EXECUTIVE SUMMARY

Final Environmental Impact Statement

for T-7A Recapitalization at
Joint Base San Antonio, Texas

February
2022

Privacy Advisory

The Final Environmental Impact Statement (EIS) is provided in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (Title 40 Code of Federal Regulations §§ 1500–1508), and 32 Code of Federal Regulations § 989, *Environmental Impact Analysis Process*.[1] The Environmental Impact Analysis Process provides an opportunity for public input on Department of the Air Force (DAF) decision making, allows the public to offer inputs on alternative ways for DAF to accomplish what it is proposing, and solicits comments on DAF's analysis of environmental effects.

Public commenting received on the Draft EIS allowed DAF to make better-informed decisions. Letters or other written or oral comments provided have been addressed in the Final EIS. Providing personal information is voluntary. Private addresses were compiled to develop a mailing list for those requesting copies of the EIS. However, only the names of the individuals making comments and specific comments will be disclosed. Personal information, home addresses, telephone numbers, and email addresses are not published in the Final EIS.

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

[1]This EIS was ongoing prior to the September 14, 2020, effective date of the CEQ's final rule updating its regulations for implementing the procedural provisions of NEPA. Accordingly, the revised CEQ regulations were not used for this action pursuant to 40 CFR § 1506.13.

Cover Photo Credit: Boeing T-7A Red Hawk Website, March 2020
https://www.boeing.com/defense/t-7a/#/gallery

ABBREVIATIONS AND ACRONYMS

AAF	Auxiliary Airfield
AETC	Air Education and Training Command
AGL	above ground level
APZ	Accident Potential Zones
BASH	Bird/Wildlife Aircraft Strike Hazard
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CZ	Clear Zones
DAF	Department of the Air Force
dBA	A-weighted decibel
DNL	day-night average sound level
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
ERC	Emission Reduction Credit
FSRM	facilities sustainment, restoration, and modernization
ft^2	square feet
GBTS	Ground Based Training System
GCR	General Conformity Rule
IFF	Introduction to Fighter Fundamentals
JBSA	Joint Base San Antonio
MILCON	military construction
MOA	Military Operations Area
MTR	Military Training Route
MTS	Maintenance Training System
NEPA	National Environmental Policy Act
NO_X	oxides of nitrogen
O_3	ozone
PIT	Pilot Instructor Training
SHPO	State Historic Preservation Officer
SUA	Special Use Airspace
TCEQ	Texas Commission on Environmental Quality
tpy	tons per year

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FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR
T-7A RECAPITALIZATION
AT
JOINT BASE SAN ANTONIO, TEXAS

AIR EDUCATION AND TRAINING COMMAND

FEBRUARY 2022

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Executive Summary

ES 1 Introduction

This Environmental Impact Statement (EIS) was prepared in compliance with the United States Department of the Air Force's (DAF's) *Environmental Impact Analysis Process* (EIAP) for the Air Education and Training Command (AETC) proposal to recapitalize its flight training program with newer and more capable T-7A[2] Red Hawk aircraft at Joint Base San Antonio (JBSA)-Randolph, Texas. Recapitalization is the acquisition of the new generation T-7A aircraft and construction and upgrade of specific facilities to support the pilot training and, operations and maintenance of the T-7A aircraft. Current pilot training courses conducted at JBSA-Randolph (i.e., Pilot Instructor Training [PIT] and Introduction to Fighter Fundamentals [IFF]) would transition to the T-7A aircraft from currently used T-38C Talon aircraft. Subsequent T-7A recapitalization may occur at other T-38C training locations, but those are separate actions that will be analyzed in installation-specific NEPA documents and are not considered within the scope of this EIS, which covers T-7A recapitalization only at JBSA-Randolph.

In a Memorandum for Record dated February 16, 2018, the Secretary of the Air Force determined that JBSA-Randolph was the preferred alternative and Columbus, Laughlin, Sheppard, and Vance Air Force Bases as reasonable alternatives for the T-7A. DAF proposes to recapitalize the AETC T-38C aircraft fleet with the T-7A aircraft. JBSA-Randolph conducts the majority of DAF's Pilot Instructor Training and is an Introduction to Fighter Fundamentals location. The level of training conducted at the other bases is different than the level of training at JBSA-Randolph. DAF pilot training relies on a unique runway structure and special use airspace capable of supporting high volume pilot training, limiting the enterprise of potential beddown installations to the five existing pilot training installations. DAF evaluated each installation using criteria that included mission factors (weather and the ability to meet syllabus requirements), infrastructure capacity, as well as potential environmental constraints and costs. These criteria were planning decisions that assisted in establishing the initial scope of this EIS, whether to implement the proposed action is still subject to the NEPA and related regulatory processes. In this EIS, JBSA-Randolph was proposed for environmental analysis pursuant to NEPA due to the nature and level of training accomplished there. The other training bases (Columbus, Laughlin, Vance, and Sheppard) will be subject to separately prepared NEPA analysis.

This EIS analyzes the significance of the environmental impacts associated with the Proposed Action and its alternatives, including the No Action Alternative. The environmental documentation process associated with preparing this EIS was carried out in compliance with the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ)

[2] The aircraft was referred to as "T-X" in the Notice of Intent and scoping materials. T-X was an interim designation used prior to the official T-7A model number being established.

Regulations for Implementing NEPA (Title 40 Code of Federal Regulations [CFR] §§1500–1508[3]); and the DAF regulations for implementing NEPA (32 CFR § 989, as amended).

The T-38 is a twin-engine, high-altitude, supersonic jet used by DAF and other nations for pilot training. Training with the older T-38C aircraft fails to prepare pilots for the technological advancements of fourth and fifth generation aircraft including nighttime flight training. "Fourth generation aircraft" refers to those aircraft developed or manufactured with updated variants in the later part of the twentieth century such as the F-15E or the F-16. "Fifth generation aircraft" refers to modern aircraft with advanced avionics developed in the early part of the twenty-first century such as the F-22 and F-35.

DAF would recapitalize the T-38C aircraft fleet with the T-7A aircraft across all Specialized Undergraduate Pilot Training Bases. Program-wide, DAF would procure approximately 350 T-7A aircraft.

The focused Proposed Action analyzed in this EIS is T-7A recapitalization at JBSA-Randolph using 72 T-7A aircraft and sufficient operations to fully meet all T-7A training requirements. The T-7A aircraft would be assigned to JBSA-Randolph where primary flight operations would occur; secondary flight operations would occur at JBSA-Lackland and Seguin Auxiliary Airfield (AAF). Training operations within the airspace of all Special Use Airspace (SUA), ranges, alternative airfields, and Military Training Routes (MTRs) that are currently used by the T-38C aircraft would continue with the T-7A. JBSA-Randolph would be the initial installation for T-7A recapitalization throughout DAF. All current JBSA-Randolph T-38C aircraft would be transitioned out of the training programs and considered for retirement or repurposed for use at other locations.

ES 2 Purpose of and Need for Action

ES 2.1 Purpose of the Proposed Action

As noted in the Secretary of the Air Force Strategic Basing Decision Memorandum of February 16, 2018, DAF will recapitalize the Air Education and Training Command T-38C aircraft fleet with the T-7A aircraft at Specialized Undergraduate Pilot Training bases in order to support fifth generation fighter training requirements. The purpose of the Proposed Action of this EIS is to implement the T-7A recapitalization program at JBSA-Randolph to establish a source of T-7A instructor pilots as well as prepare pilots to operate the more technologically advanced aircraft.

ES 2.2 Need for the Proposed Action

The Proposed Action is needed because the current training practices with the older T-38C aircraft fail to prepare pilots for the technological advancements of fourth and fifth generation aircraft. By 2031, more than 60 percent of the Combat Air Force will be comprised of fifth

[3] The EIAP for this EIS began with the Notice of Intent, which was published prior to the promulgation of CEQ's July 16, 2020, final rule updating the regulations implementing the procedural provisions of NEPA. As such, USAF will follow the previous CEQ rules throughout this EIAP in accordance with 40 CFR § 1506.13.

generation aircraft, which requires a modern and capable training platform with capabilities beyond that currently available in the T-38C. Training systems provided with the newer T-7A aircraft allow for enhanced and improved flight and simulator training. The curriculum for T-7A training would initially remain consistent with current training for the T-38C with the addition of nighttime flying; however, it may be modified as the training with the T-7A and knowledge of the aircraft capabilities and handling becomes more known. As a result, the T-7A recapitalization program would allow DAF to provide more efficient and effective instructor and pilot training for operating fourth and fifth generation aircraft. The T-7A recapitalization at JBSA-Randolph would allow DAF to establish a sustained cadre of T-7A pilot instructors and meet established DAF pilot training requirements. As noted in the attachments to the Secretary's Strategic Basing Decision Memorandum, "basing the first T-7A aircraft at JBSA-Randolph meets the AETC Commander's objectives of optimizing total T-7A training."

