

FINAL

FEBRUARY 2026

Environmental Assessment for
Laughlin Air Force Base Low Military Operations Area
Special Use Airspace



Prepared for:
The Department of the Air Force

Privacy Advisory

This Environmental Assessment (EA) has been provided for public comment in accordance with the National Environmental Policy Act, which provides an opportunity for public input on United States Department of the Air Force (DAF) decision-making, allows the public to offer input on alternative ways for DAF to accomplish what it is proposing, and solicits comments on DAF's analysis of environmental effects.

Public input allows DAF to make better-informed decisions. Letters or other written or verbal comments provided may be published in this EA. Providing personal information is voluntary. Private addresses will be compiled to develop a stakeholders' inventory. However, only the names of the individuals making comments and specific comments will be disclosed. Personal information, home addresses, telephone numbers, and e-mail addresses will not be published in this EA.

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**DEPARTMENT OF THE AIR FORCE
47TH FLYING TRAINING WING
LAUGHLIN AIR FORCE BASE TEXAS**

MEMORANDUM FOR WHOM IT MAY CONCERN

February 25, 2026

FROM: TYLER J. ELLISON, Col, USAF
Commander
47th Flying Training Wing

SUBJECT: Laughlin Air Force Base (AFB) Low Military Operations Area (MOA) Special Use
Airspace (SUA) Environmental Assessment (EA) / Date Certification of Page Limits
and Deadline

This memorandum pertains to the Laughlin AFB Low MOA SUA EA (attached). In accordance with the National Environmental Policy Act (NEPA), 42 United States Code § 4321, et seq., the Department of the Air Force (DAF) has considered the factors mandated by NEPA in the preparation of this EA.

I certify that the analysis within the EA has been tailored to comply with page limits and deadlines. The EA represents DAF's good-faith effort to prioritize and document the most important considerations required by NEPA within the congressionally mandated page limits and timeline. This prioritization reflects DAF's expert judgment. The effort is substantially complete. Considerations addressed briefly or unaddressed were, in DAF's judgment, to be comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed.

In the DAF's expert opinion, it has thoroughly considered the factors mandated by NEPA. The analysis contained within the EA is, in DAF's judgment, adequate to inform and reasonably explain the DAF's final decision regarding the proposed action for Laughlin AFB Low MOA SUA EA.

TYLER J. ELLISON, Colonel, USAF
Commander

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COVER PAGE

ENVIRONMENTAL ASSESSMENT FOR LAUGHLIN AIR FORCE BASE LOW MILITARY OPERATIONS AREA SPECIAL USE AIRSPACE

UNIQUE IDENTIFICATION NUMBER: EAXX-007-57-UAF-1733916724

- a. **Responsible Agency:** Department of the Air Force (DAF)
- b. **Cooperating Agency:** Federal Aviation Administration (FAA)
- c. **Proposals and Actions:** The environmental assessment (EA) analyzes the Proposed Action and Alternatives (Proposed Action) to obtain a new permanent low-altitude airspace for the 47th Flying Training Wing (47 FTW) at Laughlin Air Force Base (AFB), Texas to support Fighter Bomber Fundamentals pilot training syllabus requirements. The proposed airspace would be managed and scheduled by the 47 FTW.
- d. **For Additional Information:** Laughlin AFB Public Affairs at 47FTWPA.TASKER@us.af.mil
- e. **Designation:** Final EA
- f. **Abstract:** This EA has been prepared pursuant to provisions of the National Environmental Policy Act, as amended by Public Law 30 118-5, Fiscal Responsibility Act of 2023 (42 United States Code 4321 et seq. and the Department of Defense National Environmental Policy Act Implementing Procedures (June 30, 2025). The requirements of other federal, state, and local regulations are also addressed in this EA, as applicable.

The purpose of the DAF Proposed Action is to obtain new airspace that affords the 47 FTW autonomous scheduling and ensures nearby access to airspace necessary to perform low-altitude, nonhazardous flight training from 500 feet above ground level (AGL) up to, but not including 7,000 feet mean sea level (MSL), and allows for continuous flight training to Flight Level 220 or scheduled independently (500 feet AGL up to, but not including 7,000 feet MSL), as needed, to support new multidirectional tactical flying training requirements. The Proposed Action is needed because pilots do not have regular, prioritized (scheduling / management of airspace) access to multidirectional, low-altitude training down to 500 feet AGL (low altitude/ configuration), with ceilings of up to, but not including 7,000 feet AGL (size), within 10 minutes transit time of Laughlin AFB (minimize transit time). The FAA's purpose and need for the Proposed Action is to provide the Special Use Airspace to support the anticipated increased need for military pilot training while minimizing the impacts to the National Airspace System.

The proposed low-altitude airspace would need to have a floor of 500 feet AGL and a ceiling of up to, but not including 7,000 feet MSL. Training within the proposed airspace would primarily consist of low-altitude air-to-ground training, which would simulate attacks by training aircraft against simulated ground-based targets. Up to 1,570 aircraft operations would occur in the proposed airspace annually. Aircraft operations in the proposed airspace would primarily be performed by pilots from the 47 FTW initially flying the T-38C *Talon* and transitioning to the T-7A *Red Hawk* beginning in 2030 as evaluated in the 2024 *Final Environmental Impact Statement and Record of Decision for T-7A Recapitalization at Laughlin Air Force Base, Texas*. A small number of T-6A operations (10 per year) would also be performed in the proposed airspace. Fighter Bomber Fundamentals aircraft operations would be performed Monday through Friday, sunrise to sunset (adjusted seasonally as needed), with other times announced via Notice to Airmen. No nighttime aircraft operations would be proposed in the new airspace.

The Proposed Action would not involve changes to the lateral boundaries of existing Military Operations Areas managed by Laughlin AFB. No demolition, construction, or other ground-disturbing activities would occur. None of the proposed training activities would involve releases of live or inert ammunition or ordnance (including defensive countermeasures such as chaff and flares). No supersonic aircraft operations would occur in the proposed airspace. The Proposed Action would not require changes to the number of personnel or to the number or types of aircraft assigned to Laughlin AFB, or changes to the existing boundaries of that or any other DoD or DAF installation.

The EA analyzes one alternative for implementing the Proposed Action (Alternative 1). Based on the analysis of the affected environment and potential environmental consequences in the EA, Alternative 1 would have no significant adverse impacts on environmental resources in the region of influence.

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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|-------------------|---|
| °F | degrees Fahrenheit |
| 47 FTW | 47th Flying Training Wing |
| 47 OG | 47th Operations Group |
| ACAM | Air Conformity Applicability Model |
| AETC | Air Education and Training Command |
| AFB | Air Force Base |
| AGL | above ground level |
| APE | Area of Potential Effects |
| AQCR | Air Quality Control Regions |
| ATC | air traffic control |
| ATCAA | Air Traffic Control Assigned Airspace |
| BASH | bird aircraft strike hazard |
| CAA | Clean Air Act |
| CFR | Code of Federal Regulations |
| CH ₄ | methane |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| CO ₂ e | CO ₂ equivalent |
| DAF | Department of the Air Force |
| DAFMAN | Department of the Air Force Manual |
| dB | decibel |
| dBA | A-weighted decibel |
| DNL | Day-Night Average Sound Level |
| E.O. | Executive order |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| ESA | Endangered Species Act |
| FAA | Federal Aviation Administration |
| FBF | Fighter Bomber Fundamentals |
| FICAN | Federal Interagency Committee on Aviation Noise |
| FL | flight level |
| FLIP | Flight Publication |
| GHG | greenhouse gases |
| GPT | Graduate Pilot Training |
| IFR | Instrument Flight Rules |
| IR | Instrument Route |
| L _{dn} | Day-Night Average Sound Level |
| L _{dnmr} | Onset-Rate Adjusted Monthly Day-Night Average Sound Level |
| L _{eq} | equivalent sound level |

| | |
|-------------------|--|
| L _{max} | maximum sound level |
| MBTA | Migratory Bird Treaty Act |
| MOA | Military Operations Area |
| MSL | mean sea level |
| mton/yr | metric tons per year |
| MTR | Military Training Route |
| N ₂ O | nitrous oxide |
| NAAQS | National Ambient Air Quality Standards |
| NAS | National Airspace System |
| NEPA | National Environmental Policy Act |
| NM | nautical mile |
| NO ₂ | nitrogen dioxide |
| NOTAM | Notice to Airmen |
| NO _x | nitrogen oxides |
| NRHP | National Register of Historic Places |
| Pb | lead |
| PM ₁₀ | particulates equal to or less than 10 microns in diameter |
| PM _{2.5} | particulates equal to or less than 2.5 microns in diameter |
| PSD | Prevention of Significant Deterioration |
| ROI | region of influence |
| RTHL | Recorded Texas Historic Landmarks |
| SEL | sound exposure level |
| SHPO | State Historical Preservation Officer |
| SR | Slow Route |
| SUA | Special Use Airspace |
| TPWD | Texas Parks and Wildlife Department |
| tpy | tons per year |
| U.S.C. | U.S. Code |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| VFR | Visual Flight Rules |
| VR | Visual Route |
| WMA | wildlife management area |

1 Purpose and Need

1.1 Introduction

The Department of the Air Force (DAF) has prepared this Environmental Assessment (EA) to evaluate the potential environmental consequences from the Proposed Action and Alternatives (Proposed Action) to obtain new permanent low-altitude airspace for the 47th Flying Training Wing (47 FTW) at Laughlin Air Force Base (AFB), Texas to support Fighter Bomber Fundamentals (FBF) pilot training syllabus requirements. The proposed airspace would also be available for use by other DAF and DoD flying units as scheduling and operational requirements allow. The proposed airspace would be managed and scheduled by the 47 FTW.

The Federal Aviation Administration (FAA) is the primary federal agency responsible for establishing and managing navigable airspace above the United States. Therefore, the FAA is participating as a cooperating agency during the preparation of this EA in accordance with the Memorandum of Understanding between the DoD and the FAA for environmental review of Special Use Airspace (SUA) actions under FAA Order JO 7400.2¹, *Procedures for Handling Airspace Matters* (FAA, 2025a).

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA), as amended by Public Law 30 118-5, Fiscal Responsibility Act of 2023 (42 United States Code [U.S.C.] 4321 et seq.) and the Department of Defense National Environmental Policy Act Implementing Procedures (June 30, 2025). The requirements of other federal, state, and local regulations are also addressed in this EA, as applicable.

1.2 Background

1.2.1 Airspace Overview

Four types of airspace are defined by the FAA: Controlled, Uncontrolled, Special Use, and Other (FAA, 2023a). These types of airspace are defined based on the complexity or density of aircraft movements, nature of the operations conducted within the airspace, the level of safety required, and national and public interest. Airspace is defined with fixed horizontal and vertical boundaries to delineate where aircraft are allowed to operate.

SUA is airspace in which certain activities must be confined, or where limitations may be imposed on the operations of other aircraft that are not involved in those activities. Military Operations Areas (MOAs) are a type of SUA where nonhazardous military flight activities are conducted. Such activities include, but are not limited to, air combat maneuvers, air intercepts, and low-altitude tactics (DAF, 2022). MOAs are SUA established outside of Class A airspace (airspace typically below 18,000 feet mean sea level [MSL]) to separate or segregate certain nonhazardous military flight activities from aircraft operating under Instrument Flight Rules (IFR) and to identify where these activities are conducted for aircraft operating under Visual Flight Rules (VFR).

Air Traffic Control Assigned Airspace (ATCAA) is airspace of defined vertical and lateral limits, assigned by Air Traffic Control (ATC) operators, for the purpose of providing air traffic

¹ The most recent versions of FAA guidance and policy documents are referenced throughout this EA, as applicable.

segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic. Typically, ATCAA is airspace which starts at flight level (FL)² 180 or 18,000 feet above MSL and, in some cases, is contoured to the dimensions of the MOAs beneath them.

1.2.2 Laughlin AFB and 47 FTW

Laughlin AFB covers approximately 4,355 acres near the city of Del Rio in Val Verde County, Texas along the U.S./Mexico international border. The installation is home to the 47 FTW/47th Operations Group (47 OG) of Air Education and Training Command (AETC's) 19th Air Force. Laughlin AFB operates three MOAs (Laughlin 1, Laughlin 2, and Laughlin 3) (**Figure 1.2-1**). Additionally, Laughlin AFB operates six Military Training Routes (MTRs) (Instrument Route [IR] 169 and IR-170 and Visual Route [VR] 165, VR-187, VR-196, and VR-197), and six Slow Routes (SRs) (SR-276, SR-277, SR-281, SR-282, SR-283, and SR-284). Collectively, airspace managed and operated by Laughlin AFB is referred to as the Laughlin Airspace Complex.

The 47 FTW provides Specialized Undergraduate Pilot Training using the T-6A *Texan II* (T-6A) and Graduate Pilot Training (GPT) using the T-38C *Talon* (T-38C) and the T-1A *Jayhawk* (T-1A) (Laughlin AFB, 2024). T-1A operations ended at Laughlin AFB in January 2025 but are considered part of existing conditions because their operations are included in data used to support development of this EA. The T-38C is a high-speed, highly maneuverable fighter-like jet trainer with avionics designed to simulate the tactical weapons delivery systems of actual fighter aircraft virtually without dropping live ordnance. The 47 FTW supports GPT which focuses on training newly qualified pilots in high-performance aircraft operations. The 47 FTW has been tasked by AETC to implement the FBF program, which combines GPT and Introduction to Fighter Fundamentals to instruct the combat-oriented maneuvers of fighter aircraft.

The FBF program is expected to start in 2026. The Proposed Action is necessary for the success of the future FBF program and has a direct impact on the quality and quantity of future pilot training. The mission of the 47 FTW is a top priority for the Air Force in streamlining both pilot production programs and the manning needed to support increased production. The 47 FTW will extend beyond its current mission of training basic high-performance aircraft flight to also include training Airmen in the basics they will use in subsequent fighter training and future combat.

The requirement to obtain new low-altitude airspace within proximity to Laughlin AFB would provide all the necessary training requirements to support the FBF training syllabus. The Proposed Action evaluated in this EA is not associated with any basing action or requirement to support the DAF's newest flying trainer, the Boeing/Saab T-7A *Red Hawk* (T-7A). Potential effects from the proposed recapitalization (basing and operation) of the T-7A at Laughlin AFB were evaluated in the 2024 *Final Environmental Impact Statement and Record of Decision for T-7A Recapitalization at Laughlin Air Force Base, Texas* (2024 T-7A Recapitalization Final EIS and ROD) (DAF, 2024a). The 47 FTW would continue to fly the T-38C in the FBF program until the transition to the T-7A is complete in 2033.

² Flight level (FL) is an aircraft's altitude at standard air pressure, expressed in increments of 100 feet (e.g., FL180 = 18,000 feet). The air pressure is computed using an international standard atmosphere pressure at sea level and therefore, is not necessarily the same as the aircraft's actual altitude, either above sea level or above ground level.



Figure 1.2-1 Locations of Laughlin AFB and Laughlin 1, 2, and 3 MOAs

Multidirectional tactical flight training requirements at altitudes at or above 500 feet above ground level (AGL) are a key component of the FBF program. Currently, aircraft operations in MOAs scheduled and managed by Laughlin AFB are not permitted below 7,000 feet MSL (**Section 1.2.3**). No existing low-altitude MOAs are currently within 100 miles of Laughlin AFB.

The 47 FTW serves as the designated scheduling agency for the Laughlin Airspace Complex. As the scheduling authority, the 47 FTW controls scheduling access to the SUA creating essential flexibility to support pilot training needs on a nearly uninterrupted basis. In addition, the FAA has delegated ATC authority to the DAF for the airspace which resides within and under the Laughlin Airspace Complex. Laughlin AFB ATC personnel, assigned to the 47 FTW, provide National Airspace System (NAS) ATC services to commercial, general aviation, and military users operating within the confines of the Laughlin AFB-delegated airspace. The combination of FAA-delegated ATC authority coupled with autonomous SUA scheduling affords 47 FTW ATC personnel real-time situational awareness to all airspace activities enabling the application of highly efficient ATC services in support of all NAS users operating within the Laughlin AFB-delegated airspace footprint.

The 47 FTW trains Airmen in the basics they will use in subsequent training and potential future combat. The efficient use of available airspace, including location and proximity to Laughlin AFB, has a direct impact on the quality and quantity of training that the 47 FTW provides to future pilots and weapon systems officers.

1.2.3 Laughlin 2 MOA

The Laughlin 2 MOA is approximately 18 miles east of Laughlin AFB and encompasses approximately 3,100 square miles of airspace (**Figure 1.2-1**). The MOA extends from 7,000 to 17,999 feet MSL. The Laughlin 2 MOA is overlain by ATCAA which extends from FL180 to FL220. Flight training operations currently occur throughout the Laughlin 2 MOA and overlying ATCAA but are not permitted below 7,000 feet MSL. The 47 OG and FAA Houston Air Route Traffic Control Center (Houston Center) observe deconfliction procedures established in a Letter of Agreement regarding approach control service for all airports within the airspace delegated to Laughlin AFB.

Aircraft currently operating in the Laughlin 2 MOA consists of the T-38C (**Section 1.2.2**) and the T-6A, a single-engine, two-seat turboprop-powered airplane used to train military pilots in basic flying skills (DAF, 2024b). The T-1A, a medium-range, twin-engine jet trainer used in GPT for students selected to fly airlift or tanker aircraft, also operated in the Laughlin 2 MOA until January 2025 (DAF, 2024c). Operational data for this aircraft are considered as part of existing conditions presented in this EA.

In the 12-month period that ended in September 2024, pilots from Laughlin AFB performed more than 17,000 operations in the Laughlin 2 MOA (**Table 1.2-1**). Most annual aircraft operations are performed by the T-6A. T-38C operations represent approximately 5 percent of operations within the MOA. Laughlin 2 MOA aircraft operations are not performed during nighttime hours (10:00 p.m. to 7:00 a.m. local time) (DAF, 2024d).

Table 1.2-1 Existing Annual Aircraft Operations in the Laughlin 2 MOA

| Aircraft Type | Daytime Aircraft Operations ^{1,2} (7:00 a.m. – 10:00 p.m.) | Nighttime Aircraft Operations ^{1, 2} (10:00 p.m. – 7:00 a.m.) |
|-------------------|--|---|
| T-1A ³ | 200 | 0 |
| T-6A | 16,200 | 0 |
| T-38C | 880 | 0 |
| Total | 17,280 | 0 |

Notes:

¹ An operation is defined as a single aircraft taking off from Laughlin AFB, completing its training objective within the MOA, and landing at Laughlin AFB.

² The number of operations listed here includes those performed in the ATCAA overlying the Laughlin MOA.

³ T-1A operations at Laughlin AFB ended in January 2025 but are considered as part of existing conditions because their operations are included in data collected to support development of this EA.

Source: DAF. 2024d

1.3 Purpose of and Need for the Proposed Action

The purpose of the DAF Proposed Action is to obtain new airspace that affords the 47 FTW autonomous scheduling and ensures nearby access to airspace necessary to perform low-altitude, nonhazardous flight training from 500 feet AGL up to, but not including 7,000 feet MSL, and allows for continuous flight training to FL220 or scheduled independently (500 feet AGL up to, but not including 7,000 feet MSL), as needed, to support new multidirectional tactical flying training requirements.

The Proposed Action is needed because pilots do not have regular, prioritized (scheduling / management of airspace) access to multidirectional, low-altitude training down to 500 feet AGL (low altitude / configuration), with ceilings of up to, but not including 7,000 feet AGL (size), within 10 minutes transit time of Laughlin AFB (minimize transit time).

