increase in incompatible land uses within the Alternative 3 noise zones and the number of individuals living in them. However, off-installation areas where these contours would be located are similar to existing conditions and the increase in off-installation acreage is associated with the Open/Recreation/ Agriculture/Low-Density Residential land use category. Therefore, although the overall off-installation acreage does increase, Alternative 3 would not result in a significant impact on land use compatibility.

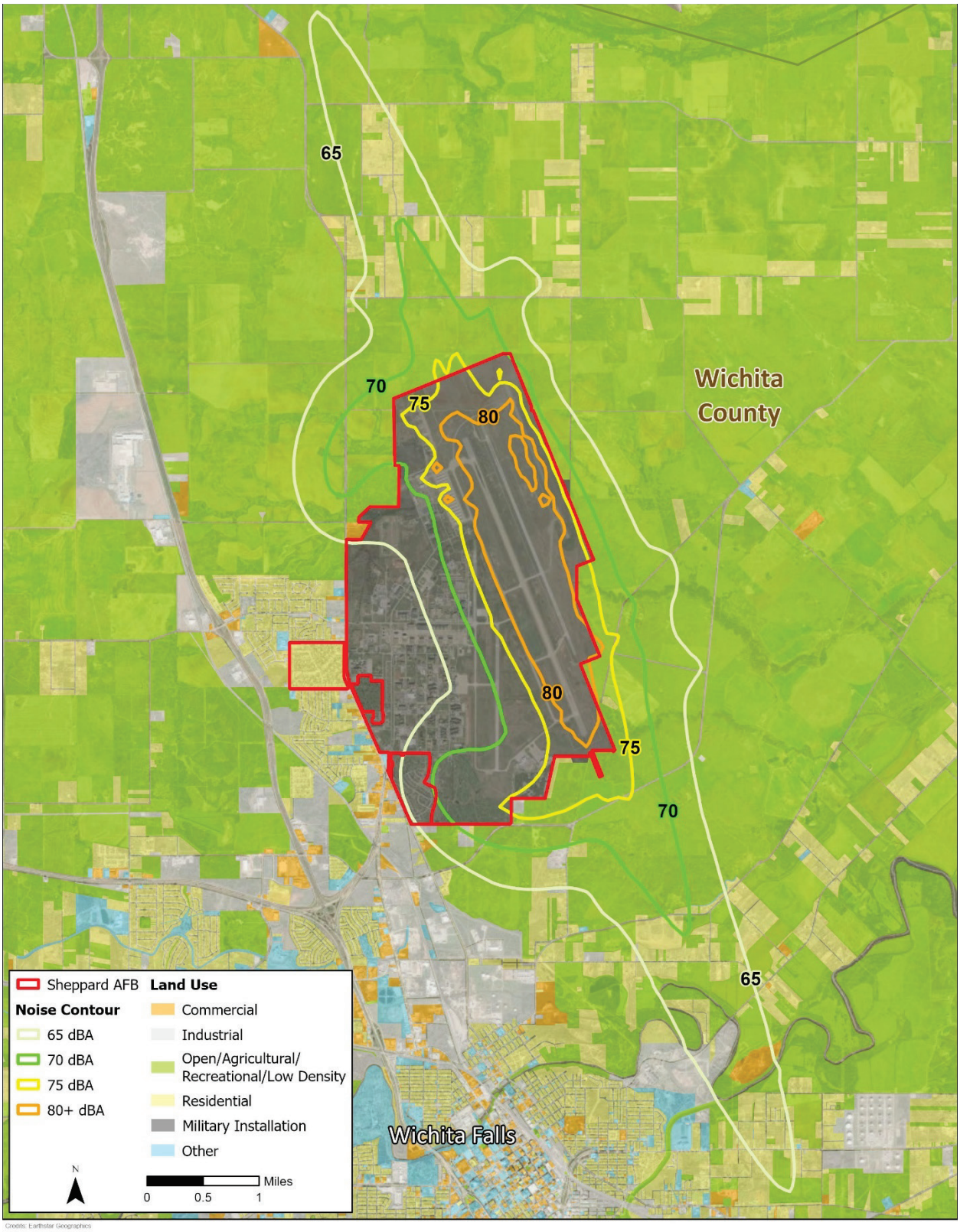


Figure 3-17. Alternative 3 Noise Contours and Land Use for Sheppard AFB

3.3.2.3.2 SUA

The Falcon Range noise analysis for Alternative 3 shows that an additional five people would potentially live within the proposed 65 to 70 L_{dnmr} noise zone and two additional people potentially live within the 70 to 75 L_{dnmr} noise zone. However, visual review of aerial maps shows no additional residential structures within the expanded contours of Alternative 3. There is no change in the estimated population in any of the 75 dB DNL or greater noise zones on- or off-range. The Falcon Range noise contours for Alternative 3 are shown in **Figure 3-18**.

For Alternative 3, estimated changes in off-range acreage within the noise contours at Falcon Range is provided in **Table 3-74**. Overall, there would be an increase in over 988 acres off-range, which is an increase of approximately 37 percent when compared to existing conditions. The highest increase off-range acreage is in the 65 to 70 dB L_{dnmr} noise contour (751 acres), and the 70 to 75 L_{dnmr} noise contour would have a decrease of 19 acres.

Table 3-74. Off-Range Land Use within the Alternative 3 Noise Bands for Falcon Range

Noise Band	Change in Acreage within Noise Bands		
	Alternative 3 Off-Range	Acreage Change	Percent Change
65 to 70 dB L_{dnmr}	2,071	751	54.2%
70 to 75 dB L_{dnmr}	1,141	256	28.9%
75 to 80 dB L_{dnmr}	352	-19	-5.1%
Greater than 80 dB L_{dnmr}	0	0	0%
Total	**3,564**	**988**	**34.9%**

Source: HMMH 2025

As noted in **Section 3.3.1.2**, land use data was not available for this area of Comanche County, Oklahoma; however, for the purposes of this analysis, all areas were considered Open/Recreation/Agriculture/Low-Density Residential land use.

Despite the increase in acreage within the noise contours at Falcon Range for Alternative 3, the majority of the increase is within the 65 to 70 L_{dnmr} noise contour. Because all areas within the noise contours are considered Open/Recreation/ Agriculture/Low-Density Residential, which are considered compatible with these noise levels, this would not result in a significant impact on land use compatibility.

3.3.2.4 No Action Alternative

The No Action Alternative would not result in any changes in land use. The proposed construction and renovation projects at Sheppard AFB would not be completed and no related advancement on the installation IDP would occur. Baseline noise contours would remain unchanged and would not introduce any additional or new impacts to existing land uses. The off-installation land use compatibility within a noise contour would remain the same.

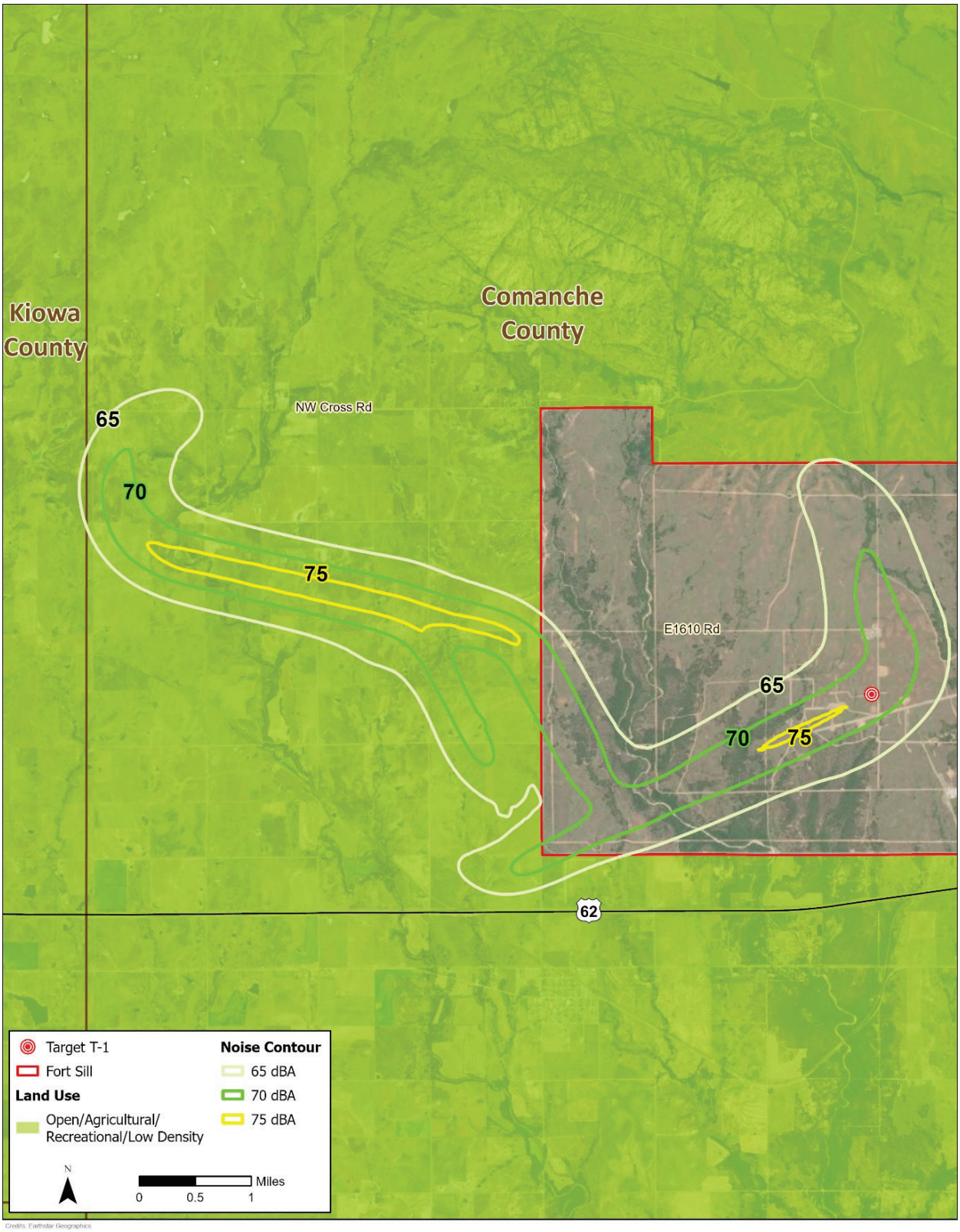


Figure 3-18. Alternative 3 Noise Contours and Land Use for Falcon Range

3.3.3 Mitigation Measures

Alternatives 1, 2, and 3 would expand noise contours and increase existing land uses subject to noise levels that may be deemed incompatible, but impacts would not be considered significant because the majority of land uses that would be impacted by the noise contours would be the Open/Recreation/Agriculture/Low-Density Residential land use category. The mitigation measures discussed below would be implemented between DAF and/or the local municipalities to further enhance compatible development around Sheppard AFB.

DAF is committed to working with Wichita County and the city of Wichita Falls, Texas, as well as the North Texas Regional Planning Commission, the city of Burkburnett, and others to analyze compatible land use surrounding Sheppard AFB under T-7A operating conditions. Additionally, this working relationship would extend to the municipalities surrounding Fort Sill and Falcon Range, including the city of Lawton. As part of that commitment, DAF would partner with local governments to perform the following tasks:

- Prepare an AICUZ study update at an appropriate time to be determined to address any changes in land area within the greater than 65 dB DNL noise contours for Sheppard AFB and potentially with Falcon Range, as appropriate.
- Coordinate with state and local agencies on recommendations regarding compatible land use and potential encroachment concerns inside and outside of the DNL footprint, as applicable (i.e., large-scale developments, transportation projects that could encourage development, or tall structures such as cell towers that could penetrate airfield imaginary surfaces).
- Encourage municipalities to promote the most compatible land use by updating local zoning ordinances and building construction standards, especially for high-noise areas.

3.4 Biological Resources

Biological resources addresses plants and animals and the habitats in which they exist. Special status species include Endangered Species Act (ESA) listed species (threatened or endangered) as well as those that are proposed or candidates for ESA-listing, as designated by the U.S. Fish and Wildlife Service (USFWS) for terrestrial and freshwater organisms. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), and the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are protected under the Bald and Golden Eagle Protection Act (BGEPA).

ESA. The ESA (16 USC Sections 1531 et seq.) established a federal program to protect and recover imperiled species and the ecosystems upon which they depend. The ESA requires federal agencies, in consultation with USFWS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

MBTA. The MBTA of 1918 (16 USC Sections 703–712), as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, require federal agencies to minimize or avoid impacts on migratory birds. Section 315 of the Authorization Act for Fiscal Year 2003 (Public Law 107-314, 116 Stat. 2458) exempts military readiness

activities carried out in accordance with 50 CFR Section 21.15 from the prohibition against the incidental taking of migratory birds. Military readiness activities include all training and operations of the U.S. Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.

BGEPA. Bald and golden eagles are protected under the BGEPA (16 USC Sections 668–668c), which prohibits the "take" of bald or golden eagles in the United States without a permit.

3.4.1 Affected Environment

The ROI for biological resources consists of the proposed construction and renovation areas on Sheppard AFB and the airspace where the T-7A would perform quantifiable aircraft operations at Sheppard AFB and the SUA (see **Appendix A**).

Vegetation. Sheppard AFB is located at the top edge of the Central Texas Plateau region which includes what is commonly referred to as the "Rolling Plains." In its natural state, the area is predominantly short-grass and mid-grass prairie with areas of savanna and woodland. These prairie grasslands were historically dominated by sideoats grama *(Bouteloua curtipendula*), little bluestem (*Schizachyrium scoparium*), blue grama (*Bouteloua gracilis*), and big bluestem (*Andropogon gerardii*). The vegetation throughout the region has been heavily impacted by overgrazing of livestock and other developments, leading to the introduction of new species such as honey mesquite (*Prosopis glandulosa*), shin oak (*Quercus* sp.), and snakeweed (*Gutierrezia sarothrae*) (Sheppard AFB 2021c).

Vegetative cover at Sheppard AFB includes four primary vegetation types: riparian, maintained grassland, mixed mesquite woodland, and mesquite brushland. Riparian communities are comprised of stream corridors, forested wetlands, and herbaceous wetlands and include species such as green ash (*Fraxinus pennsylvanica*), red mulberry (*Morus rubra*), American elm (*Ulmus americana*), and screwbean mesquite (*Prosopis pubescens*). Maintained grasslands occur within the airfield and surrounding areas and include species such as Bermuda grass (*Cynodon dactylon*), king ranch bluestem (*Bothriochloa ischaemum*), and Texas grama (*Bouteloua rigidiseta*). Mixed mesquite woodland is characterized by mature mesquite (*Neltuma* sp.) with codominant tree species such as hackberry (*Celtis occidentalis*), western soapberry (*Sapindus saponaria*), and green ash. Mesquite brushland is dominated by mesquite trees and grasses such as king ranch bluestem and needle-and-thread grass (*Hesperostipa comata*) (Sheppard AFB 2021c).

Wildlife. The Texas Parks and Wildlife Department (TPWD) notes that there are approximately 100 reptile and amphibian species, 50 mammal species, and 235 avian species with the potential to occur in the region (TPWD 2025). Some common wildlife species documented during the 2015 Sheppard AFB biological survey include the Texas ratsnake (*Elaphe obsolete*), black racer (*Coluber constrictor*), red-eared slider turtle (*Trachemys scripta elegans*), eastern woodrat (*Neotoma floridana*), deer mouse (*Peromyscus maniculatus*), Canada goose (*Branta canadensis*), house finch (*Haemorhous mexicanus*), and blue jay (*Cyanocitta cristata*) (Sheppard AFB 2021c).

Special Status Species. This EIS analyzes special status species with the potential to occur on Sheppard AFB or with potential for flight at the same altitude as the proposed T-7A operations within the SUA. These special status species consist of federally listed species protected under the ESA, ESA candidate species, ESA proposed species, BGEPA-protected species, and state-listed species that have been observed on the installation. Species were identified through review of the Sheppard AFB Integrated Natural Resources Management Plan (INRMP) and USFWS Information for Planning and Consultation (IPaC) reports generated for the installation and SUA (Sheppard AFB 2021c, USFWS 2025a, USFWS 2025b).

Table 3-75 lists the 10 species that meet the abovementioned criteria for analysis in this EIS. Of these 10 species, only two have been documented on the installation, which are the state-threatened Texas horned lizard (*Phrynosoma cornutum*) and federally protected Texas kangaroo rat (*Dipodomys elator*). According to the INRMP, Sheppard AFB does not have designated habitats of concern nor is there any designated critical habitat in the vicinity of the installation (Sheppard AFB 2021c).

Sheppard AFB maintains a BASH plan, which includes a federal migratory bird permit and reporting required for potential bird depredation in compliance with the MBTA (Sheppard AFB 2021c, Sheppard AFB 2024c). Annual reports between October 2020 and May 2025 were reviewed for potential strike incidents. Reports indicate there have been no documented BASH occurrences with any federally or state-protected species (Sheppard AFB 2025). According to the Avian Knowledge Network (AKN), the closest sighting of federally or BGEPA-protected species to Sheppard AFB are as follows: bald eagle–5 miles west in 2020, golden eagle–8 miles south in 2015, golden-cheeked warbler (*Setophaga chrysoparia*)–98 miles west in 2020, piping plover (*Charadrius melodus*)–47 miles northwest in 2024, red knot (*Calidris canutus*; subspecies not identified)–47 miles northwest in 2021, and whooping crane (*Grus americana*)–22 miles northeast in 2024 (AKN 2025).

3.4.2 Environmental Consequences

The biological resources analysis discusses impacts on vegetation, wildlife, and special status species from the Proposed Action's construction and renovation projects and aircraft operations. Evaluation of impacts on biological resources is based on whether the action would cause habitat displacement resulting in reduced feeding or reproduction, survival, and/or behavioral avoidance of available habitat as a result of noise or human disturbance. Impacts on biological resources would be considered significant if species or special habitats would be adversely affected over large areas, or disturbances would cause reductions in population size or distribution of a species of special concern.

3.4.2.1 Alternative 1

***Vegetation*.** Some of the construction projects would require the temporary or permanent removal of vegetation, which would result in short- and long-term, not significant, adverse impacts on vegetation at Sheppard AFB. No trees would be removed for construction, and most of the construction projects would be situated within highly urban areas or on already impervious surfaces, resulting in minimal vegetation loss and not significant impacts on vegetation. Construction would create approximately 165,300 ft^2 (3.79 acres) of new permanent impervious surface (see **Table 2-2**), within the 80 FTW campus.

Table 3-75. Special Status Species with the Potential to Occur on Sheppard AFB and within SUA

Species	Status	Habitat	Documented on Sheppard AFB?
Mammals			
Texas kangaroo rat (*Dipodomys elator)*	FPE	Identified for potential to occur on Sheppard AFB. Prefers grassland and rangeland habitats of the Southwestern Tablelands and Central Texas Plains, associated with bare ground and short-statured vegetation.	Yes–Historical
Tricolored bat (*Perimyotis subflavus*)	FPE	Identified for potential to occur within SUA where T-7A would fly. Prefers partially open landscapes with large trees and woodland edges.	No
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	BGEPA	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Generally lives within 2.5 miles of bays, lakes, coast, or other bodies of water, including rivers. Nest in large, mature, accessible trees, but may also use cliffs or man-made structures.	No
Golden eagle (*Aquila chrysaetos*)	BGEPA	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Prefers open habitats, particularly those with rocky cliffs or large trees for nesting; inhabits tundra, grasslands, forested areas, shrublands, woodlands, and deserts.	No
Golden-cheeked warbler (*Setophaga chrysoparia*)	FE	Identified for potential to occur within SUA where T-7A would fly. Found in cleared fields growing up to woods, marshes, and tamarack bogs.	No
Piping plover (*Charadrius melodus*)	FT	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Occurs in open, sandy or gravelly beaches with little vegetation.	No
Rufa red knot (*Calidris canutus rufa*)	FT	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Generally found in coastal marine and estuarine habitats.	No
Whooping crane (*Grus americana*)	FE	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Occurs in marshes, prairie pools, and coastal marshes.	No
Insect			
Monarch butterfly (*Danaus plexippus*)	FPT	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Found in fields, roadside areas, open areas, wet areas, and urban gardens. This species lays eggs on obligate milkweed plants (*Asclepia* spp.).	No
Reptile			
Texas horned lizard (*Phrynosoma cornutum*)	ST	Identified for potential to occur on Sheppard AFB. Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush, or scrubby trees.	Yes

Sources: Sheppard AFB 2021c, USFWS 2025a, USFWS 2025b
BGEPA – Bald and Golden Eagle Protection Act; E – Endangered; F – Federal; P – Proposed; S – State; T – Threatened

Much of this area is already maintained regularly and dominated by nonnative bermudagrass. Vegetation within the footprint of new construction would be permanently lost. Once construction activities are complete, exposed soil surrounding new construction would be reseeded with native vegetation to the maximum extent possible as part of restoration efforts. Vegetation would be planted as soon as possible following construction to minimize the potential for erosion and would use seed mixtures suitable for the local climate and in accordance with the installation's INRMP. Vegetation maintenance techniques, timing, and duration would not change due to the Proposed Action.

No impacts on vegetation beneath the SUA are expected. The phased delivery of T-7A aircraft and removal of T-38C aircraft, operations from these aircraft, and the personnel changes associated with Alternative 1 would have no impacts on vegetation.

***Wildlife*.** Short- and long-term, not significant, adverse impacts on wildlife at Sheppard AFB would occur from the construction and renovation projects. Wildlife that could occur near the project areas would avoid these areas temporarily during construction due to intermittent increases in noise from heavy equipment and construction personnel. As a result, direct injury to individuals would be unlikely. Many of the wildlife species on Sheppard AFB are urban-adapted and would likely return to normal behavior once construction is complete and the proposed facilities and infrastructure are operational.

The proposed GBTS facility, maintenance hangar/UMT facility, ramp expansion, hush house, addition to egress shop, munitions storage pad, and hammerhead expansion would be sited on managed grasslands and would require the permanent removal and modification of the existing nonnative grassland. Wildlife species, such as small mammals and grassland birds, may use these areas for foraging and possibly nesting. These areas would be altered permanently and experience more frequent, year-round maintenance resulting in displacement from, and avoidance of these areas by individual wildlife that may move to adjacent available habitat. Because the proposed facilities would not affect large populations of wildlife and because wildlife on Sheppard AFB are habituated to noise, personnel, and activity, the impacts on wildlife from construction and renovation would not be significant.

The highly developed nature of the proposed construction areas results in a not significant impact on wildlife habitat. These areas are primarily confined to the airfield, adjacent hangars, and airfield pavement, which offer few opportunities to support birds and small mammals. The proposed construction and renovation projects would occur on either impervious cover, existing structures, or maintained, nonnative grasslands and lawns.

No activities are proposed in aquatic or semi-aquatic environments where such species, including amphibians, are common. Therefore, no impacts on amphibians are expected.

During construction, measures would be implemented to protect wildlife and avoid or minimize habitat reduction, deterrence, or depredation. Such measures may include placing fencing around construction sites, minimizing vegetation removal, and allowing motile wildlife to relocate. After construction is complete, reclamation or landscaping designs would be implemented as a BMP in accordance with the installation's INRMP.

Post-construction erosion control measures to avoid or minimize effects on wildlife, nesting habitat, or foraging habitat would be stipulated in the erosion and sedimentation control plan required as part of the construction effort.

Long-term, not significant, adverse impacts on wildlife from aircraft strikes and noise may occur from aircraft operations. If necessary, DAF would update the installation's BASH Plan to include the proposed aircraft operations at Sheppard AFB. Measures would be followed, as described in the installation's BASH Plan, to reduce the potential for bird and bat strikes. Aircrews operating in the MOAs would have access to data from the Avian Hazard Advisory System and Bird Avoidance Model systems, which helps them avoid high-risk areas. Bird-aircraft strikes would be reported and processed in accordance with the Sheppard AFB BASH Plan.

Nighttime operations occur at Sheppard AFB with the T-38C and other types of aircraft. As shown in **Table 2-4**, approximately 18 percent fewer nighttime operations are proposed with the T-7A compared to the T-38C's current nighttime operations by 2037 and later, which would reduce the potential for bat strikes. To further minimize impacts on bats entering and leaving roosting sites at dusk and dawn, DAF would follow the installation's BASH Plan (Sheppard AFB 2024c) and FAA Order JO 7110.65, *Air Traffic Control*.

Appendix 1 to Annex C of the BASH Plan identifies current high bird concentrations at Sheppard AFB. Raptors can be particularly hazardous to aircraft because of their size and widespread distribution over bases and low-level areas. Raptors, particularly vultures, use thermals to their advantage to search for prey. Vultures are the greatest concern, as they tend to soar at altitudes from the surface to 2,000 feet and loiter for long periods. Early morning and evening roosts are typically on transmission and communication towers. They take flight early to mid-morning from their roost in search of food (carrion, i.e., dead animals). During their "social soaring" behavior that normally occurs in the mid-afternoon, a large number (kettle) of vultures will congregate at altitudes coinciding with normal aircraft operating altitudes. Raptors can be controlled by removing dead land animals from the airfield, proper management of landfills, rodent control, removal of dead trees and other perching sites on the airfield, live-trap and relocation, and the use of pyrotechnics.

Appendix 1 to Annex C of the BASH Plan also identifies species that have historically posed a higher threat to pilots at Sheppard AFB and respond poorly to traditional harassment measures, including upland sandpipers, cliff swallow, and barn swallow. Deterrent measures mentioned in the BASH Plan include, but are not limited to, vegetation removal, pyrotechnics, vehicle chase, propane cannons, and depredation. Habitat management is the primary and preferred solution to the BASH threat at Sheppard AFB. Grass control along the runways is also used to reduce these species' numbers. According to the BASH Plan, mammals such as deer, coyotes, black-tailed jackrabbits, small rodents, beaver, feral hogs, and rodents pose threats to flight operations. Although less of a hazard compared to birds, trapping, hunting, vegetation management, fence management, rodenticides, and insecticides may be implemented as control measures for these species (Sheppard AFB 2024c).

Annex C in the BASH Plan provides ways to combat bird and wildlife hazards to flight operations through a variety of procedures and techniques. Although not specifically identified as current hazards in the BASH Plan, broad categories of birds and mammals identified at the installation and measures that could be employed to reduce the likelihood of strikes, include the following:

- Modify open ditches on the airfield into enclosed and buried culvert systems.
- Maintain a uniform grass height between 7 to 14 inches per DAFI 91-212. Do not permit grass to exceed 14 inches, as high grass attracts some wildlife species and rodents. This in turn can attract raptors (birds of prey). Airfields with a variety of vegetation species may have a fast-growing strain, which reaches 14 inches sooner than the rest of the airfield. Mow when the average vegetation height reaches 14 inches. Obtain assistance in herbicide selection for weed control, appropriate grass seed selection, fertilization and erosion control vegetation from the U.S. Soil Conservation Service or the Agricultural Extension Service, as needed.
- Keep broad-leaved weeds to a minimum on the airfield. Use authorized USEPA-registered herbicides to control all weed growth to permit the normal growth of grass.
- Remove dead vegetation, plant bare areas with grasses, fertilize grasses, reduce edge effects, maintain a level landscape, employ erosion control vegetation, eliminate standing water, and maintain drainage ditches.
- Remove dead wildlife, eliminate roosting sites, bird-proof buildings and hangars, and implement trapping, fencing, and hunting for larger mammals, as appropriate.

Annex C of the BASH Plan delineates tasks and responsibilities for organizations to execute the installation's BASH Plan. Implementation of these tasks and responsibilities would continue to reduce the potential for strikes around the installation's airfield and vicinity, although the potential cannot be eliminated entirely.

The phased delivery of T-7A aircraft and removal of T-38C aircraft and the personnel changes associated with Alternative 1 are not expected to impact wildlife.

Special Status Species. Alternative 1 would have no effect on the 10 special status species with the potential to occur on Sheppard AFB or with potential for flight at the same altitude as the proposed T-7A operations within the SUA. These species consist of eight capable of flight (i.e., tricolored bat, bald eagle, golden eagle, whooping crane, piping plover, rufa red knot, golden-cheeked warbler, and monarch butterfly), the Texas kangaroo rat, and the Texas horned lizard.

While incidental T-7A strikes with the eight flying species could occur during flight operations, it is unlikely the proposed flight operations would substantially increase incidental strikes compared to the current potential with the T-38C. To draw this conclusion, DAF reviewed available installation BASH recordings between October 2020 through May 2025. Those recordings showed 160 strike incidents occurred with Sheppard AFB T-38C aircraft during that timespan, and none of the species struck were identified to be a protected species. It can therefore be concluded the current T-38C aircraft operations do not affect these eight species. Because T-7A flight operations for Alternative 1 would be less than the current number of T-38C flight operations, it can similarly be expected that the proposed T-7A operations would not affect these eight species as well. Continued adherence of the Sheppard AFB BASH Plan would help

avoid and minimize the potential for strikes in the event of an incidental occurrence of a federally listed or proposed for ESA-listing species. If determined to be necessary, new measures would be developed to reduce the potential for impacts to occur, and the BASH Plan would be updated accordingly. Therefore, Alternative 1 would have no effect on the eight flying species.

While the Texas kangaroo rat has been previously observed on Sheppard AFB, in 2012, Sheppard AFB collaborated with Midwestern State University to conduct habitat assessments for this species, and it was determined that Texas kangaroo rat habitat is not present within the installation. The state-threatened Texas horned lizard also has been observed on the installation (Sheppard AFB 2021c). While it prefers open habitat with sparse vegetation, including grass areas, which is the type of habitat that could coincide with some of the proposed construction projects, each project would occur in a highly urbanized area where the Texas horned lizard is unlikely to be present. Therefore, Alternative 1 would have no effect on the Texas kangaroo rat and Texas horned lizard.