ES 3 Description of the Proposed Action and Alternatives (EIS Chapter 2)

ES 3.1 Proposed Action

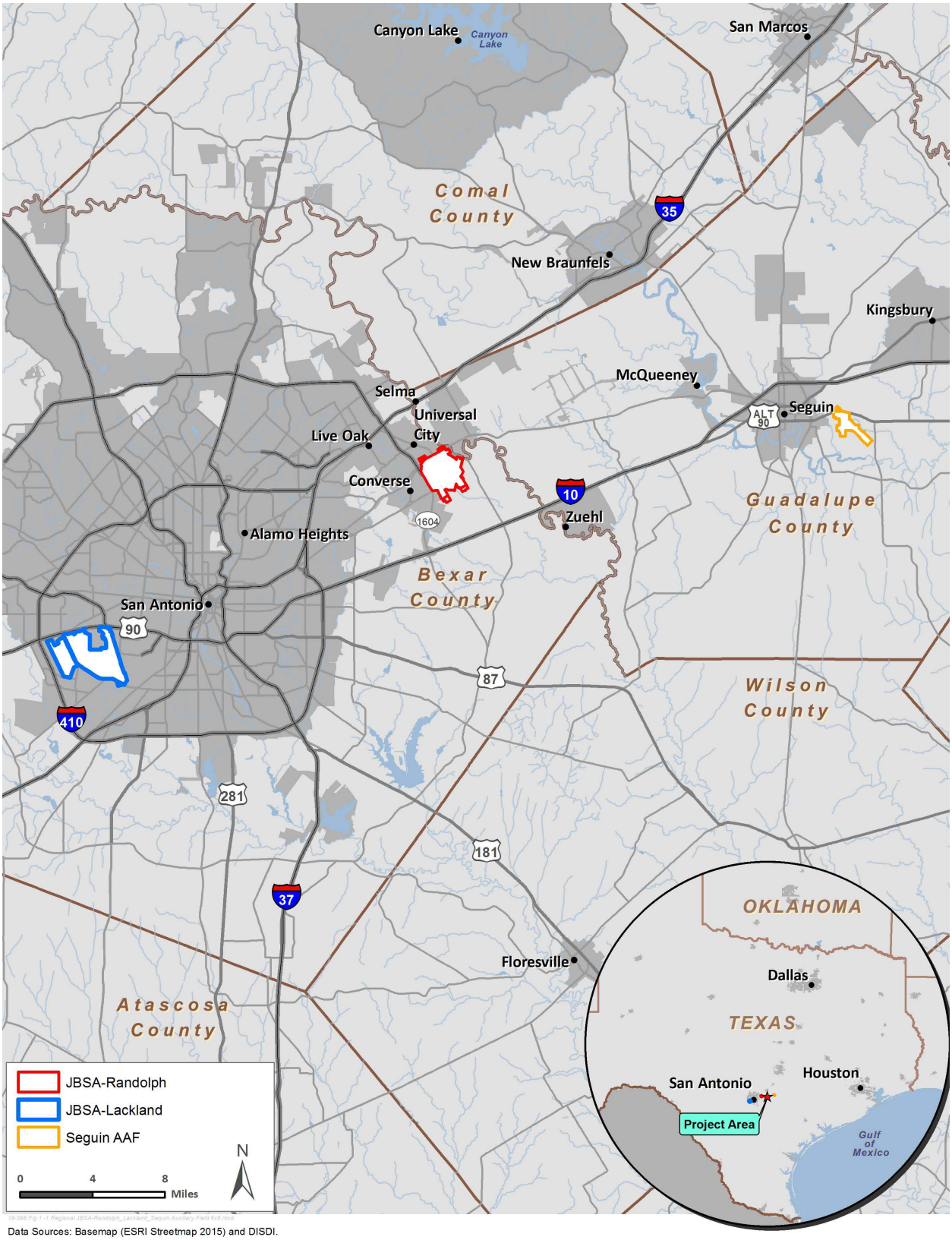
The Proposed Action is T-7A recapitalization at JBSA using 72 T-7A aircraft and sufficient operations to fully meet all T-7A training requirements. The T-7A aircraft would be assigned to JBSA-Randolph, where primary flight operations would occur. Secondary flight operations would occur at JBSA-Lackland, Seguin AAF, and within the existing designated airspace where T-38C aircraft currently operate. The initial delivery and operation of T-7A aircraft would occur in 2023. T-7A aircraft operations would be phased in with both T-38C and T-7A operations occurring simultaneously through 2031. All flight operations would take place within existing airspace and no additions to, or alterations of airspace would occur under the Proposed Action. Facility construction and upgrades through six military construction (MILCON) and 13 facilities sustainment, restoration, and modernization (FSRM) projects would be implemented and coordinated with T-7A aircraft arrival. Aircraft, aircraft operations, personnel, and facility requirements are described in detail in **Sections 2.1.1** through **2.1.4** in the EIS. The JBSA installations affected by the Proposed Action and alternatives and locations are shown in **Figure 3-1**. T-7A replacing the T-38C aircraft stationed at JBSA-Randolph would use the same airspace in the south-Texas area to perform aircraft operations and supplement training in and around the airfields mentioned. This airspace includes SUA and MTRs that are approved by the Federal Aviation Administration and designated on published aeronautical charts. **Figure 3-2** shows the designated airspace currently used for T-38C pilot training in the area.

ES 3.1.1 Aircraft

T-7A aircraft would be phased in over several years. When all T-7A deliveries are complete in 2028, 72 T-7A aircraft would be stationed at JBSA-Randolph. Currently, 91 T-38C aircraft are assigned to JBSA-Randolph; however, some of these aircraft are loaned out to other T-38C training installations and may return to JBSA-Randolph as shown with increasing T-38C aircraft numbers in years 2023 and 2024 in **Table 3-1**. The proposed aircraft implementation schedule is provided **Table 3-1**. As T-7A aircraft are incorporated into the training curriculum, the number of T-38C aircraft at JBSA-Randolph would be reduced. However, this would not occur at a one-

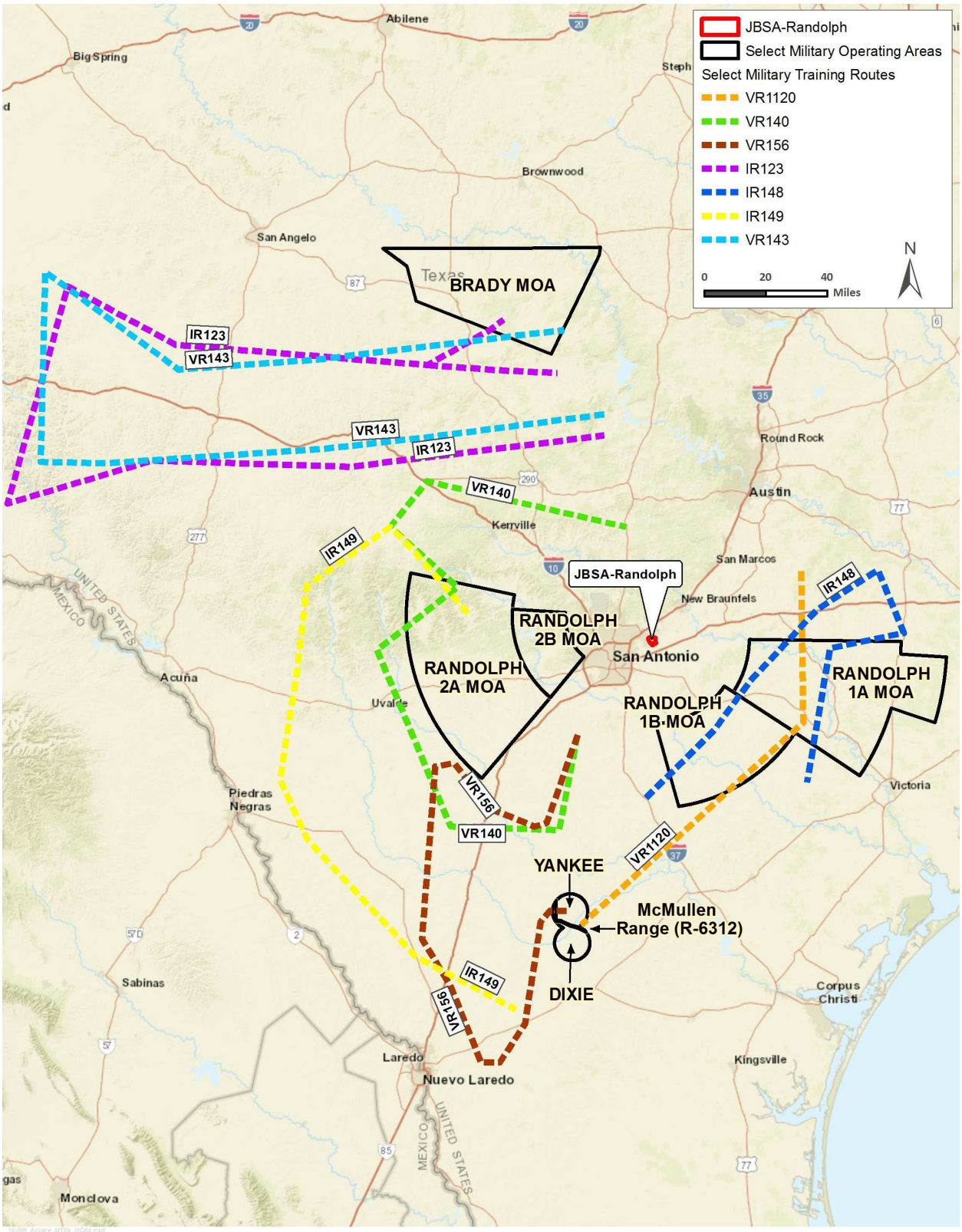
for-one change in number of aircraft or operations. The change of aircraft would result in a larger number of total aircraft operating at JBSA-Randolph over the course of the T-38C to T-7A transition period. The increase in total aircraft operations during the transition is due to simultaneous T-38C and T-7A concurrent training for the existing PIT and IFF missions.