The FAA’s purpose and need for the Proposed Action is to establish the SUA to support the anticipated increased need for military pilot training while minimizing the impacts to the NAS.

1.4 Decision to Be Made

This EA evaluates potential environmental consequences associated with obtaining new permanent low-altitude MOA to support FBF training at Laughlin AFB. Based on the analysis in this EA, the DAF will make one of three decisions regarding the Proposed Action: 1) determine the potential environmental consequences associated with the Proposed Action or alternatives are not significant and issue a signed Finding of No Significant Impact; 2) initiate preparation of an Environmental Impact Statement (EIS) if it is determined that significant impacts would occur through implementation of the Proposed Action or alternatives; or 3) select the No Action Alternative, whereby the Proposed Action would not be implemented at this time.

As required by NEPA, preparation of an environmental document must precede final decisions regarding the proposed project and be available to inform decision-makers of the potential environmental impacts.

1.5 Public and Interagency and Intergovernmental Coordination and Consultation

Scoping is an early and open process for developing the range of issues to be addressed in an EA and for identifying significant concerns related to an action. Public and agency review of the Draft EA is described in **Appendix A**. Compliance with NEPA requires coordination and consultation with federal, state, and local agencies and Native American tribes to address regulatory requirements established under the National Historic Preservation Act (36 Code of Federal Regulations [CFR] Part 800), DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*, DAF Instruction 90-2002, *Interactions with Federally Recognized Tribes*, and Section 7 of the Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.). Other laws and regulations that are applicable to the Proposed Action are described in **Appendix F**.

1.5.1 Cooperating Agency

The FAA is participating as a cooperating agency during this EA because it is the federal agency responsible for managing navigable airspace in the United States for public safety. The FAA also ensures the efficient use of airspace for commercial air traffic, general aviation, and national defense, including SUA utilized by the DoD. The FAA processes requests for the establishment or modification of airspace in accordance with procedures defined in FAA Order JO 7400.2. The FAA may or may not adopt this EA, in whole or in part, to comply with its NEPA procedures defined in FAA Order 1050.1, *Environmental Impacts: Policies and Procedures* and Chapter 32 of FAA Order JO 7400.2, prior to making a decision to chart any proposed airspace addressed in this EA. If approved, the proposed airspace would be published in the current issue of FAA Order JO 7400.10, *Special Use Airspace* and charted on aeronautical publications, at which time it would be available for use as defined in this EA. The airspace associated with the Proposed Action would lie within the jurisdiction of FAA Houston Center. Additional information on the role of the FAA is included in **Appendix A.2.1**.

On June 30, 2025, the FAA published FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*. Those procedures were immediately effective. However, because the preparation of this EA was substantially complete prior to the Order's publication, the FAA has relied on FAA Order 1050.1F, the version of the agency-wide Order that was in effect at the time the EA's analytical work was completed. This EA deviates from the environmental analysis requirements outlined in FAA Order 1050.1F where an executive order or decisions of the U.S. Supreme Court requires it. This includes elimination of analysis as described in FAA Order 1050.1F pertaining to environmental justice, climate change, and cumulative impacts.

1.6 Scope of the Environmental Analysis

This EA analyzes the potential environmental consequences from the DAF's Proposed Action to obtain low-altitude airspace to support FBF training requirements at Laughlin AFB. The EA focuses on resources that would be measurably or meaningfully affected by the Proposed Action and Alternatives. Detailed discussions of these resources and the potential impacts are provided in **Chapter 3**. Cumulative impacts are also described for each resource, as applicable, in **Appendix C**. Resources dismissed from detailed analysis because the Proposed Action would have no potential to affect them are described in **Appendix B.2.4**.

2 Description of the Proposed Action and Alternatives

2.1 Proposed Action

Under the Proposed Action, the DAF would obtain new low-altitude airspace to support low-altitude pilot training requirements of the FBF syllabus. The proposed low-altitude airspace would need to have a floor of 500 feet AGL and a ceiling of up to, but not including 7,000 feet MSL. Training within the proposed airspace would primarily consist of low-altitude air-to-ground training, which would simulate attacks by training aircraft against simulated ground-based targets. This type of training would occur between 500 feet AGL and 3,000 feet MSL.

Up to 1,570 aircraft operations would occur in the proposed airspace annually (which would equate to an average of 4.3 sorties per day) distributed across approximately 976 square miles of airspace. Average sortie time in the proposed airspace would be 20 minutes. Aircraft operations in the proposed airspace would primarily be performed by pilots from the 47 FTW at Laughlin AFB initially flying T-38Cs, transitioning to the T-7A beginning in 2030 (DAF, 2024a). A small number of T-6A operations (10 per year) would also be performed in the proposed airspace. FBF aircraft operations would be performed Monday through Friday, sunrise to sunset (adjusted seasonally as needed), with other times announced via Notices to Airmen (NOTAM). No nighttime aircraft operations would be proposed in the new airspace.

2.2 Alternatives Development

2.2.1 Selection Standards and Alternatives Screening

NEPA requires federal agencies to consider a reasonable range of alternatives for implementing a proposed action that are technically and economically feasible and meet the purpose and need of the proposal. NEPA also requires the consideration of effects from potentially implementing a No Action Alternative. Detailed information on the DAF's alternatives development and selection process regarding the Proposed Action evaluated in this EA is provided in **Appendix B**.

To identify reasonable alternatives for analysis in the EA, the DAF developed the following selection standards that would meet the purpose of and need for the Proposed Action: 1) provide airspace with sufficient volume and availability; 2) pilot production; 3) scheduling; 4) maximize training time and minimize transit time; 5) limit impacts on existing military flying training operations; 6) limit impacts on other NAS users.

The DAF considered multiple alternatives to implement the Proposed Action. **Table 2.2-1** summarizes how each alternative did or did not meet the selection standards. Of the alternatives considered, Alternative 1 met all the selection standards and is retained for detailed analysis in the EA. The remaining alternatives failed to meet one or more of the selection standards and were dismissed from detailed analysis because they would not meet the purpose and need. Although it would not meet the purpose and need, the No Action Alternative is also retained for detailed analysis in accordance with NEPA.

Alternative 1 is described in **Section 2.2.2**. The No Action Alternative is described in **Section 2.2.3**. Alternatives that failed to meet one or more of the selection standards are listed in **Section 2.2.4**.

Table 2.2-1 Comparison of Alternatives

| Selection Standards | Alternatives Considered | | | |
|---|---|---|--------------------------------|--|
| | ALT 1 New Low MOA Under Laughlin 2 MOA | ALT 2 New Low MOA Under Other Laughlin MOA | ALT 3 Forward Deployment | ALT 4 Use Other Regional Proposed Low MOAs |
| 1. Airspace Volume and Availability | Yes | Yes | Yes | Yes |
| 2. Pilot Production | Yes | Yes | Yes | No |
| 3. Scheduling | Yes | Yes | No | No |
| 4. Maximize Training Time and Minimize Transit Time | Yes | Yes | Yes | No |
| 5. Limit Impact on Existing Military Training Operations | Yes | No | Yes | Yes |
| 6. Limit Impacts on Other NAS Users | Yes | No | Yes | Yes |
| Meets Selection Standards | YES | NO | NO | NO |

2.2.2 Alternative 1 – Establish New Low-Altitude MOA Directly Under Laughlin 2 MOA

Alternative 1 would implement the Proposed Action described in **Section 2.1**. Under this alternative, the DAF would request FAA to establish a new low-altitude MOA directly under the Burr 1 and a portion of the Burr 2 subdivisions of the existing Laughlin 2 MOA. Laughlin airspace managers determined that this configuration would best align with existing and ongoing aircraft operations in the Laughlin Airspace Complex and would result in no or minimal conflicts or constraints with underlying topography, development, or other potential encroachments. Variations of this alternative that would modify other portions of the Laughlin 2 MOA by lowering the existing airspace floor or creating a new low-altitude airspace under another portion of the Laughlin 2 MOA were dismissed by the DAF because they would result in irreconcilable conflicts with other existing Laughlin AFB aircraft operations or be constrained by underlying topography, development, or other encroachments.

The new airspace would be designated as the Laughlin 2A Low MOA (“proposed MOA”). The proposed MOA would have a floor of 500 feet AGL and a ceiling of up to, but not including 7,000 feet MSL (directly beneath the floor of the Laughlin 2 MOA). The proposed MOA would encompass approximately 976 square miles of airspace with the exception of the existing avoidance area around Real County Airport (49R) The DAF would also observe a 3-nautical mile (NM), 1,500-foot AGL avoidance area around Ox Ranch (10X) airport, if Alternative 1 is selected for implementation. In accordance with the Letter of Agreement regarding approach control service for airports within the airspace delegated to Laughlin AFB (**Section 1.2.3**), the 47 OG would coordinate with FAA Houston Center when the proposed MOA would be active to deconflict military and civilian aircraft operations within an approximately 125-square mile area between 500 feet AGL and 6,000 feet MSL (designated as the “Excluded Area”) to support ongoing civilian

IFR aircraft operations at Garner Field Airport (UVA) east of Uvalde. No aircraft operations associated with the Proposed Action would occur or be scheduled within the Excluded Area below 6,000 feet MSL. The lateral boundaries of the proposed MOA, including the Excluded Area, are shown on **Figure 2.2-1**. A conceptual view of the proposed MOA is shown on **Figure 2.2-2**.

The proposed MOA would be established immediately below and within the smaller footprint of the established contoured dimensions of the SUA (MOAs/ATCAAs) assigned to the 47 FTW to support FBF requirements. The proposed MOA would be managed and operated separately from the existing Laughlin 2 MOA and could be combined with that airspace, as needed, to support seamless flight operations from 500 feet AGL to FL220. Training activities would occur in the new low MOA as described in **Section 2.1**.

Alternative 1 would not involve changes to the lateral boundaries of the existing Laughlin 2 MOA (**Figure 2.2-1**) or any other airspace managed by Laughlin AFB. No demolition, construction, or other ground-disturbing activities would occur under Alternative 1. None of the proposed training activities would involve releases of live or inert ammunition or ordnance (including defensive countermeasures such as chaff and flares). Aircraft would not exceed supersonic speeds while operating within the proposed airspace. Alternative 1 would not require changes to the number of personnel or to the number or types of aircraft assigned to Laughlin AFB, or changes to the existing boundaries of that or any other DoD or DAF installation.

2.2.3 No Action Alternative

Under the No Action Alternative, the proposed low-altitude MOA would not be obtained. Low-altitude pilot training requirements of the FBF syllabus would not be met, which would contribute to the degradation of the quality and quantity of pilot training and impede the overall production of future DAF pilots and weapons system officers. The No Action Alternative provides a baseline for the evaluation of potential impacts from the Proposed Action and also represents a potential and viable decision to not implement the Proposed Action.

2.2.4 Alternatives Dismissed from Detailed Analysis in the EA

Alternatives considered by the DAF that did not meet one or more of the selection standards and were dismissed from detailed analysis in the EA include Alternative 2 – Establish Low-Altitude MOA Under Other Laughlin MOAs; Alternative 3 – Forward Deployment to Existing Low-Altitude MOAs; and Alternative 4 – Use Other Regional Existing and Proposed Low-Altitude MOAs. These alternatives are described in additional detail in **Appendix B**. Additionally, alternatives consisting of partial or complete training using flight simulators were not considered for detailed analysis because they did not provide a fully realistic training experience and could not replace real-world, in-flight training.

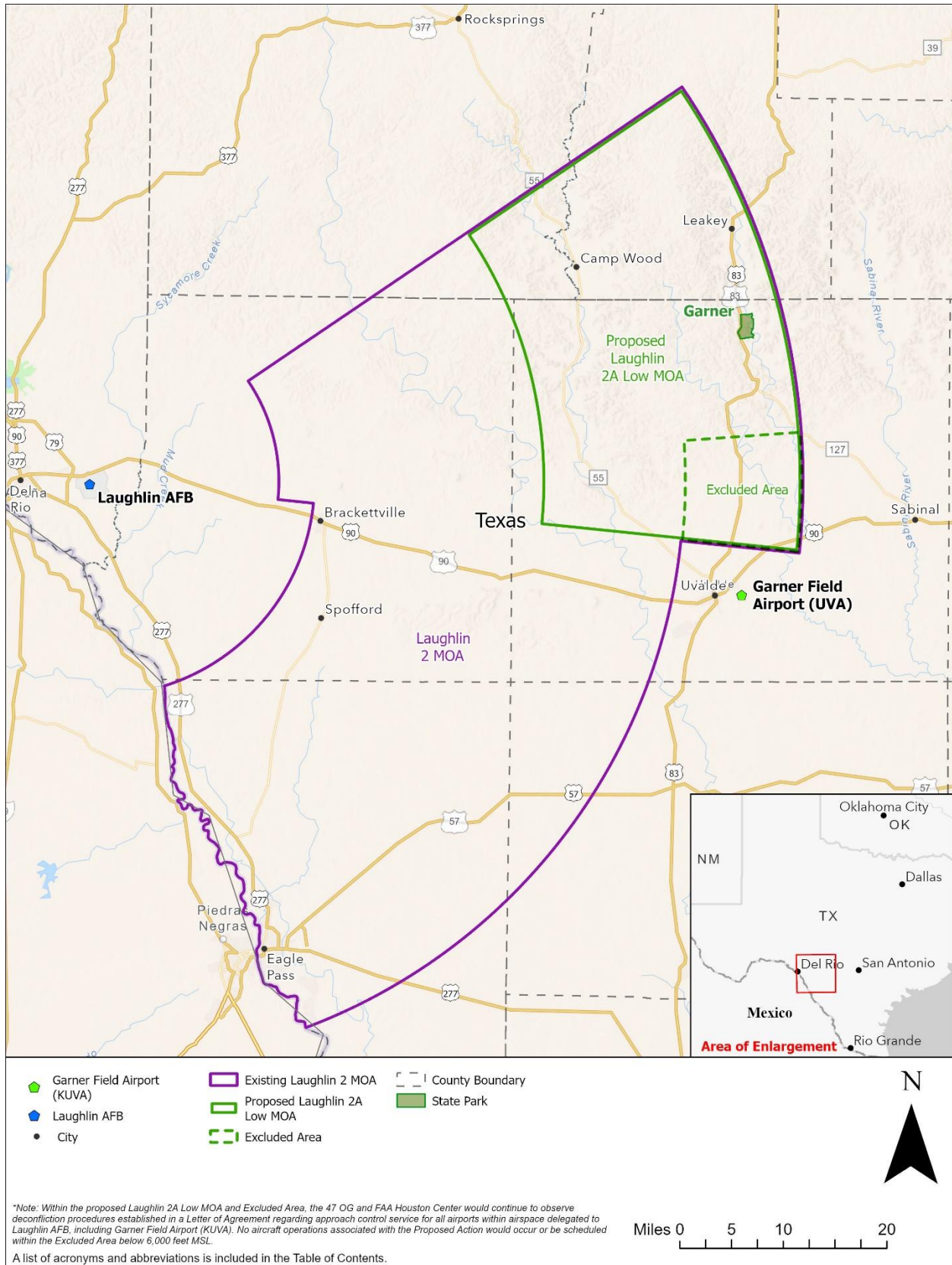


Figure 2.2-1 Lateral Boundaries of Alternative 1 – Proposed Laughlin 2A Low MOA

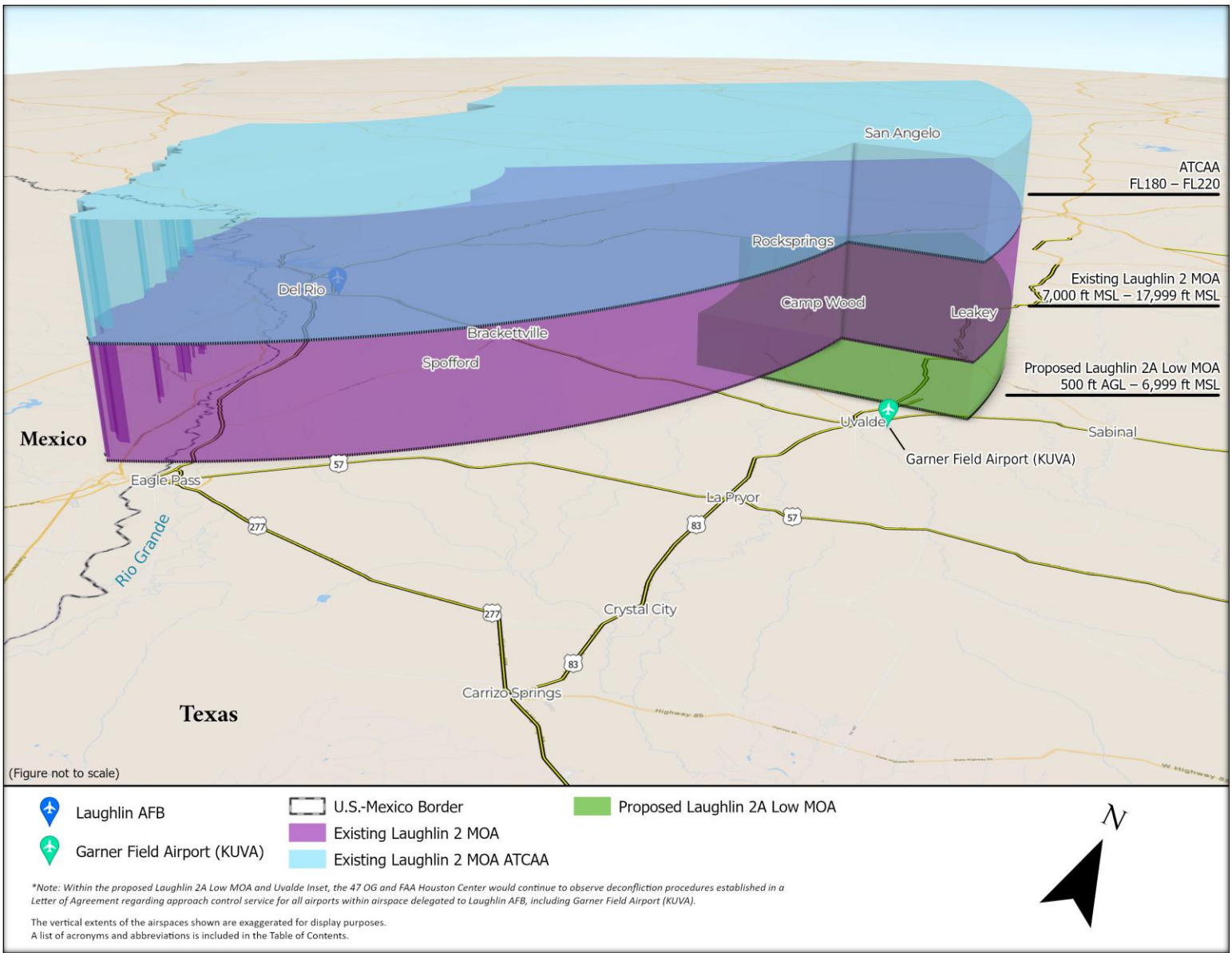


Figure 2.2-2 Conceptual View of Alternative 1 – Proposed Laughlin 2A Low MOA

2.3 Summary of Potential Environmental Consequences

The potential impacts associated with the Proposed Action (Alternative 1) and the No Action Alternative are summarized in **Table 2.3-1**. This summary is based on the detailed analysis of each resource presented in **Chapter 3**.