The monarch butterfly is found in fields, roadside areas, open areas, wet areas, and urban gardens, and milkweed plants are necessary for the monarch butterfly life cycle. Three milkweed species (*Asclepias incarnata*, *A. latifolia*, and *A. speciosa*) have been observed at Sheppard AFB; however, there is no suitable habitat within the proposed construction areas for these milkweed species. No observations of the monarch butterfly have been reported within the installation. Therefore, Alternative 1 would have no effect on the monarch butterfly.

On August 11, 2025, DAF sent a letter regarding this determination of effect to the USFWS Arlington Ecological Services Field Office for informal consultation under Section 7 of the ESA. The field office acknowledged receipt of the letter on August 12, 2025, and noted that "federal actions that are determined to have 'no effect' on federally listed species do not require consultation under Section 7 of the ESA." A copy of the USFWS consultation letter is included in **Appendix C**.

3.4.2.2 Alternative 2

T-7A operations that are 25 percent greater than Alternative 1 would have no effect on any federally listed or proposed for ESA-listing species. Compared to Alternative 1, the increase in operations would slightly raise the potential for BASH incidents but result in a similar overall impact. The BMPs described for Alternative 1 would be implemented to minimize the potential for bird and bat strikes. Ground disturbance activities would be the same as Alternative 1 resulting in the same impacts on vegetation and wildlife.

3.4.2.3 Alternative 3

T-7A operations that are approximately 21 percent greater than Alternative 1 and the delivery of up to 23 additional T-7A aircraft would have no effect on any federally listed or proposed for ESA-listing species. Compared to Alternative 1, the increase in operations would slightly raise the potential for BASH incidents, but result in similar overall impacts and be identical to baseline conditions. Control measures and BMPs such as those described for Alternative 1 would be implemented to minimize the potential for bird and bat strikes. Although installing sufficient shelters for the 23 additional T-7A aircraft of Alternative 3 would disturb more ground than Alternatives 1 and 2, the disturbance area would be on the existing Sheppard AFB aircraft parking

ramp, which is an impervious surface devoid of vegetation and wildlife habitat. As a result, ground disturbance activities for Alternative 3 would result in the same impacts on vegetation and wildlife as those described for Alternative 1.

3.4.2.4 No Action Alternative

The No Action Alternative would not contribute to new or additional impacts on biological resources. No facility construction would occur, and there would be no changes in aircraft operations. Vegetation removal would not occur, and no impacts would occur on wildlife or special status species. Biological resources conditions at Sheppard AFB would remain unchanged compared to the existing conditions described in **Section 3.4.1**.

3.5 Cultural Resources

Cultural resources are historic districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. Depending on the retention of original characteristics and historic use, such resources might provide insight into the cultural practices of previous civilizations, or they might retain cultural and religious significance for modern groups. Cultural resources are typically subdivided into archaeological resources, architectural resources, and resources of traditional or religious significance. Archaeological resources are areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., projectile points and bottles) but standing structures do not remain. Architectural resources include standing buildings, structures, objects, and designed landscapes of historic significance. Resources of traditional or religious significance are known as traditional cultural properties (TCPs) and can include archaeological resources, sacred sites, structures, districts, prominent topographic features, habitats, plants, animals, or minerals considered essential for the preservation of traditional culture.

Several federal laws and regulations govern the protection of cultural resources, including the National Historic Preservation Act (NHPA) (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990). Sheppard AFB is required to comply with DAF regulations and instructions regarding cultural resources, including DAF Manual 32-7003, *Environmental Conservation* (DAF 2024). DAF consults with federally recognized tribes in accordance with the laws and regulations listed previously; DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*; and DAFI 90-2002, *Interactions with Federally Recognized Tribes*.

NHPA authorized the Secretary of the Interior to expand and maintain the criteria for assessing the significance of cultural resources. Resources that are listed or eligible for listing in the National Register of Historic Places (NRHP) are termed “historic properties.” Cultural resources must be 50 years or older to warrant consideration for the NRHP. More recent resources might warrant listing if they are of exceptional importance and have attained significance within the past 50 years. Section 106 of the NHPA directs federal agencies to seek ways to avoid, minimize, or mitigate impacts on historic properties through consultation with the appropriate SHPO and federally recognized tribes.

Area of Potential Effect (APE). Federal agencies assess the potential impact of their undertakings on historic properties located within an APE. DAF has defined this undertaking as the Proposed Action and has defined the APE as the potential impact area from all activities, including all areas of potential direct and indirect effects. Direct effects include, but are not limited to, ground disturbance, vibration, building modification and new construction, and staging and equipment storage. Indirect effects include, but are not limited to, noise and aesthetic interference. For this undertaking, the APE is defined as the footprint of all buildings proposed for interior and exterior alteration, all areas of new construction and additions, all landscape features (such as airfield markings) that are proposed for alteration, all new roads and parking lots, and a 50-foot buffer around those areas to account for construction staging and temporary physical impacts from ground disturbing activity. The APE captures all anticipated direct and indirect effects because all new building construction is anticipated to be one-story and not exceed 40 feet in total building height. The APE totals 186 acres and is shown in **Figure 3-19**.

The APE for this undertaking does not include the takeoff and landing approaches at Sheppard AFB or the SUA where the T-7A aircraft would perform operations (see **Appendix A**) because these areas already are used for such operations with the T-38C aircraft, and this undertaking would not change their configuration (e.g., shape, size, altitudes) or active times. As noted in **Section 3.2.2**, SUA noise modeling of the proposed T-7A operations indicates that noise levels would not result in a L_{dnmr} greater than 65 dB in any SUA except for Falcon Range, which already is exposed to an L_{dnmr} greater than 65 dB from T-38C operations. For Alternative 2, which produces the greatest L_{dnmr} values, noise levels at POI in the Falcon Range region would increase by a maximum of 2.5 dB L_{dnmr}. Noise levels of these magnitudes would have no potential to affect historic properties—including adobe structures and TCPs—beneath any SUA, and the SUA does not warrant inclusion in the APE for this undertaking.

Approval of the APE for this undertaking was received from the Texas SHPO on January 3, 2025 (see **Appendix C**).

3.5.1 Affected Environment

Sheppard AFB has an Integrated Cultural Resources Management Plan (ICRMP) that receives annual reviews. The last annual review occurred in 2024 (Sheppard AFB 2024d). This EIS analyzes potential impacts on the cultural resources identified in the ICRMP.

Archaeological Resources. A cultural resources survey was conducted for Sheppard AFB in 1993 by the National Park Service (NPS) (AETC 1993). No archaeological resources were identified during the 1993 survey, and NPS recommended no further archaeological investigations because there was an extremely low probability of any intact cultural deposits within the installation. The Texas SHPO concurred with the survey findings and recommendations (Sheppard AFB 2024d).

Figure 3-19. Cultural Resources Area of Potential Effect

Architectural Resources. Three surveys of historic buildings, structures, and landscapes have occurred for Sheppard AFB. These surveys were conducted in 1993, 2002, and 2012.

During the 1993 NPS cultural resources survey of the installation, the installation's real property inventory was reviewed to identify buildings or structures constructed between 1928 and 1950 that could be eligible for listing on the NRHP. A total of 73 potentially eligible buildings and structures were identified. An additional 18 auxiliary features (e.g., roads, runways, underground utilities) also were reviewed during this survey. The Kell Field Air Terminal Building was the only resource determined eligible for both the NRHP and state register during the 1993 survey. The Kell Field Air Terminal was listed as a Recorded Texas Historic Landmark by the Texas Historical Commission in 1981 (Sheppard AFB 2024d).

A Cold War inventory was conducted in 2002 (AETC 2002). Of the 256 buildings, structures, and auxiliary features that were constructed at Sheppard AFB during the Cold War period, only two were recommended eligible for NRHP listing as Cold War resources: Building 2560 and the Alert Apron. Both were recommended eligible for NRHP listing as components of a Strategic Air Command alert facility for dispersal bases (Sheppard AFB 2024d).

The *Inventory and Assessment of Select Buildings and Structures (Dating Through 1976)* was conducted in 2012 (AETC 2012). The 133 resources evaluated at Sheppard AFB, Sheppard Recreation Annex, and Fredrick Municipal Airport were determined to lack association with important World War II or Cold War military events. In addition, no resources were found to be associated with a significant military mission or event beyond World War II or the Cold War (e.g., medical, aircraft, or communications technology that impacted the military), and none held architectural significance. Thus, none of the 133 resources surveyed in 2012 were recommended eligible for listing in the NRHP (Sheppard AFB 2024d).

Of the buildings and structures proposed for modification in this Proposed Action, Buildings 2320, 2404, 2406, 2408, and 2410 were constructed in 1960 and previously determined not eligible for listing in the NRHP (Sheppard AFB 2024d). The remaining buildings and structures proposed for modification—including the GBTS facility (Building 2326), T-38C shelters, existing hush house, egress shop (Building 2521), and T-7A parts warehouse (Building 2518)—were constructed after 1995.

Resources of Traditional or Religious Significance. No Native American cemeteries, burials, sacred sites, or areas considered a TCP have been identified during surveys at Sheppard AFB (Sheppard AFB 2024d).

Twenty-four federally recognized tribes were identified as having an expressed or potential interest in cultural resources at Sheppard AFB and the SUA. These tribes are the Absentee-Shawnee Tribe of Indians of Oklahoma; Alabama-Quassarte Tribal Town; Apache Tribe of Oklahoma; Caddo Nation of Oklahoma; Cherokee Nation; Cheyenne and Arapaho Tribes; Chickasaw Nation; Choctaw Nation of Oklahoma; Citizen Potawatomi Nation; Comanche Nation; Coushatta Tribe of Louisiana; Delaware Nation, Oklahoma; Fort Sill Apache Tribe; Jicarilla Apache Nation; Kialegee Tribal Town; Kickapoo Tribe of Oklahoma; Kiowa Indian Tribe of Oklahoma; Muscogee Nation;

Osage Nation; Quapaw Tribe of Indians; Seminole Nation of Oklahoma; Thlopthlocco Tribal Town; Tonkawa Tribe of Oklahoma; and Wichita and Affiliated Tribes. DAF consults with tribes on issues related to cultural resource management, the unanticipated discovery of human remains and cultural items under the Native American Graves Protection and Repatriation Act, and on project specific effects under Section 106 of the NHPA.

3.5.2 Environmental Consequences

Impacts on cultural resources result from actions that change culturally valued elements of a resource or restrict access to cultural resources. Impacts on cultural resources may be short- or long-term and direct or indirect. Direct impacts can result from physically altering, damaging, or destroying all or part of a resource. Indirect impacts can occur from alterations to characteristics of the surrounding environment that contribute to the importance of the resource. This includes introducing visual, atmospheric, or audible elements that are out of character with the property or that alter its setting or feeling. Under Section 106 of the NHPA, DAF must determine if the Proposed Action would result in an "adverse effect" on historic properties and must avoid, minimize, or mitigate such effects if they would occur. For the purposes of Section 106, an adverse effect is one that changes elements or characteristics of a historic property that make the property eligible for listing in the NRHP. This analysis focuses on cultural resources that are listed in or eligible for listing in the NRHP and incorporates DAF findings of effect under Section 106 of the NHPA.

3.5.2.1 Alternative 1

A change in the type of aircraft flown or the timing (e.g., daytime or nighttime) and frequency of flight operations would generally have no potential to impact historic properties. As noted in **Section 3.2.2**, T-7A operations at Sheppard AFB would increase noise levels at POI in the region by no more than 4.0 dB DNL for all action alternatives. A noise level increase of this magnitude would not be anticipated to impact any historic properties. A temporary increase in personnel at Sheppard AFB would also have no potential to impact historic properties. The only aspects of Alternative 1 that have the potential to impact historic properties are the construction and renovation projects proposed at the installation. **Table 3-76** lists those projects and summarizes their impacts on historic properties.

Archaeological Resources. Ground disturbance would result from the proposed GBTS facility addition, UMT facility construction, flightline ramp expansion, hush house pad construction, egress shop addition, concrete pad construction for munitions storage, and hammerhead pavement expansion. The potential for archaeological resources to occur within these project areas is low due to the extensive land disturbance and the low potential for archaeological resources based on the prior survey (Sheppard AFB 2024d).

Table 3-76. Cultural Resources Components of the Proposed Action and Impact on Historic Properties

Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
GBTS Facility	Construct a 16,000 ft^2, one-story addition to Building 2326 (constructed 2004) in a grassy area that is partially paved for existing parking. The project would include interior renovation of Building 2326.	N/A – Building 2326 is non-historic	2004	No effect on historic properties
Maintenance Hangar/UMT Facility	Construct an approximately 51,300 ft^2 UMT facility/hangar and an associated parking area.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Ramp Expansion	Construct approximately 60,000 ft^2 of pavement to expand the size of the flightline ramp.	Not eligible (ramp)	1960 (ramp) N/A – Vacant land (expansion area)	No effect on historic properties
Hush House Pad	Construct a new hush house pad (approximately 27,500 ft^2) adjacent to the installation's existing hush house.	N/A – New construction	N/A – Vacant land	No effect on historic properties
T-7A Shelters (Part I and II) and Site Work	Construct new shelters (sunshades) on the existing aircraft parking apron and remove existing non-historic T-38C prefabricated shelters. Electrical utilities, proper lighting, and tie-downs/grounding points would be installed for each shelter.	N/A – New construction. Existing T-38C shelters are non-historic	2007 to 2012	No effect on historic properties
Addition to Egress Shop	Construct an approximately 3,400 ft^2 addition to Building 2521 (constructed 1996).	N/A – Egress building is non-historic	1996	No effect on historic properties
Jet Blast Deflectors	Install approximately 200 linear feet of jet blast deflectors on the existing airfield. Final placement dependent on ramp layout design.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Airfield Reconfiguration	Remark and reconfigure the airfield; install new moorings and anchor rods.	N/A – Remove equipment from existing T-38C shelters (non-historic) and repaint pavement	2007 to 2012	No effect on historic properties
Renovate Squadron Operations Building, Part I	Interior renovation of Building 2320 (constructed 1960).	Not eligible (AETC 2016)	1960	No effect on historic properties
Renovate Squadron Operations Building, Part II	Interior renovation of Building 2320 (constructed 1960).	Not eligible (AETC 2016)	1960	No effect on historic properties
Hangar Renovation	Modify interior components of an existing hangar at one of the following facilities: Building 2404, 2406, 2408, or 2410 (all constructed 1960).	Not eligible (all four buildings; AETC 2016)	1960 (all four buildings)	No effect on historic properties
Remove Aboveground CASS Service Modules	Remove T-38C CASS modules, which are electrical equipment panels attached to existing T-38C shelters. CASS lines to the rows would be cut and capped, and vaults would be filled with concrete.	N/A – Remove equipment from existing T-38C shelters (non-historic)	2007 to 2012	No effect on historic properties
Compass Rose & Trim Pad	Repair/prepare existing aircraft pavement for a compass rose and trim pad.	N/A – New construction/paint	N/A – Vacant land	No effect on historic properties
Munitions Storage Pad	Construct an approximately 3,600 ft^2 concrete pad and provide utilities for a storage container.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Hammerhead Expansion	Construct an approximately 3,500 ft^2 expansion to the existing hammerhead paved area.	Not eligible (pavement)	1960 (pavement) N/A – Vacant land (expansion area)	No effect on historic properties
Renovate T-7A Parts Warehouse	Interior electrical modifications to Building 2518 (constructed 2007), which is an existing parts warehouse.	N/A – Building 2518 is non-historic	2007	No effect on historic properties

Source: AETC 2024b

The GBTS facility addition would be constructed immediately adjacent to Building 2326, which was constructed in 2004. The maintenance hangar/UMT facility would be constructed on vacant land along the existing flightline ramp, which is a large, paved area that would be expanded within grass areas that have been previously disturbed by installation activities. The new hush house pad would be constructed adjacent to the existing hush house, which was constructed in 1996, within grass areas that have been previously disturbed by installation activities. The egress shop addition would be constructed adjacent to the existing egress shop (Building 2521), which was constructed in 1996. The munitions storage pad would be constructed in an open area currently used for vehicle parking. Expansion of the existing hammerhead paved area would be constructed within grass areas that have been previously disturbed by installation activities. All areas where ground disturbance is proposed were part of the 1993 archaeological survey, which did not identify any archaeological resources. The remaining project activities, primarily interior building alterations, would have no potential to impact archaeological resources as they would entail no ground disturbance.

Architectural Resources. None of the planned project activities would have any effect on architectural resources. Two projects would involve the renovation and expansion of existing, non-historic buildings (i.e., GBTS facility and Egress Shop additions), one project would involve the replacement of non-historic structures with new structures (i.e., aircraft shelter replacements), five projects would involve construction of new buildings and structures on vacant land (i.e., UMT facility, hush house pad, jet blast deflectors, compass rose and trim pad, and munitions storage pad), two projects would involve expansion of 1960 pavement areas determined not eligible during previous cultural resources surveys (i.e., flightline ramp and hammerhead expansions), three projects would include interior alterations to historic-age buildings that were constructed in 1960 and have been previously determined not eligible for the NRHP (i.e., renovation of squadron operations building parts I and II and hangar renovation), and one project would involve interior alterations to a non-historic building (i.e., T-7A parts warehouse). Lastly, airfield improvements such as repainting lines, replacement of CASS equipment, and replacing anchor rods would occur on existing pavement and have no potential to impact existing buildings or structures. **Table 3-76** lists the proposed projects and summarizes their impacts on historic properties.

The three architectural resources located on Sheppard AFB that were previously determined eligible for listing in the NRHP (i.e., Kell Field Air Terminal Building, Building 2560, and the Alert Apron) are not located within the APE or have any potential to be impacted by T-7A recapitalization. No potential historic districts have been identified during previous surveys. Any project activities involving historic-age buildings would be confined to building interiors of resources previously determined not eligible for listing in the NRHP (i.e., Buildings 2320, 2404, 2406, 2408, and 2410) (Sheppard AFB 2024d). All exterior building alterations are proposed to occur to non-historic buildings on the installation.

An adverse effect is one that changes elements or characteristics of a historic property that make the property eligible for listing in the NRHP. DAF applied the Criteria of Adverse Effect and determined that the Proposed Action would have no effect on historic properties. DAF consulted with the Texas SHPO, who concurred with DAF's

finding of no effect on historic properties in a letter dated January 3, 2025 (see **Appendix C**).

Resources of Traditional or Religious Significance. No Native American TCPs, cemeteries, burials, or sacred sites have been identified at Sheppard AFB, so no impacts on these types of cultural resources would occur. If an inadvertent discovery of Native American human remains occurs during construction, all work activity would cease until an investigation is completed, and DAF would consult with potentially affected Native American tribes to determine a course of action.

For this Proposed Action, DAF consulted with the 24 Native American tribes with interest in Sheppard AFB and the SUA (see **Section 3.5.1** for a list of those tribes) to confirm no relevant sacred sites or TCPs are present. Each tribe was initially contacted in July 2024 as part of the EIS public scoping process. Only the Muscogee Nation responded to the scoping contact. In a letter dated July 30, 2024, the Muscogee Nation acknowledged receipt of the scoping materials and noted that the project is occurring in the tribe's area of interest. The tribe stated they were unaware of any known historic properties that may be impacted by the proposed undertaking, would only like to be contacted further in relation to the project if cultural items or remains are inadvertently discovered, and have no objections to the project.

DAF mailed a second government-to-government consultation letter in December 2024 to 23 of the 24 tribes with an interest in Sheppard AFB and the SUA. The Muscogee Nation was not mailed the second government-to-government consultation letter because they previously requested no further consultation for this undertaking unless items of significance are discovered. The December 2024 consultation letter requested assistance in identifying relevant historic properties of religious and cultural significance to tribal nations. The Quapaw Tribe of Indians, Chickasaw Nation, and Comanche Nation were the only tribes to respond to the second consultation letter. In a letter dated December 18, 2024, the Quapaw Tribe of Indians acknowledged receipt and review of the provided consultation materials, determined the project does not fall within their tribal area of interest, and declined to provide comments on the undertaking. In a letter dated December 19, 2024, the Chickasaw Nation stated they had reviewed the consultation materials and determined they do not request government-to-government consultation for this undertaking because it is outside their area of interest. They have no objections to the undertaking and defer to the tribes with a connection to this area. In a letter dated January 13, 2025, the Comanche Nation stated they had cross-referenced the project location with their files and determined the project is located where "no properties" have been identified. **Appendix C** contains copies of the consultation letters.

3.5.2.2 Alternative 2

Impacts on cultural resources from T-7A operations that are 25 percent greater than Alternative 1 would be the same as those described for Alternative 1 because the proposed increase in flight operations would have no potential to impact historic properties. Thus, similar to Alternative 1, no effect on historic properties would occur from Alternative 2.

3.5.2.3 Alternative 3

Impacts on cultural resources from T-7A operations that are 21 percent greater than Alternative 1 and the delivery of up to 23 additional T-7A aircraft would be the same as those described for Alternatives 1 and 2. No impacts on historic properties would occur from the installation of sufficient shelters for all T-7A aircraft of Alternative 3 because all shelters would be constructed on the existing, non-historic ramp. Thus, similar to Alternatives 1 and 2, no effect on historic properties would occur from Alternative 3.

3.5.2.4 No Action Alternative

The No Action Alternative would not impact historic properties. No facility construction would occur, and there would be no changes in aircraft operations. Cultural resources at Sheppard AFB would remain unchanged when compared to the existing conditions described in **Section 3.5.1**.

3.6 Hazardous Materials and Wastes

Hazardous Materials, Hazardous Wastes, and Petroleum Products. Hazardous materials are hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table in 49 CFR Section 172.101, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR Part 173. Hazardous wastes are a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed, or otherwise managed (42 United States Code [USC] Section 6903(5)). Petroleum products include crude oil or any derivative thereof, such as gasoline, diesel, or propane.

Toxic Substances. Toxic substances are asbestos-containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs), all of which are typically found in older buildings and utilities infrastructure. USEPA has the authority to regulate these substances through the Toxic Substances Control Act (15 USC Chapter 53).

Material containing more than 1 percent asbestos by weight is considered an ACM. Several bans on various ACMs have occurred between 1973 and 1990, so ACMs are most likely to be found in buildings constructed before 1990. ACMs are generally found in building materials such as floor tiles, mastic, roofing materials, pipe wrap, and wall plaster. LBP was used commonly prior to its ban in 1978; therefore, any building constructed prior to 1978 may contain LBP. PCBs are human-made chemicals that persist in the environment and were widely used in building materials (e.g., caulk) and electrical products prior to 1979. Structures constructed prior to 1979 potentially include PCB-containing building materials.

Legacy Environmental Contamination. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) governs the response or cleanup actions to address hazardous substance, pollutant, and contaminant releases into the environment, and the Defense Environmental Restoration Program provides for the cleanup of DoW property. Two restoration programs under the Defense Environmental Restoration Program are the Installation Restoration Program (IRP) and the Military

Munitions Response Program (MMRP). IRP addresses contaminated sites, while MMRP addresses nonoperational military ranges and other sites suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituents. Each site is investigated, and appropriate remedial actions are taken under the supervision of applicable federal and state regulatory programs. When no further remedial action is granted for a given site, it is closed and no longer represents a threat to human health.

PFAS. DAF is currently investigating potential effects related to chemicals known as PFAS. This family of chemicals was developed in the 1940s and includes perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). Aqueous film forming foam (AFFF) containing PFAS was developed in the early 1960s and used at U.S. airports, municipal fire stations, and petroleum facilities to extinguish hydrocarbon-based fires effectively. Fire fighters at military installations used AFFF regularly in emergencies or trained with AFFF in an unconfined manner. The latest regulations established by the USEPA designate PFOA and PFOS as hazardous substances under CERCLA. Maximum Contaminant Levels have been established for six PFAS in drinking water (USEPA 2024c).

Radon. Radon is a naturally occurring, odorless, and colorless radioactive gas found in soils and rocks that can lead to the development of lung cancer. Radon tends to accumulate in enclosed spaces, usually those that are below ground and poorly ventilated (e.g., basements). USEPA established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences, and radon levels above this amount are considered a health risk to occupants.

3.6.1 Affected Environment

Hazardous Materials, Hazardous Wastes, and Petroleum Products. DAF uses hazardous materials and petroleum products such as liquid fuels, pesticides, and solvents for everyday operations at Sheppard AFB. The use of these materials results in the generation and storage of hazardous waste and used petroleum products on the installation. DAF installations manage hazardous materials through DAF Manual 32-7002 (DAF 2025a). Hazardous materials are purchased and tracked through the installation's Enterprise Environmental, Safety, and Occupational Health-Management Information System (EESOH-MIS). Use and application of pesticides and herbicides on Sheppard AFB are performed in accordance with the installation's Integrated Pest Management Program and in compliance with the Federal Insecticide, Fungicide, and Rodenticide Act and the installation's Integrated Pest Management Plan (IPMP).

Sheppard AFB is a Resource Conservation and Recovery Act Large Quantity Generator and a Large Quantity Universal Waste Handler. Hazardous waste generating activities on Sheppard AFB include aircraft, automotive, and building and grounds maintenance, as well as processes including metal fabrication, bead blasting, painting, parts washing, and parts cleanup. Hazardous wastes generated include spent antifreeze, used filters, blast dust media, absorbents, paint-related material, paint, solvents, adhesives, sealants, and lead debris. Universal wastes generated include pesticides and herbicides, aerosol cans, thermostats, and used or spent lamps and batteries (Sheppard AFB 2021a).

Sheppard AFB has implemented an installation-wide Spill Prevention, Control, and Countermeasure (SPCC) Plan; Integrated Solid Waste Management (ISWM) Plan; Storm Water Pollution Prevention Plan (SWPPP); Hazardous Waste Management Plan (HWMP); and IPMP. These plans define roles and responsibilities, address record keeping requirements, and provide spill contingency and response requirements.

Of the facilities subject to renovation by the Proposed Action, hazardous materials, hazardous wastes, and petroleum products are most likely to be stored, used, and generated at the Egress Shop and Buildings 2404, 2406, 2408, and 2410.

Toxic Substances. ACM on Sheppard AFB is managed in accordance with the installation's Asbestos Management Plan (Sheppard AFB 2020). Of the facilities proposed for renovation, Buildings 2320, 2404, 2406, 2408, and 2410 were constructed prior to 1990 and have a potential to contain ACM. Buildings 2326, 2518, and 2521 were constructed in 2004, 2007, and 1996, respectively, and are less likely to contain ACM (Sheppard AFB 2024d).

The location of any LBP in facilities is communicated to appropriate personnel in order to identify potential hazards and avoid disturbance of affected building materials. Of the facilities proposed for renovation, Buildings 2320, 2404, 2406, 2408, and 2410 were constructed prior to 1978 and have potential to contain LBP (Sheppard AFB 2024d).

Of the facilities proposed for renovation, Buildings 2320, 2404, 2406, 2408, and 2410 were constructed prior to 1979 and have a potential to contain PCBs. Older electrical infrastructure within these buildings, such as light fixtures and surge protectors, might also contain PCBs (Sheppard AFB 2024d).

Legacy Environmental Contamination. There are no active IRP or MMRP sites on Sheppard AFB (AFCEC 2024). Although there are closed IRP sites on Sheppard AFB that have established land use controls and are undergoing long-term management, none of these sites occur within or immediately adjacent to the proposed construction and renovation projects.

PFAS. Sheppard AFB formerly used AFFF containing PFAS during firefighter training and emergency response at aircraft crash sites. In 2019, a Site Inspection (SI) was conducted at Sheppard AFB to determine whether a release of PFAS had occurred. The SI evaluated 10 potential AFFF release areas on the installation comparing analytical results to screening values for soil, groundwater, and sediment. None of these sites directly coincide with the construction and renovation projects but three sites (i.e., AFFF Areas 1, 4, and 5) are within 0.25 mile (see **Figure 3-20**). PFAS were detected in soils at all three sites and in shallow groundwater (i.e., between 3 and 10 feet below ground surface [bgs]) at AFFF Areas 1 and 5 (AFCEC 2019). AFFF Areas 1, 4, and 5 were advanced to a Remedial Investigation under CERCLA, which began in September 2022.

Radon. USEPA rates Wichita County, Texas, as radon zone 3. Counties in zone 3 have a predicted average indoor radon screening level less than 2 pCi/L (USEPA 2024d).

Figure 3-20. Location of Relevant PFAS Sites

3.6.2 Environmental Consequences

Impacts on or from hazardous materials and wastes would be considered significant if a proposed action would result in noncompliance with applicable federal or state regulations or increase the amounts generated or procured beyond current management procedures, permits, and capacities. Impacts on contaminated sites would be considered significant if a proposed action would disturb or create contaminated sites resulting in negative impacts on human health or the environment, or if a proposed action would make it substantially more difficult or costly to remediate existing contaminated sites.

3.6.2.1 Alternative 1

Hazardous Materials, Hazardous Wastes, and Petroleum Products. Short-term, not significant, adverse impacts would occur from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction and renovation. Hazardous materials that could be used include paints, welding gases, solvents, preservatives, and sealants. Additionally, hydraulic fluids and petroleum products, such as diesel and gasoline, would be used in vehicles and equipment supporting facility construction. Construction would generate minimal quantities of hazardous wastes. Contractors would be responsible for the disposal of hazardous wastes in accordance with BMPs outlined in the Sheppard AFB SPCC Plan and HWMP and federal and state laws. All hazardous materials, petroleum products, and hazardous wastes used or generated during construction would be contained, stored, and managed appropriately (e.g., secondary containment, inspections, spill kits) in accordance with applicable regulations to minimize the potential for releases. All construction equipment would be maintained according to the manufacturer's specifications and drip mats would be placed under parked equipment, as needed. Hazardous materials, hazardous wastes, and petroleum products currently within the affected portions of the Egress Shop and Buildings 2404, 2406, 2408, and 2410 would be relocated within the facilities or to similar facilities as required to accommodate the proposed renovation of these buildings.