The T-38C aircraft currently operating at JBSA-Randolph would be phased out of the current pilot training program. Those removed from supporting the training program would be considered for retirement or repurposed for use at other locations. Any change to these plans resulting in the potential reuse and relocation of T-38C aircraft will be a separate DAF action and will be subject to separate environmental analysis.



Data Sources: Basemap (ESRI Streetmap 2015) and DISDI.

Figure 3-1. JBSA-Randolph, JBSA-Lackland, and Seguin AAF Locations



Data Sources: Basemap (ESRI Streetmap), FAA and DISDI.

Note: Width of MTRs not drawn to scale.

Figure 3-2. JBSA-Randolph T-38C Training Airspace in South Texas

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Table 3-1. Cumulative Number of Aircraft and Operations under the Proposed Action

Aircraft	2017 Baseline	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 and Later
Number of Aircraft Stationed at JBSA-Randolph											
T-38C	91	97	96	85	78	62	41	34	29	15	0
T-7A	0	8	18	25	39	58	72	72	72	72	72
Total	91	105	114	110	117	120	113	106	101	87	72
Operations at JBSA-Randolph											
Annual Aircraft Operations (Daytime)											
T-38C	97,000	131,100	131,100	113,333	103,517	79,406	55,936	46,691	35,718	18,845	0
T-7A	0	4,538	13,170	29,592	45,642	75,789	102,173	105,209	106,927	106,263	114,212
Total	97,000	135,638	144,270	142,925	149,159	155,195	158,109	151,900	142,645	125,108	114,212
Annual Aircraft Operations (Nighttime)[1]											
T-7A	0	320	184	1,912	3,072	4,400	5,520	5,712	5,664	5,664	5,664
Operations at JBSA-Lackland											
Annual Aircraft Operations (Daytime)											
T-38C	400	400	390	320	280	200	150	120	80	0	0
T-7A	0	40	64	296	480	680	792	864	888	896	928
Total	400	440	454	616	760	880	942	984	968	896	928
Annual Aircraft Operations (Nighttime)											
T-7A	0	20	16	96	160	224	256	280	288	288	288
Operations at Seguin AAF											
Annual Aircraft Operations (Daytime)											
T-38C	42,000	57,400	56,700	46,100	39,800	28,700	21,100	16,700	10,800	2,680	0
T-7A	0	645	2,880	13,200	21,200	30,320	35,280	38,560	39,440	39,920	41,200
Total	42,000	58,045	59,580	59,300	61,000	59,020	56,380	55,260	50,240	42,600	41,200
Operations within Airspace Training Areas (MOAs, Ranges, & MTRs)[2]											
Annual Aircraft Operations within the Training Airspace											
T-38C	13,641	18,436	18,436	15,938	14,558	11,166	7,866	6,566	5,023	2,650	0
T-7A	0	683	1,878	4,430	6,850	11,277	15,144	15,598	15,833	15,740	16,858
Total	13,641	19,119	20,314	20,368	21,408	22,443	23,010	22,164	20,856	18,390	16,858
Annual T-7A Aircraft Operations Below 3,000 feet Above Ground Level (AGL) within the Training Airspace											
T-7A	0	237	651	1,535	2,373	3,906	5,246	5,403	5,484	5,516	5,903

Sources: LPES 2021, AFCEC/CZTQ 2021

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Table 3-1 Notes:

1. Nighttime operations would only occur at JBSA-Randolph and JBSA-Lackland and only involve T-7A aircraft.
2. Operations for Airspace Training are a total number of aircraft operations. The various MOAs and MTRs would experience varying levels of operations within the total number of operations shown.

What is an Aircraft Operation?

In **Table 3-1** for the Proposed Action and corresponding tables for Alternatives 1, 2, and 3, the number of projected aircraft operations are 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; (3) the approach phase of a closed pattern; or (4) the takeoff phase of a closed pattern. Closed pattern operations often include a "touch-and-go" where the aircraft approaches the airfield, momentarily touches its wheels or flies close to the runway, and departs the airfield for additional flight maneuvers.

Often, aircraft operations are discussed using the term "sorties." A single aircraft sortie includes one takeoff and one landing and may include closed patterns during flight. Aircraft operating from training installations such as JBSA-Randolph typically include multiple patterns flown with each sortie. In the case of the operations at JBSA-Randolph, an average of approximately 2.2 closed patterns (totaling 4.4 closed pattern operations) are conducted during each sortie. Actual sorties flown may include fewer closed patterns and some will include more than the average number used to calculate the total number of operations.

An example of how sortie information was used to calculate the number of operations presented for the Proposed Action and Alternatives follows: If 10,000 sorties were flown in any single year, the table would show a total number of 64,000 aircraft operations for that year (10,000 of the operations would be takeoffs, 10,000 would be landings, and the remaining 44,000 operations would be closed pattern operations [22,000 approach phase of closed pattern and 22,000 takeoff phase of a closed pattern]).

ES 3.1.2 Aircraft Operations

Aircraft operations would gradually shift from the T-38C to the T-7A in the PIT and IFF programs. Beginning in 2024, the current operations associated with T-38C would gradually decrease as T-7A are placed into service and would conclude at JBSA-Lackland by the end of 2030 and at JBSA-Randolph and Seguin AAF by the end of 2031. The annual number of aircraft operations for the T-38C and T-7A during the transition are provided in **Table 3-1**. DAF's program implementing plan calculated these annual operations as the baseline necessary for implementing the PIT and IFF training while simultaneously phasing out the T-38C aircraft and phasing in the T-7A aircraft. The proposed training syllabus for T-7A student pilots would remain the same as it currently is for T-38C students with the exception of the addition of nighttime flights due to the enhanced capabilities of the T-7A aircraft. The increase in total aircraft and operations during the transition is due to simultaneous T-38C and T-7A training for the PIT and IFF missions. T-7A annual operations would reach full capacity in 2032 and are projected to remain constant thereafter. Full capacity operations with the T-7A would exceed current baseline levels with the T-38C because of additional requirements in the training curriculum, which can be attributed to nighttime operations and anticipated but unknown changes in curriculum once the capabilities of the T-7A are fully known. A proportionate change in training operations at JBSA-Lackland and Seguin AAF would also occur.

The posted hours of operation for JBSA-Randolph's airfield would not change. The airfield would remain open between 7:00 am and 7:00 pm, Monday through Friday, and between 1 p.m. and 4 p.m. on Sunday. The airfield would normally remain closed on Saturdays and federal holidays. However, with the enhanced capabilities and avionics of the T-7A aircraft, the Proposed Action includes the introduction of evening and nighttime operations with the T-7A. The evening operations would include operations that occur from dusk until 10 p.m. Nighttime operations, by definition for aircraft noise modeling, occur between the hours of 10 p.m. and 7 a.m. on normal training days. Therefore, T-7A operations could occur at any time during each 24-hour day. 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 5,664 annual nighttime T-7A operations would occur at JBSA-Randolph and up to 288 annual nighttime T-7A operations would occur at JBSA-Lackland. No nighttime operations would occur at Seguin AAF.