Table 2.3-1 Summary of Impacts from the Proposed Action and No Action Alternative

| Resource | Proposed Action (Alternative 1) | No Action Alternative |
|-----------------------------|---|--------------------------------|
| Airspace Management and Use | No significant adverse impacts. | No significant adverse impact. |
| Noise | No significant adverse impacts. | No significant adverse impact. |
| Land Use | No significant adverse impacts. | No significant adverse impact. |
| Air Quality | No significant adverse impacts. Net changes in criteria pollutant emissions would be less than the indicator of significance and would not result in changes to the attainment status of the Air Quality Control Regions | No significant adverse impact. |
| Biological Resources | No significant adverse impacts. Through informal consultation with the U.S. Fish and Wildlife Service Austin Ecological Services Field Office in accordance with Section 7 of the ESA, the DAF has determined that the Proposed Action would have no effect on federally listed species and would not jeopardize the continued existence of species proposed for federal listing under the ESA. Section 7 correspondence is included in Appendix A . | No significant adverse impact. |
| Cultural Resources | No significant adverse impacts. In November 2025, the Texas State Historical Preservation Officer (SHPO) concurred with the DAF's determination of no adverse effect on historic properties in accordance with Section 106 of the National Historic Preservation Act. Section 106 correspondence is included in Appendix A . | No significant adverse impact. |
| Safety | No significant adverse impacts. | No significant adverse impact. |
| Socioeconomics | No significant adverse impacts. | No significant adverse impact. |
| Visual Resources | No significant adverse impacts. | No significant adverse impact. |

3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment and environmental consequences for resources that would potentially be affected by the Proposed Action. Throughout this EA, the terms “environmental consequences,” “effects,” and “impacts” are used interchangeably and have the same meaning.

Environmental resources analyzed in the EA, and the region of influence (ROI) for each resource, are listed in **Table 3.1-1**. Detailed resource definitions and ROI descriptions are provided in **Appendix D**. As applicable, the resource analyses in this EA consider potential impacts associated with the proposed transition from T-38C operations to T-7A operations at Laughlin AFB during implementation of the Proposed Action (also see **Sections 1.2.2** and **2.1**). Additional information on potential impacts from proposed T-7A operations at and near Laughlin AFB is provided in the 2024 T-7A Recapitalization Final EIS and ROD (DAF, 2024a).

Table 3.1-1 Resource Areas Analyzed in the EA and ROI

| Resource ¹ | ROI |
|-----------------------------|---|
| Airspace Management and Use | Airspace within the proposed MOA; the existing Laughlin 1, 2, and 3 MOAs and overlying ATCAA; local airports under the proposed MOA; and civilian and military air traffic and MTRs that cross the proposed MOA. |
| Noise | Airspace within and lands below the proposed MOA and parts of the existing Laughlin 1, 2, and 3 MOAs and ATCAA. |
| Land Use | Lands below the proposed MOA within portions of Edwards, Kinney, Real, and Uvalde Counties, Texas. |
| Air Quality | Edwards, Kinney, Real, and Uvalde Counties, Texas and the Air Quality Control Regions that contain these counties. |
| Biological Resources | Lands under and airspace within the proposed MOA. |
| Cultural Resources | Contiguous with the APE, which consists of lands below or intersected by the boundaries of the proposed MOA. |
| Safety | Airspace in and under portions of the existing Laughlin 1, 2, and 3 MOAs and ATCAA, including airspace above 500 feet AGL where the proposed low-altitude MOA would be established. |
| Socioeconomics | Edwards, Kinney, Real, and Uvalde Counties, Texas. |
| Visual Resources | Airspace within, above, and below the proposed MOA; lands in Edwards, Kinney, Real, and Uvalde Counties, Texas directly below the proposed MOA; and adjacent lands where viewers may observe aircraft activity within the proposed MOA. |

Notes:

Water Resources, Earth Resources, Hazardous Materials and Waste, Infrastructure / Utilities, Coastal Zone Management, Section 4(f) of the U.S. Department of Transportation Act (49 U.S.C. § 303(c)), and Prime and Unique Farmland, and Land of Statewide or Local Importance were dismissed from detailed analysis in this EA because the Proposed Action would have no potential to affect them. Refer to **Appendix B** for additional information.

Reasonably foreseeable future actions that could contribute to cumulatively significant effects in the ROI when considered with the Proposed Action and the potential effects to each resource are summarized in **Appendix C**. When considered with other reasonably foreseeable future actions,

the Proposed Action would have no potential to contribute to cumulatively significant impacts on resources analyzed in this EA.

3.2 Airspace Management and Use

3.2.1 Affected Environment

Laughlin AFB was established in Texas in 1943 and training in military airspace has occurred over southwest Texas, including the areas containing the Laughlin MOA Complex, for more than 80 years. MOAs may overlap or be crossed by other types of military and nonmilitary airspace, and have been historically compatible with nonmilitary aviation operations including commercial passenger aviation and local or regional operations such as medical transport, crop dusting, pest control, aerial assessments for farming and wildlife management purposes, and similar activities. Military and nonmilitary pilots flying VFR and transiting through MOAs as part of their routine flight operations and patterns must use “see and avoid” techniques to prevent conflicts with military aircraft actively using the MOAs. Pilots flying under IFR also rely on their instruments and communications with ATC when cleared to transit nonactive parts of MOAs.

Existing flight operations in the affected environment, as identified in the *Final Report for Airspace Analysis in Support of the Environmental Impact Analysis Process for the United States Air Force Laughlin 2 Military Operating Area, Texas* (ATAC, 2025) are summarized in this section.

Note that the flight operations are summarized to help differentiate the primary sources of air traffic in the affected environment. All flight operations reported in the proposed MOA, and all other airspace listed above, are the totals for each airspace; those totals include all flights from local and regional civilian airports and military airfields that transit each airspace. In addition, MTR operations were provided by Laughlin AFB, separate from the data used in the air traffic analysis. Unless otherwise noted, all data presented in this section for existing aircraft operations in the ROI are based on recorded flight data from September 1, 2023, to August 31, 2024.

3.2.1.1 Proposed Laughlin 2A Low MOA

Filtering and analysis of the air traffic data associated with the proposed MOA yielded the operations listed in **Tables 3.2-1 through 3.2-8**. More than 3,100 aircraft crossed or operated within the proposed MOA between September 2023 and August 2024 (**Table 3.2-1**). Of the air traffic crossings by operator type listed in **Table 3.2-1**, 76 percent of the total crossings were civilian, general aviation and air taxi operators, 23 percent were military operators, less than 0.1 percent were civilian air carrier operators, and less than 0.2 percent were unknown aircraft operators for which aircraft type and flight plan could not be associated with tracking data.

Table 3.2-1 Crossings of the Proposed Laughlin 2A Low MOA by Operator Type and Category

| Operator Type/Category | | Count | Percent |
|------------------------|------------------|--------------|------------|
| Civilian | Air Carrier | 2 | <0.1 |
| | Air Taxi | 869 | 27 |
| | General Aviation | 1,543 | 49 |
| Military | | 719 | 23 |
| Unknown | | 6 | <0.2 |
| Total | | 3,139 | 100 |

The most common civilian aircraft observed in the proposed MOA include the Cessna 208 Caravan (32 percent), Raytheon Beech 1900-D (7 percent), and Cessna 172 *Skyhawk* (5 percent), a mix of single and twin-engine propeller aircraft (18 percent), and other/unknown aircraft (39 percent). The most common military aircraft were the Beechcraft T-6A *Texan II* (46 percent), Northrop T-38C *Talon* (40 percent), and Raytheon T-1A *Jayhawk* (6 percent), and other/unknown aircraft (8 percent). T-1A operations at Laughlin AFB ended in January 2025, but are considered as part of existing conditions because their operations are included in data collected to support development of this EA.

Table 3.2-2 summarizes crossings in the proposed MOA by operator type and flight category (IFR or VFR). More than 99 percent of the aircraft transiting the proposed MOA operated using IFR.

Table 3.2-2 IFR and VFR Crossings of the Proposed Laughlin 2A Low MOA

| Flight Category | Civilian | | | Military | Unknown | Total | Percent |
|-----------------|-------------|------------|------------------|------------|----------|--------------|------------|
| | Air Carrier | Air Taxi | General Aviation | | | | |
| IFR | 2 | 869 | 1,527 | 710 | 2 | 3,110 | 99 |
| VFR | 0 | 0 | 16 | 9 | 4 | 29 | 1 |
| Total | 2 | 869 | 1,543 | 719 | 6 | 3,139 | 100 |

Monthly, daily, and hourly crossings in the proposed MOA are listed in **Tables 3.2-3** through **3.2-5**, respectively, for different operator categories. The combined information in these tables indicates the number of crossings for different periods throughout the year. Based on these data, the busiest months were February, July, and December (**Table 3.2-3**), the busiest weekdays were Tuesday through Thursday (**Table 3.2-4**), and the busiest times of day were from 7:00 a.m. to 7:00 p.m., and with peak hours from 7:00 a.m. to 9:00 a.m. and 12:00 p.m. (**Table 3.2-5**). In **Section 3.2.2**, this existing airspace usage information, estimated primarily for IFR operations, is compared with the anticipated activity schedule for the proposed MOA to estimate potential impacts on existing operations.

Table 3.2-3 Monthly Crossings of the Proposed Laughlin 2A Low MOA

| Month | Air Carrier | Air Taxi | General Aviation | Military | Unknown | Total | Daily Average |
|--------------|-------------|-----------|------------------|-----------|----------|------------|---------------|
| Jan | 0 | 77 | 134 | 49 | 0 | 260 | 8 |
| Feb | 1 | 78 | 151 | 95 | 0 | 325 | 11 |
| Mar | 0 | 80 | 100 | 65 | 0 | 245 | 8 |
| Apr | 0 | 75 | 155 | 60 | 0 | 290 | 10 |
| May | 0 | 100 | 137 | 51 | 0 | 288 | 9 |
| Jun | 0 | 77 | 134 | 49 | 0 | 260 | 8 |
| Jul | 1 | 78 | 151 | 95 | 0 | 325 | 11 |
| Aug | 0 | 80 | 100 | 65 | 0 | 245 | 8 |
| Sep | 0 | 75 | 155 | 60 | 0 | 290 | 10 |
| Oct | 0 | 100 | 137 | 51 | 0 | 288 | 9 |
| Nov | 0 | 77 | 134 | 49 | 0 | 260 | 8 |
| Dec | 1 | 78 | 151 | 95 | 0 | 325 | 11 |
| Total | 0 | 80 | 100 | 65 | 0 | 245 | 8 |

Table 3.2-4 Day of Week Crossings of the Proposed Laughlin 2A Low MOA (2023 – 2024)

| Day of Week | Air Carrier | Air Taxi | General Aviation | Military | Unknown | Total | Daily Average |
|--------------|-------------|------------|------------------|------------|----------|--------------|---------------|
| Mon | 0 | 69 | 261 | 143 | 0 | 473 | 9 |
| Tues | 1 | 167 | 219 | 189 | 0 | 576 | 11 |
| Wed | 1 | 187 | 215 | 137 | 1 | 541 | 10 |
| Thurs | 0 | 174 | 231 | 130 | 0 | 535 | 10 |
| Fri | 0 | 169 | 276 | 72 | 1 | 518 | 10 |
| Sat | 0 | 94 | 155 | 0 | 3 | 252 | 5 |
| Sun | 0 | 9 | 186 | 48 | 1 | 244 | 5 |
| Total | 2 | 869 | 1,543 | 719 | 6 | 3,139 | 9 |

Table 3.2-5 Hourly Crossings of the Proposed Laughlin 2A Low MOA (2023 – 2024)

| Hour | Air Carrier | Air Taxi | General Aviation | Military | Unknown | Total | Daily Average |
|--------------|-------------|------------|------------------|------------|----------|--------------|---------------|
| 0 | 0 | 1 | 5 | 0 | 0 | 6 | 0 |
| 1 | 0 | 0 | 1 | 1 | 1 | 3 | 0 |
| 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| 5 | 0 | 0 | 7 | 1 | 0 | 8 | 0 |
| 6 | 0 | 17 | 7 | 0 | 0 | 24 | 0 |
| 7 | 0 | 333 | 33 | 3 | 1 | 370 | 1 |
| 8 | 0 | 166 | 77 | 32 | 3 | 278 | 1 |
| 9 | 1 | 30 | 111 | 41 | 0 | 183 | 1 |
| 10 | 0 | 10 | 144 | 49 | 1 | 204 | 1 |
| 11 | 0 | 13 | 145 | 68 | 0 | 226 | 1 |
| 12 | 0 | 4 | 156 | 108 | 0 | 268 | 1 |
| 13 | 0 | 7 | 138 | 48 | 0 | 193 | 1 |
| 14 | 0 | 6 | 126 | 61 | 0 | 193 | 1 |
| 15 | 0 | 4 | 129 | 66 | 0 | 199 | 1 |
| 16 | 0 | 9 | 122 | 59 | 0 | 190 | 1 |
| 17 | 0 | 27 | 99 | 57 | 0 | 183 | 1 |
| 18 | 0 | 3 | 49 | 35 | 0 | 87 | 0 |
| 19 | 1 | 131 | 93 | 22 | 0 | 247 | 1 |
| 20 | 0 | 107 | 63 | 23 | 0 | 193 | 1 |
| 21 | 0 | 0 | 15 | 34 | 0 | 49 | 0 |
| 22 | 0 | 1 | 6 | 9 | 0 | 16 | 0 |
| 23 | 0 | 0 | 6 | 2 | 0 | 8 | 0 |
| Total | 2 | 869 | 1,543 | 719 | 6 | 3,139 | 9 |

Notes:

Military operations data collected between September 1, 2023 and August 31, 2024 represent aircraft transiting the airspace while performing other missions and do not reflect low-altitude FBF training operations.

Aircraft crossing durations are listed in **Table 3.2-6** by operator category. Over 98 percent of the crossings occurred in 15 minutes or less and most of the remaining crossings (1.6 percent) occurred over a 15- to 30-minute period. Crossing durations could be used to estimate potential impacts

(delays) on IFR flights by comparing the crossing times of existing flights with estimated times for any future flights that would potentially be rerouted due to the Proposed Action.

Table 3.2-6 Distribution of Aircraft Crossing Durations in the Proposed Laughlin 2A Low MOA

| Time (minutes) | Air Carrier | Air Taxi | General Aviation | Military | Unknown | Total | Percent |
|----------------|-------------|------------|------------------|------------|----------|--------------|--------------|
| 0-15 | 2 | 864 | 1,500 | 717 | 6 | 3,089 | 98.4 |
| 15-30 | 0 | 5 | 43 | 2 | 0 | 50 | 1.6 |
| Total | 2 | 869 | 1,543 | 719 | 6 | 3,139 | 100.0 |

The distribution of aircraft crossings by altitude (in 1,000-foot increments) is listed for each operator category in **Table 3.2-7**. Most aircraft crossings (48.7 percent) occurred at an average operating altitude of 6,000 feet MSL. Most of the remaining crossings occurred at average operating altitudes of 5,000 feet MSL (34 percent) and 4,000 feet MSL (11.5 percent). Only 1.5 percent of the crossings were below an average operating altitude of 2,000 feet.

Table 3.2-7 Distribution of Aircraft Crossings by Altitude in the Proposed Laughlin 2A Low MOA

| Altitude (MSL) | Air Carrier | Air Taxi | General Aviation | Military | Unknown | Total | Percent |
|----------------|-------------|------------|------------------|------------|----------|--------------|--------------|
| 1,000 | 0 | 1 | 0 | 1 | 0 | 2 | 0.1 |
| 2,000 | 0 | 1 | 21 | 18 | 3 | 43 | 1.4 |
| 3,000 | 0 | 5 | 129 | 4 | 0 | 138 | 4.4 |
| 4,000 | 1 | 54 | 254 | 51 | 0 | 360 | 11.5 |
| 5,000 | 0 | 344 | 507 | 215 | 0 | 1,066 | 34.0 |
| 6,000 | 1 | 464 | 632 | 430 | 3 | 1,530 | 48.7 |
| Total | 2 | 869 | 1,543 | 719 | 6 | 3,139 | 100.0 |

A summary of the air traffic crossing data for the proposed MOA, shown in the previous tables, is presented in **Table 3.2-8**. This summary table provides high-level information for each of the air traffic metrics shown and characterizes the existing conditions for air traffic in the proposed MOA that primarily define the affected environment.

Table 3.2-8 Summary of Air Traffic Crossings in the Proposed Laughlin 2A Low MOA

| Air Traffic Metric | Summary Information |
|---|--|
| Altitude Range | 500 feet AGL to, but not including, 7,000 feet MSL. |
| Total Aircraft Crossings | 3,139 aircraft transited the proposed MOA with 77% civilian operators (64% by general aviation), 23% military, and less than 1% unknown operators. |
| VFR / IFR | 1% VFR and 99% IFR. |
| Monthly Aircraft Crossings (High / Low) | Air traffic peaks occurred in February, July, and December with 325 total aircraft crossings per month and the lowest traffic counts were in March and August with 245 total aircraft crossings per month. |
| Daily Aircraft Crossings (High / Low) | Average: 9 aircraft per day. Highest: Tuesdays (11 aircraft per day). Lowest: Saturdays and Sundays (5 aircraft per day). |
| Civilian Air Traffic | Busiest: Fridays 7:00 a.m. and 9:00 a.m. General aviation traffic was highest from 10:00 a.m. to 1:00 p.m. Air taxi traffic peaked from 7:00 a.m. to 9:00 a.m. |
| Military Air Traffic | Monday through Thursday, busiest from 11:00 a.m. to 5:00 p.m. The most prevalent determinable airports were Laughlin AFB and Kelly Field. |

Existing air traffic in the other SUA that are also considered part of the affected environment, including Burr 1 and Burr 2 High areas within Laughlin 2 MOA, Burr 1 and Burr 2 Low areas within Laughlin 2 MOA, Laughlin 2 MOA, and the Laughlin 2 ATCAA, is summarized in **Table 3.2-9**. These airspace could potentially be affected during times when the proposed MOA would be active, causing a shift in traffic flows from the low MOA to these higher altitude airspace (though the need for this type of traffic shift is currently unknown).

Included in the military air traffic reported for the Laughlin 2 MOA and Laughlin 2 ATCAA (including the Burr 1 and Burr 2 High and low areas) are the existing annual T-38C, T-1A, and T-6A flight operations conducted by the 47 FTW at Laughlin AFB. The 47 FTW schedules and uses the Laughlin 2 MOA and Laughlin 2 ATCAA simultaneously, Monday through Friday, nominally from 8:00 a.m. to 7:30 p.m., though most of the flight operations are during daytime hours, so this flying window would normally be shorter during the fall and winter months. This nominal flying period also occurs during the busiest period of air traffic, each day, in the existing airspace designated for the proposed MOA, 7:00 a.m. to 8:00 p.m. (**Table 3.2-5**).

3.2.1.2 Local Civilian Airports with Flight Operations in the Proposed Laughlin 2A Low MOA

Civilian flight operations at local and regional airports that transit the proposed MOA are summarized by origin and destination airport and prevalence of flight operations in **Table 3.2-10**. Based on the air traffic analysis, **Table 3.2-10** identifies the local civilian airports that could be affected by the Proposed Action. San Antonio International Airport followed by Del Rio International Airport and Garner Field Airport are the largest operators that have flight traffic in the proposed MOA. Six smaller local airports are directly under or within 3 NM of the proposed MOA: Flying Bull Ranch (TA52), Real County (49R), Fossil Creek Ranch (TE78), Flying J Ranch (7TE4), Ox Ranch (10X), and Annandale Ranch (2XS7) (**Figure 3.2-1**). For safety and deconfliction purposes, the Real County (49R) and Ox Ranch (10X) airports would have a 1,500-foot altitude, 3-NM exclusion zone around it in compliance FAA Order 7400.2 Section 25-1-4.