New hazardous materials storage and hazardous waste collection points would be established, as necessary, based on anticipated building functions and hazardous waste streams. They would most likely be sited in the proposed UMT facility; Hush House; expanded Egress Shop; and Buildings 2404, 2406, 2408, and 2410. The installation's SPCC Plan, ISWM Plan, SWPPP, and HWMP would be amended, as needed, for any changes to hazardous material, hazardous waste, or petroleum product capabilities. These plans and federal and state laws and regulations would continue to be followed to lessen the potential for a release.

Use and application of pesticides and herbicides would continue to be performed in accordance with the installation's IPMP and in compliance with the Federal Insecticide, Fungicide, and Rodenticide Act. Pesticides and herbicides used on the installation are applied by certified technicians and in accordance with USEPA guidance and labels (Sheppard AFB 2021c).

Short-term, not significant, adverse impacts would occur from a temporary increase in the use of hazardous materials and petroleum products and generation of hazardous wastes during the aircraft transition period. Although the total number of aircraft on

Sheppard AFB would not increase during the transition period, additional quantities of hazardous materials, petroleum products, and hazardous wastes would need to be delivered, stored, used, and disposed of appropriately at Sheppard AFB from the maintenance of two types of aircraft. Sheppard AFB is anticipated to have enough delivery, storage, and disposal capacity to accommodate the increased hazardous material, petroleum product, and hazardous waste requirements. The quantities of hazardous materials, petroleum products, and hazardous wastes required for maintenance of individual T-7A aircraft would be similar and proportional to those required for T-38C aircraft. No long-term, adverse impacts would occur because by 2037 the number of T-7A aircraft to maintain at Sheppard AFB would be less than the current number of T-38C aircraft. As such, the use of hazardous materials and petroleum products and the generation of hazardous wastes from routine aircraft maintenance would decrease from current conditions.

Annual flight operations at Sheppard AFB would decrease by approximately 31,000 operations at full implementation. Therefore, no increase in the quantity of jet fuel delivered, stored, and used at Sheppard AFB is expected. The installation's SPCC Plan, ISWM Plan, and HWMP would continue to be followed to reduce the potential for a release.

Toxic Substances. Short-term, not significant, adverse impacts from toxic substances could occur from the renovation of Buildings 2320, 2404, 2406, 2408, and 2410, which potentially contain ACMs, LBP, or PCBs. Surveys for these substances would be completed, as necessary, by a certified contractor prior to work activities to ensure that appropriate measures are taken to reduce the potential exposure to, and release of, these substances. Contractors would wear appropriate personal protective equipment (PPE) and would be required to adhere to all federal, state, and local regulations, as well as the installation's management plans for toxic substances. All ACM- and LBP-contaminated debris would be disposed of at a USEPA-approved landfill. New building construction is not likely to include the use of these substances because federal policies and laws limit their use in building construction applications. Long-term, not significant, beneficial impacts would occur from renovation of these buildings by reducing the potential for future human exposure and reducing the amount of ACMs, LBP, and PCBs to be maintained at Sheppard AFB.

Legacy Environmental Contamination. Sheppard AFB does not have any IRP or MMRP sites that meet the criteria for inclusion in the EIS; therefore, no impacts from legacy environmental contamination would occur. Contractors performing construction could encounter undocumented soil or groundwater contamination. If soil or groundwater that is believed to be contaminated were discovered, the contractor would be required to stop work immediately, report the discovery to the installation, and implement appropriate safety measures. The contractor would be responsible for management and disposal of all contaminated media. Contaminated media would be containerized, pending analysis, and disposed of according to the appropriate disposal facility's requirements. Work activities would resume when the issue is resolved.

PFAS. No impacts from PFAS are anticipated. None of the construction projects would be sited within the footprint of or immediately adjacent to an AFFF area; therefore, no potentially PFAS-contaminated soil would be disturbed. Although shallow

(i.e., approximately 3 to 10 feet bgs), potentially PFAS-contaminated groundwater is associated with AFFF Areas 1 and 5, groundwater does not flow toward the project areas, and construction is not expected to require excavation to the depth of groundwater. Construction would not impact the ability to remediate, investigate, or monitor these sites.

Radon. No impacts from radon would occur because buildings in Wichita County, Texas, are typically found to have a predicted average indoor radon level less than 2 pCi/L (USEPA 2024d). Therefore, radon levels above 4 pCi/L are unlikely to be encountered inside of the proposed or renovated buildings.

3.6.2.2 Alternative 2

Impacts on hazardous materials and wastes from T-7A operations that are 25 percent greater than Alternative 1 would be slightly greater than those described for Alternative 1. Compared to Alternative 1, the increase in aircraft operations would require additional quantities of hazardous materials, hazardous wastes, and petroleum products (most notably jet fuel) to be delivered, stored, used, and disposed of appropriately at Sheppard AFB. Sheppard AFB is anticipated to have enough delivery, storage, and disposal capacity to accommodate the increased hazardous materials, petroleum products, and hazardous wastes requirements. The Sheppard AFB SPCC Plan, ISWM Plan, SWPPP, and HWMP would continue to be followed to lessen the potential for a release to the environment.

3.6.2.3 Alternative 3

Impacts on hazardous materials and wastes from T-7A operations that are approximately 21 percent greater than Alternative 1 and the delivery of up to 23 additional T-7A aircraft would be slightly greater than those described for Alternative 1 but identical to baseline levels. Compared to Alternative 1, the increase in aircraft operations and the additional aircraft to maintain would require additional quantities of hazardous materials, hazardous wastes, and petroleum products (most notably jet fuel) to be delivered, stored, used, and disposed of appropriately at Sheppard AFB. The number of T-7A aircraft and flight operations would be the same as baseline levels, and the installation's SPCC Plan, ISWM Plan, SWPPP, and HWMP would continue to be followed to lessen the potential for a release to the environment. The installation of sufficient shelters for all T-7A aircraft of Alternative 3 would have no additional impacts on hazardous materials and wastes.

3.6.2.4 No Action Alternative

The No Action Alternative would not impact hazardous materials and wastes. No facility construction would occur, and there would be no changes in aircraft operations. Additional quantities of hazardous materials, petroleum products, and hazardous wastes would not be used, stored, or generated, and the management of hazardous materials, petroleum products, and hazardous wastes would not change. Toxic substances would remain and continue to require maintenance by DAF personnel. No impacts on or from legacy environmental contamination, PFAS, or radon would occur. Hazardous materials and wastes conditions at Sheppard AFB would remain unchanged compared to the existing conditions described in **Section 3.6.1**.

3.7 Safety

Safety addresses the well-being, safety, and health of members of the public, contractors, and DAF personnel during the various aspects of the Proposed Action. A safe environment is one in which there is no (or an optimally reduced) potential for serious bodily injury or illness, death, or property damage. Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the hazard's proximity to the population. Safety hazards relevant to this Proposed Action include construction, mission, and flight activities.

3.7.1 Affected Environment

Construction Safety. Contractors performing construction activities on Sheppard AFB are responsible for following OSHA regulations and are required to conduct these activities in a manner that does not increase risk to workers or the public. OSHA regulations address the health and safety of people at work and cover potential exposure to a range of chemical, physical, and biological hazards, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure via administrative or engineering controls, substitution, use of PPE, and availability of Safety Data Sheets.

Construction contractors are responsible for reviewing potentially hazardous workplace conditions; monitoring worker exposure to workplace chemical (e.g., asbestos, lead, hazardous substances), physical (e.g., noise propagation, falls), and biological (e.g., infectious waste, wildlife, poisonous plants) agents and ergonomic stressors; and recommending and evaluating controls (e.g., prevention, administrative, engineering, PPE) to ensure exposure to personnel is eliminated or adequately controlled. Additionally, employers are responsible for providing occupational health physicals for workers using respiratory protection; engaged in work with hazardous waste, asbestos, or lead; or otherwise requiring medical monitoring.

Mission Safety. Mission safety on DAF installations is maintained through adherence to DoW and DAF safety policies and plans. DAF safety programs ensure the safety of personnel and the public on the installation by regulating mission activities. DAFI 91-202, *The Department of the Air Force (DAF) Mishap Prevention Program,* implements DAF Policy Directive 91-2, *Safety Programs*, and provides guidance for implementing the safety program for all activities that occur on DAF installations.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks that may disproportionately impact children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Activities occurring near areas that could have higher concentrations of children during any given time, such as schools and childcare facilities, might further intensify potential impacts on children.

Sheppard AFB is a secure military installation and access is limited to military personnel, civilian employees, military dependents, and approved visitors. Aircraft operations and maintenance activities performed on Sheppard AFB, including those done currently for the T-38C, are accomplished in accordance with applicable DAF safety regulations, published DAF Technical Orders, and standards prescribed by DAF occupational safety and health requirements. Adherence to industrial-type safety procedures and directives ensures safe working conditions.

Explosive Safety Quantity Distance (ESQD) arcs are buffers around facilities that contain high-explosive munitions or flammable elements. The size and shape of an ESQD arc depends on the facility and the net explosive weight of the munitions being housed. Separations set by ESQD arcs establish the minimum distances necessary to prevent the exposure of DAF personnel and the public to potential explosive safety hazards. ESQD arcs cover approximately 335 acres, or approximately 7 percent of Sheppard AFB. Incompatible development is restricted within the ESQD arcs to reduce safety risks and protect mission requirements. The munitions storage pad is the only construction project proposed within an ESQD arc (Sheppard AFB 2016).

Flight Safety. The primary safety concern regarding military flights is the potential for aircraft mishaps (i.e., crashes or crash landings), including those caused by adverse weather events and wildlife strikes. DAFI 91-202 establishes mishap prevention program requirements (including those for BASH incidents), assigns responsibilities for program elements, and contains program management information.

Land use restrictions are intended to protect the public from exposure to aircraft operation hazards. The AICUZ program is used to protect public and DAF personnel health and safety, as it relates to aircraft noise, accident potential, and the intersection with land use. Each DAF installation's AICUZ study identifies CZs and APZs to protect the public from aircraft mishaps. Of the safety zones, the CZ has the highest accident potential. The majority of Sheppard AFB CZs are on installation property. Approximately 371 acres of the CZs fall outside of the installation boundary with no population within these areas (Sheppard AFB 2016, Sheppard AFB 2011).

APZ I is less critical than the CZ, but still possesses a substantial risk factor. APZ II begins at the outer edge of and is less critical than APZ I but still possesses the potential for accidents. Within APZ I and II, high density uses (e.g., schools, apartments, churches) and more intense uses (e.g., office buildings, strip malls) should be limited. There are some developed areas within APZs I and II north and south of Sheppard AFB that consist of residential homes, a gun club, and a church. Low-density single-family residential homes are considered incompatible use in APZ I but not APZ II. High-density residential homes and the church are considered incompatible uses within APZ I and II. These developments existed before AICUZ-related land use recommendations (Sheppard AFB 2016, Sheppard AFB 2011).

Each runway end at Sheppard AFB has a CZ and two APZs (see **Figure 3-21**). The CZs measure 3,000 feet wide (i.e., 1,500 feet on either side of the runway centerline) and 3,000 feet long. There is a near overlap of the center runway's APZ II and the north runway's CZ. APZ I extends 5,000 feet from the CZ and is 3,000 feet wide. APZ II extends an additional 7,000 feet from APZ I and is also 3,000 feet wide. The CZ and APZs at Sheppard AFB cover approximately 3,595 acres of off-installation land. There are approximately 12 acres of incompatible residential land within APZ I and 3 acres within APZ II (Sheppard AFB 2011).

3.7.2 Environmental Consequences

Any increase in safety risks is considered an adverse impact on safety. Significant impacts on safety would occur if a proposed action did either of the following:

- Substantially increased risks associated with the safety of DAF personnel or the general public
- Introduced a new safety risk for which DAF is not prepared or does not have adequate management and response plans in place.

3.7.2.1 Alternative 1

Construction Safety. Short-term, not significant, adverse impacts on contractor health and safety would occur during construction and renovation. Construction activities are inherently hazardous because personnel are potentially exposed to health and safety hazards from heavy equipment operation; hazardous materials and chemical use; and working in confined, poorly ventilated, and noisy environments. Therefore, contractors performing construction work would be exposed to an environment containing slightly greater health and safety risks than a non-construction environment.

To minimize health and safety risks, construction contractors would be required to use appropriate PPE and establish and maintain site-specific health and safety programs for their employees. Contractor health and safety programs would follow all applicable federal OSHA regulations and would be reviewed by Sheppard AFB personnel prior to work beginning to ensure that appropriate measures are taken to reduce the potential for exposure of workers and installation personnel to health and safety risks. OSHA requirements for excavations, specified in 29 CFR Part 1926 Subpart P, would be followed for excavation and trenching activities.

Construction contractors would work within an existing ESQD arc to build the proposed munitions storage pad. Sheppard AFB personnel would ensure appropriate precautions are taken to prevent an inadvertent explosion caused by construction. Such precautions could include prohibiting the loading or transport of explosive material while contractors are present or temporarily storing explosive material at locations farther away from the construction site.

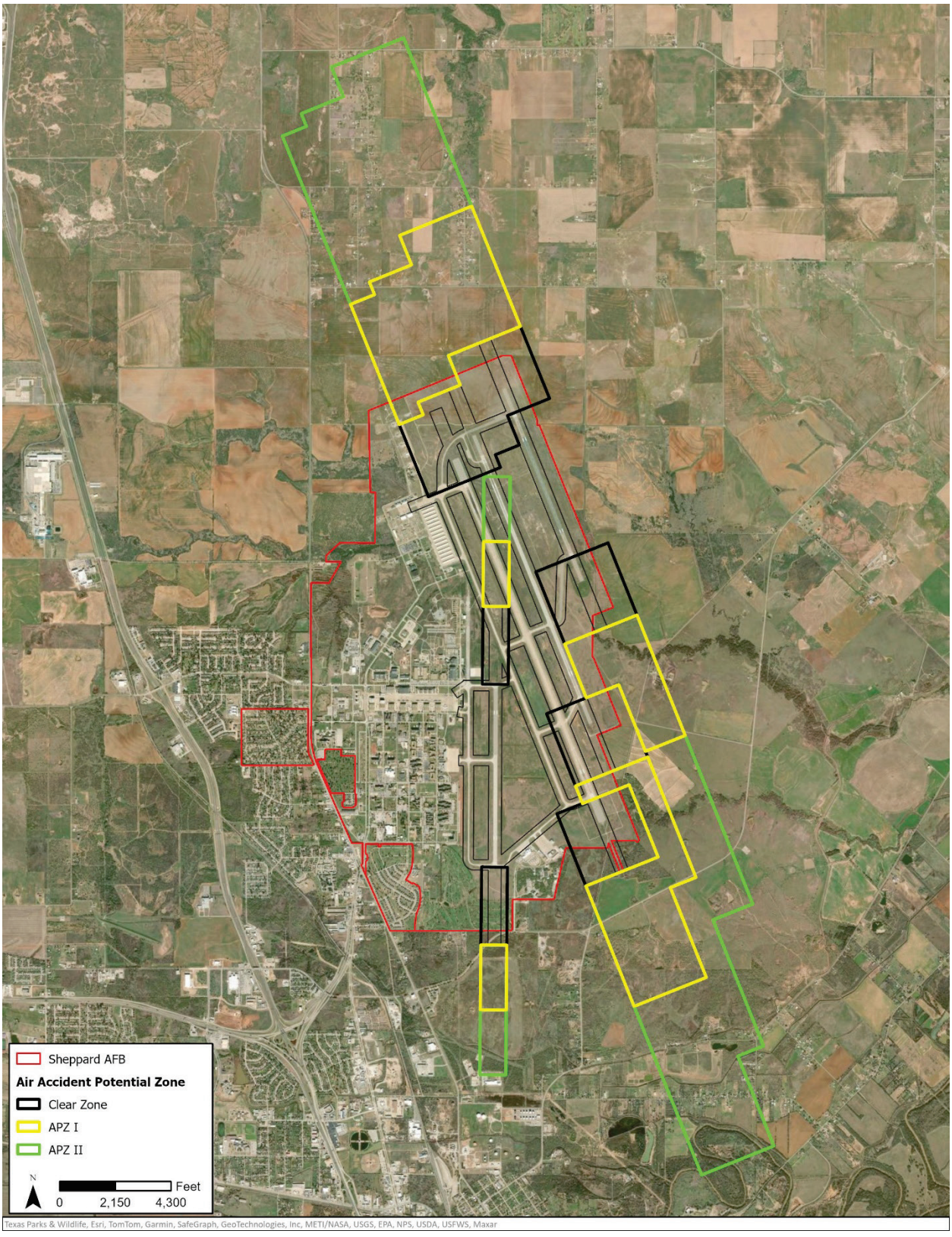


Figure 3-21. CZs and APZs at Sheppard AFB

Mission Safety. No adverse impacts on the health and safety of military personnel would occur. All mission-related activities for Alternative 1 would be carried out in accordance with DoW and DAF safety policies and plans. Aircraft maintenance activities would be accomplished similar to those performed for the T-38C and in accordance with applicable DAF safety regulations, published DAF Technical Orders, and standards prescribed by DAF occupational safety and health requirements. Adherence to industrial-type safety procedures and directives would ensure safe working conditions.

No adverse impacts on the health and safety of civilians would occur. As previously noted, Sheppard AFB is a secure military installation and access is limited to military personnel, civilian employees, military dependents, and approved visitors. No construction or mission activities would occur within facilities frequented by children, and the environmental health and safety risks from construction and mission activities would not disproportionately impact children more than other populations.

The proposed munitions storage pad would be sited within an existing ESQD arc, which is necessary to ensure the safety of nearby populations from the explosive hazard of T-7A ejection seat explosive components. Sheppard AFB would adjust the ESQD arc boundaries as required.

Flight Safety. DAF evaluated the T-7A's airworthiness and certified its compliance to fly. Therefore, T-7A operations would not be expected to increase the potential for mishaps, and individuals within APZs I and II would not be at an additional risk.

No adverse impacts on flight safety would occur. Annual flight operations at Sheppard AFB would decrease by approximately 31,000 operations at full implementation, resulting in a slightly lower potential for aircraft mishaps compared to existing conditions. All aircraft operations would continue to be performed in accordance with standard flight rules and local operating procedures and policies. The CZs and APZs would remain unchanged.

3.7.2.2 Alternative 2

Impacts on contractor and mission safety would be the same as those described for Alternative 1. The 25 percent increase in operations would increase the potential for BASH incidents and other flight mishaps associated with greater airfield use, compared to Alternative 1. The overall potential for BASH incidents and other mishaps is not expected to be significantly greater than Alternative 1 because all safety programs in place for existing aircraft operations, including the BASH program, would continue to be followed. As a result, the proposed increase in operations would not be expected to increase the potential for mishaps, and individuals living within APZs I and II would not be at an additional risk. The CZs and APZs would remain unchanged.

3.7.2.3 Alternative 3

Impacts on contractor and mission safety would be the same as those described for Alternative 1. Impacts on flight safety from T-7A operations that are 21 percent greater than Alternative 1 and the delivery and maintenance of up to 23 additional T-7A aircraft would be greater than those described for Alternative 1 but identical to baseline levels. As a result, Alternative 3 would not increase the potential for mishaps, and individuals living within APZs I and II would not be at an additional risk. The CZs and APZs would

remain unchanged. The installation of sufficient shelters for all T-7A aircraft of Alternative 3 would have no additional impacts on safety.

3.7.2.4 No Action Alternative

For the No Action Alternative, no impacts on safety would occur. No facility construction would occur, and aircraft operations would not change. Construction, mission, and flight safety conditions at Sheppard AFB would remain unchanged compared to the existing conditions described in **Section 3.7.1**.

3.8 Water Resources

The water resources relevant to the Proposed Action are groundwater, surface water, wetlands, and floodplains at Sheppard AFB. No impacts on water resources beneath the SUA would occur; therefore, water resources in the SUA are not discussed further in this EIS.

Groundwater. Groundwater is water that collects or flows beneath the Earth's surface, filling the porous spaces in soil, sediment, and rocks. Groundwater originates from precipitation, percolates through the ground surface, and is often used for potable water consumption, agricultural irrigation, and industrial applications.

Surface Water. Surface water includes natural, modified, and constructed water confinement and conveyance features above groundwater. These features are generally classified as streams, springs, wetlands, natural and artificial impoundments (e.g., ponds, lakes), and constructed drainage canals and ditches. Stormwater is surface water generated by precipitation events that may percolate into permeable surficial sediments or flow across the top of impervious or saturated surficial areas, which is a condition known as runoff. High proportions of impervious surfaces associated with buildings, roads, and parking lots can exacerbate stormwater runoff. Stormwater management systems reduce sediments and other contaminants that would otherwise flow directly into surface waters.

The Clean Water Act (CWA) (33 USC Sections 1251 et seq., as amended) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES), on the amount of specific pollutants that are discharged to surface waters to restore and maintain the water's chemical, physical, and biological integrity. TCEQ issues NPDES permits in the state under the Texas Pollutant Discharge Elimination System (TPDES) program.

The NPDES stormwater program requires construction site operators engaged in activities that disturb 1 acre or more to obtain coverage for their stormwater discharges under a General Permit for Stormwater Discharge from Large and Small Construction Activities. An applicant applies to the TCEQ for coverage under a Construction General Permit, under which their construction activities would be covered. The applicant is required to prepare a NOI to discharge stormwater and a SWPPP that is implemented during work activities. The permit mandates use of BMPs to ensure that soil disturbance does not pollute water bodies.

Section 438 of the Energy Independence and Security Act (EISA) (42 USC Section 17094) establishes stormwater design requirements for federal construction projects that disturb a footprint greater than 5,000 ft^2. Additional guidance is provided in the

USEPA's *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the EISA*. DoW's Unified Facilities Criteria (UFC) 3-210-10, *Low Impact Development*, also provides technical criteria, technical requirements, and references for the planning and design of applicable DoW projects to comply with stormwater requirements under EISA Section 438. Per these requirements, any increase in surface water runoff, resulting from construction, would be attenuated using temporary and/or permanent drainage management features. The integration of low impact development design concepts into site design and the use of stormwater management to maintain the site's pre-development runoff rates and volumes would minimize further potential adverse impacts associated with increases in impervious surface area.

Wetlands. Wetlands are defined at 33 CFR Section 328.3(c)(1). EO 11990, *Protection of Wetlands* (May 24, 1977), directs agencies to consider alternatives to avoid adverse impacts and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands unless the agency finds there is no practicable alternative and the proposed construction incorporates all possible measures to limit harm to the wetland.

Floodplains. Floodplains are low-level areas along rivers, stream channels, large wetlands, or coastal waters that might be subject to periodic or infrequent inundation due to rain or melting snow. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA) or site-specific study, which defines 100- and 500-year floodplains. The 100-year floodplain is an area that has a 1 percent chance of inundation by a flood event in a given year, while the 500-year floodplain has a 0.2 percent chance of inundation in a given year. Federal, state, and local regulations often limit floodplain development to recreational and preservation activities to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves review of FEMA Flood Insurance Rate Maps, which contain enough general information to determine the relationship of the project area to nearby floodplains. Federal agencies are directed to avoid floodplains unless the agency determines that no practicable alternative exists. Where the only practicable alternative is to site in a floodplain, the agency should develop measures to reduce and mitigate unavoidable impacts.

3.8.1 Affected Environment

Groundwater. Sheppard AFB is located in the vicinity of the Seymour Aquifer, which is a major aquifer extending across north-central Texas (TWDB 2024). Above the aquifer, separated by rock, is shallow groundwater near the surface. A 2019 SI of possible PFAS release sites found groundwater to be approximately 3 to 10 feet bgs in the temporary groundwater monitoring wells (AFCEC 2019). **Section 3.6.1** describes contamination in groundwater in the vicinity of the proposed construction and renovation projects.

No potable groundwater wells are on Sheppard AFB. The installation purchases potable water from the city of Wichita Falls, which receives its supply from surface water sources (Sheppard AFB 2016).

Surface Water. Surface water features on Sheppard AFB consist of intermittent and perennial streams and small ponds. No surface water features occur within the footprint of the proposed construction and renovation projects.

Sheppard AFB lies within the Wichita River Basin, which is part of the larger Red River watershed. The installation is divided into two sub-basins with the northern portion of the installation draining to the east into tributaries of Bear Creek and the southern portion draining to the south into tributaries of Plum Creek. All of the proposed construction and renovation projects are located in the northern portion of the installation within the Bear Creek sub-basin.

The installation uses an extensive network of inlets and channels to collect and manage stormwater runoff. The network discharges stormwater through three outfalls to Bear Creek and unnamed tributaries of Plum Creek and the Wichita River. Stormwater discharges at Sheppard AFB are authorized by TCEQ under the Texas Storm Multi-Sector General Permit for Industrial Activities (Sheppard AFB 2021b).

Under CWA Section 303(d), Texas is required to identify and develop a list of surface waterbodies or segments that are impaired based on their intended use. Texas has not identified any impaired waterbodies on Sheppard AFB or within 2 miles of the installation (USEPA 2024e).

Wetlands. There are approximately 42 acres of wetlands on the installation, but none are present within the proposed construction or renovation project areas. The nearest potential wetland to a construction area occurs 0.1 mile from the proposed munitions storage pad, along a tributary of Bear Creek (Sheppard AFB 2021c).

Floodplains. As shown in **Figure 3-22**, the FEMA-designated 100-year floodplain bisects the northern one-third of Sheppard AFB and coincides with many existing facilities for the T-38C flight training mission, including a portion of the aircraft parking ramp, taxiways, and runways. FEMA has not published a 500-year floodplain map for Sheppard AFB (FEMA 2010). The Center for Environmental Management of Military Lands at Colorado State University (CSU) performed a floodplain study and modeled 100- and 500-year floodplains for Sheppard AFB. The CSU-modeled floodplains also bisect the northern portion of the installation but cover a larger extent than the FEMA-designated 100-year floodplain (CEMML & CSU 2021).

Per EO 11988, DAF reviewed available floodplain data. The following proposed construction and renovation projects would occur within the FEMA-designated 100-year floodplain: maintenance hangar/UMT facility, ramp expansion, hush house pad, T-7A shelters and site work, addition to egress shop, jet blast deflectors, airfield reconfiguration, renovate squadron operations parts I and II, hangar renovation, remove CASS service modules, compass rose and trim pad, and renovate T-7A parts warehouse, and all of these projects plus the proposed munitions storage pad and hammerhead expansion would occur within the CSU-modeled 100- and 500-year floodplains. Only the proposed GBTS facility would be sited outside of a floodplain (FEMA 2010, CEMML & CSU 2021).

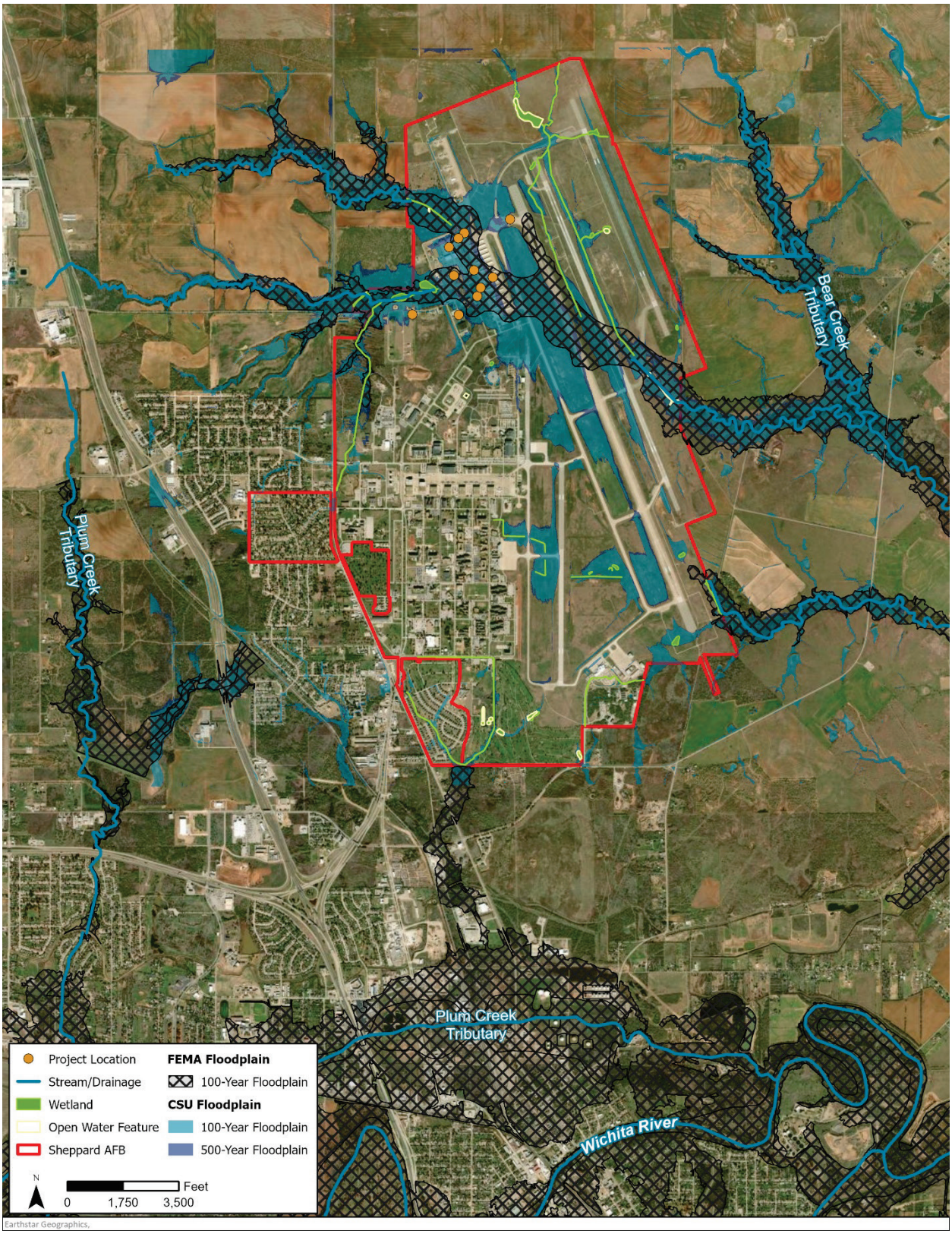


Figure 3-22. Water Resources at Sheppard AFB

3.8.2 Environmental Consequences

A proposed action could have significant impacts with respect to water resources if any of the following were to occur:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality
- Endanger public health or safety by creating or worsening flood hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources

Determining the significance of wetland impacts is based on (1) the function and value of the wetland, (2) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (3) the sensitivity of the wetland to proposed activities, and (4) the duration of ecological ramifications. Impacts on wetland resources are considered significant if high-value wetlands would be adversely affected.