The T-7A would operate within the same region as the T-38C and use the same airspace now used including SUA, ranges, Military Operations Areas (MOAs), MTRs, and alternate airfields. Some of the airspace including VR143, IR123, IR148 and IR149 would not be immediately used by the T-7A; however, as the training curriculum for the new aircraft is updated these areas would likely be included for training. The current operating limits for the T-7A would be for flight at sub-sonic speeds only. (AFCEC/CZN 2021a). No changes to airspace configurations (i.e., size, shape, or location) are required for T-7A recapitalization.

ES 3.1.3 Personnel

During aircraft transition and at full T-7A implementation, there would be an overall increase in manpower at JBSA-Randolph due to operations and the implementation of a Maintenance Training System (MTS) which would host instructors and students to train maintainers program-

wide. The steady state manpower requirement is projected to be a 303-person increase with 576 dependents. No change in manpower requirements would occur at JBSA-Lackland or Seguin AAF.

ES 3.1.4 Facility Requirements

Potentially, six MILCON projects and 13 FSRM projects would occur at JBSA-Randolph to provide modern facilities and infrastructure to support the T-7A aircraft's maintenance, training, and operational requirements. No construction would occur at JBSA-Lackland or Seguin AAF.

ES 3.1.4.1 MILCON Projects

The six MILCON projects are described as follows. **Figure 3-3** shows the proposed locations of the MILCON projects.

MTS Facility, Ball Field, and Tennis Courts. Construct a 30,000-square foot (ft^2) high-bay aircraft MTS facility with administrative space, classroom space, tool crib, communications room, and spaces to accommodate eight trainers. A detailed description of this project is provided in Chapter 2 of the EIS.

Ground Based Training System (GBTS) Facility. Construct a 33,000 ft^2 facility to hold a ground-based training simulator system facility, which consists of six weapon systems trainers, two operational flight trainers (both requiring eight large bays total), and two unit-training devices (requiring two smaller bays). The GBTS facility would be located adjacent to the proposed MTS facility on the existing ball field at the intersection of Fifth Street East and D Street East. Additional details are provided in Chapter 2 of the EIS.

Hush House Pad. A hush house is an enclosed unit that contains noise suppressing and testing equipment to accommodate in-frame or out-of-frame aircraft engine testing. The proposed hush house pad would be constructed on the site of JBSA-Randolph's existing hush house pad on the airfield. Additional details are provided in Chapter 2 of the EIS.

Fuel Cell Facility. Construct a 35,138 ft^2 T-7A Fuel Systems Maintenance Dock (i.e., Fuel Cell) facility. The facility would be a two-bay facility to support simultaneous maintenance of four aircraft. Additional details are provided in Chapter 2 of the EIS.

T-7A Shelters. Construct 65 shelters (sunshades) on the existing aircraft parking apron to protect T-7A aircraft from adverse weather. Existing T-38C shelters would be removed. Additional details are provided in Chapter 2 of the EIS.

Add/Alter T-7A Egress Facility. Add two rooms (total of 3,739 ft^2) to the southwest side of Building 38 for egress maintenance and egress storage rooms. The egress facility is limited in the amount of explosives and detonation cord that can be on hand in the maintenance area and storage. Additional details are provided in Chapter 2 of the EIS.

Figure 3-3. MILCON Project Locations

ES 3.1.4.2 FSRM Projects

The 13 FSRM projects that would occur at JBSA-Randolph to support the T-7A recapitalization are detailed in Table 3-4 of the EIS and consist mainly of minor interior renovations.

ES 3.2 Alternatives including the Proposed Action

ES 3.2.1 Aircraft and Aircraft Operations Alternatives

ES 3.2.1.1 Alternatives

Alternative 1: Conduct T-7A Operations at a Lower Intensity than the Proposed Action with Fewer Aircraft to Comply with Clean Air Act (CAA) Conformity Requirements. Alternative 1 entails scaling back the Proposed Action's T-7A flight operations to keep the annual net change in emissions below the 100 tons per year General Conformity Rule (GCR) *de minimis* values for nitrogen oxides (NOx). After the public scoping period ended and initial impact analysis began, DAF determined that emissions of an ozone (O_3) precursor from operations of the T-7A aircraft at the intensity of the Proposed Action would exceed the 100 tons per year (tpy) allowable limit for NO_X in the Bexar County O_3 nonattainment area in 2027 and later. To remedy this situation, DAF calculated the allowable number of T-7A aircraft and aircraft operations that would result in emissions less than the prescribed limit and allow the recapitalization efforts to be implemented at JBSA-Randolph. The number of aircraft and intensity of operations under this alternative, if selected, would be adequate to meet training and basing requirements until 2026. This timeframe allows for the transition of aircraft to begin at JBSA-Randolph and conduct training operations with O_3 percursor emissions (i.e., NO_X) below the 100 tpy limit within Bexar County. This timeline also aligns with planned re-evaluation of air quality in Bexar County for attainment/nonattainment categorization. In **Section 3** of the EIS, discussion of mitigation and adaptive management strategies are addressed as concurrent actions that may occur and further analyzed to define the allowable level of future T-7A operations beyond 2026. Training and basing requirements would need to be reassessed consistent with the GCR requirements, as identified in 42 United States Code § 7606 (c) [CAA § 176(c)], that are applicable to Bexar County at the time of reassessment, if required. These additional concurrent actions are discussed as adaptive management measures and further defined in **Section 3** of the EIS.

Under Alternative 1, JBSA-Randolph would receive up to 56 T-7A aircraft with all aircraft arriving no later than 2028. T-7A operations would reach the current maximum allowable number of operations in 2028 based on projected emissions and the current limit for O_3 precursors noted above T-38C operations would conclude in 2027. In addition to the proposed daytime flight operations, up to 4,065 annual nighttime T-7A operations would be performed at JBSA-Randolph and up to 225 annual nighttime T-7A operations would be performed at JBSA-Lackland. The conversion from T-38C to T-7A aircraft and the annual aircraft operations for JBSA-Randolph, JBSA-Lackland, and Seguin AAF under Alternative 1 are defined in **Table 3-2**.

Alternative 2: Perform T-7A Operations at an Intensity 15 Percent Greater than the Proposed Action. Like the Proposed Action, JBSA-Randolph would receive 72 T-7A aircraft with all aircraft arriving no later than 2028; T-7A operations would reach full capacity in 2032; and T-38C operations would conclude in 2031. However, under Alternative 2, beginning in

2024 T-7A aircraft would perform annual operations at JBSA-Randolph, JBSA-Lackland, and Seguin AAF at an intensity that is approximately 15 percent greater than the Proposed Action. Alternative 2 is intended to cover a potential scenario in which, for either broad strategic or tactical operational reasons, DAF requires a surge or increase in pilot training operations above the program implementing plan and is represented by the 15 percent increase. T-7A nighttime operations would occur with up to 6,569 nighttime operations at JBSA-Randolph and up to 331 nighttime operations at JBSA-Lackland.

The conversion from T-38C to T-7A aircraft and the annual aircraft operations for JBSA-Randolph, JBSA-Lackland, and Seguin AAF under Alternative 2 are defined in **Table 3-3**.

Alternative 3: Perform T-7A Operations at an Intensity 25 Percent Greater than the Proposed Action. Like the Proposed Action, JBSA-Randolph would receive 72 T-7A aircraft with all aircraft arriving no later than 2028; T-7A operations would reach full capacity in 2032; and T-38C operations would conclude in 2031. However, Alternative 3 would further increase the surge or increase of T-7A operations to approximately 25 percent above the Proposed Action beginning in 2024. T-7A nighttime operations would occur with up to 7,140 nighttime operation at JBSA-Randolph and 360 nighttime operations at JBSA-Lackland. The conversion from T-38C to T-7A aircraft and the annual aircraft operations for JBSA-Randolph, JBSA-Lackland, and Seguin AAF under Alternative 3 are defined in **Table 3-4**.

For each of the three alternatives, T-7A aircraft would perform the same types of operations within the training region of JBSA-Randolph, JBSA-Lackland, and Seguin AAF, as described for the Proposed Action.

ES 3.2.2 Facility Requirements Alternatives

MTS Facility. One alternative was considered for the MTS facility to convert Hangar 13 to an aircraft MTS facility. Conversion would require renovation of 30,000 ft^2 of hangar space for repairs or modifications. Because this alternative would interrupt and relocate existing activities at Hangar 13, it fails to avoid operational constraints and has been dismissed from further analysis in this EIS.

GBTS Facility**.** Two alternatives were considered for the GBTS facility. The first alternative would convert Building 745 to a GBTS facility. This alternative would displace 90 personnel from the Air Force Audit Agency. Therefore, this alternative was determined to not be an efficient solution because it displaces a current function. Therefore, this alternative has been dismissed from further analysis in this EIS.