Table 3.2-9 Summary of Air Traffic Crossings

| Special Use Airspace | Altitude Range | Total Aircraft Crossings | VFR / IFR | Monthly Aircraft Crossings (High / Low) | Average Daily Aircraft Crossings | Civilian Air Traffic (Busiest) | Military Air Traffic (Peak) |
|-------------------------------------|-----------------------------------|--|--|---|---|--|--|
| Burr 1 and Burr 2 High Areas | 15,000 feet MSL to FL220 | 2,365; 58% civilian, 38% military, 4% unknown | 6% VFR, more than 90% IFR, and the rest unknown; 25% of VFR was military | Peak: Dec. / 222 total crossings. Lowest: Aug. / 158 total crossings | 6; highest on Wednesdays / lowest on weekends | Sundays 11:00 a.m. to 2:00 p.m. and ~ 7:00 p.m. Monday - Friday. General aviation 11:00 a.m. to 2:00 p.m. Air taxi: afternoon/early evening | 8:00 a.m. with most activity on Thursdays |
| Burr 1 and Burr 2 Low Areas | 7,000 feet MSL to 12,000 feet MSL | 2,848; 65% civilian, 35% military, and less than 1% unknown | Fewer than 2% VFR and 98% IFR crossings; 60% of VFR was military | Peak: Feb. / 304 total crossings. Lowest: Jan. / 198 total crossings | 8; highest on Tuesdays / lowest on weekends | Weekdays 7:00 p.m. General aviation: 11:00 to 2:00 p.m. Air taxi: 7:00 p.m. | Noon with most activity on Tuesdays |
| Laughlin 2 MOA | 7,000 feet MSL to FL180 | 9,963; 40% civilian, 58% military, and 2% air carrier or unknown | 4% VFR and 96% IFR; approximately 50% of VFR was military | Peak: April / 974 total crossings. Lowest: Jan. / 673 crossings | 27; highest on Tuesdays / lowest on weekends | Sundays between 10:00 a.m. and 3:00 p.m. General aviation: 11:00 a.m. to 2:00 p.m. | Between 7:00 a.m. and noon, with most activity on Tuesdays |
| Laughlin 2 ATCAA | FL180 to FL220 | 2,934; ~50% civilian, ~50% military, and 4% unknown | 5% VFR and 95% IFR; approximately 20% of VFR was military | Peak: April / 297 total crossings. Lowest: Jan. / 203 crossings | 8; highest on Tuesdays / lowest on weekends | Sunday from 10:00 a.m. to 3:00 p.m. General aviation: 11:00 a.m. to 2:00 p.m. | Between 7:00 a.m. and noon, with most activity on Tuesdays |

Table 3.2-10 Local and Regional Airport Operators in the Proposed Laughlin 2A Low MOA

| Origin Airport | Prevalence | Destination Airport | Prevalence |
|---|------------|--|------------|
| San Antonio International Airport (SAT) | 29% | DRT | 34% |
| Del Rio International Airport (DRT) | 17% | SAT | 17% |
| Garner Field Airport (UVA) | 11% | UVA | 12% |
| Other/Unknown | 43% | Ox Ranch Airport (10X) | 3% |
| | | Maverick County Memorial International Airport (5T9) | 2% |
| | | Other/Unknown | 32% |

Many of the aircraft flying out of the smaller airports are not on flight plans and thus do not appear in the radar data that were collected and analyzed in the final airspace report (ATAC, 2025).

3.2.1.3 Military Airfields with Flight Operations in the Proposed Laughlin 2A Low MOA

Military airfields or airports that have military air traffic through the proposed MOA are summarized by the origin and destination airfields and prevalence of flight operations in **Table 3.2-11**. Laughlin AFB has the most air traffic through the proposed MOA followed by Kelly Field and San Antonio International Airport.

Table 3.2-11 Airfield Military Operators in the Proposed Laughlin 2A Low MOA

| Origin Airfield | Prevalence | Destination Airfield | Prevalence |
|--|------------|----------------------------|------------|
| Laughlin AFB (DLF) | 37% | DLF | 74% |
| Kelly Field (KSKF) | 19% | SAT | 8% |
| San Antonio International Airport (SAT) | 10% | Garner Field Airport (UVA) | 4% |
| Easterwood Field (CLL) | 4% | KSKF | 3% |
| Austin-Bergstrom International Airport (AUS) | 3% | Other/Unknown | 11% |
| Corpus Christi International Airport (CRP) | 3% | | |
| Other/Unknown | 25% | | |

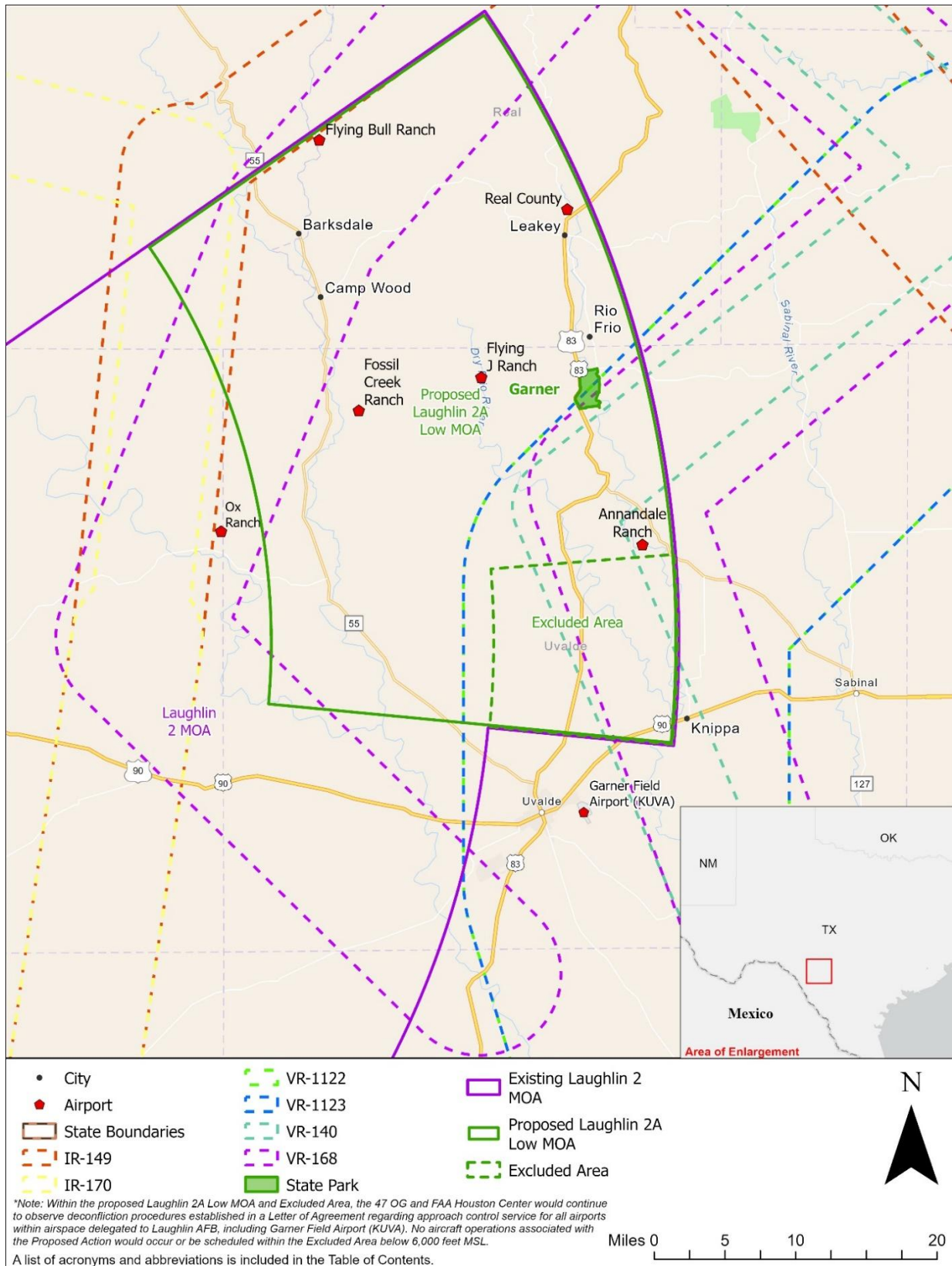


Figure 3.2-1 Existing MTR Segments and Local Airports within the Proposed Laughlin 2A Low MOA

3.2.1.4 Military Training Routes that Cross the Proposed Laughlin 2A Low MOA

Segments of six MTRs cross the proposed MOA: IR-149, IR-170, VR-140, VR-168, VR-1122, and VR-1123 (the reverse of VR-1122) (**Figure 3.2-1**). Annual operations by aircraft type within the four active MTRs are listed in **Table 3.2-12** (DAF, 2024d). Aircraft operating in segments of VR-1122 and VR-1123 within the ROI are authorized to fly as low as 100 feet AGL; however, based on the altitude utilization data provided by the DAF, most aircraft typically fly at or above 500 feet AGL on this MTR. All active MTRs have route ceilings that are well above the floor of the proposed MOA (500 feet AGL); however, VRs are flown under see-and-avoid, so there would be no restriction to entering the MOA. Aircraft on an IR could enter an active MOA if separation could be provided using standard ATC procedures or if Military Authority Assumes Responsibility for Separation of Aircraft as described by the Letters of Agreement. Therefore, if implemented, the Proposed Action would have little to no impact to operations in these MTRs.

Table 3.2-12 Existing Annual Flight Operations on Segments of Active MTRs Crossing the Proposed Laughlin 2A Low MOA

| MTR | Segment | Aircraft | Airfield | Existing Floor (feet) | Existing Ceiling (feet) | Day Operations ¹ | Night Operations ² |
|---------|---------|----------|--------------|-----------------------|-------------------------|-----------------------------|-------------------------------|
| IR-170 | D-E | T-38C | Laughlin AFB | Surface | 3,000 | 200 | 0 |
| VR-140 | C-D | T-38C | Randolph AFB | 500 | 4,000 | 197 | 0 |
| VR-140 | D-E | T-38C | Randolph AFB | 500 | 4,000 | 197 | 0 |
| VR-1122 | C-D | F-16C | Kelly Field | 100 | 1,500 | 80 | 0 |
| VR-1122 | D-E | F-16C | Kelly Field | 100 | 1,500 | 80 | 0 |
| VR-1123 | C-D | F-16C | Kelly Field | 100 | 1,500 | 80 | 0 |
| VR-1123 | D-E | F-16C | Kelly Field | 100 | 1,500 | 80 | 0 |

Notes:

One annual operation is one sortie flying the route.

¹Day Operations hours are 7:00 a.m. to 10:00 p.m. local time for the purposes of this analysis.

²Night Operations hours are 10:00 p.m. to 7:00 a.m. local time for the purposes of this analysis.

3.2.2 Environmental Consequences

3.2.2.1 Evaluation Criteria

Impacts on airspace and airspace management would be considered adverse if the Proposed Action encroached on or caused disruptions to existing aviation traffic in the ROI. An adverse impact would be considered significant if the Proposed Action permanently reduced the volume of an existing airspace or required changes to the lateral or horizontal extents of such airspace to continue operation. Additionally, any impact on airspace management would be considered significant if implementation of the Proposed Action were to substantially increase risks associated with flying activities; safety of personnel, contractors, military personnel, or the local community; hinder the ability to respond to an emergency; or introduce new health or safety risks for which the DAF or the surrounding community is not prepared or does not have adequate management and response plans in place.

Potential impacts from the Proposed Action on existing airspace and flight operations are assessed in terms of several measures, including:

- Airspace size – Does the proposed airspace have adequate size and vertical and lateral dimensions to accommodate the proposed flight operations in addition to existing flight operations?
- Airspace capacity – Can airspace controllers effectively manage the increased workload associated with the proposed flight operations?
- Impacts on existing flight operations, including flight delays, that could potentially result from rerouting traffic to avoid the proposed MOA when it is active, instead of clearing traffic to cross through it.

Existing conditions and potential impacts on flight safety are addressed in **Section 3.8**.

3.2.2.2 Alternative 1 – Establish New Low-Altitude MOA Directly Under Laughlin 2 MOA

Alternative 1 would establish the proposed MOA as described in **Section 2.1**. Training activities would be as described in **Section 2.2.2**. Unless otherwise noted, potential effects on airspace management and use would be the same whether T-38s, T-7As, or T-6As are being operated under Alternative 1.

While there is an FAA regulatory prohibition on nonparticipating aircraft flying in an active MOA during IFR conditions, there is no such prohibition when it is active under VFR conditions. Non-participating civilian and military aircraft operating in the ROI using VFR procedures would have the same mutual obligation to use “see and avoid” flying to prevent conflicts. The FAA Houston Center would procedurally deconflict civilian and military IFR flights during times when the proposed MOA would be active and, in some cases, flights may be rerouted around the proposed MOA.

Airspace Size and Capacity. In evaluating potential impacts, the approach is to assess the size of the airspace, existing traffic flow, additional traffic flow that would result from the Proposed Action and consider the additional airspace deconfliction procedures required by Laughlin ATC in coordination with FAA.

The proposed MOA would encompass approximately 976 square statute miles and the vertical extent would be from 500 feet AGL to, but not including 7,000 feet MSL. As shown in **Table 3.2-1**, 3,139 aircraft transited the proposed MOA from September 2023 through August 2024 (approximately 76 percent civilian operators [49 percent by general aviation], 23 percent military, and less than 0.2 percent unknown operators). Overall, there was an average of nine crossings per day (more than eight by IFR) in the airspace. Further, the busiest traffic periods occurred between 11:00 a.m. and 2:00 p.m. Alternative 1 would add 1,580 flight operations per year in the airspace within the proposed MOA, an increase of just over 50 percent. Sorties would include one to four aircraft (T-38Cs, T-7As, or T-6As) in the proposed MOA at a time. Should Alternative 1 be selected for implementation, pilots approved to operate in the proposed MOA would be responsible for remaining within the assigned area. The supporting controlling agency, per Letter of Agreement determination, may assist with providing radar advisory service, workload permitting, to aid pilots in remaining in the assigned areas.

Existing aircraft crossings within the proposed airspace total nine per day or typically no more than one per hour during the busiest traffic periods. These operations are easily accommodated by

the airspace and controllers at Laughlin ATC and FAA. The proposed MOA would also likely accommodate all the aircraft traffic that would result if Alternative 1 were to be implemented; resulting in about four to five flights per day, based on 365 days, or six to seven flights per day based on 240 flying days per year. On average, approximately one to two aircraft would be in the proposed MOA per hour during the busiest traffic periods (with the maximum estimated to be five aircraft per hour in cases when four aircraft would use the airspace at the same time). Civilian aircraft operators would continue to conduct most of the crossings in the airspace. Based on size and the number of hourly and daily crossings, the proposed MOA would be more than adequate to accommodate the additional traffic flow associated with Alternative 1.

The FAA considers airspace nominal capacity to be the maximum demand per hour a controller can safely handle in a particular sector (FAA, 2025b). Airspace capacity measures could include the maximum number of aircraft entering an airspace sector in a given period or the maximum number of aircraft within an airspace sector in a given period. The capacity of an airspace changes routinely based on a variety of dynamic factors including weather, temporary restrictions, and sectorization (virtual division of airspace to balance controller workload with respect to traffic flows). While the capacity of the existing airspace may be able to accommodate a 50 percent traffic increase due to Alternative 1, given the relatively low number of hourly flights expected, Laughlin ATC and FAA would review controller workload at the control centers to ensure the safe and efficient handling of this increase in traffic.

These assessments of the proposed MOA, based on the analysis of aircraft operations in the airspace between September 2023 and August 2024 (ATAC, 2025), suggest that it would have the size and capacity to accommodate the proposed additional air traffic. A third measure used to evaluate potential impacts on existing aviation activity is the potential for flight conflicts that could result from Alternative 1 when the proposed MOA would be active. These conflicts could potentially cause IFR flights to be rerouted, with associated delays, or require schedule adjustments that may be impractical. However, these types of conflicts are routinely addressed throughout the NAS primarily through FAA procedural deconfliction (as would be the case for IFR flights requesting to cross the proposed MOA, if established, when it would be operational). A secondary means to resolve certain types of conflicts could involve some local operators making flight schedule adjustments. The potential for flight conflicts between military operations in the proposed MOA and existing civilian and military air traffic, and how these conflicts would be addressed, are described in the following sections.

Proposed Laughlin 2A Low MOA. Approximately 99 percent of the 3,139 crossings in the proposed MOA are IFR (**Table 3.2-2**). This includes 2,398 of 2,414 civilian crossings (99 percent) and 710 of 719 military aircraft crossings (99 percent) flying IFR. Potential impacts on future flights in the proposed MOA would include all IFR flights that occur during the period expected to be scheduled daily by the 47 FTW (Monday through Friday, sunrise to sunset [adjusted seasonally as needed], with other times announced via NOTAM).

As established by FAA Letter of Agreement with Laughlin AFB and the 47 FTW, Laughlin ATC and FAA control centers would procedurally deconflict IFR traffic by restricting military operations by sector or by altitude band, as needed to route crossing air traffic through the remaining airspace. This would be the most efficient approach to deconflict IFR crossings from

military operations in the proposed MOA. A less efficient alternative would be to reroute the IFR traffic to the north or south, around the proposed MOA which could result in substantial delays for some flights. VFR traffic in the proposed MOA, if established, would continue to use “see and avoid” flying to prevent conflicts. FAA deconfliction of the IFR traffic in the proposed MOA would help to minimize impacts on air traffic and ensure that they would not be significant.

Special Use Airspace (Existing Laughlin 2 MOA). Existing crossings in the Laughlin 2 MOA are 4 percent VFR and 96 percent IFR (**Table 3.2-9**). The IFR crossings, 77 percent by civilian operators and 23 percent by military operators, already require FAA procedural deconfliction with existing military operations in the Laughlin 2 MOA, using either airspace restrictions by sector or altitude band. Impacts on future air traffic in the existing Laughlin 2 MOA would potentially include all IFR flights that occur during the period scheduled daily by the 47th Flying Training Wing (Monday through Friday, sunrise to sunset [adjusted seasonally as needed], with other times announced via NOTAM). These impacts would be substantially reduced via FAA procedural deconfliction. As such, impacts on air traffic in the existing Laughlin 2 MOA would not be significant.

Air Traffic Control-Assigned Airspace (Laughlin 2 ATCAA). There were 2,934 existing crossings in the existing Laughlin 2 ATCAA (**Table 3.2-9**), with about half identified as civilian operators, half as military operators, and 4 percent unknown. About 95 percent of the crossings were IFR flights. It is expected that all future IFR flights in Laughlin 2A ATCAA would be handled using FAA deconfliction procedures, like the Laughlin 2 MOA, such that impacts on these flights would not be significant.