3.8.2.1 Alternative 1

***Groundwater and Surface Water*.** No direct impacts on groundwater and surface water would occur. None of the proposed construction projects would require excavation to the depth of the water table, which is approximately 3 to 10 feet bgs in the vicinity of the construction and renovation projects. Additionally, no construction would occur within the footprint of any surface waters.

Short- and long-term, not significant, indirect, adverse impacts on groundwater and surface water could occur. Construction could potentially inhibit stormwater from reaching existing inlets or streams or could result in higher velocity stormwater flows because of temporarily unvegetated surfaces. These potential adverse impacts would be minimized through the implementation of BMPs, which could include installing temporary stormwater controls (e.g., silt fences, straw bales, and swales) to minimize the volume and velocity of stormwater flow. Following construction, the amount of impervious surfaces would increase at the installation by approximately 165,300 ft^2 (3.79 acres) (see **Table 2-2**), which could potentially decrease groundwater recharge and increase stormwater runoff into nearby surface water bodies, such as Bear Creek. Federally required design principles (e.g., UFC 1-200-02, *High Performance and Sustainable Building Requirements*; UFC 3-210-10; and Section 438 of the EISA) would be followed to maintain or restore, to the maximum extent practicable, the predevelopment hydrology of the collective project sites with respect to flow rate, volume, and duration.

In accordance with the NPDES and TPDES stormwater program, the installation would seek coverage for the proposed construction projects under a Construction General Permit from TCEQ, as needed. The proposed maintenance hangar/UMT Facility and ramp expansion projects would disturb 1 or more acres individually, requiring coverage under a Construction General Permit. The construction projects disturbing less than 1 acre may also require permit coverage because they would be part of a common plan

of smaller projects that ultimately disturbs 1 or more acres (see **Table 2-2**). Construction would be governed by SWPPPs, which would contain BMPs to manage stormwater. Standard erosion control measures to prevent stormwater pollution (including temporary retention basins, silt fences, straw bales, etc.) would be implemented during construction activities to minimize soil disturbance and prevent erosion and sedimentation at the work site.

As noted in **Section 3.6.2**, the concurrent operation of two types of aircraft during the T-38C to T-7A transition period may require additional quantities of hazardous materials, hazardous wastes, and petroleum products to be delivered, stored, used, and disposed of at Sheppard AFB. This temporary increase would negligibly increase the potential risk for an accidental release to occur and for the contamination to reach nearby groundwater aquifers and surface water features. The installation's SPCC Plan, ISWM Plan, SWPPP, and HWMP would continue to be followed to lessen the potential for a release to contaminate water resources.

Implementation of the BMPs as well as adherence to the management plans identified would minimize adverse impacts on downstream waterbodies. Alternative 1 would not appreciably contribute to the existing water quality degradation in downstream impaired waterbodies.

Wetlands. The proposed construction and renovation projects would not occur within any wetlands. As such, no direct impacts on wetlands would occur, and the requirements of EO 11990 are not applicable to the Proposed Action. The construction BMPs described in the Groundwater and Surface Water subsection would be implemented to minimize the potential for indirect impacts on downstream wetlands.

Floodplains. With exception of the proposed GBTS facility, all the proposed construction and renovation projects would occur within a floodplain. Direct impacts from construction within a floodplain are unavoidable, and there are no practicable alternatives for the proposed construction and renovation projects outside of a floodplain. Many existing facilities serving the T-38C flight training mission, including a portion of the airfield, are already within a floodplain. DAF cannot locate the proposed facilities outside of the floodplains without requiring great distances between existing and proposed facilities and losing mission synergies. Additionally, the proposed renovation projects would occur at existing buildings and infrastructure that are already within a floodplain, and the renovations would not increase the likelihood of flooding at those facilities. Floodplain displacement resulting from construction within the floodplain would be expected to have no impact on flooding potential in the area.

Consistent with EO 11988, the publication of the NOI to prepare this EIS, published on July 3, 2024, initiated early public review of the proposed action and alternatives because of its potential to be located within a floodplain. DAF contacted state and federal regulatory agencies with special expertise in floodplains to request comment during the scoping and Draft EIS public comment periods. These agencies included FEMA, the Wichita County Community Floodplain Administrator, and the city of Wichita Falls Floodplain Management Program. FEMA provided scoping and Draft EIS comments, which are summarized in **Appendix D** with the feedback received from the stakeholders. The Wichita County Community Floodplain Administrator informed DAF

during scoping that Wichita County has no involvement in actions on Sheppard AFB, and the appropriate point-of-contact for floodplain planning is the city of Wichita Falls Floodplain Management Program. After reaching out, no comments have been received by DAF from the city of Wichita Falls Floodplain Management Program.

3.8.2.2 Alternative 2

Impacts on water resources would be slightly greater than those described for Alternative 1 but still not significant (see **Section 3.8.2.1**). Compared to Alternative 1, the 25 percent increase in operations would slightly increase the potential risk for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface waters. The overall potential for a release and contamination of water resources, however, would not be substantially greater than Alternative 1. The Sheppard AFB SPCC Plan, SWPPP, ISWM Plan, and HWMP would continue to be followed to lessen the potential for a release to contaminate water resources.

3.8.2.3 Alternative 3

Impacts on water resources would be slightly greater than those described for Alternatives 1 and 2 but still not significant (see **Sections 3.8.2.1** and **3.8.2.2**). Compared to Alternative 1, the approximately 21 percent increase in operations and the 23 additional aircraft to maintain would slightly increase the potential risk for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface waters. The overall potential for a release and contamination of water resources, however, would not be substantially greater than Alternatives 1 and 2 and would be identical to baseline conditions in the long-term. The Sheppard AFB SPCC Plan, SWPPP, ISWM Plan, and HWMP would continue to be followed to lessen the potential for a release and contamination of water resources. The installation of sufficient shelters for all T-7A aircraft of Alternative 3 would occur on the Sheppard AFB aircraft parking ramp, which is an entirely existing impervious surface, and would result in no additional impervious surface area or impacts on water resources.

3.8.2.4 No Action Alternative

The No Action Alternative would not impact water resources. No facility construction would occur, and there would be no changes in aircraft operations or maintenance. The amount of impervious surfaces on the installation would not change, and no impacts on groundwater recharge or surface water runoff would occur. The potential for groundwater or surface water contamination would not change. There would also be no impacts on wetlands or floodplains. Water resources conditions at Sheppard AFB would remain unchanged compared to the existing conditions described in **Section 3.8.1**.

3.8.3 Mitigation Measures

Because all the proposed construction and renovation projects, except the GBTS facility, would be constructed within a floodplain, each project would be designed to avoid and minimize floodplain impacts and flood damage to facilities to the extent possible. For the proposed maintenance hangar/UMT facility, the floor and any associated flood-susceptible utilities would be constructed a minimum of 3 feet above

the 100-year flood elevation. Doing so would require an earthen rise to be placed beneath the facility measuring approximately 3 to 5 feet above the site's current elevation and approximately 3 feet above the eastern taxiway elevation (USACE 2025b). Similar floodplain mitigation measures would be developed for the other proposed projects as their designs advance.

3.9 Reasonably Foreseeable Actions and Effects

T-7A recapitalization at Sheppard AFB is not expected to cause any reasonably foreseeable actions or adverse effects, beyond those already described for the Proposed Action in this EIS. DAF reviewed reasonably foreseeable actions planned for the installation during the next decade, and none of these actions have a reasonably close causal relationship to the Proposed Action because they would occur irrespective of T-7A recapitalization. Three of the actions would occur within the same geographic area and timeframe as the construction and renovation projects for the Proposed Action, and these actions are summarized in **Table 3-77**. The combined effects from construction for these three actions and T-7A recapitalization together would be slightly greater than each individually but would remain not significant. No effects on flight operations would occur from these three actions. DAF also reviewed reasonably foreseeable actions planned off-installation within the city of Wichita Falls and Wichita County but identified no actions planned within the same geographic area and timeframe as the Proposed Action.

Table 3-77. Reasonably Foreseeable Actions

Action Name	Description
Euro-NATO Joint Jet Pilot Training Program Flying Training Complex, Phase Two	Construct a new headquarters building (40,000 ft^2) and Flying Training Facility (100,000 ft^2) for the 80th FTW. The proposed building would be sited to the north of 17th Avenue between Avenues H and J. Demolish Building 2320 (160,000 ft^2), which is the existing headquarters and training building.
Munitions Storage Facility	Demolish Building 2220 (530 ft^2), which is the installation's current munitions maintenance/storage facility, and replace with a new munitions facility measuring 11,100 ft^2. Construction and demolition would occur within Sheppard AFB's munitions storage area.
Add/Alter Military Working Dog Certification Training Complex	Construct a 1,000 ft^2 addition to the existing 1,872 ft^2 working dog facility to provide a veterinary workspace, imprint room, administrative training area for eight people, sleep room and shower for handlers, feed room, isolation kennel, and dog wash station.

Source: Sheppard AFB 2024b

3.10 Other Environmental Considerations

3.10.1 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the impacts that use of these resources would have on future generations. Irreversible impacts result primarily from use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable timeframe. The irreversible and irretrievable commitment of resources that would result from the Proposed Action involves the consumption of material resources used for construction, energy resources, biological resources, and human labor resources. The use of these resources is considered permanent.

Material Resources. The material resources that would be used for the Proposed Action include concrete, steel, and various construction materials and supplies. The materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. The energy resources, including petroleum-based products (e.g., gasoline, diesel, aviation fuel), used for the Proposed Action would be irretrievably lost. During construction, gasoline and diesel would be used for the operation of vehicles and construction equipment. Additionally, operation of the T-7A aircraft would require the consumption of aviation fuel. The volume of aviation fuel consumed for the T-7A aircraft would not be appreciably different from that consumed by the T-38C. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would occur.

Biological Resources. The Proposed Action would result in an insignificant loss of vegetation and wildlife habitat. Most of the losses would be lower quality vegetation and habitat on the airfield or in the developed portions of the installation. Temporarily disturbed sites would be revegetated with native species to support the native plant community in the long term. The BMPs contained within the installation's INRMP would be implemented to ensure long-term viability of new plantings.

Human Resources. The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. The use of human resources for the Proposed Action, however, represents employment opportunities and is considered beneficial.

3.10.2 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from the Proposed Action and are summarized as follows.

Air Quality. Criteria pollutant and GHG emissions would be produced during construction and renovation on the installation and would be unavoidable. New, unavoidable air emissions would be produced from operation and heating of expanded facilities and flight and maintenance operations.

Noise and Land Use. The proposed flight operations would increase on- and off-installation land acreage and population exposed to a DNL of at least 65 dB, and this increase would be unavoidable. These newly exposed areas encompass numerous land uses including residential, commercial, undeveloped, and agricultural. Residential use is considered incompatible with any noise zone above 65 dB DNL. Newly exposed areas that were not formerly impacted by the 65 dB DNL would experience an unavoidable land use compatibility impact, but this impact would not be considered significant because the majority of land uses that would be newly exposed to the noise contours would be the Open/Recreation/Agriculture/ Low-Density Residential land use category.

Biological Resources. Ground-disturbing activities associated with construction would result in some unavoidable permanent loss of vegetation and wildlife habitat.

***Energy*.** The construction projects and aircraft operations would require the use of fossil fuels, which are nonrenewable natural resources. The use of nonrenewable resources is an unavoidable occurrence, although not considered significant.

Hazardous Materials and Wastes. The use and generation of hazardous materials and wastes from construction projects and the maintenance of aircraft would be unavoidable.

Water Resources. With exception of the proposed GBTS facility, all the proposed construction and renovation projects would occur within a floodplain. Direct impacts from construction within the floodplain are unavoidable, and there are no practicable alternatives for the proposed projects outside of the floodplain.

3.10.3 Relationship between Short-term Uses and Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct, project-related disturbances and direct impacts associated with an increase in population and activity that occurs over less than 5 years. Long-term uses of the human environment include those impacts occurring over more than 5 years, including permanent resource loss.

Construction for the Proposed Action would not require short-term resource uses that would result in long-term productivity compromises. Although implementation of these projects would represent new development, most projects would occur within previously developed or disturbed areas. Therefore, it is not anticipated that the Proposed Action would result in any adverse effects on long-term productivity.

3.10.4 Compatibility with Existing Plans and Policies

The proposed construction and long-term operations associated with the Proposed Action would not differ from the current activities occurring at Sheppard AFB. DAF would continue to follow all requirements related to development and would therefore be consistent with current federal, regional, state, and local land use policies and controls described in **Section 3.3**. The Proposed Action would follow all applicable permitting, building, and safety requirements described in **Sections 3.3** and **3.7**. After the arrival of the T-7A aircraft at Sheppard AFB and the commencement of T-7A training operations, DAF would update the installation's AICUZ study. DAF would coordinate with local, county, and city land use planners to update current planning documents.

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A

Special Use Airspace Descriptions and Number of Sorties

Table A-1. Special Use Airspace (SUA) for T-38C and T-7A Training at Sheppard Air Force Base (AFB)

SUA Designation	Type of SUA	Short Description[1]
Hollis	Military Operating Area (MOA)	Located in portions of Beckham, Greer, Harmon, and Jackson Counties in Oklahoma and Childress, Collingsworth, and Hardeman Counties in Texas. Altitudes are from 11,000 to 18,000 feet above mean sea level (MSL). Time of use is from 1 hour before sunrise to 1 hour after sunset, Monday through Friday, and other times by Notice to Air Missions (NOTAM).
Washita	MOA	Located in portions of Caddo, Comanche, Grady, Kiowa, and Washita Counties in Oklahoma. Altitudes are from 8,000 to 18,000 feet above MSL. Time of use is from 1 hour before sunrise to 1 hour after sunset, Monday through Friday, and other times by NOTAM.
Westover 1	MOA	Located in portions of Archer, Baylor, Foard, Hardeman, Haskell, Knox, Throckmorton, and Wilbarger Counties in Texas. Altitudes are from 9,000 to 18,000 feet above MSL. Time of use is from 1 hour before sunrise to 1 hour after sunset, Monday through Friday, and other times by NOTAM.
Westover 2	MOA	Located in portions of Childress, Cottle, Dickens, Foard, Hall, Hardeman, Haskell, Jones, King, Knox, Motley, Shackelford, Stonewall, and Throckmorton Counties in Texas. Altitudes are from 10,000 to 18,000 feet above MSL. Time of use is from 1 hour before sunrise to 1 hour after sunset, Monday through Friday, and other times by NOTAM.
Falcon Range (R-5601)	Restricted Area	Associated with Fort Sill and located in portions of Caddo, Comanche, and Kiowa Counties in Oklahoma. Altitudes range from surface to 7,999 feet above MSL. Time of use is continuous (i.e., 24 hours per day, 7 days per week).
Instrument Route (IR)-103	Military Training Route (MTR)	Located in portions of Kiowa and Tillman Counties in Oklahoma and Archer, Baylor, Clay, Jack, Wichita, Wilbarger, and Young Counties in Texas. Altitudes are from 100 feet above ground level (AGL) to 5,000 feet above MSL. Time of use is from 7:00 a.m. to 10 p.m. daily and other times by NOTAM.
Visual Route (VR)-158	MTR	Located in portions of Archer, Bosque, Clay, Comanche, Eastland, Erath, Hamilton, Hood, Jack, Palo Pinto, Somervell, Stephens, and Young Counties in Texas. Altitudes are from 500 feet AGL to 3,000 feet above MSL. Time of use is sunrise to sunset daily.
VR-159	MTR	Located in portions of Archer, Baylor, Cottle, Foard, Hardeman, Haskell, Jones, King, Knox, Shackelford, Stephens, Stonewall, Throckmorton, Wichita, Wilbarger, and Young Counties in Texas. Altitudes are from 500 feet AGL to 5,000 feet above MSL. Time of use is from sunrise to sunset daily.
VR-1139	MTR	Located in portions of Blaine, Caddo, Canadian, Carter, Comanche, Custer, Garvin, Grady, Jefferson, Kiowa, Love, Murray, Stephens, and Washita Counties in Oklahoma and Clay, Cooke, Jack, Montague, and Wise Counties in Texas. Altitudes are from 200 to 1,500 feet AGL. Time of use is from sunrise to sunset daily.
VR-1140	MTR	Located in portions of Blaine, Caddo, Canadian, Carter, Comanche, Custer, Garvin, Grady, Jefferson, Kiowa, Love, Murray, Stephens, and Washita Counties in Oklahoma and Clay, Cooke, Jack, Montague, and Wise Counties in Texas. Altitudes are from 200 to 1,500 feet AGL. Time of use is from sunrise to sunset daily.

SUA Designation	Type of SUA	Short Description[1]
VR-1141	MTR	Located in portions of Beckham and Roger Mills Counties in Oklahoma and Baylor, Collingsworth, Cottle, Donley, Foard, Gray, Hall, Hardeman, King, Knox, Motley, Wheeler, Wichita, and Wilbarger Counties in Texas. Altitudes are from 200 feet to 1,500 feet AGL. Time of use is from sunrise to sunset daily.
VR-1142	MTR	Located in portions of Beckham and Roger Mills Counties in Oklahoma and Baylor, Collingsworth, Cottle, Donley, Foard, Gray, Hall, Hardeman, King, Knox, Motley, Wheeler, Wichita, and Wilbarger Counties in Texas. Altitudes are from 200 feet to 1,500 feet AGL. Time of use is from sunrise to sunset daily.
VR-1143	MTR	Located in portions of Archer, Baylor, Callahan, Childress, Cottle, Dickens, Eastland, Foard, Hardeman, Haskell, Jack, Jones, Kent, King, Motley, Palo Pinto, Shackelford, Stephens, Stonewall, Throckmorton, Wichita, Wilbarger, and Young Counties in Texas. Altitudes are from 200 feet to 1,500 feet AGL. Time of use is from sunrise to sunset daily.
VR-1146	MTR	Located in portions of Atoka, Bryan, Carter, Coal, Garvin, Grady, Jefferson, Johnston, Love, Marshall, Murray, Pontotoc, and Stephens Counties in Oklahoma and Clay, Cooke, Denton, Grayson, Jack, Montague, and Wise Counties in Texas. Altitudes are from 200 feet to 1,500 feet AGL. Time of use is from sunrise to sunset daily.

Sources: DoD 2024a, DoD 2024b

[1] The MTRs include several parts or "legs" that are designated by specific coordinates. Some legs within the same MTR have differing properties, such as minimum/maximum altitudes, times of operation, speeds, etc. The short description provided in this table is a general overview of the MTR. A complete description of the MTRs and their respective legs is available in the Department of Defense Flight Information Publication *AP/1B, Area Planning Military Training Routes, North and South America*.

Table A-2. T-38C and T-7A Aircraft Sorties within Sheppard AFB SUA for Alternative 1

SUA Unit	Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Sorties within the SUA[1]						
Hollis	T-38C	184	169	96	20	0
	T-7A	0	17	81	142	152
Washita	T-38C	5,098	4,689	2,646	555	0
	T-7A	0	467	2,257	3,931	4,203
Westover 1	T-38C	10,137	9,324	5,262	1,103	0
	T-7A	0	929	4,488	7,816	8,357
Westover 2	T-38C	2,589	2,381	904	282	0
	T-7A	0	237	1,146	1,996	2,134
Falcon Range	T-38C	2,749	2,529	1,427	299	0
	T-7A	0	252	1,217	2,119	2,266
IR-103	T-38C	36	33	19	4	0
	T-7A	0	3	16	28	30
VR-158	T-38C	48	44	25	5	0
	T-7A	0	4	21	37	40
VR-159	T-38C	559	514	290	61	0
	T-7A	0	51	247	431	461
VR-1139	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1140	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1141	T-38C	55	51	29	6	0
	T-7A	0	5	24	42	45
VR-1142	T-38C	68	63	35	7	0
	T-7A	0	6	30	52	56
VR-1143	T-38C	343	316	178	37	0
	T-7A	0	31	152	264	283
VR-1146	T-38C	123	113	64	13	0
	T-7A	0	11	54	95	101
Annual Aircraft Sorties Below 3,000 feet Above Ground Level (AGL) within the SUA[2]						
Falcon Range	T-38C	1,107	1,018	574	120	0
	T-7A	0	101	490	853	912
IR-103	T-38C	36	33	19	4	0
	T-7A	0	3	16	28	30
VR-158	T-38C	44	41	23	5	0
	T-7A	0	4	20	34	36
VR-159	T-38C	559	514	290	61	0
	T-7A	0	51	247	431	461
VR-1141	T-38C	53	49	27	6	0
	T-7A	0	5	23	41	44
VR-1142	T-38C	68	63	35	7	0
	T-7A	0	6	30	52	56
VR-1143	T-38C	343	316	178	37	0
	T-7A	0	31	152	264	283
VR-1146	T-38C	113	104	59	12	0
	T-7A	0	10	50	87	93

Sources: HMMH 2025

[1] Annual aircraft sorties within the SUA were extrapolated based on the number of T-38C and T-7A aircraft at Sheppard AFB shown in **Table 2-3** of the EIS. All operations within SUA would occur during authorized active times during daytime and evening hours (7 a.m. to 10 p.m.), and no nighttime (between 10 p.m. and 7 a.m.) operations would occur.

[2] Annual aircraft sorties below 3,000 feet AGL within the SUA are provided for air emission estimation purposes. No operations below 3,000 feet would occur within the Hollis, Washita, Westover 1, and Westover 2 MOAs.

Table A-3. T-38C and T-7A Aircraft Sorties within Sheppard AFB SUA for Alternative 2

SUA Unit	Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Sorties within the SUA[1]						
Hollis	T-38C	184	212	119	25	0
	T-7A	0	21	102	177	190
Washita	T-38C	5,098	5,862	3,308	693	0
	T-7A	0	584	2,821	4,913	5,254
Westover 1	T-38C	10,137	11,656	6,577	1,378	0
	T-7A	0	1,161	5,610	9,769	10,447
Westover 2	T-38C	2,589	2,977	1,130	352	0
	T-7A	0	296	1,433	2,495	2,668
Falcon Range	T-38C	2,749	3,161	1,784	374	0
	T-7A	0	315	1,521	2,649	2,833
IR-103	T-38C	36	41	23	5	0
	T-7A	0	4	20	35	37
VR-158	T-38C	48	55	31	7	0
	T-7A	0	5	27	46	49
VR-159	T-38C	559	643	363	76	0
	T-7A	0	64	309	539	576
VR-1139	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1140	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1141	T-38C	55	63	36	7	0
	T-7A	0	6	30	53	57
VR-1142	T-38C	68	78	44	9	0
	T-7A	0	8	38	66	70
VR-1143	T-38C	343	394	223	47	0
	T-7A	0	39	190	331	353
VR-1146	T-38C	123	141	80	17	0
	T-7A	0	14	68	119	127
Annual Aircraft Sorties Below 3,000 feet AGL within the SUA[2]						
Falcon Range	T-38C	1,107	1,273	718	150	0
	T-7A	0	127	613	1,067	1,141
IR-103	T-38C	36	41	23	5	0
	T-7A	0	4	20	35	37
VR-158	T-38C	44	51	29	6	0
	T-7A	0	5	24	43	46
VR-159	T-38C	559	643	363	76	0
	T-7A	0	64	309	539	576
VR-1141	T-38C	53	61	34	7	0
	T-7A	0	6	29	51	54
VR-1142	T-38C	68	78	44	9	0
	T-7A	0	8	38	66	70
VR-1143	T-38C	343	394	223	47	0
	T-7A	0	39	190	331	353
VR-1146	T-38C	113	130	73	15	0
	T-7A	0	13	63	109	117

Source: HMMH 2025

[1] Annual aircraft sorties within the SUA were extrapolated based on the number of T-38C and T-7A aircraft at Sheppard AFB shown in **Table 2-5** of the EIS. All operations within SUA would occur during authorized active times during daytime and evening hours (7 a.m. to 10 p.m.), and no nighttime (between 10 p.m. and 7 a.m.) operations would occur.

[2] Annual aircraft sorties below 3,000 feet AGL within the SUA are provided for air emission estimation purposes. No operations below 3,000 feet would occur within the Hollis, Washita, Westover 1, and Westover 2 MOAs.

Table A-4. T-38C and T-7A Aircraft Sorties within Sheppard AFB SUA for Alternative 3

SUA Unit	Aircraft Type	2023 and No Action	2034	2035	2036	2037 and Later
Annual Aircraft Sorties within the SUA[1]						
Hollis	T-38C	184	169	96	20	0
	T-7A	0	17	81	149	184
Washita	T-38C	5,098	4,689	2,646	555	0
	T-7A	0	467	2,257	4,125	5,098
Westover 1	T-38C	10,137	9,324	5,262	1,103	0
	T-7A	0	929	4,488	8,202	10,137
Westover 2	T-38C	2,589	2,381	904	282	0
	T-7A	0	237	1,146	2,095	2,589
Falcon Range	T-38C	2,749	2,529	1,427	299	0
	T-7A	0	252	1,217	2,224	2,749
IR-103	T-38C	36	33	19	4	0
	T-7A	0	3	16	29	36
VR-158	T-38C	48	44	25	5	0
	T-7A	0	4	21	39	48
VR-159	T-38C	559	514	290	61	0
	T-7A	0	51	247	452	559
VR-1139	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1140	T-38C	Seldom and irregular usage. Not quantifiable.				
	T-7A	Seldom and irregular usage. Not quantifiable.				
VR-1141	T-38C	55	51	29	6	0
	T-7A	0	5	24	45	55
VR-1142	T-38C	68	63	35	7	0
	T-7A	0	6	30	55	68
VR-1143	T-38C	343	316	178	37	0
	T-7A	0	31	152	278	343
VR-1146	T-38C	123	113	64	13	0
	T-7A	0	11	54	100	123
Annual Aircraft Sorties Below 3,000 feet AGL within the SUA[2]						
Falcon Range	T-38C	1,107	1,018	574	120	0
	T-7A	0	101	490	896	1,107
IR-103	T-38C	36	33	19	4	0
	T-7A	0	3	16	29	36
VR-158	T-38C	44	41	23	5	0
	T-7A	0	4	20	36	44
VR-159	T-38C	559	514	290	61	0
	T-7A	0	51	247	452	559
VR-1141	T-38C	53	49	27	6	0
	T-7A	0	5	23	43	53
VR-1142	T-38C	68	63	35	7	0
	T-7A	0	6	30	55	68
VR-1143	T-38C	343	316	178	37	0
	T-7A	0	31	152	278	343
VR-1146	T-38C	113	104	59	12	0
	T-7A	0	10	50	92	113

Source: HMMH 2025

[1] Annual aircraft sorties within the SUA were extrapolated based on the number of T-38C and T-7A aircraft at Sheppard AFB shown in **Table 2-6** of the EIS. All operations within SUA would occur during authorized active times during daytime and evening hours (7 a.m. to 10 p.m.), and no nighttime (between 10 p.m. and 7 a.m.) operations would occur.

[2] Annual aircraft sorties below 3,000 feet AGL within the SUA are provided for air emission estimation purposes. No operations below 3,000 feet would occur within the Hollis, Washita, Westover 1, and Westover 2 MOAs.

Appendix A References

U.S. Department of Defense (DoD). 2024a. *AP/1A, Area Planning Special Use Airspace, North and South America.* September 2024.

DoD. 2024b. *AP/1B, Area Planning Military Training Routes, North and South America*. Dated March 21, 2024.

Harris Miller Miller & Hanson, Inc. (HMMH). 2025. *Noise Model Operational Data Document (100%) for Sheppard AFB, TX, T-7A Recapitalization Environmental Impact Statement*, HMMH Report No. 23-0281.002. March 2025.

B

Record of Air Quality Analysis Reports[1]

[1] The Sheppard AFB region of influence air emission estimates for all three action alternatives were recalculated after the Draft EIS was released for public comment to correct an overestimation in the time-in-mode values. The overestimation was identified through DAF review rather than public comment provided on the Draft EIS and was corrected by removing duplicate T-7A and T-38C closed patterns that also were counted in the landing and takeoff cycles. The revised air emissions are provided in the Final EIS and, in general, are less than those in the Draft EIS.

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

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

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2031

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on 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" (i.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:

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	4.904	250	No
NOx	10.892	250	No
CO	17.239	250	No
SOx	0.028	250	No
PM 10	16.479	250	No
PM 2.5	0.316	250	No
Pb	0.000	25	No
NH3	0.031	250	No

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.734	250	No
NOx	4.898	250	No
CO	7.971	250	No
SOx	0.014	250	No
PM 10	0.152	250	No
PM 2.5	0.130	250	No
Pb	0.000	25	No
NH3	0.019	250	No

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

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.163	250	No
NOx	0.255	250	No
CO	1.851	250	No
SOx	0.003	250	No
PM 10	0.027	250	No
PM 2.5	0.019	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	13.151	250	No
NOx	40.740	250	No
CO	-53.603	250	No
SOx	1.772	250	No
PM 10	-1.645	250	No
PM 2.5	-1.471	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	45.838	250	No
NOx	167.265	250	No
CO	-480.851	250	No
SOx	5.520	250	No
PM 10	-14.619	250	No
PM 2.5	-13.187	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	70.323	250	No
NOx	279.975	250	Yes
CO	-959.110	250	No
SOx	8.038	250	No
PM 10	-28.728	250	No
PM 2.5	-25.929	250	No
Pb	0.000	25	No
NH3	0.022	250	No

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

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	67.305	250	No
NOx	292.905	250	Yes
CO	-1123.426	250	No
SOx	7.401	250	No
PM 10	-33.382	250	No
PM 2.5	-30.141	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	67.305	250	No
NOx	292.905	250	Yes
CO	-1123.426	250	No
SOx	7.401	250	No
PM 10	-33.382	250	No
PM 2.5	-30.141	250	No
Pb	0.000	25	No
NH3	0.000	250	No

The steady state estimated annual net emissions associated with this action exceed the insignificance indicators, indicating a potential for a significant impact on air quality. Therefore, the ACAM analysis is inconclusive and further air quality impact assessment is needed.