The second alternative only would occur if aircraft operations Alternative 1 is selected. Under this alternative, the GBTS facility would be sited identically as the Proposed Action but designed with six large bays rather than eight. Fewer bays would be sufficient under Alternative 1 given the reduced number of aircraft and aircraft operations as compared to the Proposed Action. The building size and footprint would remain the same as the Proposed Action, and the additional building space would be used as administrative areas and office space. This alternative meets all the selection standards and is carried forward for analysis in this EIS as part of Alternative 1.

Table 3-2. Cumulative Number of Aircraft and Operations under Alternative 1

Aircraft	2017 Baseline	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 and Later
Number of Aircraft Stationed at JBSA-Randolph											
T-38C	91	97	96	85	78	62	0	0	0	0	0
T-7A	0	8	18	25	39	52	56	56	56	56	56
Total	91	105	114	110	117	114	56	56	56	56	56
Operations at JBSA-Randolph											
Annual Aircraft Operations (Daytime)											
T-38C	97,000	131,100	131,100	113,333	103,517	79,406	0	0	0	0	0
T-7A	0	4,538	13,170	29,592	45,642	70,216	76,257	76,257	76,257	76,257	76,257
Total	97,000	135,638	144,270	142,925	149,159	149,622	76,257	76,257	76,257	76,257	76,257
Annual Aircraft Operations (Nighttime)											
T-7A	0	320	184	1,912	3,072	3,630	4,065	4,065	4,065	4,065	4,065
Operations at JBSA-Lackland											
Annual Aircraft Operations (Daytime)											
T-38C	400	400	390	320	280	200	0	0	0	0	0
T-7A	0	40	64	296	480	600	675	675	675	675	675
Total	400	440	454	616	760	800	675	675	675	675	675
Annual Aircraft Operations (Nighttime)											
T-7A	0	20	16	96	160	200	225	225	225	225	225
Operations at Seguin AAF											
Annual Aircraft Operations (Daytime)											
T-38C	42,000	57,400	56,700	46,100	39,800	28,700	0	0	0	0	0
T-7A	0	645	2,880	13,200	21,200	30,320	32,562	32,562	32,562	32,562	32,562
Total	42,000	58,045	59,580	59,300	61,000	59,020	32,562	32,562	32,562	32,562	32,562
Operations within Training Airspace (MOAs, Ranges, MTRs)											
Annual Aircraft Operations within the Training Airspace											
T-38C	13,641	18,436	18,436	15,937	14,557	11,166	0	0	0	0	0
T-7A	0	683	1,878	4,430	6,850	10,385	11,295	11,295	11,295	11,295	11,295
Total	13,641	19,119	20,314	20,368	21,407	21,551	11,295	11,295	11,295	11,295	11,295
Annual T-7A Aircraft Operations Below 3,000 feet AGL within the Training Airspace											
T-7A	0	276	758	1,787	2,763	4,188	4,555	4,555	4,555	4,555	4,555

Sources: LPES 2021, AFCEC/CZTQ 2021

Table 3-3. Cumulative Number of Aircraft and Operations under Alternative 2

Aircraft	2017 Baseline	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 and Later
Number of Aircraft Stationed at JBSA-Randolph											
T-38C	91	97	96	85	78	62	41	34	29	15	0
T-7A	0	8	18	25	39	58	72	72	72	72	72
Total	91	105	114	110	117	120	113	106	101	87	72
Operations at JBSA-Randolph											
Annual Aircraft Operations (Daytime)											
T-38C	97,000	131,100	131,100	113,333	103,517	79,406	55,936	46,691	35,718	18,845	0
T-7A	0	4,538	15,146	34,030	52,488	87,158	117,500	120,991	122,966	122,202	131,344
Total	97,000	135,638	146,246	147,363	156,005	166,564	173,436	167,682	158,684	141,047	131,344
Annual Aircraft Operations (Nighttime)											
T-7A	0	320	212	2,199	3,533	5,060	6,348	6,569	6,514	6,514	6,514
Operations at JBSA-Lackland											
Annual Aircraft Operations (Daytime)											
T-38C	400	400	390	320	280	200	150	120	80	0	0
T-7A	0	40	74	340	552	782	911	994	1,021	1,030	1,067
Total	400	440	464	660	832	982	1,061	1,114	1,101	1,030	1,067
Annual Aircraft Operations (Nighttime)											
T-7A	0	20	18	110	184	258	294	322	331	331	331
Operations at Seguin AAF											
Annual Aircraft Operations (Daytime)											
T-38C	42,000	57,400	56,700	46,100	39,800	28,700	21,100	16,700	10,800	2,680	0
T-7A	0	645	3,312	15,180	24,380	34,868	40,572	44,344	45,356	45,908	47,380
Total	42,000	58,045	60,012	61,280	64,180	63,568	61,672	61,044	56,156	48,588	47,380
Operations within Training Airspace (MOAs, Ranges, MTRs)											
Annual Aircraft Operations within the Training Airspace											
T-38C	13,641	18,436	18,436	15,937	14,557	11,166	7,866	6,566	5,023	2,650	0
T-7A	0	2,160	5,095	7,878	12,968	17,415	17,938	18,208	18,101	19,386	19,386
Total	13,641	20,596	23,531	23,815	27,525	28,582	25,804	24,774	23,124	22,036	19,386
Annual T-7A Aircraft Operations Below 3,000 feet AGL within the Training Airspace											
T-7A	0	237	749	1,766	2,730	4,494	6,035	6,216	6,310	6,347	6,792

Source: LPES 2021

Table 3-4. Cumulative Number of Aircraft and Operations under Alternative 3

Aircraft	2017 Baseline	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 and Later
Number of Aircraft Stationed at JBSA-Randolph											
T-38C	91	97	96	85	78	62	41	34	29	15	0
T-7A	0	8	18	25	39	58	72	72	72	72	72
Total	91	105	114	110	117	120	113	106	101	87	72
Operations at JBSA-Randolph											
Annual Aircraft Operations (Daytime)											
T-38C	97,000	131,100	131,100	113,333	103,517	79,406	55,936	46,691	35,718	18,845	0
T-7A	0	4,538	16,463	36,989	57,052	94,737	127,717	131,511	133,658	132,828	142,765
Total	97,000	135,638	147,563	150,322	160,569	174,143	183,653	178,202	169,376	151,673	142,765
Annual Aircraft Operations (Nighttime)											
T-7A	0	320	230	2,390	3,840	5,500	6,900	7,140	7,080	7,080	7,080
Operations at JBSA-Lackland											
Annual Aircraft Operations (Daytime)											
T-38C	400	400	390	320	280	200	150	120	80	0	0
T-7A	0	40	80	370	600	850	990	1,080	1,110	1,120	1,160
Total	400	440	470	690	880	1,050	1,140	1,200	1,190	1,120	1,160
Annual Aircraft Operations (Nighttime)											
T-7A	0	20	20	120	200	280	320	350	360	360	360
Operations at Seguin AAF											
Annual Aircraft Operations (Daytime)											
T-38C	42,000	57,400	56,700	46,100	39,800	28,700	21,100	16,700	10,800	2,680	0
T-7A	0	645	3,600	16,500	26,500	37,900	44,100	48,200	49,300	49,900	51,500
Total	42,000	58,045	60,300	62,600	66,300	66,600	65,200	64,900	60,100	52,580	51,500
Operations with Airspace Training Areas (MOAs, Ranges, MTRs)											
Annual Aircraft Operations within the Training Airspace											
T-38C	13,641	18,436	18,436	15,937	14,557	11,166	7,866	6,566	5,023	2,650	0
T-7A	0	683	2,347	5,538	8,563	14,096	18,931	19,498	19,791	19,675	21,072
Total	13,641	19,119	20,783	21,475	23,120	25,262	26,797	26,064	24,814	22,325	21,072
Annual T-7A Aircraft Operations Below 3,000 feet AGL within the Training Airspace											
T-7A	0	237	814	1,919	2,967	4,884	6,559	6,756	6,858	6,898	7,382

Source: LPES 2021

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Hush House. No alternatives were considered for the hush house pad. The current location has proven to be a good locale for access and for minimizing noise from hush house engine run-ups to neighboring areas.

Fuel Cell. One alternative was considered for the fuel cell facility. The alternative would convert Hangar 13 into the fuel cell facility. Conversion would require renovation to approximately 29,125 ft^2 of interior space in Hangar 13 and construction of a 16,300 ft^2 addition onto the building. This alternative fails to meet Selection Standard 2 because it does not provide an efficient solution to conduct fuel cell activities and dismissed from further analysis.

T-7A Shelters. One alternative was considered for the T-7A shelters. This alternative only would occur if aircraft operation Alternative 1 is selected for implementation. Under this alternative, 52 T-7A shelters would be installed rather than 65 under the Proposed Action.