Local Civilian Airports with Flight Operations in the Proposed Laughlin 2A Low MOA. The three most prevalent determinable arrival and departure airports for civilian traffic transiting the proposed MOA during September 2023 through August 2024 were Del Rio International Airport, Garner Field Airport, and San Antonio International Airport. Local airport traffic counts are associated with flight tracks that started or ended at one of these airports, or these airports were listed in the flight plan; thus, there may be more unidentified flights landing or departing these airports for which radar data did not extend to the airport or for which flight plan data were not available.

In addition, there are multiple private airfields operating in the vicinity of the proposed MOA that have aircraft departing that are not on flight plans and do not appear in the radar data. Therefore, the number of local airport IFR flights is not known; however, as stated above, approximately 99 percent of the civilian crossings were flying IFR, most of which would be from local airports.

These local airport IFR flights operating within the proposed MOA could be affected by Alternative 1 whereas VFR flights would continue to use “see and avoid” flying to prevent conflicts. Since the proposed MOA would typically be scheduled simultaneously with the existing higher altitude Laughlin 2 MOA and Laughlin 2 ATCAA, FAA procedural deconfliction of local airport IFR flights would occur by the same restricting of military flights to certain airspace sectors or altitude bands to provide available airspace for these local flights to cross the proposed MOA. Six smaller local airports, including Flying Bull Ranch (TA52), Real County (49R), Fossil Creek Ranch (TE78), Flying J Ranch (7TE4), Ox Ranch (10X), and Annandale Ranch (2XS7) are in the

ROI (i.e., directly under or within 3 NM of the proposed MOA) (**Figure 3.2-1**). For safety and deconfliction purposes, Real County (49R) is the only public airport of these five and as such, would have a 1,500-foot altitude, 3-NM exclusion zone around it in compliance with FAA Order 7400.2 Section 25-1-4. To address comments received during FAA circularization, DAF pilots operating in the proposed MOA would also observe a 1,500-foot altitude, 3-NM exclusion zone around Ox Ranch (10X) (**Figure 3.2-1**) to avoid or minimize impacts on local airport operators. As a result, potential impacts on local airport IFR operators would not be significant.

Military Airfields with Flight Operations in the Proposed Laughlin 2A Low MOA. Most of the military flights that crossed the proposed MOA, and were identified in the radar data analysis, originated from Laughlin AFB (37 percent), followed by Kelly Field (19 percent). Of the total number of existing military aircraft crossings in the proposed MOA (719), 710 were IFR (99 percent) and 9 were VFR (1 percent). Deconfliction of the affected military (IFR) flights would be required when the proposed MOA would be active. As with civilian IFR flights, Laughlin ATC and FAA control centers would be required to perform procedural deconfliction of these transiting military IFR operations from active proposed MOA operations. Some military IFR flights might also fly around the MOAs. The resulting potential impact on military airfield IFR operators would not be significant.

Military Training Routes that Cross the Proposed Laughlin 2A Low MOA. The six active MTRs that cross the proposed MOA (and the total number of annual operations on each) include IR-149 (0), IR-170 (200), VR-140 (197), VR-168 (0), VR-1122 (80), and VR-1123 (80), the reverse of VR-1122. These MTR operations are a relatively low number of annual flight operations, compared with other existing flight activity in the proposed MOA. Annual operations on the MTRs are expected to remain about the same in the future, regardless of whether Alternative 1 is selected for implementation.

All four active MTRs have route ceilings well above the floor of the proposed MOA (500 feet AGL), such that future operations on these routes have the potential to be affected by Alternative 1 if selected for implementation. However, VFR are used on three of these four MTRs to prevent potential conflicts, and the low number of annual operations may offer some flexibility to schedule these MTRs during periods when the proposed MOA is inactive. As such, deconfliction of these routes may not be required regularly; although should this become necessary, appropriate deconfliction procedures for aircraft operations in the MTRs and proposed MOA would need to be codified in an approved written agreement with Laughlin AFB scheduling authorities to schedule these operations safely and effectively, as required. Thus, potential impacts on MTR operations from Alternative 1 would not be significant.

3.2.2.3 *No Action Alternative*

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained and existing conditions would continue. The existing Laughlin 1, 2, and 3 MOAs and ATCAAs would continue to be used and their dimensions would remain unchanged. Aircraft operations in these airspace would be expected to remain the same as or similar to existing conditions. This would have no significant impact on airspace management and use.

3.3 Noise

3.3.1 Affected Environment

3.3.1.1 Background Noise Levels

Background noise levels were estimated for areas under the Laughlin 1, 2, and 3 MOAs using the methods in American National Standard Institute – *Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-Term Measurements with an Observer Present* which provides estimated background noise levels for different land use categories. **Table 3.3-1** shows the levels (DNL and L_{eq}) estimated for rural or remote areas for several different categories of suburban and urban residential land use which can be used to represent background levels occurring under the Laughlin 1, 2, and 3 MOAs and surrounding areas (i.e., observed levels not including aircraft flights or other identifiable noise sources). Land areas under the Laughlin 1, 2, and 3 MOAs are mostly rural but include several small towns and cities. These populated areas have relatively low levels of ambient noise, and background sound levels without aircraft normally do not exceed 45 dBA L_{eq} in the daytime, or 39 dBA L_{eq} at night. Background sound levels are typically lower in rural areas and much lower in remote areas. According to these estimates, many of the remote areas under the Laughlin 1, 2, and 3 MOAs would be expected to have a DNL less than 49 dBA while active parts of the cities of Camp Wood, Leakey, and Uvalde, Texas would be expected to have a DNL in the range of 50 to 55 dBA.

Table 3.3-1 Estimated Background Sound Levels

| Land Use Category | DNL Range (dBA) | Typical DNL (dBA) | L_{eq} | |
|-----------------------------|-----------------|-------------------|----------|-----------|
| | | | Daytime | Nighttime |
| Normal suburban residential | 50-55 | 52 | 50 | 44 |
| Quiet suburban residential | 45-50 | 47 | 45 | 39 |
| Rural residential | <45 | 42 | 40 | 34 |
| Rural/Remote | <45 | <42 | <40 | <34 |

3.3.1.2 Laughlin 1, 2, and 3 MOAs

The primary source of noise within the existing Laughlin 1, 2, and 3 MOAs is aircraft operations. Existing annual operations include T-38C (8,800), T-1A (300), and T-6A (18,000) in the Laughlin 1, 2, and 3 MOAs as summarized in **Table 3.3-2**. These operations occur annually in the MOA during the daytime period (defined as 7:00 a.m. to 10:00 p.m. for the purposes of this analysis using DNL). Approximately 85 to 90 percent of all T-38C operations in the Laughlin 1 and 2 MOAs occur between 7,000 feet MSL and FL180, with the remaining operations occurring in the ATCAA. More than 80 percent of T-1A flights occur between 7,000 feet MSL and FL180, with the remaining flights occurring in the ATCAA. Approximately 90 percent of T-6A flights occur between 7,000 feet MSL and FL180, with the remaining flights occurring in the ATCAA. These operations and their associated average airspeeds, power settings, time in airspace, and altitudes are the primary inputs to the noise models used in this analysis.

Table 3.3-2 Summary of Existing Operations in the Laughlin 1, 2, and 3 MOAs (2024)

| Laughlin 1 MOA Operations | | | | |
|---------------------------------------|---------------|-------|------|--------|
| Aircraft | | T-38C | T-1A | T-6A |
| Number of Day ¹ Sorties | | 7,920 | 100 | 900 |
| Number of Night ² Sorties | | 0 | 0 | 0 |
| Time in Airspace per Sortie (minutes) | | 45 | 45 | 45 |
| Altitude Utilization (feet MSL) | | | | |
| Existing Laughlin 1 MOA | 9,000-12,000 | 15% | 30% | 40% |
| | 12,000-15,000 | 35% | 30% | 40% |
| | 15,000-FL180 | 35% | 30% | 10% |
| ATCAA | FL180-FL220 | 15% | 10% | 10% |
| Laughlin 2 MOA Operations | | | | |
| Aircraft | | T-38C | T-1A | T-6A |
| Number of Day ¹ Sorties | | 880 | 200 | 16,200 |
| Number of Night ² Sorties | | 0 | 0 | 0 |
| Time in Airspace per Sortie (minutes) | | 45 | 105 | 45 |
| Altitude Utilization (feet MSL) | | | | |
| Existing Laughlin 2 MOA | 7,000-9,000 | 10% | 20% | 30% |
| | 9,000-12,000 | 30% | 20% | 30% |
| | 12,000-15,000 | 30% | 20% | 20% |
| | 15,000-FL180 | 20% | 20% | 10% |
| ATCAA | FL180-FL220 | 10% | 20% | 10% |
| Laughlin 3 MOA Operations | | | | |
| Aircraft | | T-38C | T-1A | T-6A |
| Number of Day ¹ Sorties | | NA | NA | 900 |
| Number of Night ² Sorties | | NA | NA | 0 |
| Time in Airspace per Sortie (minutes) | | NA | NA | 45 |
| Altitude Utilization (feet MSL) | | | | |
| Existing Laughlin 3 MOA | 7,000-9,000 | NA | NA | 30% |
| | 9,000-12,000 | NA | NA | 30% |
| | 12,000-15,000 | NA | NA | 20% |
| | 15,000-FL180 | NA | NA | 10% |
| ATCAA | FL180-FL220 | NA | NA | 10% |

Notes:

¹ Daytime hours are defined as 7:00 a.m. to 10:00 p.m. local time for the purposes of this analysis.

² Nighttime hours are defined as 10:00 p.m. to 7:00 a.m. local time for the purposes of this analysis.

NA = not applicable

Table 3.3-3 shows cumulative noise levels from existing T-38C, T-1A, and T-6A operations in the Laughlin 1, 2, and 3 MOAs and existing T-38C and F-16C operations on existing MTR segments underlying each MOA (such that noise on the ground from both MOA and MTR operations would be additive). The estimated L_{dn} and L_{dnmr} for the existing Laughlin 1, 2, and 3 MOAs and each MTR segment is less than 40.2 dBA (the lower limit for MOAs reported by the MR_NMAP program is 35 dBA; additional information on the MR_NMAP program is provided in **Appendix D.2**). As shown in **Table 3.3-3**, estimated cumulative aircraft noise levels do not exceed 65 dBA under any part of the existing Laughlin 1, 2, and 3 MOAs and therefore, do not exceed the threshold for compatibility of aircraft noise with underlying land uses. Estimated total noise levels, reported as less than 35 dBA in **Table 3.3-3**, are primarily due to existing high-altitude flight operations in the MOAs (**Table 3.3-2**) and the low number of annual aircraft operations in each MTR (**Appendix D.2.3.3**).

Table 3.3-3 Estimated Cumulative Noise Levels in the Laughlin 1, 2, and 3 MOAs from Existing Aircraft Operations in the MOAs and MTRs

| Aircraft Operating in Existing MOA | MTR Segment and Aircraft | Laughlin 1 MOA | | MTRs | | Total (MOA+MTRs) | |
|------------------------------------|--------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|
| | | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) |
| T-38C, T-1A, and T-6A | IR-170 D-E (T-38C) | <35.0 ¹ | <35.0 | <35.0 | <35.0 | 38.0 | 38.0 |
| | VR-140 C-E (T-38C) | | | <35.0 | <35.0 | <35.0 | <35.0 |
| | VR-1122 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |
| | VR-1123 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |
| Aircraft Operating in Existing MOA | MTR Segment and Aircraft | Laughlin 2 MOA | | MTRs | | Total (MOA+MTRs) | |
| | | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) |
| T-38C, T-1A, and T-6A | IR-170 D-E (T-38C) | <35.0 | <35.0 | <35.0 | <35.0 | 38.0 | 38.0 |
| | VR-140 C-E (T-38C) | | | <35.0 | <35.0 | 38.0 | 38.0 |
| | VR-1122 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |
| | VR-1123 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |
| Aircraft Operating in Existing MOA | MTR Segment and Aircraft | Laughlin 3 MOA | | MTRs | | Total (MOA+MTRs) | |
| | | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) |
| T-6A | IR-170 D-E (T-38C) | <35.0 | <35.0 | <35.0 | <35.0 | <35.0 | <35.0 |
| | VR-140 C-E (T-38C) | | | <35.0 | <35.0 | <35.0 | <35.0 |
| | VR-1122 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |
| | VR-1123 A-G (F-16C) | | | 38.4 | 38.6 | 40.0 | 40.2 |

Notes:

¹ MR_NMAP reports 35 dBA as the lower limiting noise level for MOAs and <35 dBA for MTRs and specific points. All levels less than or equal to 35 dBA are reported here as <35 dBA.

Potential noise-sensitive receptors underlying or near the existing Laughlin 1, 2, and 3 MOAs that overlie the proposed MOA are listed in **Table 3.3-4** and shown on **Figure 3.3-1**. As with the estimated cumulative noise levels shown in **Table 3.3-3**, estimated cumulative noise levels from existing T-38C, T-1A, T-6A, and F-16C operations at potential noise-sensitive receptors listed in **Table 3.3-4** are less than 35 dBA, except for three sites, and do not exceed the 65 dBA compatibility threshold for underlying land uses.

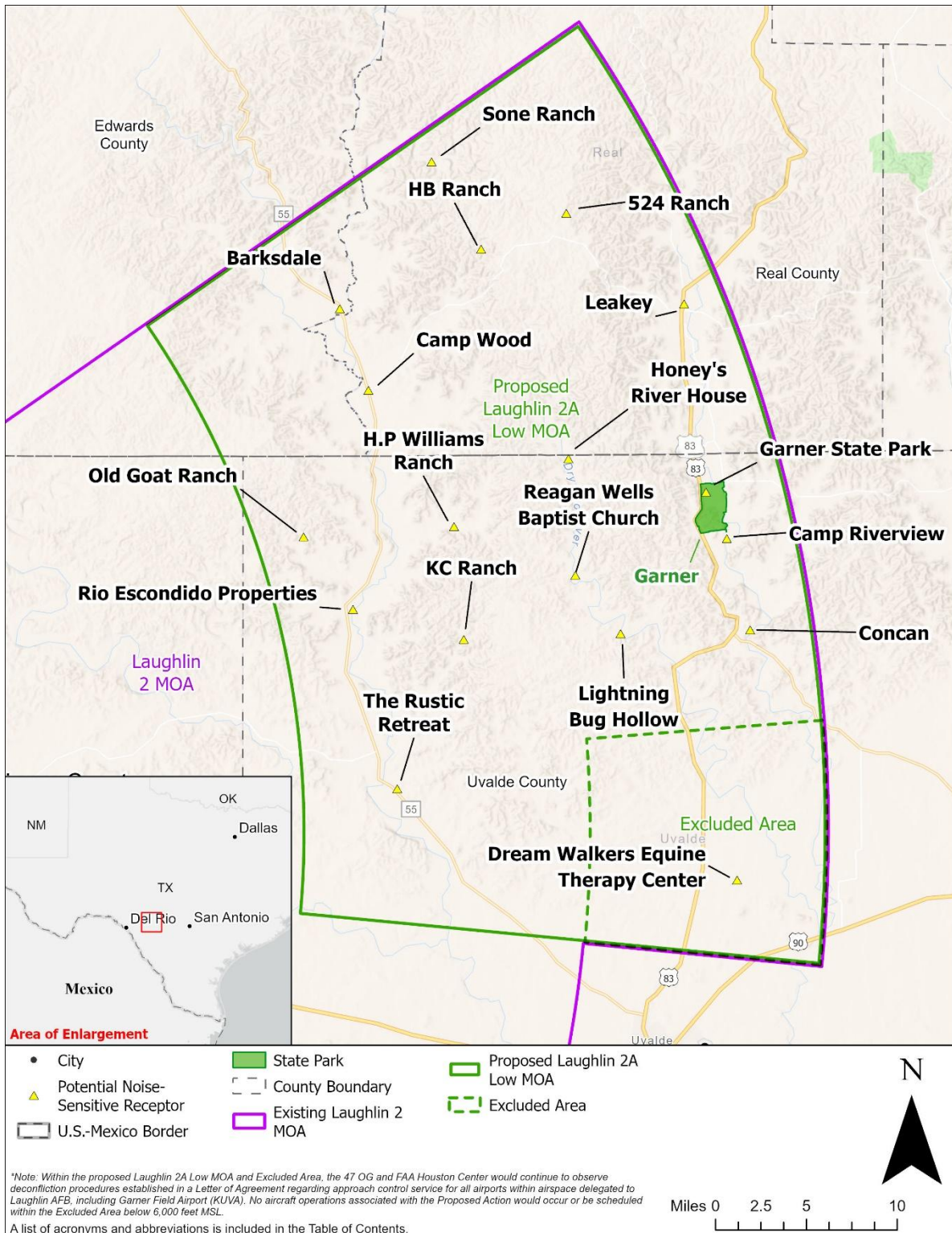


Figure 3.3-1 Potential Noise-Sensitive Receptors under or near the Proposed Laughlin 2A Low MOA

Table 3.3-4 Estimated Noise Levels from Existing T-38C, T-1A, T-6A, and F-16C Operations at Potential Noise-Sensitive Receptors under or near the Laughlin 1, 2, and 3 MOAs

| Potential Noise-Sensitive Receptor | Latitude (degrees) | Longitude (degrees) | L _{dn} (dBA) | L _{dnmr} (dBA) |
|-------------------------------------|--------------------|---------------------|-----------------------|-------------------------|
| Sone Ranch | 29.827019 | -99.962098 | <35 | <35 |
| 524 Ranch | 29.791517 | -99.854916 | <35 | <35 |
| HB Ranch | 29.766811 | -99.922704 | <35 | <35 |
| Barksdale | 29.725644 | -100.035099 | <35 | <35 |
| Leakey | 29.728992 | -99.761214 | <35 | <35 |
| Camp Wood | 29.669362 | -100.012362 | <35 | <35 |
| Honey's River House | 29.622047 | -99.853191 | <35 | <35 |
| Old Goat Ranch | 29.568116 | -100.063940 | <35 | <35 |
| H.P Williams Ranch | 29.575153 | -99.944241 | <35 | <35 |
| Garner State Park | 29.599078 | -99.743731 | <35 | <35 |
| Camp Riverview | 29.566836 | -99.727196 | <35 | <35 |
| Reagan Wells Baptist Church | 29.541520 | -99.847673 | <35 | <35 |
| Rio Escondido Properties | 29.517926 | -100.024636 | <35 | <35 |
| Lightning Bug Hollow | 29.501138 | -99.811723 | <35 | <35 |
| KC Ranch | 29.497141 | -99.936467 | <35 | <35 |
| Concan | 29.503757 | -99.708617 | 39.0 | 39.2 |
| The Rustic Retreat | 29.393790 | -99.989389 | <35 | <35 |
| Dream Walkers Equine Therapy Center | 29.330589 | -99.718996 | 41.5 | 41.7 |
| Uvalde High School/Uvalde | 29.221226 | -99.78229 | 37.9 | 38.1 |

Individual Overflight Noise. Noise from individual overflights is considered here, in addition to DNL, to more completely describe the noise environment from existing military aircraft operations in the Laughlin 1, 2, and 3 MOAs. While DNL is used to assess land use compatibility for airfield and airspace actions, the FAA and DAF support the use of supplemental metrics, typically based on L_{max} or SEL, to describe other potential noise effects such as hearing loss, sleep and speech interference, and structural damage. Supplemental metrics are useful to assess the noise impacts of airfield flight activity, and particularly for airspace flight activity. This is because the DNL or average noise exposure tends to be lower, due to flight operations being spread throughout the airspace, whereas individual overflights can generate potentially higher noise levels at sensitive receptors, particularly for direct overflights. The NOISEMAP program was used to calculate L_{max} and SEL for individual overflights beneath the Laughlin 1, 2, and 3 MOAs to assess the potential for causing speech or sleep interference to more fully understand the potential noise effects. Structural damage from aircraft flight events is more typically caused by supersonic flights that generate sonic booms with peak overpressures above 2 pounds per square foot, rather than from subsonic flight events. Since there are no supersonic flight operations in the Laughlin 1, 2, and 3 MOAs, the potential for structural damage is low.