Carolyn Hein, Contractor — March 5, 2026

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 2

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2031

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on 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" (i.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:

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	4.904	250	No
NOx	10.892	250	No
CO	17.239	250	No
SOx	0.028	250	No
PM 10	16.479	250	No
PM 2.5	0.316	250	No
Pb	0.000	25	No
NH3	0.031	250	No

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.734	250	No
NOx	4.898	250	No
CO	7.971	250	No
SOx	0.014	250	No
PM 10	0.152	250	No
PM 2.5	0.130	250	No
Pb	0.000	25	No
NH3	0.019	250	No

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

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.163	250	No
NOx	0.255	250	No
CO	1.851	250	No
SOx	0.003	250	No
PM 10	0.027	250	No
PM 2.5	0.019	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	47.760	250	No
NOx	56.365	250	No
CO	325.798	250	Yes
SOx	5.994	250	No
PM 10	7.481	250	No
PM 2.5	6.736	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	88.952	250	No
NOx	215.032	250	No
CO	-202.071	250	No
SOx	10.753	250	No
PM 10	-8.605	250	No
PM 2.5	-7.791	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	120.014	250	No
NOx	356.402	250	Yes
CO	-792.460	250	No
SOx	14.007	250	No
PM 10	-26.088	250	No
PM 2.5	-23.581	250	No
Pb	0.000	25	No
NH3	0.022	250	No

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

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	116.554	250	No
NOx	372.593	250	Yes
CO	-993.250	250	No
SOx	13.270	250	No
PM 10	-31.820	250	No
PM 2.5	-28.770	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	116.554	250	No
NOx	372.593	250	Yes
CO	-993.250	250	No
SOx	13.270	250	No
PM 10	-31.820	250	No
PM 2.5	-28.770	250	No
Pb	0.000	25	No
NH3	0.000	250	No

The steady state estimated annual net emissions associated with this action exceed the insignificance indicators, indicating a potential for a significant impact on air quality. Therefore, the ACAM analysis is inconclusive and further air quality impact assessment is needed.

Carolyn Hein, Contractor — March 10, 2026

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 3

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2031

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on 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" (i.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:

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	4.904	250	No
NOx	10.892	250	No
CO	17.239	250	No
SOx	0.028	250	No
PM 10	16.479	250	No
PM 2.5	0.316	250	No
Pb	0.000	25	No
NH3	0.031	250	No

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.734	250	No
NOx	4.917	250	No
CO	7.989	250	No
SOx	0.014	250	No
PM 10	0.154	250	No
PM 2.5	0.131	250	No
Pb	0.000	25	No
NH3	0.020	250	No

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

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.163	250	No
NOx	0.255	250	No
CO	1.851	250	No
SOx	0.003	250	No
PM 10	0.027	250	No
PM 2.5	0.019	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	13.151	250	No
NOx	40.740	250	No
CO	-53.603	250	No
SOx	1.772	250	No
PM 10	-1.645	250	No
PM 2.5	-1.471	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	45.845	250	No
NOx	167.265	250	No
CO	-480.837	250	No
SOx	5.520	250	No
PM 10	-14.619	250	No
PM 2.5	-13.187	250	No
Pb	0.000	25	No
NH3	0.022	250	No

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	80.162	250	No
NOx	298.697	250	Yes
CO	-925.863	250	No
SOx	9.357	250	No
PM 10	-28.063	250	No
PM 2.5	-25.326	250	No
Pb	0.000	25	No
NH3	0.022	250	No

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

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	109.907	250	No
NOx	367.025	250	Yes
CO	-1017.989	250	No
SOx	12.597	250	No
PM 10	-31.200	250	No
PM 2.5	-28.140	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	109.907	250	No
NOx	367.025	250	Yes
CO	-1017.989	250	No
SOx	12.597	250	No
PM 10	-31.200	250	No
PM 2.5	-28.140	250	No
Pb	0.000	25	No
NH3	0.000	250	No

The steady state estimated annual net emissions associated with this action exceed the insignificance indicators, indicating a potential for a significant impact on air quality. Therefore, the ACAM analysis is inconclusive and further air quality impact assessment is needed.

Carolyn Hein, Contractor — March 18, 2026

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 1, SUA Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on local air quality. The insignificance indicators are trivial (*de minimis*) rate thresholds that have been demonstrated to have little to no impact on 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" (i.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:

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.666	250	No
NOx	10.872	250	No
CO	-3.467	250	No
SOx	0.223	250	No
PM 10	-0.095	250	No
PM 2.5	-0.086	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	3.139	250	No
NOx	52.841	250	No
CO	-21.591	250	No
SOx	0.931	250	No
PM 10	-0.630	250	No
PM 2.5	-0.568	250	No
Pb	0.000	25	No
NH3	0.000	250	No

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

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.390	250	No
NOx	91.769	250	No
CO	-40.430	250	No
SOx	1.522	250	No
PM 10	-1.200	250	No
PM 2.5	-1.082	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.704	250	No
NOx	97.988	250	No
CO	-45.645	250	No
SOx	1.545	250	No
PM 10	-1.371	250	No
PM 2.5	-1.235	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.704	250	No
NOx	97.988	250	No
CO	-45.645	250	No
SOx	1.545	250	No
PM 10	-1.371	250	No
PM 2.5	-1.235	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.

Carolyn Hein, Contractor — May 12, 2025

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 2, SUA Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on local air quality. The insignificance indicators are trivial (*de minimis*) rate thresholds that have been demonstrated to have little to no impact on 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" (i.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:

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.163	250	No
NOx	14.516	250	No
CO	8.532	250	No
SOx	0.721	250	No
PM 10	0.348	250	No
PM 2.5	0.310	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	4.247	250	No
NOx	66.901	250	No
CO	-14.185	250	No
SOx	1.601	250	No
PM 10	-0.324	250	No
PM 2.5	-0.296	250	No
Pb	0.000	25	No
NH3	0.000	250	No

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

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.071	250	No
NOx	115.702	250	No
CO	-37.749	250	No
SOx	2.344	250	No
PM 10	-1.037	250	No
PM 2.5	-0.938	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.470	250	No
NOx	123.584	250	No
CO	-44.266	250	No
SOx	2.377	250	No
PM 10	-1.250	250	No
PM 2.5	-1.129	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.470	250	No
NOx	123.584	250	No
CO	-44.266	250	No
SOx	2.377	250	No
PM 10	-1.250	250	No
PM 2.5	-1.129	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.

Carolyn Hein, Contractor — May 12, 2025

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 3, SUA Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

The analysis for all construction and operation actions assumes the following: (1) major construction projects, such as those that include new facilities, would occur over a period of 2 years and minor construction projects, such as those that include renovation of existing facilities, would occur over a period of 1 year; (2) during construction, no materials would be required to be hauled on- or off-site as excavated spoils will be used on-site; (3) no new emergency generators, or if any were needed for new facilities, their emissions would be offset by removing generators that were supporting T-38C operations; and (4) T-7A fuel cell maintenance, composite repair, NDI testing, and fuel storage/dispensing operations/emissions would be equally offset by eliminating those corresponding operations/emissions supporting the T-38C operations. It was assumed all construction would be complete prior to the aircraft transition period (starting in 2034). Surrogate construction years of 2031 and 2032 were used for the construction period. The actual construction period may be different than what was assumed for the analysis.

f. Point of Contact:

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

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

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the 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" (i.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 on local air quality. The insignificance indicators are trivial (*de minimis*) rate thresholds that have been demonstrated to have little to no impact on 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" (i.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:

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.666	250	No
NOx	10.872	250	No
CO	-3.467	250	No
SOx	0.223	250	No
PM 10	-0.095	250	No
PM 2.5	-0.086	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	3.139	250	No
NOx	52.841	250	No
CO	-21.591	250	No
SOx	0.931	250	No
PM 10	-0.630	250	No
PM 2.5	-0.568	250	No
Pb	0.000	25	No
NH3	0.000	250	No

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

2036

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	5.719	250	No
NOx	96.526	250	No
CO	-40.156	250	No
SOx	1.677	250	No
PM 10	-1.177	250	No
PM 2.5	-1.061	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2037

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.198	250	No
NOx	119.616	250	No
CO	-44.398	250	No
SOx	2.251	250	No
PM 10	-1.265	250	No
PM 2.5	-1.142	250	No
Pb	0.000	25	No
NH3	0.000	250	No

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	7.198	250	No
NOx	119.616	250	No
CO	-44.398	250	No
SOx	2.251	250	No
PM 10	-1.265	250	No
PM 2.5	-1.142	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.

Carolyn Hein, Contractor — May 12, 2025

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita; Denton ; Wise
Regulatory Area(s): Dallas-Fort Worth, TX

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 1, VR-1146 Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

f. Point of Contact:

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

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

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

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors 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*. For greater details of this analysis, refer to the Detail ACAM Report.

____ applicable
__X__ not applicable

Conformity Analysis Summary:

2034

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.063	25	No
NOx	1.033	25	No
CO	-0.332		
SOx	0.021		
PM 10	-0.009		
PM 2.5	-0.008		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.063	25	No
NOx	1.033	25	No
CO	-0.332		
SOx	0.021		
PM 10	-0.009		
PM 2.5	-0.008		
Pb	0.000		
NH3	0.000		

2035

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.307	25	No
NOx	5.140	25	No
CO	-2.052		
SOx	0.090		
PM 10	-0.060		
PM 2.5	-0.054		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.307	25	No
NOx	5.140	25	No
CO	-2.052		
SOx	0.090		
PM 10	-0.060		
PM 2.5	-0.054		
Pb	0.000		
NH3	0.000		

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

2036

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.527	25	No
NOx	8.928	25	No
CO	-3.833		
SOx	0.148		
PM 10	-0.114		
PM 2.5	-0.103		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.527	25	No
NOx	8.928	25	No
CO	-3.833		
SOx	0.148		
PM 10	-0.114		
PM 2.5	-0.103		
Pb	0.000		
NH3	0.000		

2037

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.558	25	No
NOx	9.530	25	No
CO	-4.320		
SOx	0.150		
PM 10	-0.130		
PM 2.5	-0.117		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.558	25	No
NOx	9.530	25	No
CO	-4.320		
SOx	0.150		
PM 10	-0.130		
PM 2.5	-0.117		
Pb	0.000		
NH3	0.000		

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.558	25	No
NOx	9.530	25	No
CO	-4.320		
SOx	0.150		
PM 10	-0.130		

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

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
PM 2.5	-0.117		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.558	25	No
NOx	9.530	25	No
CO	-4.320		
SOx	0.150		
PM 10	-0.130		
PM 2.5	-0.117		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NOx, CO, SOx, PM 10, PM 2.5, and NH3 of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR *de minimis* value). Pollutants below their insignificance indicators are at rates so insignificant that they will not cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Carolyn Hein, Contractor — April 24, 2025

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita; Denton ; Wise
Regulatory Area(s): Dallas-Fort Worth, TX

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 2, VR-1146 Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

f. Point of Contact:

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

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

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

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors 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*. For greater details of this analysis, refer to the Detail ACAM Report.

____ applicable
__X__ not applicable

Conformity Analysis Summary:

2034

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.112	25	No
NOx	1.420	25	No
CO	0.819		
SOx	0.070		
PM 10	0.034		
PM 2.5	0.030		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.112	25	No
NOx	1.420	25	No
CO	0.819		
SOx	0.070		
PM 10	0.034		
PM 2.5	0.030		
Pb	0.000		
NH3	0.000		

2035

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.416	25	No
NOx	6.553	25	No
CO	-1.363		
SOx	0.156		
PM 10	-0.031		
PM 2.5	-0.029		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.416	25	No
NOx	6.553	25	No
CO	-1.363		
SOx	0.156		
PM 10	-0.031		
PM 2.5	-0.029		
Pb	0.000		
NH3	0.000		

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

2036

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.689	25	No
NOx	11.259	25	No
CO	-3.614		
SOx	0.226		
PM 10	-0.100		
PM 2.5	-0.090		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.689	25	No
NOx	11.259	25	No
CO	-3.614		
SOx	0.226		
PM 10	-0.100		
PM 2.5	-0.090		
Pb	0.000		
NH3	0.000		

2037

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.732	25	No
NOx	12.065	25	No
CO	-4.219		
SOx	0.231		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.732	25	No
NOx	12.065	25	No
CO	-4.219		
SOx	0.231		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.732	25	No
NOx	12.065	25	No
CO	-4.219		
SOx	0.231		
PM 10	-0.120		

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

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.732	25	No
NOx	12.065	25	No
CO	-4.219		
SOx	0.231		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NOx, CO, SOx, PM 10, PM 2.5, and NH3 of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR *de minimis* value). Pollutants below their insignificance indicators are at rates so insignificant that they will not cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Carolyn Hein, Contractor — April 24, 2025

Name, Title — **Date**

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

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform 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 Department of the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; 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: 5.0.24a

a. Action Location:

Base: SHEPPARD AFB
State: Texas
County(s): Wichita; Denton ; Wise
Regulatory Area(s): Dallas-Fort Worth, TX

b. Action Title: T-7A Recapitalization at Sheppard AFB - Alternative 3, VR-1146 Low Flight Pattern

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2034

e. Action Description:

The Proposed Action is recapitalization of the T-38C flight training program at Sheppard AFB with T-7A aircraft. Recapitalization entails replacement of all T-38C aircraft assigned to Sheppard AFB with T-7A aircraft; transition of aircraft operations at Sheppard AFB and associated SUA from the T-38C to the T-7A; temporary changes to the number of personnel and dependents in the Sheppard AFB region; and construction of and upgrades to operations, support, and maintenance facilities to support pilot training and aircraft operation and maintenance.

For Alternative 1, Sheppard AFB would receive up to 108 T-7A aircraft and perform sufficient operations for sustaining pilot training while simultaneously phasing out the T 38C aircraft. Alternative 2 would also result in up to 108 T-7A aircraft being delivered to Sheppard AFB; however, T-7A operations would be performed at an operational tempo approximately 25 percent greater than Alternative 1 to cover a scenario in which DAF requires a surge or increase in pilot training operations above the current plan. For Alternative 3, Sheppard AFB would receive up to 131 T-7A aircraft and T-7A operations would be approximately 22 percent greater than aircraft operations for Alternative 1. The No Action Alternative would not implement T-7A recapitalization at Sheppard AFB.

f. Point of Contact:

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

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

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

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors 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*. For greater details of this analysis, refer to the Detail ACAM Report.

____ applicable
__X__ not applicable

Conformity Analysis Summary:

2034

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.063	25	No
NOx	1.033	25	No
CO	-0.332		
SOx	0.021		
PM 10	-0.009		
PM 2.5	-0.008		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.063	25	No
NOx	1.033	25	No
CO	-0.332		
SOx	0.021		
PM 10	-0.009		
PM 2.5	-0.008		
Pb	0.000		
NH3	0.000		

2035

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.307	25	No
NOx	5.140	25	No
CO	-2.052		
SOx	0.090		
PM 10	-0.060		
PM 2.5	-0.054		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.307	25	No
NOx	5.140	25	No
CO	-2.052		
SOx	0.090		
PM 10	-0.060		
PM 2.5	-0.054		
Pb	0.000		
NH3	0.000		

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

2036

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.556	25	No
NOx	9.351	25	No
CO	-3.809		
SOx	0.162		
PM 10	-0.112		
PM 2.5	-0.101		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.556	25	No
NOx	9.351	25	No
CO	-3.809		
SOx	0.162		
PM 10	-0.112		
PM 2.5	-0.101		
Pb	0.000		
NH3	0.000		

2037

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.704	25	No
NOx	11.644	25	No
CO	-4.199		
SOx	0.219		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.704	25	No
NOx	11.644	25	No
CO	-4.199		
SOx	0.219		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
VOC	0.704	25	No
NOx	11.644	25	No
CO	-4.199		
SOx	0.219		

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

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dallas-Fort Worth, TX			
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		
Dallas-Fort Worth, TX			
VOC	0.704	25	No
NOx	11.644	25	No
CO	-4.199		
SOx	0.219		
PM 10	-0.120		
PM 2.5	-0.108		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NOx, CO, SOx, PM 10, PM 2.5, and NH3 of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR *de minimis* value). Pollutants below their insignificance indicators are at rates so insignificant that they will not cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Carolyn Hein, Contractor — April 24, 2025

Name, Title — **Date**

C

Agency Consultation

Section 7 of the Endangered Species Act Consultation

The Department of the Air Force (DAF) consulted with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act for the Proposed Action. **Section 3.4** contains further information regarding the outcome of the consultation with USFWS. A copy of the consultation letter and USFWS's response are on the following pages.

Consultation letter sent to USFWS (emailed August 11, 2025)

From: HENNEKE, SARAH J CTR USAF AETC 82 CES/CEIE <sarah.henneke.ctr@us.af.mil>
Sent: Monday, August 11, 2025 4:15 PM
To: Arlington ES, FW2 <arles@fws.gov>; Edwards, Sean <Sean_Edwards@fws.gov>
Cc: LOFGREN, RHONDA M CTR USAF AETC 82 CES/CEIE <rhonda.lofgren.ctr@us.af.mil>; PAPPAS, ALLEN M CIV USAF AETC 82 CES/CEIE <allen.pappas.1@us.af.mil>; CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>
Subject: [EXTERNAL] Sheppard AFB T-7A EIS Section 7 of the ESA Consultation

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

Good afternoon,

I have attached a letter from the Sheppard AFB Base Civil Engineer about the Section 7 consultation for the T-7A Environmental Impact Statement. This letter does include the information from the IPaC reports.

Please let myself or Ms. Chinling Chen (cc'd) know of any questions or concerns that you may have.

Sarah Henneke
Environmental Technician II
sarah.henneke.ctr@us.af.mil
com: (940) 676-3275 | dsn: 736-3275
231 9th Ave B1402, Sheppard AFB, TX 76311
asrcfederal.com | Purpose Driven. Enduring Commitment.

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

14 July 2025

Maj Bradford L. Shields
Base Civil Engineer
82 CES/CC
231 9th Avenue, Building 1402
Sheppard AFB TX 76311-3304

Mr. Sean Edwards
Fish & Wildlife Biologist
U.S. Fish and Wildlife Service
3233 Curtis Drive
Fort Worth TX 76116-5100

Dear Mr. Edwards

The United States Department of the Air Force (DAF) proposes to recapitalize its T-38C "Talon" flight training program at Sheppard Air Force Base (AFB), Texas, with newer and more capable T-7A "Red Hawk" aircraft. DAF is preparing an Environmental Impact Statement under the National Environmental Policy Act to evaluate potential environmental impacts associated with that proposal. Pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code 1531–1544), DAF has determined that T-7A recapitalization at Sheppard AFB would have *no effect* on seven federally listed or proposed species (Attachment 1).

The Proposed Action entails the phased introduction of T-7A aircraft and phased reduction of T-38C aircraft currently operating from Sheppard AFB and new intensities of flight operations. From 2034 to 2036, Sheppard AFB would receive up to 131 T-7A aircraft to replace all 131 T-38C aircraft currently assigned to the installation. Annual T-7A flight operations (i.e., takeoffs, landings, and touch-and-goes) would reach steady state in 2037 and increase by no more than 3 percent, when compared to the current number of annual T-38C flight operations. After departing from Sheppard AFB, T-7A sorties would occur within established Special Use Airspace (SUA) currently used for T-38C sorties, and no changes to established SUA configurations (i.e., size, shape, or location) or their active times would occur. Attachment 2, Figure 1 outlines the existing SUA proposed for T-7A sorties.

Several construction and renovation projects potentially would occur at Sheppard AFB to provide modern facilities and infrastructure to support the T-7A aircraft's maintenance, training, and operational requirements. Attachment 2, Figure 2 provides the approximate locations for these construction and renovation projects.

The Sheppard AFB Integrated Natural Resources Management Plan and the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) System reports for Sheppard AFB (Attachment 3) and the SUA (Attachment 4) were reviewed to determine if any federally listed, proposed, or candidate species or their habitats could potentially occur in the vicinity of the Proposed Action. All such species with the potential to occur on Sheppard AFB and those species with the potential for flight within the SUA at the same altitude as the proposed T-7A sorties were assessed for possible effects. The seven species that meet the aforementioned criteria for assessment are the Golden-cheeked warbler (*Setophaga chrysoparia*), Monarch butterfly (*Danaus plexippus*), Piping plover (*Charadrius melodus*), Rufa red knot (*Calidris canutus rufa*), Texas kangaroo rat (*Dipodomys elator),* Tricolored bat (*Perimyotis subflavus*), and Whooping crane (*Grus americana*).

Six of these species are capable of flight: golden-cheeked warbler, monarch butterfly, piping plover, rufa red knot, tricolored bat, and whooping crane. While incidental T-7A strikes with these flying species could occur, it is unlikely the proposed operations would substantially increase incidental strikes compared to the current potential with the T-38C. To draw this conclusion, DAF reviewed available installation bird/wildlife aircraft strike hazard (BASH) recordings between October 2020 and May 2025. Those recordings showed 160 strike incidents occurred with Sheppard AFB T-38C aircraft during that timespan, and none of the species struck were identified to be a protected species. It can therefore be concluded the current T-38C aircraft operations do not affect these six species. Because annual T-7A flight operations for the Proposed Action would be no more than 3 percent greater than the current number of annual T-38C flight operations, it can similarly be expected that the proposed T-7A operations would not affect these six species as well. Continued adherence of the Sheppard AFB BASH Plan would help avoid and minimize the potential for strikes in the event of an incidental occurrence of a federally listed or proposed for ESA-listing species. If determined to be necessary, new measures would be developed to reduce the potential for impacts to occur, and the BASH Plan would be updated accordingly. Therefore, the Proposed Action would have *no effect* on the golden-cheeked warbler, monarch butterfly, piping plover, rufa red knot, tricolored bat, and whooping crane.

While the Texas kangaroo rat has been previously observed on Sheppard AFB, in 2012, Sheppard AFB performed habitat assessments for this species, and it was determined that Texas kangaroo rat habitat is not present within the installation. Therefore, the Proposed Action would have *no effect* on the Texas kangaroo rat.

The monarch butterfly is found in fields, roadside areas, open areas, wet areas, and urban gardens, and milkweed plants are necessary for the monarch butterfly life cycle. Three milkweed species (*Asclepias incarnata*, *A. latifolia*, and *A. speciosa*) have been observed at Sheppard AFB; however, there is no suitable habitat within the proposed construction areas for these milkweed species. No observations of the monarch butterfly have been reported within the installation. Therefore, the Proposed Action would have *no effect* on the monarch butterfly.

We request written concurrence with our determination as part of the informal consultation process. If you have any questions or concerns, please contact Ms. Chinling Chen at chinling.chen@us.af.mil. Thank you in advance for your assistance in this effort.

Sincerely

SHIELDS.BRADFORD.L.1292831125 Digitally signed by SHIELDS.BRADFORD.L.1292831125 Date: 2025.08.06 13:18:59 -05'00'

BRADFORD L. SHIELDS, Maj, USAF
Commander, 82d Civil Engineer Squadron

4 Attachments:
1. Federally Listed Species with Potential to Occur on Sheppard AFB and within the SUA and Effects Determination
2. Figures
3. Sheppard AFB IPaC Report (Project Code: 2025-0003060)
4. SUA IPaC Report (Project Code: 2025-0086480)

Attachment 1: Federally Listed Species with Potential to Occur on Sheppard AFB and within the SUA and Effects Determination

Common Name	Scientific Name	Federal Status	Habitat Description and Distribution	Effect Determination and Justification
Golden-cheeked warbler	*Setophaga chrysoparia*	E	Identified for potential to occur within SUA where T-7A would fly. Found in cleared fields growing up to woods, marshes, and tamarack bogs.	**No effect** – No BASH incidents recorded.
Monarch butterfly	*Danaus plexippus*	PT	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Found in fields, roadside areas, open areas, wet areas, and urban gardens. This species lays eggs on obligate milkweed plants (*Asclepia* spp.).	**No effect** – No suitable habitat within proposed construction areas for obligate milkweed plants, no documented sightings of this species on installation, and no BASH incidents recorded.
Piping plover	*Charadrius melodus*	T	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Occurs in open, sandy or gravelly beaches with little vegetation.	**No effect** – No suitable habitat within proposed construction areas, no documented sightings of this species on installation, and no BASH incidents recorded.
Rufa red knot	*Calidris canutus rufa*	T	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Generally found in coastal marine and estuarine habitats.	**No effect** – No suitable habitat within proposed construction areas, no documented sightings of this species on installation, and no BASH incidents recorded.
Texas kangaroo rat	*Dipodomys elator*	PE	Identified for potential to occur on Sheppard AFB. Prefers grassland and rangeland habitats of the Southwestern Tablelands and Central Texas Plains, associated with bare ground and short-statured vegetation.	**No effect** – No suitable habitat within proposed construction areas. No documented sightings of this species on the installation since 2012.
Tricolored bat	*Perimyotis subflavus*	PE	Identified for potential to occur within SUA where T-7A would fly. Prefers partially open landscapes with large trees and woodland edges.	**No effect** – No BASH incidents recorded.
Whooping crane	*Grus americana*	E	Identified for potential to occur on Sheppard AFB and within SUA where T-7A would fly. Occurs in marshes, prairie pools, and coastal marshes.	**No effect** – No suitable habitat within proposed construction areas, no documented sightings of this species on installation, and no BASH incidents recorded.

Key: E = Endangered; P = Proposed; T = Threatened
Sources: Sheppard AFB 2021, Sheppard AFB 2025, USFWS 2025a, USFWS 2025b

References:

Sheppard AFB 2021	Sheppard Air Force Base (AFB). 2021. *U.S. Air Force Integrated Natural Resources Management Plan, Sheppard Air Force Base*. Revised May 21, 2021.
Sheppard AFB 2025	Sheppard AFB. 2025. Spreadsheet provided by Sheppard AFB listing T-38C wildlife strikes between October 2020 and May 2025.
USFWS 2025a	United States Fish and Wildlife Service (USFWS). 2025. Information for Planning and Consultation Report for T-7A Recapitalization at Sheppard Air Force Base, Texas. Project Code: 2025-0003060. Report generated April 10, 2025.
USFWS 2025b	USFWS. 2025. Information for Planning and Consultation Report for Sheppard AFB's Military Operating Areas and Military Training Routes. Project Code: 2025-0086480. Report generated April 22, 2025.