T-7A Egress Facility. One alternative was considered for the addition and alteration of Building 38 to accommodate egress maintenance and egress storage rooms. This alternative would only occur if aircraft operations Alternative 1 is selected for implementation. Under this alternative, the planned addition of 3,739 ft^2 to Building 38 would be reduced proportionately.

ES 3.3 No Action Alternative

Under the No Action Alternative, DAF would not implement T-7A recapitalization at JBSA. As a result, DAF's T-7A recapitalization program would not be initiated and T-7A aircraft would not be flown for pilot training in place of the T-38C. The manufacturing of the T-7A aircraft has been contracted; therefore, the disposition of the T-7A aircraft would be determined separately if the No Action Alternative were implemented. The installation's existing fleet of T-38C aircraft would continue to be used in their current capacity even though they will reach the end of their service lives within the next decade. Maintenance requirements for these aircraft would continue to increase. No changes to current flight operations would likely occur until the end of the T-38C's service life. The retention and continued use of the T-38C aircraft would impose no change on the number of personnel on JBSA-Randolph. The number and types of T-38C aircraft operations would remain the same, consistent with the current training curriculum and as operations are shown in the 2017 JBSA-Randolph Air Installations Compatible Use Zones Study. The airspace (MOAs, MTRs, and Ranges) for T-38C operations would continue to be used at the same tempo and in a similar manner. No MILCON or FSRM projects would be undertaken to support the T-7A program at JBSA-Randolph. Selection of the No Action Alternative would not be sustainable and would fail to train pilots to transition to fourth and fifth generation aircraft. The No Action Alternative does not meet the purpose of and need for the action.

ES 3.4 Identification of the Preferred Alternative

DAF has identified the Proposed Action for this EIS addressing recapitalization at JBSA-Randolph as its Preferred Alternative.

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ES 4 Environmental Consequences and Mitigation

ES 4.1 Environmental Consequences

In compliance with NEPA, CEQ, and DAF EIAP regulations and guidelines, this EIS focuses only on those environmental resources considered potentially subject to significant impacts from the Proposed Action and alternatives. The environmental resources analyzed within are air quality, noise, biological resources, cultural resources, land use, hazardous materials and wastes, infrastructure and transportation, safety, water resources, and environmental justice. **Table 4-1** summarizes the impacts on each of these environmental resources from each alternative.

ES 4.2 Mitigation

Specific mitigation measures have been identified and would be carried forward to the extent practicable in implementing the selected alternative and will be defined in the Record of Decision. **Table 4-2** summarizes the mitigation measures.

A mitigation plan will be developed in accordance with 32 CFR 989.22(d) to address specific mitigations selected in the Record of Decision. NEPA imposes a continuing duty to supplement (40 CFR 1502.9(c)) existing NEPA documents when substantial changes are made that are relevant to environmental concerns or in response to the identification of "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 CFR 1502.9(c)(1)(ii)). The DAF is responsible for monitoring the predictions (e.g., impact, mitigations) made in its completed NEPA documentation (40CFR 1505.3, 1505.2(c)). If substantial changes are recognized that are relevant to environmental concerns or that bear on a proposed action or its impacts, the USAF would reevaluate for potential impacts related to those changes.

In addition to the mitigation measures noted in the table, DAF recognized the need to institute an Adaptive Management Strategy to further mitigate and reduce the large increase in noise contours around JBSA-Randolph and Seguin AAF. Because the T-7A aircraft has not yet been accepted into the DAF inventory, the aircraft has only been flown in testing. The test mode flying operations do not necessarily reflect those patterns and parameters that the T-7A will be used at JBSA-Randolph for pilot training. Therefore, once the T-7A is put into training operations at JBSA-Randolph, additional information will be required to more accurately forecast the potential impacts on air quality and noise. This additional information would be employed into an adaptive management strategy.

Some adaptations may require supplemental NEPA analysis, such as those that would result in a substantial change to the action that is relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns and have bearing on the proposed action or its impacts. Thus, the Post-Record of Decision mitigation plan will include an adaptive management program incorporating (for example) the following kinds of adaptive management approaches:

- *Noise Modeling*. Supplement existing data with new noise data as it is being developed in the future. Use new data to reveal and understand the potential effects of activities or practices that are underway or being considered for implementation in the T-7A ramp up to final operational capability and thereafter. Make changes to improve mitigations and related actions.
- *Management and Oversight*. Monitor and evaluate results of earlier predictions. Develop and implement adaptations within the bounds of impacts analyzed in the selected alternative to eliminate or reduce effects.
- *New Knowledge and Information*. Through experimentation, knowledge and information can be incorporated into management options and recommendations.

As an initial effort to apply adaptive management, DAF determined that the T-7A could operate safely with reduced power settings in certain segments of flight patterns and a reduced usage of afterburner for takeoffs, reducing afterburner from 100 percent of takeoffs to 5 percent of takeoffs. As a result, a Mitigated Proposed Action and Mitigated Alternatives were created and evaluated for both noise and air quality impacts. It was noted that the reduction of both power settings and afterburner increased the nitrogen oxide emissions. To ensure that Alternative 1, redefined as Mitigated Alternative 1, would result in nitrogen oxide emissions below the *de minimis* indicator, adjustments to the number of flight operations was necessary. Therefore, the Mitigated Alternative 1 proposes to reduce Alternative 1 flight operations by 3.5 percent. Below is a short description of each of the Mitigated Alternatives.

- The Mitigated Proposed Action was developed to reduce the aircraft noise impacts associated with the Proposed Action. DAF determined that operation of the T-7A aircraft during certain segments of flight patterns and the reduced use of afterburner from 100 percent to 5 percent of takeoffs was feasible and would dramatically reduce the noise impact due to aircraft operations. The number of flight operations and all other parts of the Proposed Action would remain the same.

- Mitigated Alternative 1 was created because the reduction in power settings and afterburner resulted in an increase in nitrogen oxide emissions and exceeded the *de minimis* indicator of 100 tons per year. In order to maintain the intent of Alternative 1 to remain below the *de minimis* indicator, the number of aircraft operations was reduced by 3.5 percent from those originally presented for Alternative 1. This reduction in operations would allow for nitrogen oxide emissions to remain below the *de minimis* indicator.

- Mitigated Alternative 2 was developed as part of the effort to reduce power settings and afterburner and like the other alternatives, resulted in a higher emission rate of nitrogen oxides above the *de minimis* indicator. No additional noise analysis was completed for Mitigated Alternative 2. Similar to the Mitigated Proposed Action, the other portions of the alternative action including the level of aircraft operations remain the same.

- Mitigated Alternative 3, similarly to the Proposed Action and Mitigated Proposed Action, applies the same reduction in power settings and afterburner to the Alternative 3 level of T-7A aircraft operations. The other elements of Alternative 3 remain the same.

Table 4-1. Summary of Environmental Impacts

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Air Quality				
No impacts would occur.	Short-term, minor and long-term, significant adverse effects would occur. The short-term (2022 to 2026) effects would be from fugitive dust and the use of heavy equipment during construction. Long-term effects would be from additional personnel, heated interior space, and aircraft flight operations. Air emissions would exceed the GCR *de minimis* value for NO_X in the Bexar County nonattainment area beginning in 2027.	Short-term, minor and long-term, moderate (less than significant) adverse effects would occur. The short-term (2022 to 2026) effects would be from fugitive dust and the use of heavy equipment during construction. Long-term effects would be from additional personnel, heated interior space, and aircraft flight operations. Air emissions would not exceed the GCR *de minimis* value for NO_X in the Bexar County.	Short-term, minor and long-term, significant adverse effects would occur. The short-term (2022 to 2026) effects would be from fugitive dust and the use of heavy equipment during construction. Long-term effects would be from additional personnel, heated interior space, and aircraft flight operations. Air emissions would exceed the GCR *de minimis* value for NO_X in the Bexar County nonattainment area beginning in 2027.	Short-term, minor and long-term, significant adverse effects would occur. The short-term (2022 to 2026) effects would be from fugitive dust and the use of heavy equipment during construction. Long-term effects would be from additional personnel, heated interior space, and aircraft flight operations. Air emissions would exceed the GCR *de minimis* value for NO_X in the Bexar County nonattainment area beginning in 2027.
Noise				
No impacts would occur.	Short-term, minor and long-term, significant, adverse effects on the noise environment would occur. Short-term effects would be due to noise generated by heavy equipment during construction and demolition. Long-term effects would be due to the introduction of the louder T-7A aircraft, the increase in overall training and maintenance operations at JBSA-Randolph and Seguin AAF, and the	Short-term, minor and long-term, significant, adverse effects on the noise environment would occur. Short-term effects would be due to noise generated by heavy equipment during construction and demolition. Long-term effects would be due to the introduction of the louder T-7A aircraft, the increase in overall training and maintenance operations at JBSA-Randolph and Seguin AAF, and the	Short-term, minor and long-term, significant, adverse effects on the noise environment would occur. Short-term effects would be due to noise generated by heavy equipment during construction and demolition. Long-term effects would be due to the introduction of the louder T-7A aircraft, the increase in overall training and maintenance operations at JBSA-Randolph and Seguin AAF, and the	Short-term, minor and long-term, significant, adverse effects on the noise environment would occur. Short-term effects would be due to noise generated by heavy equipment during construction and demolition. Long-term effects would be due to the introduction of the louder T-7A aircraft, the increase in overall training and maintenance operations at JBSA-Randolph and