Hearing Loss. Considerable data on hearing loss has been collected and analyzed by the scientific and medical communities, and it has been well established that continuous exposure to high noise levels will damage human hearing. People exposed to high noise environments may experience temporary or permanent hearing loss; those exposed over a long period of time are at an increased risk of experiencing permanent hearing loss. While various government organizations have defined noise thresholds based on L_{eq}, to protect workers from noise exposure during their lifetime working period (40 hours per week over 40 years), the DoD uses a screening threshold for residences of DNL 80 dB to ensure a conservative approach to assessing the potential for hearing loss

(DNWG, 2013). If residences are identified within the DNL 80 dB exposure area, then additional analysis should be performed using L_{eq} . Estimates of DNL, made under the Laughlin 1, 2, and 3 MOAs, indicate that existing operations on the MOAs and MTRs that cross the MOAs are well below the DNL threshold for potential hearing loss.

Additionally, the Occupational Safety and Health Administration and Air Force Occupational Safety and Health guidelines are intended to protect human hearing from long-term, continuous exposures to high noise levels and aid in the prevention of noise-induced hearing loss. Both guidelines have permissible daily noise exposure limits including a L_{max} of 115 dBA for a duration of 15 minutes or less. This level and duration indicate when a hearing conservation program should be implemented at a given site. As shown in **Table 3.3-5**, overflights in the Laughlin 1, 2, and 3 MOAs, individually or together, are not expected to exceed 115 dBA for 15 minutes or longer on any given day.

Table 3.3-5 Estimated Noise Levels for Existing T-38C and T-1A Overflights in the Laughlin 1, 2, and 3 MOAs at Various Altitudes

| Altitude (feet MSL) | T-38C | | T-1A | |
|------------------------|----------------------|---------------------------|----------------------|---------------------------|
| | L_{max}^1 (dBA) | SEL ¹ (dBA) | L_{max}^1 (dBA) | SEL ¹ (dBA) |
| 8,000 | 55.7 | 65.1 | 46.8 | 55.0 |
| 12,000 | 47.5 | 57.1 | 37.6 | 46.4 |
| 15,000 | 42.8 | 52.4 | 32.5 | 42.2 |

Notes:

T-6 overflight noise levels (not shown) are noticeably lower than T-38C and T-1A noise levels.

¹ Noise levels (L_{max} and SEL) were calculated using NOISEMAP.

Table 3.3-5 shows estimated single event noise levels (L_{max} and SEL), directly under the flight path, for T-38C and T-1A aircraft at representative altitudes in the existing Laughlin 1, 2, and 3 MOAs from 8,000 feet MSL up to 15,000 feet MSL. For each altitude, the estimated SEL values are higher than the L_{max} values as the SEL includes both the overflight noise levels and the event duration. For both metrics, estimated noise levels are loudest for aircraft at an altitude of 8,000 feet MSL and levels decrease accordingly at higher altitudes. **Table 3.3-5** shows the expected range of levels estimated to occur for T-38C and T-1A overflights in the Laughlin 1, 2, and 3 MOAs with the highest levels including L_{max} of 55.7 dBA and SEL of 65.1 dBA. Overflights above 8,000 feet MSL in the MOAs are audible to individuals on the ground, but do not normally interfere with communication at ground level. Note that flight paths would typically be distributed within the MOA such that these highest overflight levels, estimated directly under the flight path, would not be expected to occur repeatedly at a single location on the ground.

Noise generated by aircraft within the boundaries of the Laughlin 1, 2, and 3 MOAs is occasionally audible in areas beyond the MOA boundaries. Military aircraft assigned to operate in a MOA utilize onboard mapping tools which assist them in avoiding flying too close to the MOA boundary to decrease the potential of an aircraft “spill out” (military aircraft unintentionally and temporarily flying beyond the airspace boundaries) which, should such an event occur, could cause noise events to be heard outside the MOA boundary. However, loud overflight noise events are experienced less frequently outside the MOA boundary than within the boundary and are limited

to some extent by the higher altitudes being flown. In general, people would need to be within about 5 miles of a military aircraft overflight to hear it clearly above ambient noise levels.

Speech Interference. In general, low- to mid-altitude aircraft overflights (e.g., below 1,000 feet AGL to several thousand feet AGL) can interfere with communication on the ground, and in homes, schools or other buildings directly under their flight path. The disruption of routine activities in the home, such as radio or television listening, telephone use, or family conversation, can cause annoyance. The quality of speech communication is also important in classrooms, offices, and industrial settings and can cause fatigue and vocal strain in those who attempt to communicate over the noise. The threshold at which aircraft noise may begin to interfere with speech and communication is established at 75 dBA outdoors (DNWG, 2013) which corresponds to roughly 50 dBA indoors assuming 25 dB of structural noise reduction. This level is consistent with the thresholds outlined in the ANSI's *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*. None of the individual overflight levels shown in **Table 3.3-5** exceed L_{\max} 75 dBA; therefore, existing overflights in the Laughlin 1, 2, and 3 MOAs are not expected to cause speech interference on the ground.

Sleep Interference. Sleep interference is another source of annoyance associated with louder, low-altitude aircraft overflights. This is especially true due to the intermittent nature of aircraft noise, which can be more disturbing than continuous noises. Sleep disturbance is not just a factor of the loudness, but also the duration of each noise event; therefore, sleep disturbance is best reflected with the SEL metric, which captures the total energy (i.e., level and duration) of each noise event. The Federal Interagency Committee on Aviation Noise (FICAN) recommends the use of the following SEL-based relationship for assessing potential sleep disturbance caused by aircraft noise (FICAN, 1997):

$$\text{Awakenings} = 0.0087 \times (\text{SEL}-30)^{1.79}$$

The above relationship, which defines the FICAN 1997 curve, should be interpreted as predicting the "maximum percent of the exposed population expected to be behaviorally awakened", or the "maximum % awakened" for a given residential population. This relationship predicts that 10 percent awakenings would occur to people exposed to an indoor SEL of 80 dB and less than 5 percent awakenings would occur to people exposed to an indoor SEL of 60 dB. Existing T-38C or T-1A aircraft activities on the Laughlin 1, 2, and 3 MOAs are not conducted between 10:00 p.m. and 7:00 a.m., except perhaps on rare occasion, and the outdoor SELs for these overflight operations (**Table 3.3-5**) are expected to be less than SEL 65 dB. Indoor SELs would be 15 to 25 dB lower depending on the design and types of materials used in housing construction; therefore, sleep interference during nighttime hours is not anticipated.

3.3.2 Environmental Consequences

3.3.2.1 Evaluation Criteria

Potential impacts from noise associated with the Proposed Action would be beneficial if the number of sensitive receptors exposed to unacceptable noise levels is reduced. Adverse impacts would occur if noise associated with the Proposed Action permanently exceeded the 65 dB cumulative noise threshold below which most types of land use are compatible.

The FAA defines a threshold for significant noise impacts as an increase in noise by 1.5 dB DNL or more in a noise sensitive area that is exposed to noise at or above the 65 dB DNL noise exposure level, or that would be exposed at or above the 65 dB DNL level due to a 1.5 dB or greater increase, when compared to the No Action Alternative for the same timeframe (FAA Order 1050.1).

For airspace actions, FAA requires that an action proponent identify where noise would change by the following specified amounts in noise sensitive areas (FAA Order 1050.1): for DNL 65 dB and higher: +/- DNL 1.5 dB (significant); for DNL 60 dB to <65 dB: +/- DNL 3 dB (reportable ³); for DNL 45 dB to <60 dB: +/- DNL 5 dB (reportable ⁴)

Per FAA Order 1050.1, a noise sensitive area is defined as an area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, cultural and historical sites, and parks, recreational areas, wilderness areas, and wildlife refuges. The FAA recognizes that there are settings where the 65 dB DNL standard for land use compatibility may not apply. These areas would likely be areas of extreme quiet, very rural areas, or natural areas with little human activity, such as wilderness areas or other protected natural areas.

The primary effect of recurring aircraft noise on exposed communities is long-term annoyance. The scientific community has adopted the use of long-term annoyance as a primary indicator of community response because it attempts to account for all negative aspects of effects from noise, including sleep disturbance, speech interference, and distraction from other human activities. Attitudinal surveys conducted over the past 30 years show a consistent relationship between DNL and the percentages of people who express annoyance. DNL estimates for the existing Laughlin 1, 2, and 3 MOAs and proposed MOA can be evaluated using **Table 3.3-6** to provide an estimate of the percentage of the population that would be “highly annoyed” by the noise.

Table 3.3-6 Relationship of DNL to Human Annoyance

| DNL (dBA) | Highly Annoyed (percent) |
|-----------|--------------------------|
| 45 | 0.83 |
| 50 | 1.66 |
| 55 | 3.31 |
| 60 | 6.48 |
| 65 | 12.29 |
| 70 | 22.10 |

3.3.2.2 *Alternative 1 – Establish New Low-Altitude MOA Directly Under Laughlin 2 MOA*

As noted in **Section 1.2.2**, T-38Cs would continue to operate at Laughlin AFB until the proposed transition to the T-7A is completed in 2033. Therefore, this analysis describes potential effects from noise associated with the operation of both the T-38C and T-7A under Alternative 1. Potential effects described for proposed aircraft operations involving the use of T-38Cs represent conditions that would be expected before the proposed T-7A recapitalization beginning in 2030. Potential effects from noise associated with proposed aircraft operations including the future operation of

³ Reportable changes in noise level may warrant further evaluation of potential impacts. FAA criteria are used because FAA would be responsible for approving and charting the proposed airspace.

T-7As represent conditions following completion of the proposed T-7A recapitalization in and beyond 2033.

As noted in **Section 1.2.2**, the DAF is requesting the FAA to establish the new low-altitude airspace under Alternative 1 to support the necessary training requirements of the FBF training syllabus rather than to support the requirements of any particular type of aircraft, including either the T-38C or the T-7A. Potential effects from noise associated with proposed T-7A operations at and near Laughlin AFB are described in additional detail in the 2024 Final T-7A Recapitalization EIS and ROD (DAF, 2024a).

Effects from Proposed Aircraft Operations Including T-38Cs. This section describes potential noise effects from proposed aircraft operations under Alternative 1 involving T-38s, either individually or in combination with other aircraft operating in the proposed and adjacent existing MOAs and MTRs. Potential effects described in this section represent conditions that would be expected before the proposed T-7A recapitalization beginning in 2030. Potential effects from noise associated with the proposed operation of T-7As under Alternative 1 are described later in this analysis.

Proposed T-38C and T-6A operations on the Laughlin 1, 2, and 3 MOAs and proposed MOA until 2030 are summarized in **Table 3.3-7**. These operations would occur annually in the MOA during the daytime period (defined as 7:00 a.m. to 10:00 p.m. for the purposes of this analysis using DNL). T-38C annual operations would consist of 1,570 daytime flights in the proposed MOA and 10,120 daytime flights in the Laughlin 1 and 2 High (existing) MOAs. T-6A annual operations would consist of 10 daytime operations in proposed MOA and 18,000 daytime operations in the Laughlin 1, 2, and 3 High MOAs. T-38C low-altitude air-to-ground training operations were analyzed with the T-6A training operations using the altitude utilization shown in **Table 3.3-7**. Approximately 75 percent of all T-38C operations in the proposed MOA would occur between 500 feet AGL and 2,000 feet AGL, with the remaining 25 percent occurring between 2,000 feet AGL and 6,999 feet MSL. All flights in the Laughlin 1 and 2 MOAs would be above 9,000 feet MSL and all flights in the Laughlin 3 MOA would be above 7,000 feet MSL. These operations and associated average airspeeds, power settings, time in airspace, and altitudes are the primary inputs to the noise models used in this analysis.

Table 3.3-7 Summary of Proposed Flight Operations in the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA

| Laughlin 1 MOA Operations | | Proposed Operations Until 2030 ¹ | | Proposed Operations in 2030 and Beyond ¹ | |
|---------------------------------------|---------------|---|------|---|------|
| Aircraft | | T-38C | T-6A | T-7A | T-6A |
| Number of Day ² Sorties | | 9,108 | 900 | 9,108 | 900 |
| Number of Night ³ Sorties | | 0 | 0 | 0 | 0 |
| Time in Airspace per Sortie (minutes) | | 45 | 45 | 45 | 45 |
| Altitude Utilization (feet MSL) | | | | | |
| Existing Laughlin 1 MOA | 9,000-12,000 | 15% | 40% | 15% | 40% |
| | 12,000-15,000 | 35% | 40% | 35% | 40% |
| | 15,000-FL180 | 35% | 10% | 35% | 10% |
| ATCAA | FL180-FL220 | 15% | 10% | 15% | 10% |

Table 3.3-7 Summary of Proposed Flight Operations in the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA

| Laughlin 2 MOA Operations | | Proposed Operations Until 2030 ¹ | | Proposed Operations in 2030 and Beyond ¹ | |
|---|-------------------------|---|--------|---|--------|
| Aircraft | | T-38C | T-6A | T-7A | T-6A |
| Number of Day ² Sorties | | 1,012 | 16,200 | 1,012 | 16,200 |
| Number of Night ³ Sorties | | 0 | 0 | 0 | 0 |
| Time in Airspace per Sortie (minutes) | | 25 | 45 | 25 | 45 |
| Altitude Utilization (feet MSL) | | | | | |
| Existing Laughlin 2 MOA | 7,000-9,000 | 0% | 30% | 0% | 30% |
| | 9,000-12,000 | 30% | 30% | 5% | 30% |
| | 12,000-15,000 | 30% | 20% | 10% | 20% |
| | 15,000-FL180 | 35% | 10% | 80% | 10% |
| ATCAA | FL180-FL220 | 5% | 10% | 5% | 10% |
| Proposed Laughlin 2A Low MOA Operations | | Proposed Operations Until 2030 ¹ | | Proposed Operations in 2030 and Beyond ¹ | |
| Aircraft | | T-38C | T-6A | T-7A | T-6A |
| Number of Day ² Sorties | | 1,570 | 10 | 1,570 | 10 |
| Number of Night ³ Sorties | | 0 | 0 | 0 | 0 |
| Time in Airspace per Sortie (minutes) | | 20 | 45 | 20 | 45 |
| Altitude Utilization (feet AGL) | | | | | |
| Proposed Laughlin 2A Low MOA | 500-1,000 | 20% | 30% | 20% | 30% |
| | 1,000-2,000 | 55% | 40% | 71% | 40% |
| | 2,000-3,000 | 16% | 30% | 3% | 30% |
| | 3,000-5,000 | 5% | 0% | 3% | 0% |
| ATCAA | 5,000 (AGL)-6,999 (MSL) | 4% | 0% | 3% | 0% |
| Laughlin 3 MOA Operations | | Proposed Operations Until 2030 ¹ | | Proposed Operations in 2030 and Beyond ¹ | |
| Aircraft | | T-38C | T-6A | T-7A | T-6A |
| Number of Day ² Sorties | | NA | 900 | NA | 900 |
| Number of Night ³ Sorties | | NA | 0 | NA | 0 |
| Time in Airspace per Sortie (minutes) | | NA | 45 | NA | 45 |
| Altitude Utilization (feet MSL) | | | | | |
| Existing Laughlin 3 MOA | 7,000-9,000 | NA | 30% | NA | 30% |
| | 9,000-12,000 | NA | 30% | NA | 30% |
| | 12,000-15,000 | NA | 20% | NA | 20% |
| | 15,000-FL180 | NA | 10% | NA | 10% |
| ATCAA | FL180-FL220 | NA | 10% | NA | 10% |

Notes:

¹ T-38Cs would operate in the existing and proposed airspace until 2030. T-7As would replace T-38Cs on a one-for-one basis beginning in 2030 until the full transition to T-7As is complete in 2033.

² Daytime hours are defined as 7:00 a.m. to 10:00 p.m. local time for the purposes of this analysis.

³ Nighttime hours are defined as 10:00 p.m. to 7:00 a.m. local time for the purposes of this analysis.

NA = not applicable

Estimated cumulative noise levels (L_{dn} and L_{dnmr}) from proposed aircraft operations in the proposed MOA and Laughlin 1, 2, 3 High MOAs under Alternative 1, and estimated noise levels from aircraft operations on MTR segments that cross the proposed MOA and Laughlin High MOAs, would not exceed 40.2 dBA (**Table 3.3-8**). Estimated noise levels from aircraft operations in the MTR segments would contribute to the overall noise levels under the proposed Laughlin 2A Low and existing Laughlin High MOAs (directly under the MTR segments that cross these

MOAs). Areas under the proposed MOA would remain well below the 65 dBA threshold below which most types of land uses are compatible with aircraft noise. In addition, since there would be no change in levels (or a minor change associated with areas under IR-170) compared with existing cumulative noise levels (**Table 3.3-3**), these would be considered not significant in accordance with FAA Order 1050.1.

Table 3.3-8 Estimated Cumulative Noise Levels under the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA from Proposed Aircraft Operations

| Aircraft | Laughlin 2A Low MOA, Laughlin 1, 2, and 3 MOAs, and ATCAAs | | MTRs | | Total | | Change | | FAA Determination of Impact in Noise Sensitive Areas | |
|----------------|--|-------------------------|------------------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|--|-------------------------|
| | L _{dn} (dBA) | L _{dnmr} (dBA) | MTR/Segment | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | L _{dnmr} (dBA) | L _{dn} (dBA) | | L _{dnmr} (dBA) |
| T-38C and T-6A | <35.0 | <35.0 | IR-170 D-E (T-38C) | <35.8 | <35.8 | 38.4 | 38.4 | 0.4 | 0.4 | Not significant |
| | | | VR-140 C-E (T-38C) | <35.0 | <35.0 | 38.0 | 38.0 | 0.0 | 0.0 | Not significant |
| | | | VR-1122 A-G (F-16C) | 38.4 | 38.6 | 40.0 | 40.2 | 0.0 | 0.0 | Not significant |
| | | | VR-1123 A-G (F-16C) | 38.4 | 38.6 | 40.0 | 40.2 | 0.0 | 0.0 | Not significant |
| | | | High MOAs/ATCAA Levels Only | | | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |

Estimated noise levels from proposed aircraft operations that would occur at potential noise-sensitive receptors under or near the proposed MOA and existing Laughlin 1, 2, and 3 MOAs under Alternative 1 are presented in **Table 3.3-9**. The receptor locations are shown on **Figure 3.3-1**. These estimated noise levels would not exceed 42.6 dBA at any potential noise-sensitive receptor and would remain well below the 65 dBA threshold below which most types of land uses are compatible with aircraft noise. The noise levels would change by 0.6 dB or less at most of the noise sensitive receptors in **Table 3.3-9**, compared with existing noise levels (**Table 3.3-4**); the greatest change would be 1.8 dB (at Lightning Bug Hollow) compared with the existing noise levels. All changes shown in **Table 3.3-9**, resulting from Alternative 1, would be considered not significant in accordance with FAA Order 1050.1.