Attachment 2: Figures

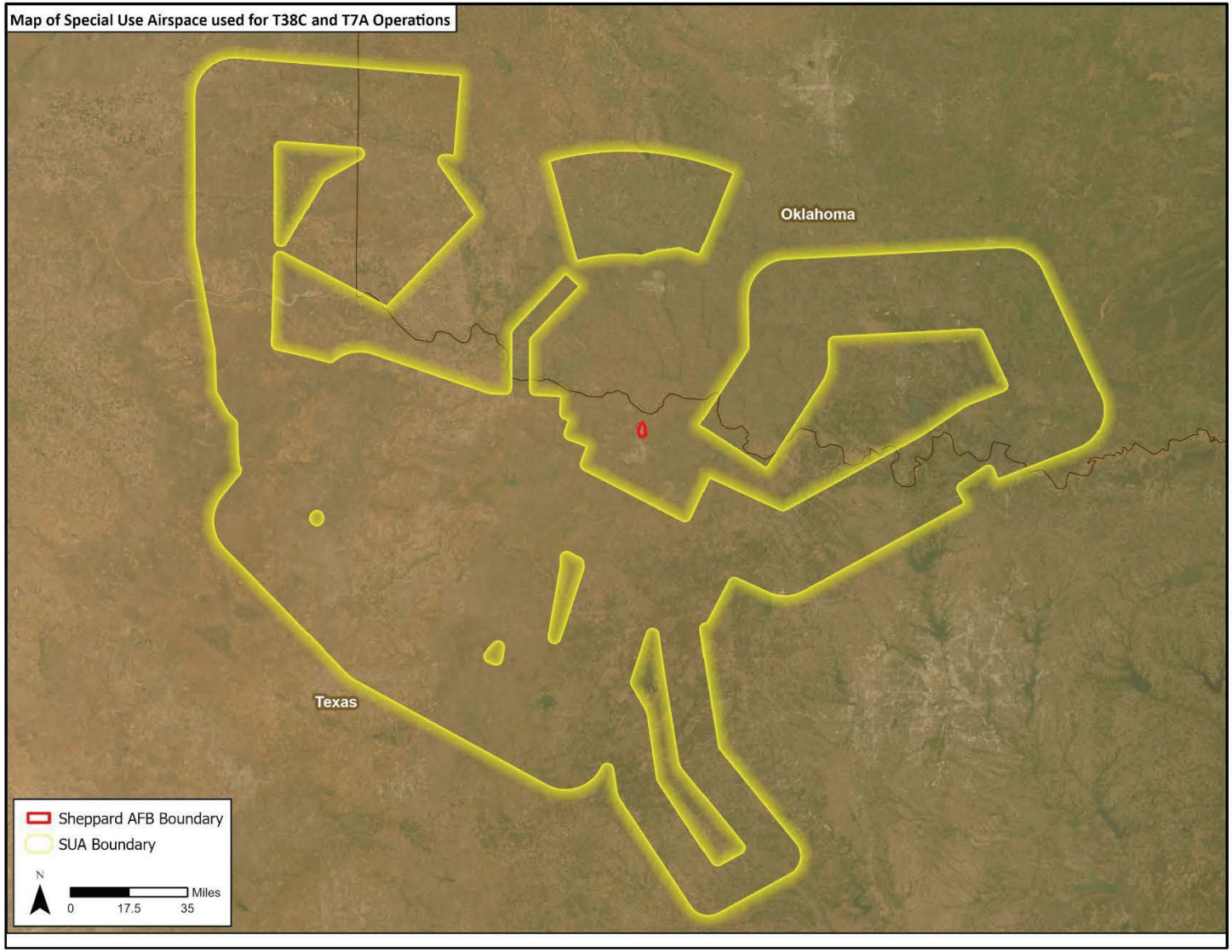

Figure 1. Sheppard AFB and Associated SUA

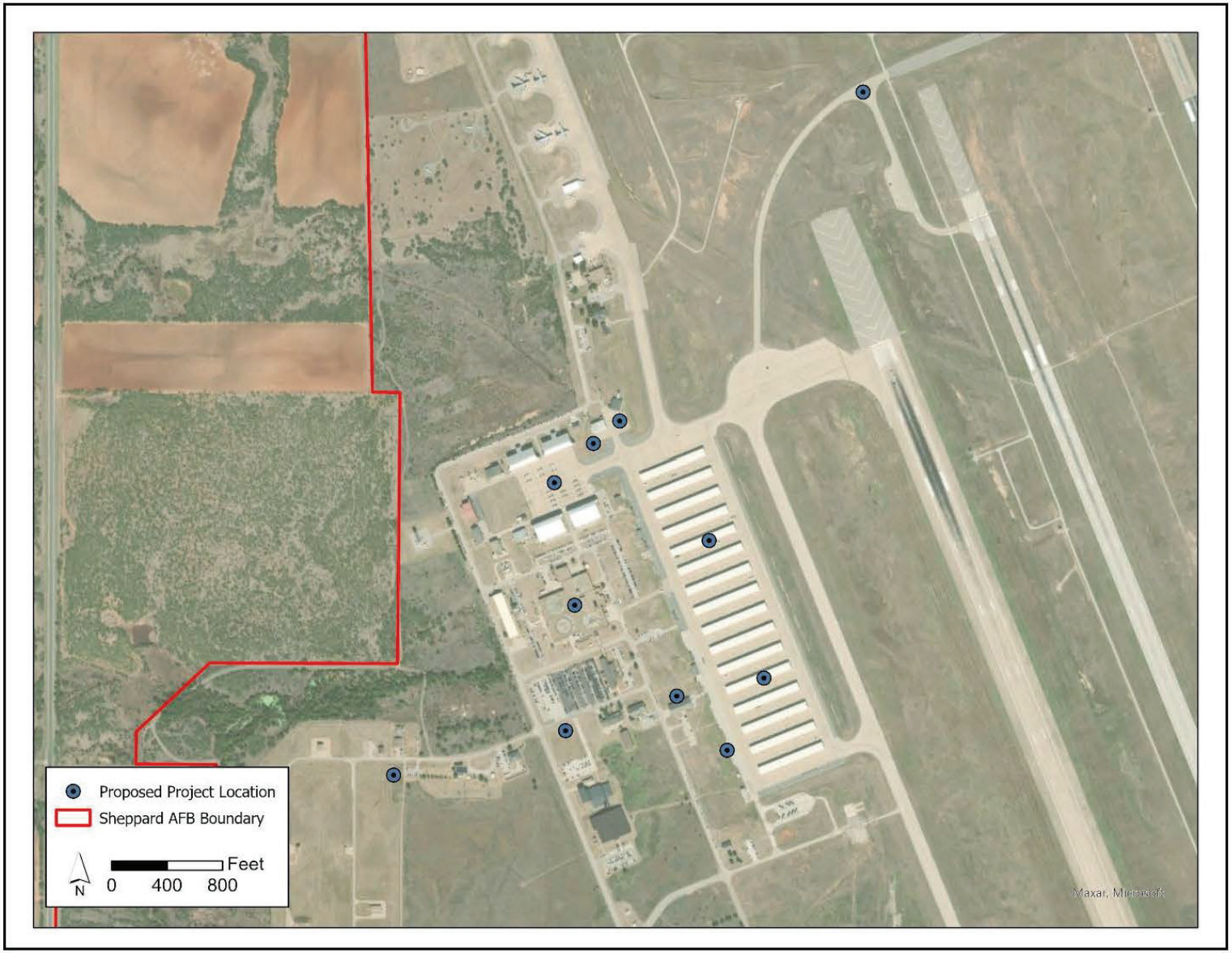

Figure 2. Construction and Renovation Project Locations

Attachment 3: Sheppard AFB IPaC Report (Project Code: 2025-0003060)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (817) 277-1100 Fax: (817) 277-1129
Email Address: arles@fws.gov

In Reply Refer To: 04/10/2025 16:05:24 UTC
Project Code: 2025-0003060
Project Name: Sheppard T-7A EIS

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

To Whom It May Concern:

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects to listed species or critical habitat are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a consequence of the proposed action, and

the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service has performed up-front analysis for certain project types and species in your project area. These analyses have been compiled into *determination keys*, which allows an action agency, or its designated non-federal representative, to initiate a streamlined process for determining a proposed project's potential effects on federally listed species. The determination keys can be accessed through IPaC.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at: https://www.fws.gov/service/section-7-consultations

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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/library/collections/bald-and-golden-eagle-management). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/media/land-based-wind-energy-guidelines) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation. The Federal Aviation Administration (FAA) released specifications for and made mandatory flashing L-810 lights on new towers 150-350 feet AGL, and the elimination of L-810 steady-burning side lights on towers above 350 feet AGL. While the FAA made these changes to reduce the number of migratory bird collisions (by as much as 70%), extinguishing steady-burning side lights also reduces maintenance costs to tower owners. For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in

the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

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

This species list is provided by:

Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(817) 277-1100

PROJECT SUMMARY

Project Code: 2025-0003060
Project Name: Sheppard T-7A EIS
Project Type: Military Operations
Project Description: T-7A Recapitalization at Sheppard AFB
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.9867952,-98.50130317649868,14z

Counties: Wichita County, Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

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

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

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

MAMMALS

NAME	STATUS
Texas Kangaroo Rat *Dipodomys elator* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2985	Proposed Endangered

BIRDS

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

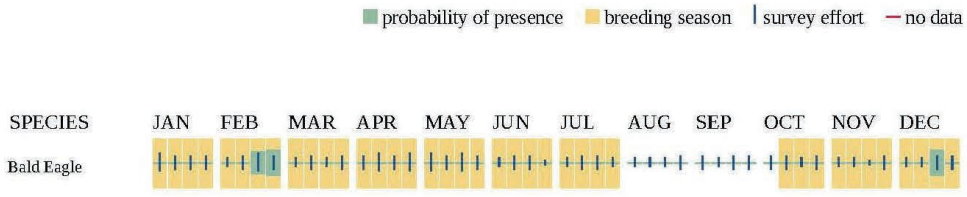
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25

NAME	BREEDING SEASON
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

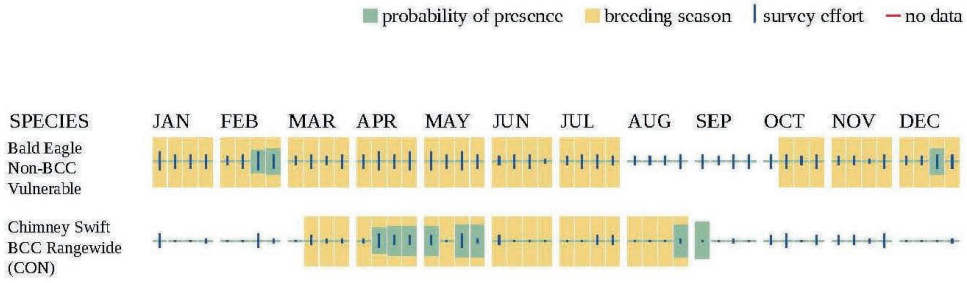
Probability of Presence (■)

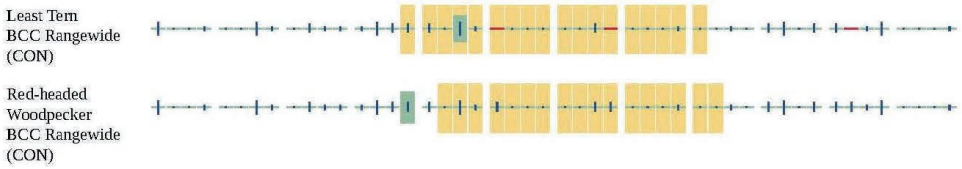
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





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- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- PUBFh
- PUBFx
- PUBF
- PUBHh
- PUSCh
- PUSCx

FRESHWATER EMERGENT WETLAND

- PEM1F
- PEM1C
- PEM1A
- PEM1Fx

RIVERINE

- R4SBC
- R5UBFx
- R4SBCx
- R5UBH

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1Ch

IPAC USER CONTACT INFORMATION

Agency: Department of Defense
Name: Benjamin Patterson
Address: 613 NW Loop 410, Suite 700
City: San Antonio
State: TX
Zip: 78216
Email benjamin.patterson@hdrinc.com
Phone: 5126678926

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Environmental Protection Agency

Attachment 4: SUA IPaC Report (Project Code: 2025-0086480)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (817) 277-1100 Fax: (817) 277-1129
Email Address: arles@fws.gov
https://www.fws.gov/office/arlington-ecological-services

In Reply Refer To: 04/22/2025 16:08:30 UTC
Project Code: 2025-0086480
Project Name: Sheppard AFB T-7A Special Use Airspace_Updated Area

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

To Whom It May Concern:

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

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After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects to listed species or critical habitat are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a consequence of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service has performed up-front analysis for certain project types and species in your project area. These analyses have been compiled into *determination keys*, which allows an action agency, or its designated non-federal representative, to initiate a streamlined process for determining a proposed project's potential effects on federally listed species. The determination keys can be accessed through IPaC.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at: https://www.fws.gov/service/section-7-consultations

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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/library/collections/bald-and-golden-eagle-management). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/media/land-based-wind-energy-guidelines) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation. The Federal Aviation Administration (FAA) released specifications for and made mandatory flashing L-810 lights on new towers 150-350 feet AGL, and the elimination of L-810 steady-burning side lights on towers above 350 feet AGL. While the FAA made these changes to reduce the number of migratory bird collisions (by as much as 70%), extinguishing steady-burning side lights also reduces maintenance costs to tower owners. For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

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

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

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

This species list is provided by:

Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(817) 277-1100

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

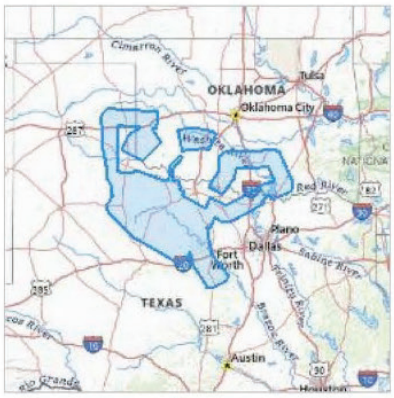
Austin Ecological Services Field Office
1505 Ferguson Lane
Austin, TX 78754-4501
(512) 937-7371

Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
(918) 581-7458

PROJECT SUMMARY

Project Code: 2025-0086480
Project Name: Sheppard AFB T-7A Special Use Airspace_Updated Area
Project Type: Military Operations
Project Description: Special Use Airspace for T-7A recapitalization for Sheppard AFB
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.744704600000006,-99.64034505232749,14z



Counties: Oklahoma and Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 17 threatened, endangered, or candidate species on this species list.

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

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

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

---

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

MAMMALS

NAME	STATUS
Texas Kangaroo Rat *Dipodomys elator* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2985	Proposed Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Golden-cheeked Warbler *Setophaga chrysoparia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33	Endangered
Lesser Prairie-chicken *Tympanuchus pallidicinctus* Population: Northern DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1924	Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

FISHES

NAME	STATUS
Arkansas River Shiner *Notropis girardi*	Threatened

NAME	STATUS
Population: Arkansas River Basin (AR, KS, NM, OK, TX) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4364	
Peppered Chub *Macrhybopsis tetranema* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/532	Endangered
Sharpnose Shiner *Notropis oxyrhynchus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6492	Endangered
Smalleye Shiner *Notropis buccula* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1774	Endangered

CLAMS

NAME	STATUS
Texas Fawnsfoot *Truncilla macrodon* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8965	Threatened
Texas Heelsplitter *Potamilus amphichaenus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/299	Proposed Endangered

INSECTS

NAME	STATUS
American Burying Beetle *Nicrophorus americanus* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

FLOWERING PLANTS

NAME	STATUS
Geocarpon minimum No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7699	Threatened

CRITICAL HABITATS

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Sharpnose Shiner *Notropis oxyrhynchus* https://ecos.fws.gov/ecp/species/6492#crithab	Final
Smalleye Shiner *Notropis buccula* https://ecos.fws.gov/ecp/species/1774#crithab	Final
Texas Fawnsfoot *Truncilla macrodon* https://ecos.fws.gov/ecp/species/8965#crithab	Final
Texas Kangaroo Rat *Dipodomys elator* https://ecos.fws.gov/ecp/species/2985#crithab	Proposed

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
TISHOMINGO NATIONAL WILDLIFE REFUGE https://www.fws.gov/our-facilities?$keywords="%5C%22TISHOMINGO+NATIONAL+WILDLIFE+REFUGE%5C%22"	13,388.614
WICHITA MOUNTAINS WILDLIFE REFUGE https://www.fws.gov/our-facilities?$keywords="%5C%22WICHITA+MOUNTAINS+WILDLIFE+REFUGE%5C%22"	59,020.73

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.

3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

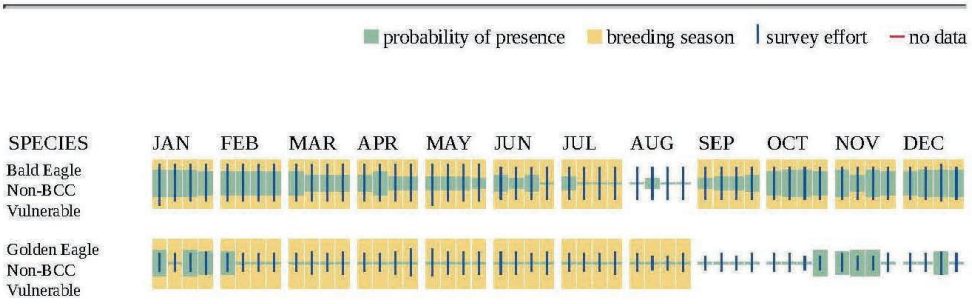
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Vireo *Vireo atricapilla* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5716	Breeds Apr 1 to Sep 15

NAME	BREEDING SEASON
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9437	Breeds May 1 to Aug 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Chuck-will's-widow *Antrostomus carolinensis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9604	Breeds May 10 to Jul 10
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10575	Breeds Jun 1 to Aug 31
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Ferruginous Hawk *Buteo regalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6038	Breeds Mar 15 to Aug 15
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Hudsonian Godwit *Limosa haemastica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9482	Breeds elsewhere

NAME	BREEDING SEASON
Kentucky Warbler *Geothlypis formosa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Lark Bunting *Calamospiza melanocorys* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9451	Breeds May 10 to Aug 15
Le Conte's Sparrow *Ammospiza leconteii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9469	Breeds elsewhere
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Little Blue Heron *Egretta caerulea* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9477	Breeds Mar 10 to Oct 15
Long-billed Curlew *Numenius americanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15

NAME	BREEDING SEASON
Mountain Plover *Charadrius montanus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3638	Breeds Apr 15 to Aug 15
Northern Harrier *Circus hudsonius* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prairie Loggerhead Shrike *Lanius ludovicianus excubitorides* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8833	Breeds Feb 1 to Jul 31
Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Sprague's Pipit *Anthus spragueii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8964	Breeds elsewhere
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30
Thick-billed Longspur *Rhynchophanes mccownii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11901	Breeds May 1 to Aug 15

NAME	BREEDING SEASON
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Whimbrel *Numenius phaeopus hudsonicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

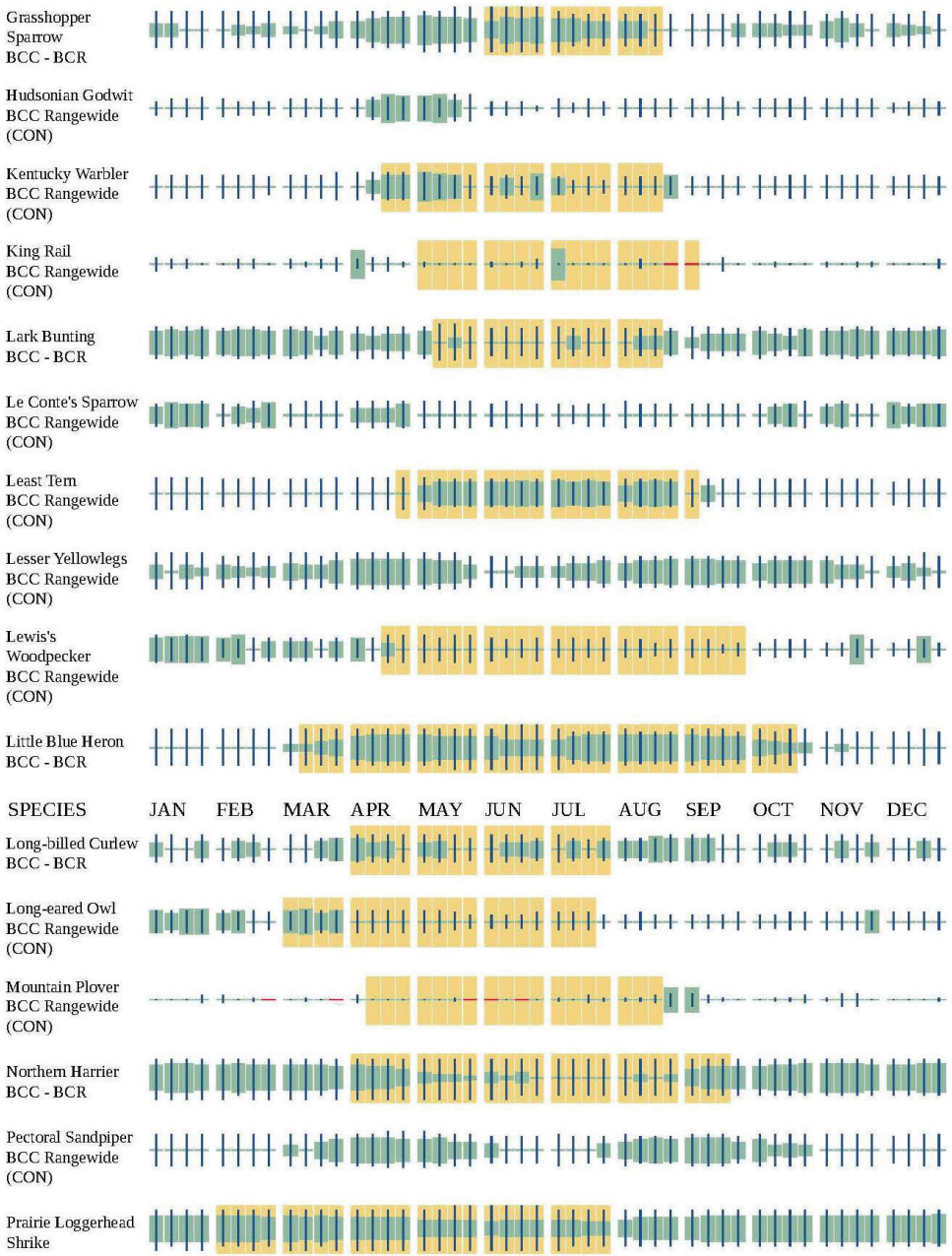
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

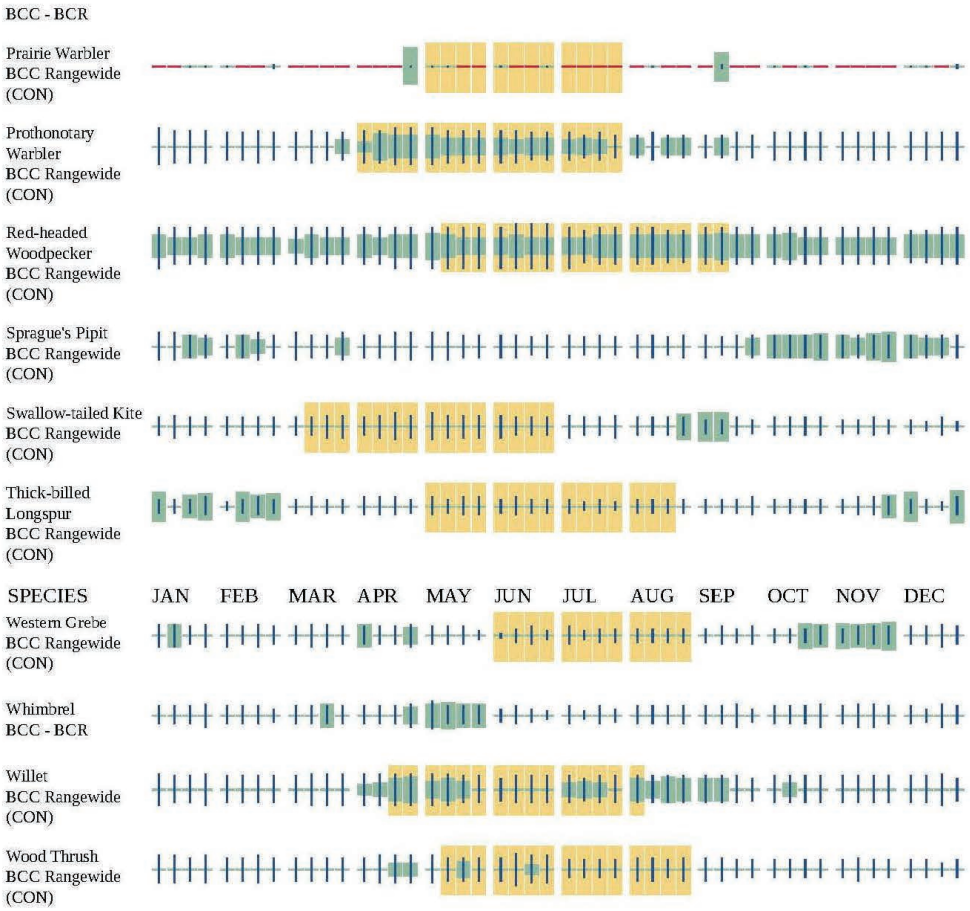
Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data


SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
American Golden-plover
BCC Rangewide (CON)
American Kestrel
BCC - BCR
Bald Eagle
Non-BCC Vulnerable
Black Tern
BCC Rangewide (CON)
Black-billed Cuckoo
BCC Rangewide (CON)
Black-capped Vireo
BCC Rangewide (CON)
Bobolink
BCC Rangewide (CON)
Chestnut-collared Longspur
BCC Rangewide (CON)
Chimney Swift
BCC Rangewide (CON)
Chuck-will's-widow
BCC - BCR
Clark's Grebe
BCC Rangewide (CON)
Eastern Whip-poor-will
BCC Rangewide (CON)
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Ferruginous Hawk
BCC - BCR
Golden Eagle
Non-BCC Vulnerable


Grasshopper Sparrow BCC - BCR
Hudsonian Godwit BCC Rangewide (CON)
Kentucky Warbler BCC Rangewide (CON)
King Rail BCC Rangewide (CON)
Lark Bunting BCC - BCR
Le Conte's Sparrow BCC Rangewide (CON)
Least Tern BCC Rangewide (CON)
Lesser Yellowlegs BCC Rangewide (CON)
Lewis's Woodpecker BCC Rangewide (CON)
Little Blue Heron BCC - BCR
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Long-billed Curlew BCC - BCR
Long-eared Owl BCC Rangewide (CON)
Mountain Plover BCC Rangewide (CON)
Northern Harrier BCC - BCR
Pectoral Sandpiper BCC Rangewide (CON)
Prairie Loggerhead Shrike



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit https://www.fws.gov/wetlands/data/mapper.HTML

FRESHWATER EMERGENT WETLAND

- PEM1/SS1A
- PEM1A
- PEM1/FO1Ch
- PEM1/SS1C
- PEM1/FO1C
- PEM1/FO1A
- PEM1/FO1Fh
- PEM1/SS1Ah
- PEM1/SS1Fh
- PEM1/SS2C
- PEM1Af
- PEM1/USAh
- PEM1/SS2Ah
- PEM1Ad
- PEM1/SS1F
- PEM1/SS6A
- PEM1Ah
- PEM1/SS1Ch
- PEM1/USC
- PEM1/SS6C
- PEM1/SS2A
- PEM1J
- PEM1/SS1Fd

LAKE

- L2USAh
- L1UBHh
- L1UBH
- L2USA
- L1UBHx
- L2UBHh
- L2UBFh
- L2USCh
- L2USCx

FRESHWATER POND

- PAB4F
- PAB3Fh
- PAB4H
- PAB3Hh
- PABHh
- PAB4Fx
- PAB4Hh
- PAB4Fh
- PABFh
- PABHx

IPAC USER CONTACT INFORMATION

Agency: Department of Defense
Name: Benjamin Patterson
Address: 613 NW Loop 410, Suite 700
City: San Antonio
State: TX
Zip: 78216
Email benjamin.patterson@hdrinc.com
Phone: 5126678926

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Environmental Protection Agency

Response from USFWS

From: Arlington ES, FW2 <arles@fws.gov>
Sent: Tuesday, August 12, 2025 11:52 AM
To: HENNEKE, SARAH J CTR USAF AETC 82 CES/CEIE <sarah.henneke.ctr@us.af.mil>; Edwards, Sean <Sean_Edwards@fws.gov>
Cc: LOFGREN, RHONDA M CTR USAF AETC 82 CES/CEIE <rhonda.lofgren.ctr@us.af.mil>; PAPPAS, ALLEN M CIV USAF AETC 82 CES/CEIE <allen.pappas.1@us.af.mil>; CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>
Subject: [Non-DoD Source] Re: [EXTERNAL] Sheppard AFB T-7A EIS Section 7 of the ESA Consultation

> You don't often get email from arles@fws.gov. Learn why this is important

Good morning - received, thank you. As you may be aware, federal actions that are determined to have "no effect" on federally listed species do not require consultation under section 7 of the Endangered Species Act.

Please let us know if you have any questions.

U.S. Fish and Wildlife Service
Texas Coastal and Central Plains Ecological Services Field Office
Fort Worth Sub-office
3233 Curtis Drive
Fort Worth, Texas 76116
817-277-1100
https://www.fws.gov/office/arlington-ecological-services

Section 106 of the National Historic Preservation Act Consultation

DAF consulted with the Texas Historical Commission (i.e., the Texas State Historical Preservation Officer [SHPO]) under Section 106 of the National Historic Preservation Act for the Proposed Action. **Section 3.5** contains further information regarding the outcome of the consultation with the Texas SHPO. A copy of the consultation letter and the SHPO's response is on the following pages.

Consultation letter sent to the Texas Historical Commission (sent December 4, 2024)

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

2 December 2024

Mr. Mark Mc Burnett
Deputy Base Civil Engineer
82 CES/CL
231 9th Avenue, Building 1402
Sheppard AFB TX 76311

Mr. Joseph Bell
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

Dear Mr. Bell,

The United States Department of the Air Force (DAF) is proposing to recapitalize its flight training program at Sheppard Air Force Base (AFB), Texas, with newer and more capable T-7A "Red Hawk" aircraft. Recapitalization is the phased acquisition of the new generation T-7A aircraft and construction and upgrade of specific facilities to support the training, operation, and maintenance of the T-7A aircraft. To consider various environmental concerns, DAF is engaging early with the appropriate resource and regulatory agencies as it formulates the undertaking. DAF is also preparing an Environmental Impact Statement under the National Environmental Policy Act to evaluate potential environmental impacts associated with T-7A recapitalization at Sheppard AFB.

Per 54 U.S.C. 306108 and Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR Part 800, DAF is initiating consultation of a proposed undertaking that has the potential to affect historic properties.

The undertaking will entail the phased introduction of T-7A aircraft and phased reduction of the T-38C aircraft currently operating from Sheppard AFB; new intensities of flight operations at Sheppard AFB; and temporary changes to the number of personnel assigned to Sheppard AFB. T-7A operations would occur within established Special Use Airspace (SUA) currently used for T-38C operations (see **Attachment 1**), and no changes to SUA configurations (i.e., size, shape, or location) would be necessary to support the proposed operations of the T-7A. Additionally, 16 construction and modernization projects of existing facilities would occur at Sheppard AFB to provide modern and upgraded facilities and infrastructure to support the T-7A aircraft's maintenance, training, and operational requirements. This undertaking's potential to impact historic properties and details on the projects and their individual assessment of effect can be found in **Attachment 2**.

DAF has defined this undertaking as the Proposed Action and has defined the Area of Potential Effect (APE) as the potential impact area from all activities, including all areas of potential direct and indirect effects. Direct effects include, but are not limited to, ground disturbance, vibration, building modification and new construction, and staging and equipment storage. Indirect effects include, but are not limited to, noise and aesthetic interference. For this undertaking, the APE is defined as the footprint of all buildings proposed for interior and exterior alteration, all areas of new construction and additions, all landscape features (such as airfield markings) that are proposed for alteration, all new roads and parking lots, and a 50-foot buffer around those areas to account for construction staging and temporary physical impacts from ground disturbing activity. The APE captures all anticipated direct and indirect effects as all new building construction is anticipated to be one-story and not exceed 40 feet in total building height. There are no National Register of Historic Places (NRHP)-listed or eligible historic districts, sites, buildings, structures, or objects that would be visually or audibly affected by the proposed undertaking. The APE totals approximately 185.93 acres and is shown in **Attachment 3**. The APE for this undertaking does not include the SUA where the T-7A aircraft would perform operations (see **Attachment 1**), because this SUA is already used for such operations with the T-38C aircraft and this undertaking would not change the configuration (e.g., shape, size, altitudes) or active times of this SUA.