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
	introduction of operations between 10 p.m. and 7 a.m. Long-term changes in operational noise would substantially increase areas of incompatible land use on and adjacent to JBSA-Randolph and Seguin AAF. Land acreage within noise levels 65-A-weighted decibels (dBA) day-night average sound level (DNL) or greater would increase from 5,148 to 48,861 acres at JBSA-Randolph and from 2,826 acres to11,960 acres for Seguin AAF. Estimated population within noise levels 65-A weighted dBA would increase from 5,936 to 61,930 people at JBSA-Randolph and from 587 to 2,862 people at Seguin AAF.	introduction of operations between 10 p.m. and 7 a.m. Compared to the Proposed Action, noise impacts would be slightly less intense (but still significant) due to the lower number of aircraft operations. Land acreage within noise levels 65-dBA DNL or greater would increase from 5,148 to 32,877 at JBSA-Randolph and from 2,826 to 7,800 acres at Seguin AAF. Estimated population within noise levels 65-A weighted dBA would increase from 5,936 to 9,768 people at JBSA-Randolph and from 587 to 2,229 people at Seguin AAF.	introduction of operations between 10 p.m. and 7 a.m. Compared to the Proposed Action, noise impacts would be slightly greater due to the greater number of aircraft operations. Land acreage within noise levels 65-dBA DNL or greater would increase from 5,148 to 51,775 at JBSA-Randolph and from 2,826 to 12,938 acres at Seguin AAF. Estimated population within noise levels 65-A weighted dBA would increase from 5,936 to 64,788 people at JBSA-Randolph and from 587 to 3,261 people at Seguin AAF.	Seguin AAF, and the introduction of operations between 10 p.m. and 7 a.m. Compared to the Proposed Action, noise impacts would be slightly greater due to the greater number of aircraft operations. Land acreage within noise levels 65-dBA DNL or greater would increase from 5,148 to 58,056 at JBSA-Randolph and from 2,826 to 13,481 acres at Seguin AAF. Estimated population within noise levels 65-A weighted dBA would increase from 5,936 to 66,637 people at JBSA-Randolph and from 587 to 3,329 people at Seguin AAF.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Biological Resources				
No impacts would occur.	Short- and long-term, negligible, adverse impacts on vegetation and wildlife at JBSA-Randolph would occur from the MILCON and FSRM projects. Long-term, minor, adverse impacts on wildlife may occur from increased and nighttime aircraft operations. Additional aircraft operations would increase the risk of bird and bat strikes. The Proposed Action would have no effect on all 44 of the federally listed species on JBSA-Randolph, JBSA-Lackland, Seguin AAF, and the airspace areas.	Short- and long-term, negligible, adverse impacts on vegetation and wildlife at JBSA-Randolph would occur from the MILCON and FSRM projects. Long-term, minor, adverse impacts on wildlife may occur from increased and nighttime aircraft operations; however, these impacts would be slightly less than those described for the Proposed Action. Additional aircraft operations would increase the risk of bird and bat strikes. Alternative 1 would have no effect on all 44 of the federally listed species on JBSA-Randolph, JBSA-Lackland, Seguin AAF, and the airspace areas.	Short- and long-term, negligible, adverse impacts on vegetation and wildlife at JBSA-Randolph would occur from the MILCON and FSRM projects. Long-term, minor, adverse impacts on wildlife may occur from increased and nighttime aircraft operations. These impacts would be slightly greater than those described for the Proposed Action. Additional aircraft operations would increase the risk of bird and bat strikes. Alternative 2 would have no effect on all 44 of the federally listed species on JBSA-Randolph, JBSA-Lackland, Seguin AAF, and the airspace areas.	Short- and long-term, negligible, adverse impacts on vegetation and wildlife at JBSA-Randolph would occur from the MILCON and FSRM projects. Long-term, minor, adverse impacts on wildlife may occur from increased and nighttime aircraft operations. These impacts would be slightly greater than those described for the Proposed Action. Additional aircraft operations would increase the risk of bird and bat strikes. Alternative 3 would have no effect on all 44 of the federally listed species on JBSA-Randolph, JBSA-Lackland, Seguin AAF, and the airspace areas.
Cultural Resources				
No impacts would occur.	The only aspects of the Proposed Action with potential to effect historic properties are the MILCON and FSRM projects proposed for JBSA-Randolph. The Texas State Historic Preservation Officer (SHPO) reviewed the project plans and concurred that no adverse effect would occur.	Impacts from the MILCON and FSRM projects proposed for JBSA-Randolph would be identical to the Proposed Action. The Texas SHPO reviewed the project plans and concurred that no adverse effect would occur.	Impacts from the MILCON and FSRM projects proposed for JBSA-Randolph would be identical to the Proposed Action. The Texas SHPO reviewed the project plans and concurred that no adverse effect would occur.	Impacts from the MILCON and FSRM projects proposed for JBSA-Randolph would be identical to the Proposed Action. The Texas SHPO reviewed the project plans and concurred that no adverse effect would occur.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Land Use				
No impacts would occur.	The MILCON and FSRM projects at JBSA-Randolph would be largely compatible and consistent with applicable land use plans and regulations. The Proposed Action would meet FAA regulations specific to minimum altitude and avoidance distances. The Clear Zones (CZs) and Accident Potential Zones (APZs) for JBSA-Randolph, JBSA-Lackland, and Seguin AAF would remain unchanged. T-7A aircraft feature substantially louder operating characteristics in comparison with T-38C aircraft. Land areas within the 65 and higher dBA DNL contour are discussed within the noise resources section.	The MILCON and FSRM projects at JBSA-Randolph would be largely compatible and consistent with applicable land use plans and regulations. Alternative 1 would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for JBSA-Randolph, JBSA-Lackland, and Seguin AAF would remain unchanged. T-7A aircraft feature substantially louder operating characteristics in comparison with T-38C aircraft. Land area within the 65 and higher dBA DNL contour are discussed within the noise resources section.	The MILCON and FSRM projects at JBSA-Randolph would be largely compatible and consistent with applicable land use plans and regulations. Alternative 2 would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for JBSA-Randolph, JBSA-Lackland, and Seguin AAF would remain unchanged. T-7A aircraft feature substantially louder operating characteristics in comparison with T-38C aircraft. Land area within the 65 and higher dBA DNL contour are discussed within the noise resources section.	The MILCON and FSRM projects at JBSA-Randolph would be largely compatible and consistent with applicable land use plans and regulations. Alternative 3 would meet FAA regulations specific to minimum altitude and avoidance distances. The CZs and APZs for JBSA-Randolph, JBSA-Lackland, and Seguin AAF would remain unchanged. T-7A aircraft feature substantially louder operating characteristics in comparison with T-38C aircraft. Land area within the 65 and higher dBA DNL contour are discussed within the noise resources section.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Hazardous Materials and Wastes				
No impacts would occur.	Short- and long-term, minor, adverse impacts would occur. The short-term impacts would result from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction for the MILCON and FSRM projects. The long-term impacts would result because the proposed increase in aircraft operations would also require additional quantities of jet fuel to be delivered, stored, used, and disposed of appropriately at JBSA-Randolph.	Short- and long-term, minor, adverse impacts would occur. The short-term impacts would result from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction for the MILCON and FSRM projects. The long-term impacts would result because proposed increase in aircraft operations would also require additional quantities of jet fuel to be delivered, stored, used, and disposed of appropriately at JBSA-Randolph. Compared to the Proposed Action, impacts would be slightly lesser because of the decreased flight operations.	Short- and long-term, minor, adverse impacts would occur. The short-term impacts would result from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction for the MILCON and FSRM projects. The long-term impacts would result because the proposed increase in aircraft operations would also require additional quantities of jet fuel to be delivered, stored, used, and disposed of appropriately at JBSA-Randolph. Compared to the Proposed Action, impacts would be slightly greater because of the increased flight operations.	Short- and long-term, minor, adverse impacts would occur. The short-term impacts would result from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction for the MILCON and FSRM projects. The long-term impacts would result because the proposed increase in aircraft operations would also require additional quantities of jet fuel to be delivered, stored, used, and disposed of appropriately at JBSA-Randolph. Compared to the Proposed Action, impacts would be slightly greater because of the increased flight operations.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Infrastructure and Transportation				
No impacts would occur.	Impacts on infrastructure and transportation would be less than significant as sufficient capacity exists for the projected increases in buildings, people, and demand.	Identical impacts on infrastructure and transportation as the Proposed Action would occur. These impacts would be less than significant as sufficient capacity exists for the projected increases in buildings, people, and demand.	Identical impacts on infrastructure and transportation as the Proposed Action would occur. These impacts would be less than significant as sufficient capacity exists for the projected increases in buildings, people, and demand.	Identical impacts on infrastructure and transportation as the Proposed Action would occur. These impacts would be less than significant as sufficient capacity exists for the projected increases in buildings, people, and demand.
Safety				
No impacts would occur.	Short-term, minor, adverse impacts on contractor health and safety would occur during construction for the MILCON and FSRM projects. Long-term, negligible, adverse impacts on flight safety would occur from increased and nighttime aircraft operations resulting in an increased potential for Bird/Wildlife Aircraft Strike Hazard (BASH) incidents, including bat strikes, and other mishaps.	Short-term, minor, adverse impacts on contractor health and safety would occur during construction for the MILCON and FSRM projects. Long-term, negligible, adverse impacts on flight safety would occur from increased and nighttime aircraft operations resulting in an increased potential for BASH incidents, including bat strikes, and other mishaps. Compared to the Proposed Action, these impacts would be slightly lesser because of the decreased flight operations.	Short-term, minor, adverse impacts on contractor health and safety would occur during construction for the MILCON and FSRM projects. Long-term, negligible, adverse impacts on flight safety would occur from increased and nighttime aircraft operations resulting in an increased potential for BASH incidents, including bat strikes, and other mishaps. Compared to the Proposed Action, these impacts would be slightly greater because of the increased flight operations.	Short-term, minor, adverse impacts on contractor health and safety would occur during construction for the MILCON and FSRM projects. Long-term, negligible, adverse impacts on flight safety would occur from increased and nighttime aircraft operations resulting in an increased potential for BASH incidents, including bat strikes, and other mishaps. Compared to the Proposed Action, these impacts would be slightly greater because of the increased flight operations.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Water Resources				
No impacts would occur.	Short- and long-term, negligible to minor, adverse impacts would occur. The MILCON and FSRM projects would increase impervious surface and decrease area for groundwater infiltration by approximately 132,050 ft^2 leading to potentially decreased recharge of groundwater and increased stormwater runoff into nearby surface water bodies. Increased 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. The addition of approximately 879 people to Bexar County would not appreciably increase the demand for potable water or reduce regional groundwater availability in the Edwards Aquifer. No direct impacts on wetlands would occur. The MILCON and FSRM projects would not occur within or near the 100-year floodplain.	Similar impacts on water resources as the Proposed Action would occur. Compared to the Proposed Action, fewer aircraft to maintain and aircraft operations at a lower intensity would slightly decrease the potential for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface waters.	Similar impacts on water resources as the Proposed Action would occur. Compared to the Proposed Action, an increase in aircraft operations would slightly increase the potential for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface waters.	Similar impacts on water resources as the Proposed Action would occur. Compared to the Proposed Action, an increase in aircraft operations would slightly increase the potential for an accidental release of hazardous materials or petroleum products to contaminate groundwater aquifers and surface waters.