Table 3.3-9 Estimated Noise Levels from Proposed T-38C and T-6A Operations at Potential Noise-Sensitive Receptors under or near the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA

| Potential Noise-Sensitive Receptor | L _{dn} (dBA) | L _{dnmr} (dBA) | Change | | FAA Determination of Impact in Noise-Sensitive Areas |
|------------------------------------|-----------------------|-------------------------|-----------------------|-------------------------|--|
| | | | L _{dn} (dBA) | L _{dnmr} (dBA) | |
| Sone Ranch | <35.0 | <35.0 | 0.0 | 0.0 | Not significant |
| 524 Ranch | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| HB Ranch | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Barksdale | 35.5 | 35.5 | 0.5 | 0.5 | Not significant |
| Leakey | <35.0 | <35.0 | 0.0 | 0.0 | Not significant |
| Camp Wood | <35.0 | <35.0 | 0.0 | 0.0 | Not significant |
| Honey's River House | <35.0 | <35.0 | 0.0 | 0.0 | Not significant |

Table 3.3-9 Estimated Noise Levels from Proposed T-38C and T-6A Operations at Potential Noise-Sensitive Receptors under or near the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA

| Potential Noise-Sensitive Receptor | L _{dn} (dBA) | L _{dnmr} (dBA) | Change | | FAA Determination of Impact in Noise-Sensitive Areas |
|-------------------------------------|-----------------------|-------------------------|-----------------------|-------------------------|--|
| | | | L _{dn} (dBA) | L _{dnmr} (dBA) | |
| Old Goat Ranch | 35.5 | 35.5 | 0.5 | 0.5 | Not significant |
| H.P Williams Ranch | <35.0 | <35.0 | 0.0 | 0.0 | Not significant |
| Garner State Park | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Camp Riverview | 37.0 | 37.0 | 0.4 | 0.4 | Not significant |
| Reagan Wells Baptist Church | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Rio Escondido Properties | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Lightning Bug Hollow | 36.7 | 36.8 | 1.7 | 1.8 | Not significant |
| KC Ranch | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Concan | 40.3 | 40.4 | 1.3 | 1.2 | Not significant |
| The Rustic Retreat | 35.6 | 35.6 | 0.6 | 0.6 | Not significant |
| Dream Walkers Equine Therapy Center | 42.4 | 42.6 | 0.9 | 0.9 | Not significant |
| Uvalde High School/Uvalde | 37.9 | 38.1 | 0.0 | 0.0 | Not significant |

The number of aircraft operations in the MOAs would show a minor increase under Alternative 1, relative to Existing Conditions, and noise levels would show a limited increase primarily due to the addition of low-altitude T-38C (primary user) and T-6A operations in the proposed MOA. However, noise from proposed aircraft operations under Alternative 1 would not be expected to temporarily or permanently impede or prevent the continued occupation of any land use underlying the proposed MOA and existing Laughlin 1, 2, and 3 MOAs and associated ATCAA. Therefore, long-term impacts from noise under Alternative 1 with T-38C aircraft would not be adverse.

Under Alternative 1, estimated L_{max} and SEL values for proposed T-38C operations in the proposed Laughlin 2A Low and Laughlin High MOAs would be highest at altitudes of 500 feet AGL and would decrease accordingly at higher altitudes (Table 3.3-10). Estimated SEL values are somewhat higher at each representative altitude, relative to the corresponding L_{max} values, because SEL includes both the overflight noise levels and the event duration. Note that the noise levels estimated in Table 3.3-10 are based on different T-38C airspeed and power settings for low-altitude and high-altitude flight conditions; T-6A noise levels (not shown in Table 3.3-10) are substantially lower than T-38C noise levels. Flight paths would typically be distributed across the MOAs such that these highest overflight levels (estimated directly under the flight path) would not be expected to occur repeatedly at a single location on the ground.

Table 3.3-10 Estimated Noise Levels from Proposed T-38C Aircraft Overflights in the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA at Various Altitudes

| Proposed Aircraft Overflights | Altitude (feet) | | | | | | | |
|---|-------------------------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
| | 500 AGL | 1,000 AGL | 5,000 MSL | 8,000 MSL | 500 AGL | 1,000 AGL | 5,000 MSL | 8,000 MSL |
| | L _{max} (dBA) ¹ | | | | SEL (dBA) ¹ | | | |
| T-38C Low-Altitude Air-to-Ground Training and High MOA Training | 91.3 | 83.4 | 66.8 | 55.7 | 94.7 | 88.6 | 74.7 | 65.1 |

Notes:

¹ Noise levels (L_{max} and SEL) shown in this table were calculated using NOISEMAP.

Individual noise events from proposed aircraft operations under Alternative 1 would be heard at various locations under the proposed MOA and existing Laughlin 1, 2, and 3 MOAs. However, most annual training flights would occur in the High MOAs at high altitudes; approximately 95 percent of annual T-38C and T-6A flights (28,120 of 29,700) would occur in the Laughlin 1, 2, and 3 MOAs, at altitudes above 7,000 feet MSL. Most of the flights would therefore not be expected to cause annoyance or disrupt common activities any more than typical everyday events (such as automobile noise, lawn mowing, other civil aircraft flyovers). Of the remaining 1,580 flights in the proposed MOA under Alternative 1, individual noise events would occasionally be heard, though flight paths in the proposed MOA (like the Laughlin 1, 2, and 3 MOAs) would typically be distributed throughout the airspace such that the highest expected overflight levels would not occur repeatedly at a single location on the ground. Noise from individual military overflights within the boundaries of the proposed MOA would increase due to the requirements for low altitude training; however, most of the noise generated by T-38C and T-6A aircraft would be contained within the boundary of the proposed MOA. Additionally, military aircraft would typically avoid flying too close to the MOA boundary to decrease the potential of an aircraft “spill out” (military aircraft unintentionally and temporarily flying beyond the airspace boundaries) which, should such an event occur, could cause noise events to be heard outside the proposed MOA boundary. No residences were identified within noise exposure areas exceeding DNL 80 dB, such that noise levels from Alternative 1 would be below the DNL threshold for potential hearing loss.

Table 3.3-10 indicates L_{max} values of up to 91 dB for individual T-38C low-altitude training flights. However, these values, individually or cumulatively throughout the day, would not be expected to exceed 115 dB for the associated permitted exposure duration of 15 minutes. As such, overflights in the proposed MOA and existing Laughlin 1, 2, and 3 MOAs and MTRs, individually or together, would not have the potential to cause hearing loss.

These same aircraft, however, would be loud enough to occasionally interfere with speech occurring indoors, such as in residences or schools. Direct overflights from T-38C activity on the low MOA would generate levels that exceed L_{max} 75 dBA (**Table 3.3-10**), such that, occasionally, speech interference would occur. Any such interference would be brief due to the short nature of these events (i.e., planes flying at hundreds of miles per hour). Since no nighttime flight operations are proposed, sleep interference during nighttime hours is not anticipated. Flights would also be dispersed throughout the proposed MOA and existing High MOAs, limiting the number of overflights of a particular area on the ground.

Effects from Proposed Aircraft Operations Including T-7As. This section describes potential noise effects from proposed aircraft operations under Alternative 1 involving T-7As, either individually or in combination with other aircraft operating in the proposed and adjacent existing MOAs and MTRs. Potential effects described in this section represent conditions that would be expected following completion of the proposed T-7A recapitalization in and beyond 2033.

Proposed T-7A and T-6A operations on the existing Laughlin 1, 2, and 3 MOAs and proposed MOA under Alternative 1 are summarized in **Table 3.3-7**. These operations would occur annually in the MOA during the daytime period (defined as 7:00 a.m. to 10:00 p.m. using DNL). T-7A annual operations would consist of 1,570 daytime flights in the proposed MOA and 10,120 daytime flights in the Laughlin 1 and 2 High MOAs. T-6A annual operations would consist of 10 daytime

operations in the proposed MOA and 18,000 daytime operations in the Laughlin 1, 2, and 3 High MOAs. T-7A low-altitude air-to-ground training operations were analyzed with the T-6A training operations using the altitude utilization shown in **Table 3.3-7**. Ninety-one percent of all T-7A operations in the proposed MOA would occur between 500 and 2,000 feet AGL, with the remaining 9 percent occurring between 2,000 feet AGL and 6,999 feet MSL. All flights in the Laughlin 1 MOA would be above 9,000 feet MSL and all flights in the Laughlin 2 and 3 MOAs would be above 7,000 feet MSL. These operations and associated average airspeeds, power settings, time in airspace, and altitudes are the primary inputs to the noise models used in this analysis.

Estimated cumulative noise levels (L_{dn} and L_{dnmr}) from proposed aircraft operations in the proposed MOA and existing Laughlin 1, 2, 3 High MOAs under Alternative 1, and estimated noise levels from aircraft operations on MTR segments that cross the proposed MOA and Laughlin High MOAs, would not exceed 49.8 dBA (**Table 3.3-11**). Estimated noise levels from aircraft operations in the MTR segments would contribute to the overall noise levels under the Laughlin 2A Low and Laughlin High MOAs (directly under the MTR segments that cross these MOAs). Areas under the proposed MOA would remain well below the 65 dBA threshold below which most types of land uses are compatible with aircraft noise. The change in noise levels, compared with existing cumulative noise levels, is shown in **Table 3.3-11** along with the FAA determination of noise impact; in three cases, the noise level changes are considered to be reportable, though not significant, and the rest are considered to be not significant in accordance with FAA Order 1050.1.

Table 3.3-11 Estimated Cumulative Noise Levels under the Existing Laughlin 1, 2 and 3 MOAs and Proposed Laughlin 2A Low MOA from Proposed Aircraft Operations

| Aircraft | Laughlin 2A Low MOA | | MTRs | | | Total | | Change | | FAA Determination of Impact |
|---------------|---------------------------------------|------------------|------------------------------------|----------------|------------------|----------------|------------------|----------------|------------------|-----------------------------|
| | L_{dn} (dBA) | L_{dnmr} (dBA) | MTR/ Segment | L_{dn} (dBA) | L_{dnmr} (dBA) | L_{dn} (dBA) | L_{dnmr} (dBA) | L_{dn} (dBA) | L_{dnmr} (dBA) | |
| T-7A and T-6A | 41.4 | 41.4 | IR-170 D-E (T-38C) | 49.0 | 49.0 | 49.8 | 49.8 | 14.8 | 14.8 | Reportable |
| | | | VR-140 C-E (T-38C) | 43.2 | 43.2 | 45.6 | 45.6 | 10.6 | 10.6 | Reportable |
| | | | VR-1122 A-G (F-16C) | 38.4 | 39.0 | 43.2 | 43.4 | 8.2 | 8.4 | Not significant |
| | | | VR-1123 A-G (F-16C) | 38.4 | 39.0 | 43.2 | 43.4 | 8.2 | 8.4 | Not significant |
| Aircraft | Laughlin 1, 2, and 3 MOAs, and ATCAAs | | MTRs | | | Total | | Change | | FAA Determination of Impact |
| | L_{dn} (dBA) | L_{dnmr} (dBA) | MTR/ Segment | L_{dn} (dBA) | L_{dnmr} (dBA) | L_{dn} (dBA) | L_{dnmr} (dBA) | L_{dn} (dBA) | L_{dnmr} (dBA) | |
| T-7A and T-6A | <35 | <35 | IR-170 D-E (T-38C) | 49.0 | 49.0 | 49.2 | 49.2 | 14.2 | 14.2 | Reportable |
| | | | VR-140 C-E (T-38C) | 43.2 | 43.2 | 43.8 | 43.8 | 8.8 | 8.8 | Not significant |
| | | | VR-1122 A-G (F-16C) | 38.4 | 39.0 | 40.0 | 40.5 | 0.0 | 0.3 | Not significant |
| | | | VR-1123 A-G (F-16C) | 38.4 | 39.0 | 40.0 | 40.5 | 0.0 | 0.3 | Not significant |
| | | | High MOAs/ATCAA Levels Only | | | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |

Estimated noise levels from proposed aircraft operations that would occur at potential noise-sensitive receptors under or near the proposed MOA and Laughlin 1, 2, and 3 MOAs under Alternative 1 are presented in **Table 3.3-12**. The receptor locations are shown on **Figure 3.3-1**. These estimated noise levels would not exceed 46 dBA at any potential noise-sensitive receptor and would remain well below the 65 dBA threshold below which most types of land uses are compatible with aircraft noise. The noise level changes would be about 6 to 7 dB at most of the noise sensitive receptors in **Table 3.3-12**, compared with existing noise levels (**Table 3.3-4**); the greatest change would be 7.3 dB at Camp Riverview compared with existing noise levels at this site. One change shown in **Table 3.3-12**, resulting from proposed aircraft operations under Alternative 1 using T-7A aircraft, would be considered reportable (at Concan), though not significant, in accordance with FAA Order 1050.1. Changes at all other locations would be considered not significant.

Table 3.3-12 Estimated Noise Levels from Proposed T-7A and T-6A Operations at Potential Noise-Sensitive Receptors under or near the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA

| Potential Noise-Sensitive Receptor | L _{dn} (dBA) | L _{dnmr} (dBA) | Change | | FAA Determination of Impact in Noise Sensitive Areas |
|-------------------------------------|--------------------------|----------------------------|--------------------------|----------------------------|--|
| | | | L _{dn} (dBA) | L _{dnmr} (dBA) | |
| Sone Ranch | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |
| 524 Ranch | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| HB Ranch | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Barksdale | 41.5 | 41.5 | 6.5 | 6.5 | Not significant |
| Leakey | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |
| Camp Wood | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |
| Honey's River House | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |
| Old Goat Ranch | 41.5 | 41.5 | 6.5 | 6.5 | Not significant |
| H.P Williams Ranch | 35.0 | 35.0 | 0.0 | 0.0 | Not significant |
| Garner State Park | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Camp Riverview | 42.2 | 42.3 | 7.2 | 7.3 | Not significant |
| Reagan Wells Baptist Church | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Rio Escondido Properties | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Lightning Bug Hollow | 42.2 | 42.2 | 7.2 | 7.2 | Not significant |
| KC Ranch | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Concan | 45.2 | 45.4 | 6.2 | 6.2 | Reportable |
| The Rustic Retreat | 41.6 | 41.6 | 6.6 | 6.6 | Not significant |
| Dream Walkers Equine Therapy Center | 45.8 | 46.0 | 4.3 | 4.3 | Not significant |
| Uvalde High School/Uvalde | 37.9 | 38.5 | 0.0 | 0.4 | Not significant |

The number of aircraft operations in the MOAs would show a minor increase under Alternative 1, relative to existing conditions, and noise levels would show a limited increase primarily due to the addition of low-altitude T-7A (primary user) and T-6A operations in the proposed MOA. However, noise from proposed aircraft operations under Alternative 1 would not be expected to temporarily or permanently impede or prevent the continued occupation of any land use underlying the

proposed MOA and Laughlin 1, 2, and 3 MOAs and associated ATCAA. Therefore, long-term impacts from noise under Alternative 1 with T-7A aircraft would not be adverse.

Under Alternative 1, estimated L_{max} and SEL values for proposed T-7A operations in the new Laughlin 2A Low and existing Laughlin High MOAs would be highest at altitudes of 500 feet AGL and would decrease accordingly at higher altitudes (**Table 3.3-13**). Estimated SEL values are somewhat higher at each representative altitude, relative to the corresponding L_{max} values, because SEL includes both the overflight noise levels and the event duration. Note that the noise levels estimated in **Table 3.3-13** are based on different T-7A airspeed and power settings for low-altitude and high-altitude flight conditions; T-6A noise levels (not shown in **Table 3.3-13**) are substantially lower than T-7A noise levels. Flight paths for each aircraft would typically be distributed across the MOAs such that these highest overflight levels (estimated directly under the flight path) would not be expected to occur repeatedly at a single location on the ground.

Table 3.3-13 Estimated Noise Levels from Proposed T-7A Aircraft Overflights in the Existing Laughlin 1, 2, and 3 MOAs and Proposed Laughlin 2A Low MOA at Various Altitudes

| Proposed Aircraft Overflights | Altitude (feet) | | | | | | | |
|--|------------------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
| | 500 AGL | 1,000 AGL | 5,000 MSL | 8,000 MSL | 500 AGL | 1,000 AGL | 5,000 MSL | 8,000 MSL |
| | L_{max} (dBA) ¹ | | | | SEL (dBA) ¹ | | | |
| T-7A Low-Altitude Air-to-Ground Training and High MOA Training | 104.7 | 97.4 | 81.5 | 69.1 | 106.6 | 101.2 | 88.0 | 77.4 |

Notes:

¹ Noise levels (L_{max} and SEL) shown in this table were calculated using NOISEMAP.

Individual noise events from proposed aircraft operations under Alternative 1 involving T-7A aircraft would be heard at various locations under the proposed MOA and existing Laughlin 1, 2, and 3 MOAs. However, most annual training flights would occur in the High MOAs at high altitudes; approximately 95 percent of annual T-7A and T-6A flights (28,120 of 29,700) would occur in the Laughlin 1, 2, and 3 MOAs, at altitudes above 7,000 feet MSL. Most of the flights would therefore not be expected to cause annoyance or disrupt common activities any more than typical everyday events (e.g., automobile noise, lawn mowing, other civil aircraft flyovers). Of the remaining 1,580 flights in the proposed MOA under Alternative 1, individual noise events would occasionally be heard, though flight paths in the proposed MOA (like the Laughlin 1, 2, and 3 MOAs) would typically be distributed throughout the airspace such that the highest expected overflight levels would not occur repeatedly, at a single location on the ground. Noise from individual military overflights within the boundaries of the proposed MOA would increase due to the requirements for low altitude FBF training; however, most of the noise generated by T-7A and T-6A aircraft would be contained within the proposed MOA boundary. Additionally, military aircraft would typically avoid flying too close to the MOA boundary to decrease the potential of an aircraft “spill out” (military aircraft unintentionally and temporarily flying beyond the airspace boundaries) which, should such an event occur, could cause noise events to be heard outside the proposed MOA boundary. No residences were identified within noise exposure areas exceeding DNL 80 dB, such that Alternative 1 noise levels would be below the DNL threshold for potential hearing loss.

Table 3.3-13 indicates L_{max} values of up to 105 dB for individual T-7A low-altitude training flights. However, these values, individually or cumulatively throughout the day, would not be expected to exceed 115 dB for the associated permitted exposure duration of 15 minutes. As such, overflights in the proposed MOA and existing Laughlin 1, 2, and 3 MOAs and MTRs, individually or together, would not have the potential to cause hearing loss.

These same aircraft, however, would be loud enough to occasionally interfere with speech occurring indoors, such as in residences or schools. Direct overflights from T-7A activity in the proposed MOA would generate levels that exceed L_{max} 75 dBA (**Table 3.3-13**) such that, occasionally, speech interference would occur. Any such interference would be brief due to the short nature of these events (i.e., planes flying at hundreds of miles per hour). Sleep interference during nighttime hours is not anticipated because no nighttime aircraft operations are proposed under Alternative 1. Flights would also be dispersed throughout the Laughlin Low and High MOAs, limiting the number of overflights of a particular area on the ground.

3.3.2.3 No Action Alternative

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained, and existing conditions would continue. Aircraft operations in the existing Laughlin 1, 2, and 3 MOAs and MTRs would continue as they currently do, and the dimensions of these airspace would remain unchanged. This would have no significant impact from noise.

3.4 Land Use

3.4.1 Affected Environment

Given the large geographic area within the ROI, data from the U.S. Geological Survey’s (USGS) National Land Cover Database (USGS, 2024) was used to characterize existing land use. Although more generalized than locality-specific land use data, the National Land Cover Database data is generally indicative of existing land use conditions and appropriate to characterize potential impacts from the Proposed Action at this scale of analysis.