Following issuance of Sheppard AFB's scoping notice, 24 Tribes were identified as potentially being affected by the Proposed Action. Sheppard AFB is continuing consultation with those Tribes and has invited them to consult on the proposed undertaking and to confirm that no sacred sites or traditional cultural properties are present in the APE.

Affected Environment

The information provided in the following paragraphs is from the Sheppard Air Force Base Integrated Cultural Resource Management Plan (ICRMP). The ICRMP prescribes procedures and guidance for the conservation, maintenance, and protection of cultural resources and facilities, compatible with the military mission and in accordance with Department of Defense policy. Cultural resources in the context of the ICRMP, refer to physical remains of any prehistoric or historic district site, building, structure or object significant in American history, architecture archaeology, engineering or culture on Sheppard Air Force Base, Texas. The ICRMP is available upon request.

Cultural resources surveys were conducted at Sheppard AFB in 1993 and 1994. The 1993 survey was the *Cultural Resource Assessment of Sheppard Air Force Base* conducted by the National Park Service (NPS). The 1994 survey was the *Cultural Resource Survey of the Sheppard Air Force Base Recreation Area at Lake Texoma* conducted by U.S. Army Corps of Engineers contractor Geo-Marine, Inc.

No archaeological resources were identified during the 1993 survey, and NPS recommended no further archaeological investigations. The state historic preservation office concurred with the survey findings and recommendations. Based on survey observations, NPS recommended that there was an extremely low probability of any intact cultural deposits within the installation proper.

The 1994 archaeological survey focused on the Sheppard AFB Recreational Area. Site files of the Texas Archaeology Research Laboratory provided information regarding two previously recorded sites within the project area. These sites (4IGSIIS and 41GS26) are currently completely submerged in Lake Texoma and, therefore, were not investigated. No archaeological resource sites were located during the 1994 survey and two observed localities were determined not eligible for inclusion in the NRHP.

No Native American cemeteries, burials, sacred sites, or areas considered a Traditional Cultural Property (TCP) have been identified during surveys at Sheppard AFB.

A total of three surveys of historic buildings, structures and landscapes have occurred at Sheppard AFB. Surveys were conducted in 1993, 2002 and 2012. During the 1993 survey, the Kell Field Air Terminal Building was the only resource determined eligible for both the NRHP and State register. The Kell Field Air Terminal was listed as a Recorded Texas Historic Landmark by the Texas Historical Commission in 1981.

A Cold War inventory was conducted in 2002. Of the 256 buildings, structures, and auxiliary features that were constructed at Sheppard AFB during the Cold War period, only two were recommended eligible for NRHP listing as Cold War resources: Building 2560 and the Alert Apron were recommended eligible as components of a Strategic Air Command alert facility for dispersal bases.

The *Inventory and Assessment of Select Buildings and Structures (Dating Through 1976)* was conducted in 2012. The 133 resources evaluated at Sheppard Main Base, Sheppard Recreation Annex, and Fredrick Municipal Airport were determined to lack association with important WWII or Cold War military events. In addition, none were found to be associated with a significant military mission or event beyond WWII or the Cold War (e.g., medical, aircraft, or communications technology that impacted the military), and none held architectural significance. Thus, none of the 133 resources surveyed in 2012 were recommended eligible for listing in the NRHP.

Three architectural resources located on Sheppard AFB have been previously determined eligible for listing in the NRHP; however, none are located within the APE or have any potential to be impacted by the proposed project (Kell Field Air Terminal Building, Building 2560, and the Alert Apron).

Environmental Consequences

Ground disturbance would result from the proposed Ground-Based Training System (GBTS) Facility addition, Unit Maintenance Training (UMT) construction, flightline ramp expansion, new hush house pad construction, egress shop addition, jet blast deflectors installation, concrete pad construction for munitions storage, and expansion of the existing hammerhead paved area. The potential for archaeological resources to occur within these project areas is low due to the extensive land disturbance and the low potential for archaeological resources based on prior survey.

The GBTS Facility addition would be located immediately adjacent to an existing facility (Building 2326) completed in 2004. The UMT would be located adjacent to the existing egress shop (Building 2521), which was completed 1996. The existing flightline ramp is a large, paved area that would be expanded within grass areas that have been previously disturbed by installation activities. The new hush house pad would be installed adjacent to the existing one, which was installed in 1996, within grass areas that have been previously disturbed by installation activities. The egress shop addition would occur adjacent to the existing facility, completed in 1996. The jet blast deflectors would be located on the expanded flightline ramp. The munitions storage pad would be constructed in an open area currently used for vehicular parking. The expansion of the existing hammerhead paved area would occur within grass areas that have been previously disturbed by installation activities. All areas where ground disturbance is proposed were part of the 1993 archaeological survey, which did not identify any archaeological resources. The remaining project activities, primarily interior building alterations, would have no potential to impact archaeological resources as they would entail no ground disturbance.

The Proposed Undertaking is anticipated to have no effect on archaeological sites because no archaeological resources are known to be present within or adjacent to the APE. Should any archaeological artifacts be exposed during construction or any other activities, those activities would cease until an investigation is completed. No Native American TCPs, cemeteries, burials, or sacred sites have been identified at Sheppard AFB and no impacts to these cultural resources are anticipated to occur from implementation of the Proposed Undertaking. However, if an inadvertent discovery of Native American human remains occurs during any subsurface excavation during construction, all work activity would cease until an investigation is completed.

None of the planned project activities would have any effect on architectural resources. Two projects would involve the renovation and expansion of an existing, non-historic building (GBTS and addition to egress building), one project would involve the replacement of non-historic structures with new structures (T-38C shelter replacement for T-7A aircraft shelters), five projects would involve construction of new buildings and structures on vacant land (UMT, hush house pad, jet blast deflectors, compass rose and trim pad, and munitions storage pad), two projects would involve expansion of 1960 pavement areas determined not eligible during previous cultural resources surveys (flightline ramp and hammerhead), three projects would include interior alterations to historic-age buildings that were constructed in 1960 and have been previously determined not eligible for the NRHP (renovation of squadron operations 1 and 2 and interior hangar alterations), and one project would include interior alterations to a non-historic building (T-7A parts warehouse). Lastly, airfield improvements such as repainting lines, replacement of CASS equipment, and replacing anchor rods would occur on existing pavement and have no potential to impact existing buildings or structures. The table in **Attachment 2** lists the proposed projects and summarizes their impacts on historic properties.

Three architectural resources located on Sheppard AFB have been previously determined eligible for listing in the NRHP; however, none are located within the APE or have any potential to be impacted by the proposed project (Kell Field Air Terminal Building, Building 2560, and

the Alert Apron). No potential historic districts have been identified during previous surveys. Any project activities involving historic-age buildings would be confined to building interiors of resources previously determined not eligible for listing in the NRHP (squadron operations [Building 2320], Building 2404, Building 2406, Building 2408, and Building 2410). All exterior building alterations are proposed to occur to non-historic buildings at the installation.

A change in the type of aircraft flown or the timing (e.g., daytime or nighttime) and frequency of flight operations would have no potential to impact historic properties. Changes to noise levels are also not anticipated to impact any historic properties. Lastly, a temporary increase in personnel at Sheppard AFB would also have no potential to impact historic properties.

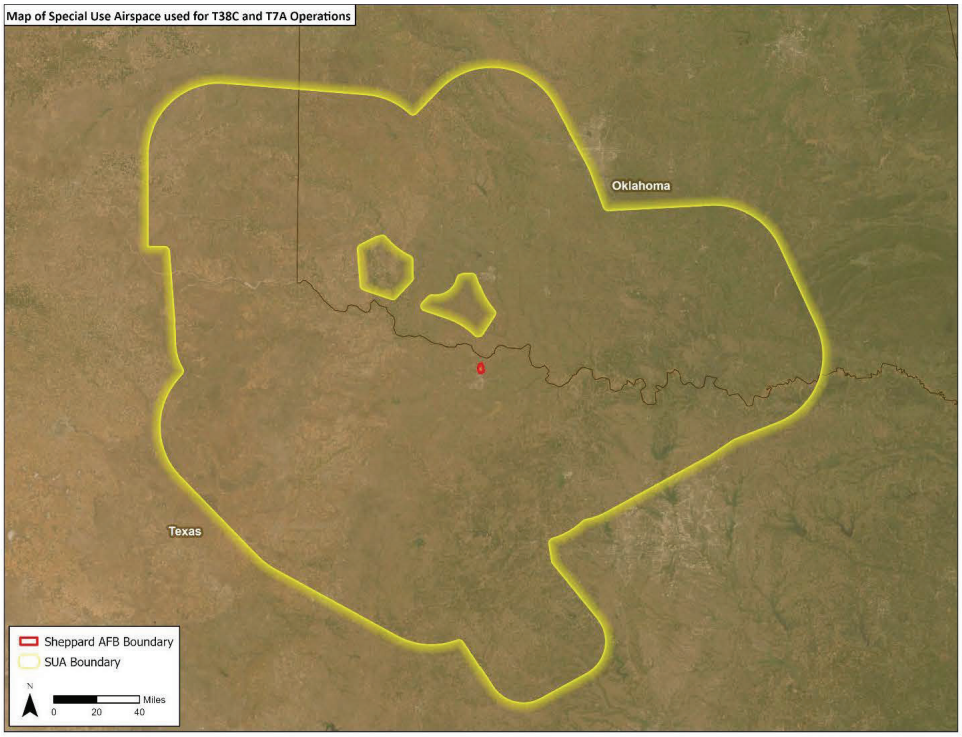
Pursuant to 36 CFR §800.4(d), DAF has determined that no historic properties would be affected by the T-7A Recapitalization at Sheppard AFB. Attached for your review are copies of relevant documents supporting DAF's findings and determinations. We request your comment or concurrence on the finding of *No Historic Properties Affected*. If we do not receive your comments or concurrence within 30 days, we will assume concurrence and proceed with the undertaking as described. Please contact Ms. Chinling Chen via email at chinling.chen@us.af.mil if you have any questions.

Sincerely,

MARK Mc BURNETT, GS-14, DAF
Deputy Base Civil Engineer

3 Attachments:
1. Map of Special Use Airspace used for T-38C and T-7A Operations
2. Table of Projects
3. Map of APE for Sheppard AFB T-7A Recapitalization Undertaking

Attachment 1. Map of Special Use Airspace used for T-38C and T-7A Operations



Attachment 2. Table of Projects

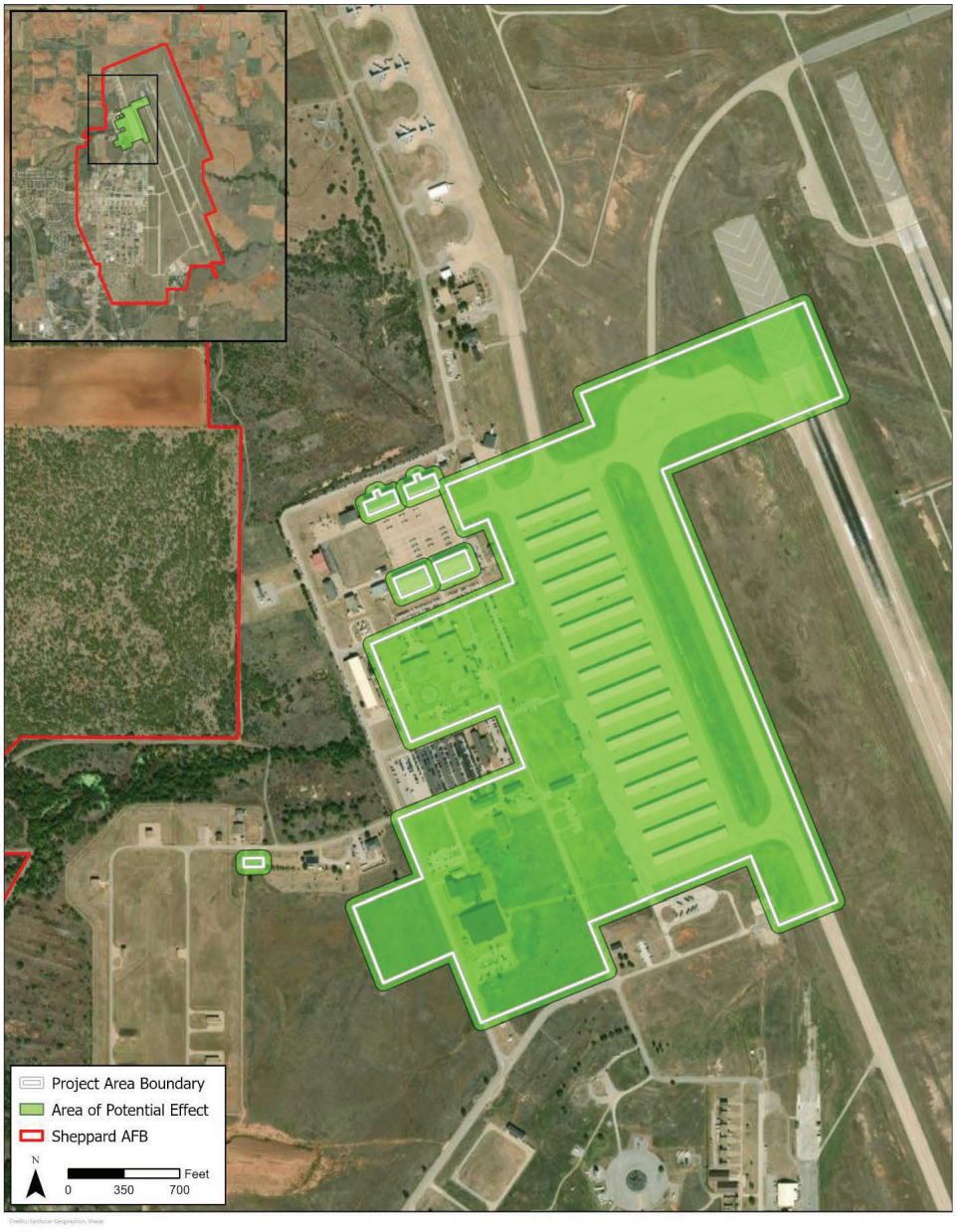
Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
Ground-Based Training System (GBTS) Facility	The proposed project would construct a one-story facility in a grassy area that is partially paved for existing parking. The project would include renovation of an existing facility (Building 2326) and construction of a 16,000 ft² addition.	N/A – Building 2326 is non-historic	2004	No effect on historic properties
Maintenance Hangar/Unit Maintenance Training (UMT)	The proposed project would construct an approximately 46,500 ft² aircraft UMT facility maintenance hangar, and an associated parking area.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Ramp Expansion	The proposed project would construct approximately 60,000 ft² of pavement to expand the size of the flightline ramp.	Not Eligible (ramp)	1960 (ramp) N/A – Vacant land (expansion area)	No effect on historic properties
Hush House Pad	The proposed project would construct a new hush house pad adjacent to the installation's existing hush house. Construction would include a reinforced concrete pad approximately 27,500 ft².	N/A – New construction	N/A – Vacant land	No effect on historic properties
T-7A Shelters Part I and Part II	The proposed project would replace shelters (sunshades) on the existing T-38C aircraft parking apron to protect T-7A aircraft. Existing T-38C shelters would be removed. Taxi lines would be removed and repainted.	N/A – T-7A shelters are non-historic	2007-2012	No effect on historic properties
Addition to Egress Shop	The proposed project would construct an addition onto the existing egress shop (Building 2521). The addition would be approximately 3,400 ft².	N/A – Egress building is non-historic	1996	No effect on historic properties
Jet Blast Deflectors	The proposed project would install approximately 200 linear feet of jet blast deflectors on the existing airfield. Final placement would be decided during ramp layout	N/A – New construction	N/A – Vacant land	No effect on historic properties

Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
	design.			
Airfield Improvements	The proposed project would reconfigure the airfield to meet the specifications of the T-7A rather than the T-38C, including remarking, installing new mooring and anchor rods, replacing the aircraft arresting system, and removing aboveground CASS service modules.	N/A – Equipment being removed from existing T-38C shelters (non-historic) and repainting pavement	2007-2012	No effect on historic properties
Renovate Squad Operations 1	The proposed project would include interior renovation of Building 2320 to support the squadrons associated with the T-7A program.	Not eligible (AETC 2016)	1960	No effect on historic properties
Renovate Squad Operations 2	The proposed project would include interior renovation of Building 2320 to support the squadrons associated with the T-7A program.	Not eligible (AETC 2016)	1960	No effect on historic properties
Hangar Renovation	The proposed project would modify interior components of an existing hangar at one of the following facilities: Building 2404, 2406, 2408, or 2410.	Not eligible (all four buildings; AETC 2016)	1960 (all four buildings)	No effect on historic properties
Remove Aboveground Service Modules of the CASS	The proposed project would remove any T-38C CASS modules where T-7A aircraft would be located using previous T-38C spaces. CASS lines to the rows would be cut and capped, and vaults would be filled with concrete.	N/A – Equipment being removed from existing T-38C shelters (non-historic)	2007-2012	No effect on historic properties
Compass Rose & Trim Pad	The proposed project would repair/prepare existing aircraft pavement for a compass rose and trim pad.	N/A – New construction/paint	N/A – Vacant land	No effect on historic properties
Munitions Storage for T-7A	The proposed project would construct a concrete pad and provide utilities for a storage container to store T-7A ejection system explosive components.	N/A – New construction	N/A – Vacant land	No effect on historic properties

Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
Hammerhead Expansion	The proposed project would expand the existing hammerhead paved area to fit the wider wingspan of four T-7A versus four T-38C aircraft, if needed.	Not Eligible (pavement)	1960 (pavement) N/A – Vacant land (expansion area)	No effect on historic properties
Support Mechanized Material Handling System (in T-7A parts Warehouse)	The proposed project would include interior electrical support to an existing parts warehouse (Building 2518).	N/A – Building 2518 is non-historic	2007	No effect on historic properties

Key: N/A = Not applicable

Attachment 3. Map of APE for Sheppard AFB T-7A Recapitalization Undertaking



Response from the Texas Historical Commission

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Friday, January 3, 2025 3:36 PM
To: CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>; reviews@thc.state.tx.us
Subject: [Non-DoD Source] Sheppard Air Force Base Recapitalization

TEXAS HISTORICAL COMMISSION
real places telling real stories

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202504178
Date: 01/03/2025
Sheppard Air Force Base Recapitalization
Sheppard Air Force Base
Wichita Falls, TX

Description: Recapitalization flight training program includes construction and upgrade of specific facilities to support the training, operation, and maintenance of the T-7A aircraft.

Dear Mark McBurnett:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Caitlin Brashear and Danielle Julien, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

• No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

• No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: caitlin.brashear@thc.texas.gov, danielle.julien@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

Danielle Julien

for Joseph Bell, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

Native American Tribal Nation Consultation

DAF consulted under Section 106 of the National Historic Preservation Act with the following 24 Native American Tribes with an expressed or potential interest in cultural resources at Sheppard AFB and the special use airspace:

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Alabama-Quassarte Tribal Town
- Apache Tribe of Oklahoma
- Caddo Nation of Oklahoma
- Cherokee Nation
- Cheyenne and Arapaho Tribes
- Chickasaw Nation
- Choctaw Nation of Oklahoma
- Citizen Potawatomi Nation
- Comanche Nation
- Coushatta Tribe of Louisiana
- Delaware Nation, Oklahoma
- Fort Sill Apache Tribe
- Jicarilla Apache Nation
- Kialegee Tribal Town
- Kickapoo Tribe of Oklahoma
- Kiowa Indian Tribe of Oklahoma
- Muscogee Nation
- Osage Nation
- Quapaw Tribe of Indians
- Seminole Nation of Oklahoma
- Thlopthlocco Tribal Town
- Tonkawa Tribe of Oklahoma
- Wichita and Affiliated Tribes

Section 3.5 contains further information regarding the outcome of the consultation with the Native American Tribes. A copy of the consultation letters and responses are on the following pages.

Example of DAF's first consultation letter, sent on July 3, 2024, as part of public scoping.

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

03 July 2024

Mr. Mark Mc Burnett
Deputy Base Civil Engineer
82 CES/CL
231 9th Avenue, Building 1402
Sheppard AFB TX 76311

Governor John Raymond Johnson
Absentee-Shawnee Tribe of Indians of Oklahoma
Building 2
2025 S Gordon Cooper Drive
Shawnee OK 74801

Dear Governor Johnson,

The United States Department of the Air Force (DAF) is preparing an Environmental Impact Statement (EIS) under the National Environmental Policy Act to evaluate potential environmental impacts associated with T-7A Recapitalization at Sheppard Air Force Base (AFB), Texas. Recapitalization is the phased acquisition of the new generation T-7A aircraft and construction and upgrade of specific facilities to support the training, operation, and maintenance of the T-7A aircraft. Per Section 306108 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, DAF is accounting for various environmental concerns and engaging early with tribal governments as it initiates the undertaking.

The undertaking would entail the phased introduction of T-7A aircraft and phased reduction of the T-38C aircraft currently operating from Sheppard AFB; new intensities of flight operations at Sheppard AFB; and temporary changes to the number of personnel assigned to Sheppard AFB during the aircraft replacement period. T-7A operations would occur at a relatively high altitude within the same designated military airspace boundaries currently used for T-38C operations. No changes to the airspace boundaries would be necessary to support the proposed operations of the T-7A. Additionally, new construction or existing facility modification for multiple projects would occur at Sheppard AFB to provide modern facilities and infrastructure to support the T-7A aircrafts' maintenance, training, and operational requirements. **Attachment 1** shows the locations of the proposed projects.

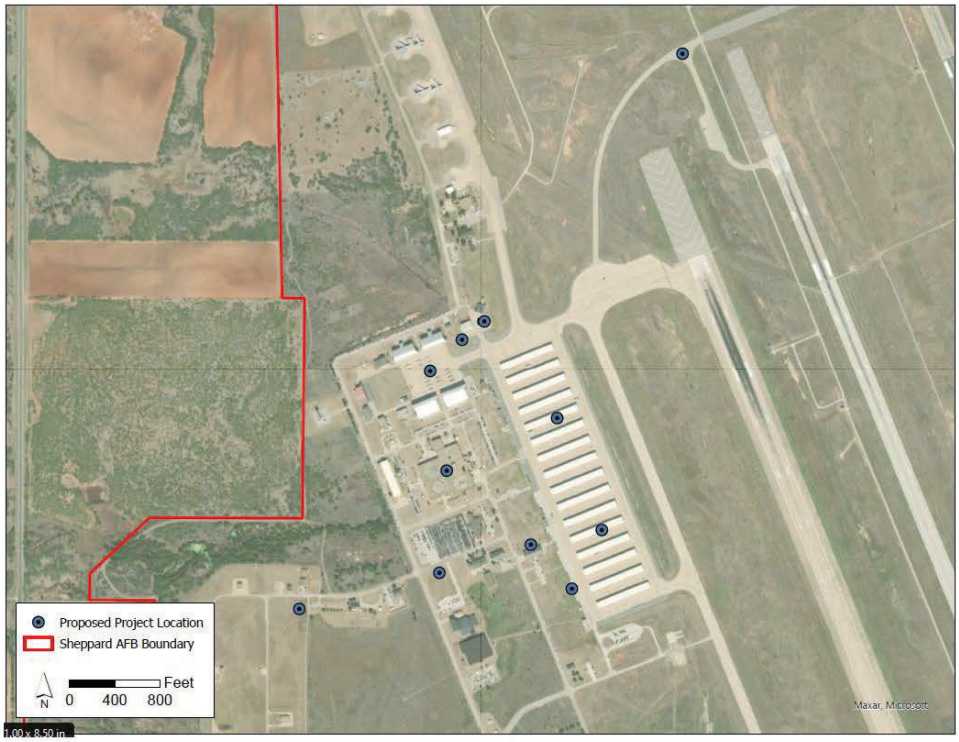
In accordance with the NHPA, DAF would like to initiate government-to-government consultation regarding the proposed T-7A Recapitalization at Sheppard AFB. DAF requests your input in identifying any issues or areas of concern you feel should be addressed in the environmental analysis. Additionally, please let us know if you believe this undertaking might adversely affect any historic properties of religious and cultural significance to the Absentee-Shawnee Tribe of Indians of Oklahoma.

If you have any questions, please contact Ms. Chinling Chen via email at chinling.chen@us.af.mil or mail at AFCEC/CIE, Attn: Sheppard AFB T-7A Recapitalization EIS, 100 H. East Street, Suite 4, Randolph AFB, TX 78150. Thank you in advance for your assistance in this effort.

Sincerely,

MARK Mc BURNETT, GS-14, DAF
Deputy Base Civil Engineer

Attachment:
1. Project Map


Proposed Project Location
Sheppard AFB Boundary
N
0 400 800
Feet
Maxar, Microsoft

Response from the Muscogee Nation regarding DAF's first consultation letter

From: Gordon Pevehouse <gpevehouse@muscogeenation.com>
Sent: Tuesday, July 30, 2024 4:06 PM
To: CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>
Subject: [Non-DoD Source] Sheppard AFB

> You don't often get email from gpevehouse@muscogeenation.com. Learn why this is important

Mark Burnett
Deputy Base Civil Engineer

Mr. Burnett,

Thank you for your recent correspondence on your **Department of the Air Force** project to construct and upgrade specific facilities located at **231 9th Avenue, Sheppard AFB, Texas**. This project is occurring in the Muscogee (Creek) Nation's area of interest. This response is in accordance with 36 CFR Part 800.2(c)(2)(ii)(D). This letter is to assist your identification efforts for this undertaking in compliance with Section 106 of the National Historic Preservation Act. The Muscogee Nation appreciates the invitation to consult on this undertaking.
The Muscogee Nation is unaware of any known historic properties or sites of cultural or religious significance that may be impacted by the proposed undertaking. We ask to be contacted if an inadvertent discovery of items such as cultural items and/or human remains occurs. Otherwise, we have no objections to the project, and work can proceed as planned.

Please let me know if you have any questions.
Mvto,

Gordon Pevehouse
Cultural Technician
The Muscogee Nation
P.O. Box 580 | Okmulgee, OK 74447
T. 918-732-7624 | F. 918-758-0649
MuscogeeNation.com
Meyuksvseko Mvskokvlke…

Example of DAF's second consultation letter sent on December 4, 2024, to 23 of the 24 tribes. The Muscogee Nation was not mailed the second government-to-government consultation letter because they previously requested no further consultation unless items of significance are discovered.

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

10 October 2025

Brigadier General Paul G. Filcek, USAF
Installation Commander
82 TRW/CC
419 G Avenue, Suite 1
Sheppard AFB TX 76311-2941

Governor John Raymond Johnson
Absentee-Shawnee Tribe of Indians of Oklahoma
Building 2
2025 S Gordon Cooper Drive
Shawnee OK 74801

Dear Governor Johnson

The United States Department of the Air Force (DAF) previously contacted your tribe via letter dated 03 July 2024 regarding the Environmental Impact Statement (EIS) being prepared under the National Environmental Policy Act to evaluate potential environmental impacts associated with T-7A Recapitalization at Sheppard Air Force Base (AFB), Texas. Recapitalization is the phased acquisition of the new generation T-7A aircraft and construction and upgrade of specific facilities to support the training, operation, and maintenance of the T-7A aircraft. As a follow-up to our 03 July 2024 letter, and in accordance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 306108) and its implementing regulations at 36 CFR Part 800, DAF would like to initiate government-to-government consultation regarding the proposed recapitalization and requests that you identify any historic properties of religious or cultural significance that may be present.

The undertaking will entail the phased introduction of T-7A aircraft and phased reduction of the T-38C aircraft currently operating at Sheppard AFB; new intensities of flight operations; and temporary changes to the number of personnel assigned to Sheppard AFB. T-7A operations would occur within established Special Use Airspace (SUA) currently used for T-38C operations (**Attachment 1**), and no changes to SUA configurations (i.e., size, shape, or location) would be necessary to support the proposed operations of the T-7A. Additionally, multiple construction and modernization projects of existing facilities would occur at Sheppard AFB to provide modern and upgraded facilities and infrastructure. The potential to impact historic properties and individual assessment of effect can be found in **Attachment 2**.

The Area of Potential Effect (APE) was defined as the potential impact area from all types of activities. The effects include, but are not limited to, ground disturbance, vibration, building modification, and staging and equipment storage, as well as noise and aesthetic interference. For this undertaking, the APE is defined as the footprint of all buildings proposed for exterior alteration, all areas of new construction and additions, all landscape features (such as airfield markings) that are proposed for alteration, all new roads and parking lots, and buffers around those areas to account for construction staging and temporary physical impacts from ground disturbing activity. The APE captures all anticipated effects as new building construction is anticipated to be one story and not exceed 40 feet in total building height. There are no National Register of Historic Places (NRHP)-listed or eligible historic districts, sites, buildings, structures, or objects that would be visually or audibly affected by the proposed

undertaking. The APE totals approximately 185.93 acres and is shown in **Attachment 3**. There is no change to the SUA, and therefore, the APE for this undertaking does not include the SUA where the T-7A aircraft would perform operations (**Attachment 1**).

Following issuance of Sheppard AFB's scoping notice, 24 Tribes were identified as potentially being affected by the Proposed Action. Sheppard AFB is continuing consultation with those Tribes and has invited them to consult on the proposed undertaking and to confirm that no sacred sites or traditional cultural properties are present in the APE.