No Action Alternative	Proposed Action (Preferred Alternative)	Alternative 1 – Reduced Operations	Alternative 2 – 15 Percent Increase in Operations	Alternative 3 – 25 Percent Increase in Operations
Environmental Justice				
No impacts would occur.	Noise and air emissions would equally impact all populations in the affected area, thereby not disproportionately impacting environmental justice and sensitive receptor populations.	Noise and air emissions would be slightly less compared to the Proposed Action but would still equally impact all populations in the affected area, thereby not disproportionately impacting environmental justice and sensitive receptor populations.	Noise and air emissions would be slightly greater compared to the Proposed Action but would still equally impact all populations in the affected area, thereby not disproportionately impacting environmental justice and sensitive receptor populations.	Noise and air emissions would be slightly greater compared to the Proposed Action but would still equally impact all populations in the affected area, thereby not disproportionately impacting environmental justice and sensitive receptor populations.

Table 4-2. Summary of Mitigation Measures

Air Quality
DAF would engage an adaptive management approach to further develop analysis of air quality impacts due to the operation of the new T-7A aircraft that are proposed to replace the current T-38C aircraft at JBSA-Randolph.
During this adaptive management approach, DAF would limit the total number of operations to remain below the GCR NOx *de minimis* value as those outlined under the Proposed Action through year 2026, which would be equivalent to the maximum outlined under Mitigated Alternative 1 Option 1B (the *de minimis* alternative) until such a time as a formal GCR demonstration can be made.
If any increases in operations are proposed for execution during the foregoing "adaptive management", DAF would perform additional GCR Applicability Analyses, and if necessary, a GCR Determination to ensure compliance with CAA § 176(c) and 40 CFR Part 93 Subpart B.
DAF would continue to seek emissions offsets, in the form of formalized, local, legally-enforceable, and permanent emission reductions to counterbalance increases in annual net changes in emissions associated with the Proposed Action, including both standard and early Emission Reduction Credits (ERC), as outlined as follows: • Standard ERCs are approved banked emission reductions (credits) that can be used by the owner or sold on the market as offsets on future actions either by the owner or a purchaser. Standard ERCs can only be used for a GCR determination, and along with any early ERCs, must fully and completely offset-to-zero all emissions from the Proposed Action. Additionally, standard ERCs used for a GCR determination must be from within the same nonattainment area or a nearby area of equal or higher classification. • Early ERCs are state-approved credits earned from a specific federal facility for emission reductions efforts that are both legally enforceable and permanent. Early ERCs are banked and only used by the federal facility that earned them and can be used for either a GCR applicability analysis or determination. If used in an applicability analysis, they can be used to offset only the amount of emissions to bring the action below a GCR *de minimis* value (100 tpy for this action). If used in a determination, the early ERCs (in conjunction with any other offsets) would offset 100 percent of the action-related emissions (between 155.4 to 197.8 tpy for this action).
JBSA would continue to implement an Energy Savings Performance Contract involving emission reductions and continue to pursue NO_X Early ERC credits that, if granted by Texas Commission on Environmental Quality (TCEQ), could be applied to a revised GCR Applicability Analysis or future determination. While the currently estimated Early ERCs (27 tons of NO_X) would not allow the Proposed Action to proceed to its full proposed operational level after year 2026, the formal Air Conformity Applicability Model shows the results would allow for an increase in T-7A flight operations above the levels in Alternative 1 (the *de minimis* alternative).
DAF would continue discussions with TCEQ on how to use the Energy Savings Performance Contract emissions reductions, if authorized. Since the timeline of the Early ERCs being granted by TCEQ is currently unknown, it is possible the use of the Early ERCs for the T-7A Recapitalization will not be necessary, or even possible. If and at the time that the Early ERCs are granted, JBSA reserves the option to bank the credits for future unrelated actions.
If sufficient Early ERCs are granted, DAF would perform additional GCR Applicability Analyses, and if necessary, a GCR Determination to ensure compliance with CAA § 176(c) and 40 CFR Part 93 Subpart B.
DAF would continue to investigate and implement an agreement between 502 ABW/CC and TCEQ to establish record keeping requirements and operations parameters to ensure that T-7A operations are conducted in such a manner as to conform with the requirements of CAA § 176(c) and 40 CFR Part 93. The draft agreement is provided in **Appendix B** of this EIS. The implementation of GCR *de minimis* constraints would also require annual reporting starting in 2023 to demonstrate and document flight operations did not exceed the *de minimis* values for the calendar year. The annual reporting must be available to the state and the general public upon request.

Noise
DAF would conduct noise modeling with operational T-7A noise source data, when available, to corroborate the accuracy of the Final EIS results, which used the T-7A noise source data in an aircraft testing scenario for noise modeling and used T-38C training flight parameters such as power settings, patterns, altitudes, etc., because specific training performance specifications for the T-7A airframe operating in the San Antonio region are not yet available.
DAF would limit the use of afterburner up to five percent of all takeoffs.
DAF would consider avoidance of low-level flight over Sunday morning religious services (Saturday morning for churches that primarily have services on those days) over several church POIs as part of mitigation.
Biological Resources
DAF would conduct nesting surveys as necessary prior to construction activities. If activities occur during the MBTA-nesting season (March 15 through September 15), a qualified biologist would conduct nest surveys to determine if there are any active nests present. Nest surveys would be conducted no more than five days prior to the scheduled clearing. If active nests are observed, a 150-foot buffer of vegetation would be left intact until the young have fledged or the nest is abandoned.