The information provided in the following paragraphs is from the Sheppard AFB Integrated Cultural Resource Management Plan (ICRMP). The ICRMP prescribes procedures and guidance for the conservation, maintenance, and protection of cultural resources and facilities, compatible with the military mission and in accordance with Department of Defense policy. Cultural resources in the context of the ICRMP, refer to physical remains of any prehistoric or historic district site, building, structure or object significant in American history, architecture archaeology, engineering or culture on Sheppard AFB, Texas. The ICRMP is available upon request.

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A total of three surveys of historic buildings, structures and landscapes have occurred at Sheppard AFB. Surveys were conducted in 1993, 2002 and 2012. During the 1993 survey, the Kell Field Air Terminal Building was the only resource determined eligible for both the NRHP and State register. The Kell Field Air Terminal was listed as a Recorded Texas Historic Landmark by the Texas Historical Commission in 1981.

A Cold War inventory was conducted in 2002. Of the 256 buildings, structures, and auxiliary features that were constructed at Sheppard AFB during the Cold War period, only two were recommended eligible for NRHP listing as Cold War resources: Building 2560 and the Alert Apron were recommended eligible as components of a SAC alert facility for dispersal bases.

The *Inventory and Assessment of Select Buildings and Structures (Dating Through 1976)* was conducted in 2012. The 133 resources evaluated at Sheppard Main Base, Sheppard Recreation Annex, and Fredrick Municipal Airport were determined to lack association with important WWII or Cold War military events. In addition, none were found to be associated with a significant military mission or event beyond WWII or the Cold War (e.g., medical, aircraft, or communications technology that impacted the military), and none held architectural significance. Thus, none of the 133 resources surveyed in 2012 were recommended eligible for listing in the NRHP.

Three architectural resources located on Sheppard AFB have been previously determined eligible for listing in the NRHP; however, none are located within the APE or have any potential to be impacted by the proposed project (Kell Field Air Terminal Building, Building 2560, and the Alert Apron).

A change in the type of aircraft flown or the timing (e.g., daytime or nighttime) and frequency of flight operations would have no potential to impact historic properties. Changes to noise levels are also not anticipated to impact any historic properties. Lastly, a temporary increase in personnel at Sheppard AFB would also have no potential to impact historic properties.

Please contact Ms. Chinling Chen via email at chinling.chen@us.af.mil if you have any questions.

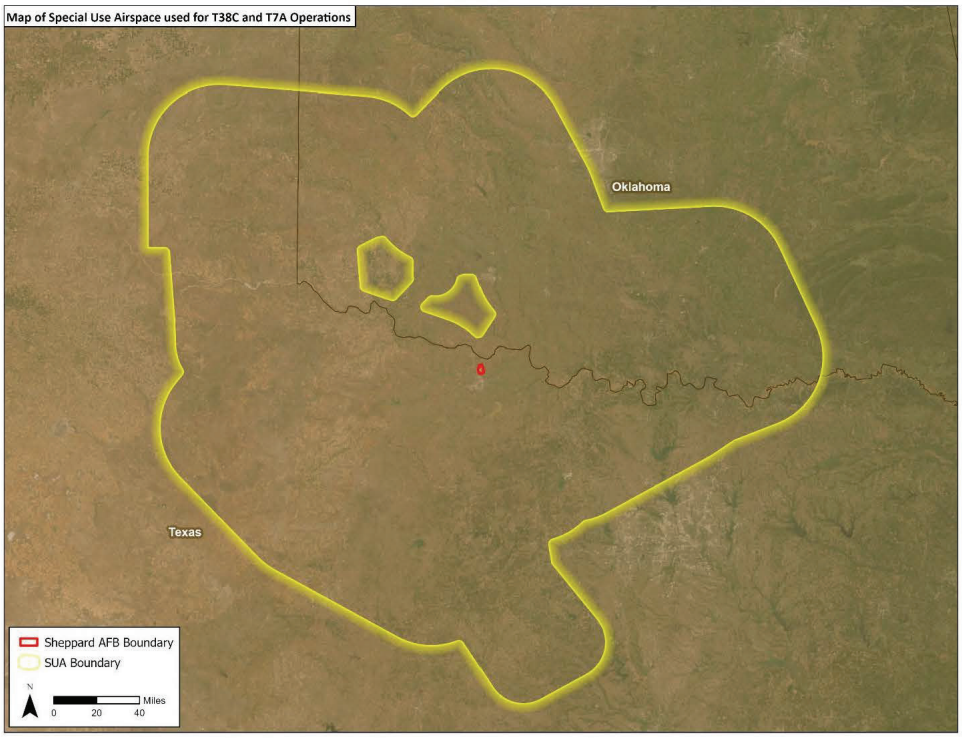
Sincerely

FILCEK.PAUL.G.1169589751 Digitally signed by FILCEK.PAUL.G.1169589751 Date: 2025.10.13 10:49:11 -05'00'

PAUL G. FILCEK
Brigadier General, USAF
Installation Commander

3 Attachments:
1. Map of Special Use Airspace used for T-38C and T-7A Operations
2. Table of Projects
3. Map of APE for Sheppard AFB T-7A Recapitalization Undertaking

Attachment 1. Map of Special Use Airspace used for T-38C and T-7A Operations



Attachment 2. Table of Projects

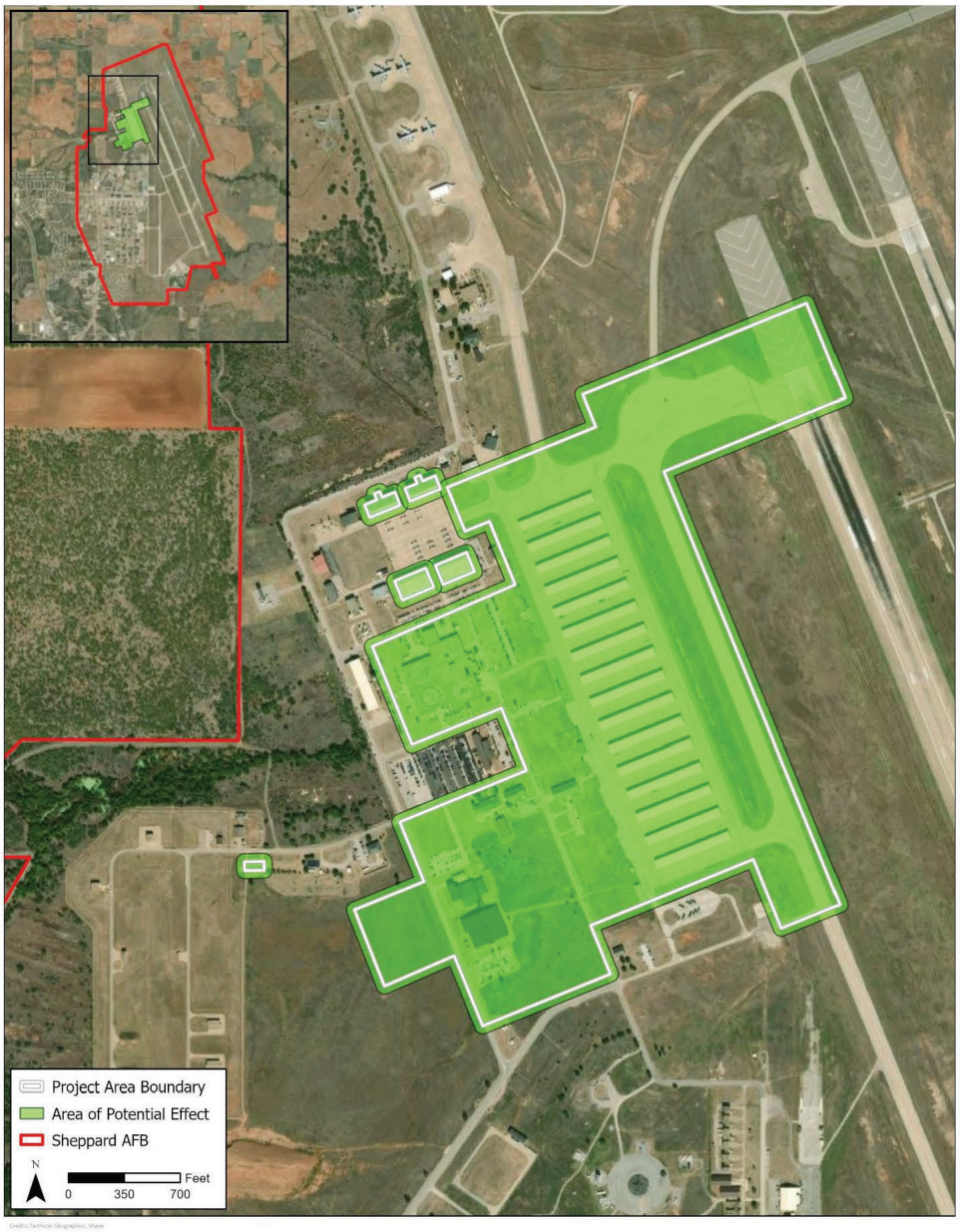
Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
Ground-Based Training System (GBTS) Facility	The proposed project would construct a one-story facility in a grassy area that is partially paved for existing parking. The project would include renovation of an existing facility (Building 2326) and construction of a 16,000 ft^2 addition.	N/A – Building 2326 is non-historic	2004	No effect on historic properties
Maintenance Hangar/Unit Maintenance Training (UMT)	The proposed project would construct an approximately 46,500 ft^2 aircraft UMT facility maintenance hangar, and an associated parking area.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Ramp Expansion	The proposed project would construct approximately 60,000 ft^2 of pavement to expand the size of the flightline ramp.	Not Eligible (ramp)	1960 (ramp) N/A – Vacant land (expansion area)	No effect on historic properties
Hush House Pad	The proposed project would construct a new hush house pad adjacent to the installation's existing hush house. Construction would include a reinforced concrete pad approximately 27,500 ft^2.	N/A – New construction	N/A – Vacant land	No effect on historic properties
T-7A Shelters Part I and Part II	The proposed project would replace shelters (sunshades) on the existing T-38C aircraft parking apron to protect T-7A aircraft. Existing T-38C shelters would be removed. Taxi lines would be removed and repainted.	N/A – T-7A shelters are non-historic	2007-2012	No effect on historic properties
Addition to Egress Shop	The proposed project would construct an addition onto the existing egress shop (Building 2521). The addition would be approximately 3,400 ft^2.	N/A – Egress building is non-historic	1996	No effect on historic properties
Jet Blast Deflectors	The proposed project would install approximately	N/A – New	N/A – Vacant land	No effect on historic

Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
	200 linear feet of jet blast deflectors on the existing airfield. Final placement would be decided during ramp layout design.	construction		properties
Airfield Improvements	The proposed project would reconfigure the airfield to meet the specifications of the T-7A rather than the T-38C, including remarking, installing new mooring and anchor rods, replacing the aircraft arresting system, and removing aboveground CASS service modules.	N/A – Equipment being removed from existing T-38C shelters (non-historic) and repainting pavement	2007-2012	No effect on historic properties
Renovate Squad Operations 1	The proposed project would include interior renovation of Building 2320 to support the squadrons associated with the T-7A program.	Not eligible (AETC 2016)	1960	No effect on historic properties
Renovate Squad Operations 2	The proposed project would include interior renovation of Building 2320 to support the squadrons associated with the T-7A program.	Not eligible (AETC 2016)	1960	No effect on historic properties
Hangar Renovation	The proposed project would modify interior components of an existing hangar at one of the following facilities: Building 2404, 2406, 2408, or 2410.	Not eligible (all four buildings; AETC 2016)	1960 (all four buildings)	No effect on historic properties
Remove Aboveground Service Modules of the CASS	The proposed project would remove any T-38C CASS modules where T-7A aircraft would be located using previous T-38C spaces. CASS lines to the rows would be cut and capped, and vaults would be filled with concrete.	N/A – Equipment being removed from existing T-38C shelters (non-historic)	2007-2012	No effect on historic properties
Compass Rose & Trim Pad	The proposed project would repair/prepare existing aircraft pavement for a compass rose and trim pad.	N/A – New construction/paint	N/A – Vacant land	No effect on historic properties

Building Name/Number	Project Component	NRHP Status	Date Constructed	Assessment of Effect
Munitions Storage for T-7A	The proposed project would construct a concrete pad and provide utilities for a storage container to store T-7A ejection system explosive components.	N/A – New construction	N/A – Vacant land	No effect on historic properties
Hammerhead Expansion	The proposed project would expand the existing hammerhead paved area to fit the wider wingspan of four T-7A versus four T-38C aircraft, if needed.	Not Eligible (pavement)	1960 (pavement) N/A – Vacant land (expansion area)	No effect on historic properties
Support Mechanized Material Handling System (in T-7A parts Warehouse)	The proposed project would include interior electrical support to an existing parts warehouse (Building 2518).	N/A – Building 2518 is non-historic	2007	No effect on historic properties

Key: N/A = Not applicable

Attachment 3. Map of APE for Sheppard AFB T-7A Recapitalization Undertaking



Response from the Quapaw Tribe of Indians regarding DAF's second consultation letter

From: Julia Pebeahsy <Julia.Pebeahsy@quapawnation.com>
Sent: Wednesday, December 18, 2024 4:51 PM
To: CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>
Cc: section 106 <section.106@quapawnation.com>
Subject: [Non-DoD Source] Response to Sheppard AFB T-7A Recapitalization Undertaking Wichita County, Texas

Wednesday, December 18, 2024

Attn: Ms. Chinling Chen
Department of The Air Force
Air Education and Training Command
231 9th Avenue, Building 1402
Sheppard AFB Texas 76311

Re: Sheppard AFB T-7A Recapitalization Undertaking Wichita County, Texas

Dear Ms. Chinling Chen,

The Quapaw Nation Historic Preservation Program (QNHPP) has received and reviewed the information provided for the proposed Sheppard AFB T-7A Recapitalization Undertaking Wichita County, Texas

After careful review, we have determined that this project does not fall within our tribal area of interest. Therefore, we respectfully decline to provide comments on this undertaking

Should you have any questions or need any additional information, please feel free to contact Julia Pebeahsy at Julia.pebeahsy@quapawnation.com, please copy section106@quapawnation.com to ensure additional information requests are reviewed in a timely manner. Thank you for consulting with the Quapaw Nation on this matter.

Sincerely,

Julia Pebeahsy

On behalf of
-Ms. Billie Burtrum
Preservation Officer/ QNHPP Director
Quapaw Nation
P.O. Box 765
Quapaw, OK 74363
(w) 918-238-3100
(f) 918-674-2456

Response from the Chickasaw Nation regarding DAF's second consultation letter

-----Original Message-----
From: Vanessa Bryant <Vanessa.Bryant@chickasaw.net>
Sent: Thursday, December 19, 2024 3:56 PM
To: CHEN, CHINLING CIV USAF AFMC AFCEC/CIEE <chinling.chen@us.af.mil>
Cc: HPO <HPO@chickasaw.net>
Subject: [Non-DoD Source] T-7A Recapitalization at Shepard Air Force Base (AFB), Wichita County, Texas

[You don't often get email from vanessa.bryant@chickasaw.net. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

Thank you for your inquiry. We have reviewed the data you provided and determined that we do not request government-to-government consultation on this specific proposed project as it is outside of our area of interest. While the Chickasaw Nation has no objection to the undertaking, we respectfully defer to the federally recognized First American tribe(s) that have identified a connection to the project area. We appreciate your efforts to preserve and protect significant historic properties. If you have any questions, please contact Ms. Karen Brunso, tribal historic preservation officer, at (580) 272-1106 or by email at hpo@chickasaw.net.

Sincerely,

Vanessa Bryant
Chickasaw Nation Division of Historic Preservation Administrative Assistant P.O. Box 1548 Ada, OK 74821-1548
Phone: 580-436-2603 ext. 62206
Please direct any replies to HPO@chickasaw.net

Response from the Comanche Nation regarding DAF's second consultation letter

COMANCHE NATION

Department of the Air Force
Air Education and Training Command
Attn: Ms. Chinling Chen
231 9th Avenue, Building 1402
Texas 76311

January 13, 2025

Re: Phased introduction of T-7A aircraft and phased reduction of the T-38C aircraft currently operating at Sheppard AFB

Dear Ms. Chen:

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***"No Properties"*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 492-1153) if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana , Technician
#6 SW "D" Avenue, Suite C
Lawton, OK. 73502

COMANCHE NATION P.O. BOX 908 / LAWTON, OK 73502
PHONE: 580-492-4988 TOLL FREE:1-877-492-4988

D

Scoping and Draft EIS Public Comments

Table D-1. Summary of Scoping Comments Received and Department of the Air Force (DAF) Responses

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
Federal Agencies		
U.S. Fish and Wildlife Service (USFWS) – Email	Reported the agency had no comment and looked forward to coordinating with DAF during development of the Environmental Impact Statement (EIS), as necessary.	No. No action required. **Section 3.4.2.1** describes DAF's consultation with USFWS under Section 7 of the Endangered Species Act for the Proposed Action.
Federal Emergency Management Agency (FEMA) – Letter via Email	Requested the Community Floodplain Administrator for Wichita County, Texas, be contacted for the review and possible permit requirements for the proposal. Requested if federally funded, the project be in compliance with Executive Orders (EOs) 11988 and 11990.	Yes. The Wichita County Community Floodplain Administrator was provided the scoping materials. The administrator informed DAF that the county has no involvement in actions on Sheppard AFB, and the appropriate point-of-contact for floodplain planning is within the city of Wichita Falls. DAF provided the scoping materials and Draft EIS to the city of Wichita Falls Floodplain Management Program and will notify the program of the availability of the Final EIS when the Record of Decision is signed. **Section 3.8** addresses the Proposed Action's compliance with EOs 11988 and 11990.

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
U.S. Environmental Protection Agency (USEPA) – Letter via Email	Offered comments on the following topics: 1. Air Quality. Requested the EIS provide a detailed discussion of ambient air conditions, National Ambient Air Quality Standards (NAAQS) and non-NAAQS pollutants, criteria pollutant nonattainment areas, and potential air quality impacts of the Proposed Action. Such an evaluation is necessary to understand the potential impacts from temporary, long-term, or cumulative air quality degradation. Recommended the EIS describe and estimate air emissions from construction, maintenance, and operational activities, provide a timeframe for air emissions, and propose mitigation measures to minimize those emissions. Recommended the EIS consider air quality and visibility impacts to Class I Federal Areas identified in 40 Code of Federal Regulations Part 81, Subpart D. Recommended the EIS specify all emission sources (i.e., mobile, stationary, fugitive emissions, area sources, and ground disturbance) by pollutant and use this information to identify appropriate mitigation measures. Recommended the EIS include a Construction Emissions Mitigation Plan and adopt this plan into the Record of Decision. Include all applicable local, state, or federal requirements in this plan in order to reduce impacts associated with construction-related activities. 2. National Pollutant Discharge Elimination System (NPDES) Permitting. Noted NPDES regulations, which authorize discharge of stormwater from construction activities. Noted DAF would be required to obtain Construction General Permit or other NPDES permitting coverage from the Texas Commission on Environmental Quality prior to beginning construction activities if a project would disturb 1 acre or greater individually or, as part of a common plan of smaller projects, ultimately disturbs 1 acre or greater.	Yes. Impacts on air quality and the requested topics are provided in **Section 3.1**. The applicability of NPDES stormwater permits is provided in **Section 3.8**.

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
USEPA – Letter via Email (Continued)	3. Water Quality Protection. Recommended the EIS identify any impaired or listed water bodies in the area that could be affected by additional runoff. Asked that the EIS address ways to monitor and control effects on downstream water quality. Recommended the EIS specify how the Proposed Action would impact existing floodplains. 4. Resource Conservation and Recovery Act. Recommended the EIS: a. Address potential direct, indirect, and cumulative impacts of solid and hazardous wastes from the Proposed Action. b. Provide estimates of solid and hazardous waste amounts and types produced from the Proposed Action's construction and operation and identify the expected storage, disposal, and management plans for solid and hazardous waste. c. Include a response plan for an accidental release of hazardous material. d. Explain how state and federal hazardous waste management regulations would be applied in the construction and operation of the proposed facilities. e. Provide locations of and information on hazardous and toxic material sites expected to be encountered during construction. 5. Environmental Justice. Recommended DAF analyze impacts on environmental justice populations and review the Proposed Action to ensure it complies with applicable environmental and safety regulations and EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* and EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*. Recommended DAF determine whether the Proposed Action would have disproportionate and adverse human health and environmental effects on minority and low-income populations and communities of environmental justice concern. Requested DAF send an electronic copy of the EIS to their office when it is filed with the Office of Federal Activities.	The applicability of water quality protection measures is provided in **Section 3.8**. Impacts on hazardous materials and wastes and the requested topics are provided in **Section 3.6**. President Donald Trump issued EO 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, and EO 14173, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity* on January 20 and 21, 2025. EO 14148 revoked EO 14096, and EO 14173 revoked EO 12898. As a result, an environmental justice analysis is not included in this EIS, per DAF policy memorandum dated February 26, 2025. Impacts on health and safety are provided in **Section 3.7**. The USEPA, Region 6 office was notified of the availability of the Draft EIS and will be notified of the availability of the Final EIS when the Record of Decision is signed.

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
Tribal Nation		
Muscogee Nation – Email	Noted the project is occurring within the Muscogee Nation's area of interest but the tribe is unaware of any known historic properties or sites of cultural or religious significance that may be impacted by the proposed undertaking. Requested to be contacted should an inadvertent discovery of cultural items and/or human remains occur. Had no objections to the project.	Yes. **Section 3.5.2.1** describes the procedures for inadvertent discoveries of culturally significant items and human remains.
Private Citizens		
Private Citizen #1 (initials B.L.) – Website	Provided a supportive comment in favor of the proposal. Recommended implementation of Alternative 3.	No. Comment was an opinion that required no incorporation into the EIS.
Private Citizen #2 (initials G.S.) – Written at Public Scoping Meeting	Asked: 1. How do the proposed operations compare to existing values in terms of number of operations, frequency, times, etc.? 2. What is the difference in noticeable sound between the existing T-38C and proposed T-7A in dB?	Yes. For the Sheppard AFB airfield, **Tables 2-4**, **2-5**, and **2-7** provide the number of total and nighttime T-7A operations proposed for each alternative as well as the T-38C operations currently occurring and proposed to continue for the No Action Alternative. **Tables A-2**, **A-3**, and **A-4** in **Appendix A** provide similar information for the Sheppard AFB special use airspace (SUA) and note that no nighttime operations would occur within the SUA. **Section 3.2** provides a detailed analysis and comparison of noise levels for each alternative including the current conditions/No Action Alternative.
Private Citizen #2 (initials G.S.) – Website	Noted the scoping materials contained a great description of the considered alternatives, but it was difficult to get a relative perspective of the number of T-38C airplanes for the No Action Alternative as the baseline.	Yes. **Tables 2-3** and **2-6** provide the number of T-7A aircraft proposed for each alternative as well as T-38C aircraft currently assigned and proposed to remain for the No Action Alternative.

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
Private Citizen #3 (initials A.H.) – Website	Provided a supportive comment in favor of the proposal. Recommended implementation of Alternative 3.	No. Comment was an opinion that required no incorporation into the EIS.
Private Citizen #4 (initials D.B.) – Written at Public Scoping Meeting	Provided a supportive comment in favor of the proposal. Noted they reside north of the installation, north of Cashion Community and generally accept the existing aircraft noise. Expressed concern that nighttime operations not increase excessively and noted a 10 percent increase would be tolerable.	Yes. For the Sheppard AFB airfield, **Tables 2-4**, **2-5**, and **2-7** provide the number of nighttime T-7A operations proposed for each alternative as well as the T-38C operations currently occurring and proposed to continue for the No Action Alternative. Compared to the current conditions/No Action Alternative, nighttime operations would decrease by approximately 17.5 percent for Alternative 1, increase by approximately 3.1 percent for Alternative 2, and remain unchanged for Alternative 3. **Tables A-2**, **A-3**, and **A-4** in **Appendix A** note that no nighttime operations would occur within the SUA. **Section 3.2** provides a detailed analysis of noise levels for each alternative and includes an evaluation of sleep disturbance events from nighttime operations.

Table D-2. Summary of Public Comments Received During Draft EIS Comment Period and DAF Responses

Source	Summary of Comment Correspondence	Addressed in EIS? If Yes, Location in EIS. If No, Rationale.
Federal Agencies		
FEMA – Letter via Email	Requested the Community Floodplain Administrator be contacted for the review and possible permit requirements for the proposal. Requested if federally funded, the project be in compliance with EOs 11988 and 11990.	Yes. DAF notified the city of Wichita Falls Floodplain Administrator of the availability of the Draft EIS. **Section 3.8** addresses the Proposed Action's compliance with EOs 11988 and 11990.
USEPA – Letter via Email	Offered comments on the following topics: 1. Water Quality Protection a. Due to the proximity to potential aqueous film-forming foam (AFFF) areas, USEPA emphasized the need for implementation of best management practices (BMPs), including erosion and sediment controls, to minimize the potential for migration of contaminated runoff or sediment. b. Noted that **Section 3.10.1** does not identify post-revegetation monitoring measures or success criteria. Recommended inclusion of a monitoring strategy and performance metrics to support long-term viability of the native plant community. 2. Pesticide/Herbicide Applications a. Recommended use of USEPA's *Bulletins Live! Two* system to identify Pesticide Use Limitation Areas and applicable Endangered Species Protection Bulletins for geographically specific pesticide use restrictions. b. Recommended the Final EIS state that herbicide applicators must be certified through the Texas Department of Agriculture and use only USEPA-registered products approved for the intended target species.	Yes. **Section 3.6.2.1** states that none of the construction projects would be sited within the footprint of or immediately adjacent to an AFFF area. BMPs for erosion and sediment controls are discussed in **Sections 3**, **3.4**, and **3.8**. Text added to **Section 3.10.1** to state the BMPs contained within the installation's Integrated Natural Resources Management Plan would be implemented to ensure long-term viability of new plantings. **Section 3.6.1** states that the installation has an Integrated Pest Management Program and Integrated Pest Management Plan. Therefore, the USEPA's pesticide and herbicide recommendations already are practiced on the installation. Text added to **Section 3.6.2.1** to state pesticides and herbicides are applied by certified technicians.

E

List of Preparers and Abbreviations and Acronyms

The EIS was prepared by HDR Engineering, Inc. (HDR) and its subcontractors—Harris Miller Miller & Hanson, Inc. (HMMH) and Prospect Hill Consulting LLC (PHC)—under the direction of Air Force Civil Engineer Center–NEPA Division, Sheppard AFB, AETC, and U.S. Army Corps of Engineers–Tulsa District staff. The individuals who contributed to the preparation of this EIS are listed below:

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M.A. Organizational Psychology
B.A. Psychology
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Daniel Botto, HMMH
B.S. Aviation Business Administration
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B.S. Applied Economics/Business Management
Years of Experience: 26

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Years of Experience: 36

Timothy Didlake, HDR
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M.S. Historic Preservation
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Carolyn Hein, HDR
B.S. Environmental Science
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Years of Experience: 31

Dylan Wake, HDR
B.S. Environmental Science
Years of Experience: 2

ABBREVIATIONS AND ACRONYMS

ACAM	Air Conformity Applicability Model
ACM	asbestos-containing material
AETC	Air Education and Training Command
AFB	Air Force Base
AFFF	aqueous film forming foam
AFH	Air Force Handbook
AGL	above ground level
AICUZ	Air Installations Compatible Use Zones
AKN	Avian Knowledge Network
APE	Area of Potential Effect
APZ	accident potential zone
AQCR	Air Quality Control Region
BASH	Bird/Wildlife Aircraft Strike Hazard
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CASS	Centralized Aircraft Support System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	equivalent CO_2 emissions
CSU	Colorado State University
CWA	Clean Water Act
CY	calendar year
CZ	clear zone
DAF	Department of the Air Force
DAFI	DAF Instruction
dB	decibels
dBA	A-weighted decibels
DFW	Dallas-Fort Worth
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DoW	Department of War
EESOH-MIS	Enterprise Environmental, Safety, and Occupational Health-Management Information System
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
ft^2	square foot/feet
FTW	Flying Training Wing
GBTS	ground-based training system
GHG	greenhouse gas
GIS	Geographic Information System
HWMP	Hazardous Waste Management Plan
IDP	Installation Development Plan
IFF	Introduction to Fighter Fundamentals
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
IPMP	Integrated Pest Management Plan
IR	instrument route
IRP	Installation Restoration Program
ISWM	Integrated Solid Waste Management
JLUS	Joint Land Use Study
LBP	lead-based paint
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
L_{eq}	Equivalent Sound Level
$L_{eq(24h)}$	24-Hour Equivalent Sound Level
$L_{eq(8h)}$	8-Hour Equivalent Sound Level
L_{max}	Maximum Sound Level
MBTA	Migratory Bird Treaty Act
MMRP	Military Munitions Response Program

MOA	Military Operating Area
MSL	mean sea level
MTR	Military Training Route
N/A	not applicable
N_2O	nitrous oxide
NA	number of events (at or) above a specified threshold
$NA75L_{max}$	total number of events that meet or exceed 75 dB L_{max}
NA90SEL	total number of events that exceed 90 dB SEL
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIPTS	Noise Induced Permanent Threshold Shifts
NMODD	Noise Model Operational Data Documentation
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PHL	Potential for Hearing Loss
PM_{10}	particulate matter measured less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter measured less than or equal to 2.5 microns in diameter
POI	Point of Interest
ppb	parts per billion
PPE	personal protective equipment
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SECAF	Secretary of the Air Force
SEL	Sound Exposure Level
SI	Site Inspection
SO_X	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasure
SUA	special use airspace
SWPPP	Storm Water Pollution Prevention Plan
TA	time (at or) above a specified threshold
$TA75L_{max}$	Total time that meets or exceeds 75 dB
TCEQ	Texas Commission on Environmental Quality
TCP	traditional cultural property
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
U.S.	United States
UFC	Unified Facilities Criteria
UMT	unit maintenance training
UPT	Undergraduate Pilot Training
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
VR	visual route