The ROI encompasses approximately 624,734 acres (976 square miles) in Edwards, Real, Kinney, and Uvalde Counties. The land area of each county within the ROI is summarized in **Table 3.4-1**.

Table 3.4-1 Land Area in the ROI by County

| County | Acres | Square Miles |
|---------|-----------|--------------|
| Edwards | 53,626.8 | 83.8 |
| Kinney | 1,051.1 | 1.6 |
| Real | 189,938.2 | 296.8 |
| Uvalde | 380,118.2 | 593.9 |
| Total | 624,734.3 | 976.1 |

Land use categories within the ROI are summarized in **Table 3.4-2** and shown on **Figure 3.4-1**. Lands categorized as Shrub / Scrub and Grassland / Herbaceous (406,387.8 acres) and Forest (192,276.3 acres) represent nearly 96 percent of land within the ROI. Collectively, less than 4 percent of land in the ROI is categorized as Developed (10,176.3 acres) or Cultivated Crops and

Pasture / Hay (11,562.3 acres). Lands categorized as Open Water, Barren Land, and Wetlands each represent less than 1 percent of lands in the ROI.

Table 3.4-2 Land Cover in the ROI

| Land Cover Category | Acres | Percent of ROI |
|--|------------------|----------------|
| Shrub / Scrub and Grassland / Herbaceous | 406,387.8 | 65.0 |
| Forest | 192,276.3 | 30.8 |
| Cultivated Crops and Pasture / Hay | 11,562.3 | 1.9 |
| Developed | 10,176.3 | 1.6 |
| Wetlands | 2,636.9 | 0.4 |
| Barren Land | 767.7 | 0.1 |
| Open Water | 926.9 | 0.1 |
| Total | 624,734.2 | 100.0 |

Source: USGS, 2024

Lands in the ROI are sparsely developed, with a population density of 5.7 persons per square mile in 2020 (**Section 3.9**). Cities and towns in the ROI with larger concentrations of development summarized in **Table 3.4-3** and shown on **Figure 3.4-1**.

Table 3.4-3 Cities and Towns in the ROI

| City / Town | County | Population |
|-------------|---------|------------|
| Barksdale | Edwards | 91 |
| Camp Wood | Real | 517 |
| Knippa | Uvalde | 606 |
| Leakey | Real | 315 |
| Rio Frio | Real | 307 |

Sources: U.S. Census Bureau, 2020a; 2020b; 2020c; 2020d; 2020e

Garner State Park is in the east-central portion of the ROI (**Figure 3.4-1**). This state park covers 1,774 acres and includes a 2.9-mile segment of the Frio River. Park amenities include cabins, campsites, and 16 miles of trails (TPWD, 2025). No other state parks, national parks, national wildlife refuges, wildlife management areas, or Native American reservations are in the in the ROI. Five airports are within the ROI (**Section 3.2.1.2**); additionally, Garner Field Airport (UVA) is just outside the ROI approximately 4 miles to the south.

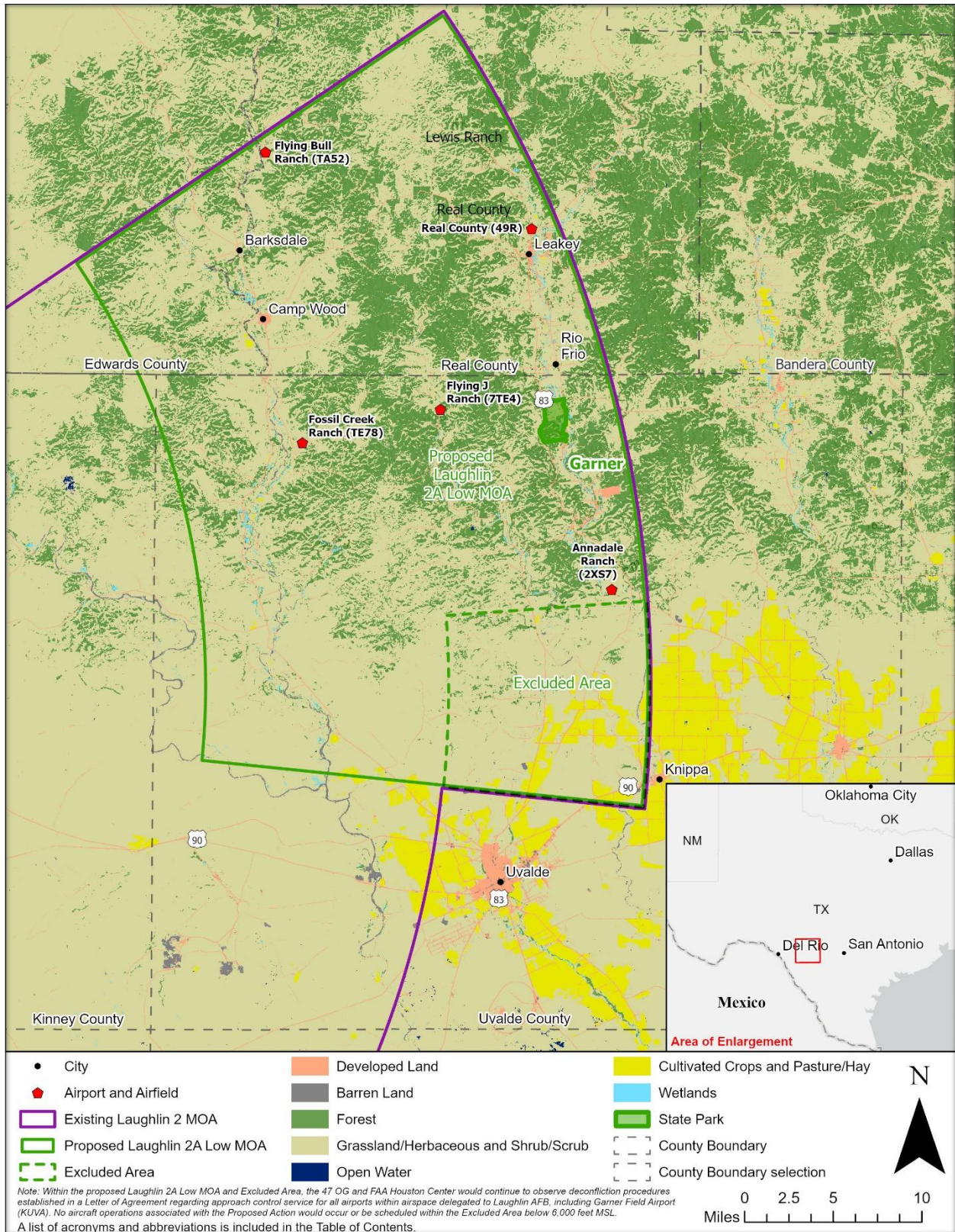


Figure 3.4-1 Existing Land Cover in the ROI

The DAF identifies wind turbines, local airfields, airports, towers, and other vertical structures as avoidance areas that are factored into flight plans. The potential for overflight obstruction hazards is a shared concern for all aviation users, including the DoD, commercial, business, and general aviation users. As with any large vertical construction project, such as telecommunication towers or wind turbines, the DoD considers potential impacts of wind farm development on flight safety from obstructions introduced near DoD airfields, training ranges, and in areas used for military flight operations.

No utility-scale wind turbines are currently located in the ROI (USGS, 2025). Areas where annual average wind speeds are at least 13 miles per hour are considered optimal for siting utility-scale turbines, which range from 500 feet to as high as 900 feet tall (USEIA, 2024). Annual average wind speeds in and around the ROI, modeled at 328 feet above the ground surface, vary from approximately 8.9 to 13 miles per hour (USDOE, 2023).

The DoD is supportive of renewable energy where it is compatible with the DoD mission to test, train, and operate. The DAF is a member of the DoD Siting Clearinghouse established by Congress in January 2011 in Section 358 of the Ike Skelton National Defense Authorization Act for FY11 (Public Law 111-383). That authority was amended and codified in 2017 as 10 U.S.C. § 183a. The Clearinghouse provides a timely, transparent, and repeatable process that can evaluate potential impacts and explore mitigation options, while preserving the DoD mission through collaboration with internal and external stakeholders. In addition to the DoD Clearinghouse process, all structures constructed taller than 200 feet trigger a review from the FAA (through the Obstruction Evaluation / Airport, Airspace, Analysis process).

3.4.2 Environmental Consequences

3.4.2.1 Evaluation Criteria

Impacts on land use and recreational resources would be significant if the Proposed Action failed to comply with existing land use plans or policies; undermined the viability of existing land uses; prevented continued use or occupation of an area; created incompatibility with adjacent land uses that threatens public health or safety; or conflicted with planning criteria established to protect human life and property. Recreational resources would be affected if the Proposed Action changed the access to or availability of recreation sites or activities, or altered the characteristics of the area in a way that diminishes recreational opportunities.

3.4.2.2 Alternative 1

Establishment of the proposed MOA would be unlikely to result in development activities or population changes in the ROI that would require changes to existing or proposed land use patterns or be inconsistent with existing land use plans and policies. Aircraft operations occurring as low as 500 feet AGL in the proposed MOA, including T-38Cs, T-7As, or T-6As, would increase noise experienced at underlying land uses (**Section 3.3.2**) due to lowering the flight floor to 500 feet AGL; however, aircraft would not exceed supersonic speeds while operating within the proposed airspace. Cumulative noise levels from proposed aircraft operations under Alternative 1 would be similar to existing ambient noise conditions in the ROI and would not exceed the 65 dBA threshold below which most types of land use are compatible with aircraft noise. Of the operations in the

proposed MOA under Alternative 1, individual noise events would be heard but would be distributed throughout the airspace such that the highest expected overflight levels would not occur repeatedly at a single location on the ground. Additional information regarding potential impacts on land use from the proposed T-7A recapitalization at Laughlin AFB is provided in the 2024 T-7A Recapitalization Final EIS and ROD (DAF, 2024a).

If Alternative 1 is selected for implementation and future development of utility-scale wind turbines is proposed on land in the ROI, the DoD would evaluate the turbine project and engage with the developer(s) through the DoD Siting Clearinghouse process to identify technically feasible and affordable mitigation measures to avoid flight obstruction impacts on proposed low-level aircraft operations. Much of the proposed MOA is already subject to DoD Siting Clearinghouse review because segments of six existing MTRs cross the airspace (**Figure. 3.2-1**). Therefore, if Alternative 1 is selected for implementation, airspace within the proposed MOA would continue to be subject to DoD Siting Clearinghouse reviews. In most cases, the DoD Energy Siting Clearinghouse, through its mitigation response team process, finds a compromise where turbines can proceed under the airspace if proposed turbine locations are laterally relocated or through the implementation of other mitigation strategies. In the 13-year history of the DoD Energy Siting Clearinghouse process, only a few objections have been issued out of thousands of proposed wind farms.

Overall, Alternative 1 would be unlikely to require temporary or permanent changes to existing or proposed land uses, prevent the continued use and occupation of existing land uses, or result in incompatibilities with existing or planned land use plans and policies. Therefore, impacts on land use from Alternative 1 would not be significant.

3.4.2.3 *No Action Alternative*

Under the No Action Alternative, the proposed airspace would not be obtained, and existing conditions would continue. This would have no impact on land use.

3.5 Air Quality

3.5.1 Affected Environment

3.5.1.1 *Regional Climate*

The lateral boundaries of the proposed MOA encompass portions of Edwards, Real, Uvalde and Kinney Counties, which are located in the interior semi-arid region of south Texas. The general climate conditions for Leakey, in Real County were chosen to represent regional climate conditions in the ROI. In Leakey, the summers are hot and muggy; the winters are short, cold, and windy; and it is partly cloudy year-round. The estimated annual average temperature in Leakey is 66.6 degrees Fahrenheit (°F). The warmest month is August, with an average maximum temperature of 93°F. The coolest month is January, with an average minimum temperature of 40°F. Leakey experiences significant seasonal variation in monthly rainfall. The most rainfall occurs in May, with an average of 3.0 inches. The least rainfall occurs in January, with an average of 0.9 inches. The predominant average hourly wind direction in Leakey is from the south throughout the year and the annual average hourly wind speed in Leakey is approximately 10 miles per hour (Weatherspark, 2025).

3.5.1.2 Regional Air Quality

Counties in the ROI are in attainment (or are unclassifiable) for each of the criteria pollutants regulated under the National Ambient Air Quality Standards (NAAQS) (Air Conformity Applicability Model [ACAM], 2024). Therefore, the General Conformity Rule does not apply to the Proposed Action and is not addressed further in this air quality analysis.

The proposed MOA would not be located within 100 kilometers (approximately 62 miles) of any U.S. Environmental Protection Agency (USEPA)-designated Class 1 areas protected by the Regional Haze Rule. No Class 1 areas would be affected by emissions associated with the Proposed Action.

3.5.1.3 Greenhouse Gases

Total annual greenhouse gases (GHG) emissions in Texas, based on a 5-year average (2016 through 2020), were approximately 836 million metric tons per year (mton/yr) of CO₂e (ACAM GHG emissions). This represents approximately 13 percent of total annual U.S. CO₂e emissions during the same 5-year period, which is reported to be 6,252 million mton/yr of CO₂e (ACAM GHG emissions).

Transportation activities accounted for 28.4 percent of U.S. GHG emissions from fossil fuel combustion in 2022. The largest sources of transportation greenhouse gas emissions in 2022 were light-duty trucks (36.5 percent); medium- and heavy-duty trucks (22.9 percent); passenger cars (20.4 percent); commercial aircraft (7.2 percent); pipelines (3.8 percent); ships and boats (2.8 percent); other aircraft (2.0 percent), and rail (2.0 percent) (USEPA, 2024).

3.5.2 Environmental Consequences

3.5.2.1 Evaluation Criteria

Jurisdictions within the ROI are in attainment (or are unclassifiable) for each of the criteria pollutants regulated under the NAAQS. As such, the General Conformity Rule is not applicable to emissions from the Proposed Action and is not addressed in this air quality analysis.

Based on guidance in Chapter 4 of the *Air Force Air Quality EIAP Guide, Volume II – Advanced Assessments*, estimated criteria pollutant emissions from the Proposed Action were compared against the insignificance indicator of 250 tons per year (tpy) (25 tpy for Pb) Prevention of Significant Deterioration (PSD) major source permitting threshold for actions occurring in areas that are in attainment for all criteria pollutants (Air Force, 2020). These “insignificance indicators” were used in the analysis to provide an indication of the significance of potential impacts on air quality based on current ambient air quality relative to the NAAQS. These insignificance indicators do not define a significant impact; rather, they provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for a criteria pollutant indicates that the action would not cause or contribute to emissions that would exceed one or more of the NAAQS. Although PSD and Title V permit requirements are not applicable to mobile sources, the PSD major source thresholds provide a benchmark for the comparison of estimated emissions and description of potential impacts.

The ACAM Version 5.0.24a (ACAM, 2024) was used to estimate the total non-exempt direct and indirect net emissions from the Proposed Action. The “Low Flight Pattern” activity type in ACAM was selected for estimating emissions in the proposed MOA. The Proposed Action is completely new and therefore, the total net emissions from the Proposed Action would be entirely additive (the current level would be zero). Impacts from the Proposed Action are evaluated based on the estimated net change in emissions compared against insignificance indicators for each pollutant. Pollutants emitted by aircraft above 3,000 feet AGL (or above the mixing height) are excluded from the air quality impact analysis for criteria pollutants.

The start date in ACAM is assumed to be January 1, 2026, which is the date when the proposed MOA would be assumed to become operational. The projected number of aircraft and aircraft operations in the proposed MOA is based on information in the data validation package prepared for the noise analysis (Section 3.3) (DAF, 2024d). Currently, aircraft operations in MOAs scheduled and managed by Laughlin AFB are not permitted below 7,000 feet MSL (Section 1.2.2). This analysis assumes that potential impacts on air quality from the Proposed Action would be associated with the operation of aircraft in the proposed MOA starting January 2026 and operating indefinitely. This analysis further assumes that aircraft operations in the proposed airspace would primarily be performed by pilots from the 47 FTW at Laughlin AFB initially flying T-38Cs and transitioning entirely to the T-7As beginning in 2034. Table 3.5-1 summarizes the annual number of sorties used for estimating emissions in ACAM, considering the transition from T-38Cs to T-7As. Additional information on potential effects from the proposed T-7A recapitalization at Laughlin AFB is provided in the T-7A Recapitalization Final EIS and ROD (DAF, 2024a).

Table 3.5-1 Annual Number of Sorties for Alternative 1

| Aircraft | Annual Laughlin 2A Low MOA Sorties | | | | | |
|----------|------------------------------------|-------------------|-------------------|-------------------|-------------------|------------------------------|
| | 2026-2029 ¹ | 2030 ² | 2031 ² | 2032 ² | 2033 ² | 2034 and Beyond ³ |
| T-38C | 1,570 | 1,256 | 942 | 628 | 314 | 0 |
| T-7A | 0 | 314 | 628 | 942 | 1,256 | 1,570 |

Notes:

¹ Represents sorties from existing T-38C operations in the newly established Laughlin 2A Low MOA for each year.

² Represents annual number of sorties from a mix of T-38C vs. T-7A operations in the Laughlin 2A Low MOA.

³ Represents annual number of sorties entirely from T-7A operations (T-38Cs phased out) in the Laughlin 2A Low MOA.

Greenhouse Gases. ACAM Version 5.0.24a was also used to evaluate GHG emissions from the Proposed Action. The GHG Emissions Evaluation calculates potential GHG emissions (CO₂e) from the action, determines if the action’s emissions are insignificant, and provides a relative significance comparison. For the analysis, the PSD threshold for GHG of 75,000 tpy of CO₂e (or 68,039 mton/yr) was used as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; rather, it provides a threshold to identify actions that are insignificant (*de minimis*). Actions with a net change in GHG (CO₂e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant further analysis. Actions with a net change in GHG (CO₂e) emissions above the insignificance indicator (threshold) are considered potentially significant and require further assessment to determine if the action would have a significant impact. If activities have *de minimis* (insignificant) GHG emissions, then on a global scale they are effectively zero and irrelevant (AFCEC, 2023).

ACAM assumptions, detailed emissions calculations, and summary results for the Proposed Action are provided in **Appendix D.4**.

3.5.2.2 Alternative 1

This analysis assumes that the proposed MOA would become operational in January 2026. From 2026 to 2029, T-38Cs would operate in the proposed MOA and would start to transition to the T-7A in 2030, with the transition being complete at the end of 2033. In 2034 and beyond, T-7As would operate exclusively and indefinitely in the proposed MOA; the T-38Cs would have been completely phased out. The T-7A is a single-engine, two-person, training aircraft that is currently programmed to be a one-for-one operational replacement for the T-38C. A small number of T-6A operations (10 per year) would also be performed in the proposed airspace.

Table 3.5-2 summarizes the annual net change (increase, decrease, or zero) in estimated criteria pollutant emissions considering the transition schedule from T-38C to T-7A aircraft that would take place during the timeframe of the Proposed Action. Emissions for each pollutant within the ROI would increase as a result of proposed operations under Alternative 1, but the estimated emission increase for each criteria pollutant would be less than their associated insignificance indicator values. As shown in **Table 3.5-2**, the highest annual emission increase would be for CO (31.92 tpy), which would be well below the insignificance indicator value of 250 tpy (25 tpy for Pb). These estimated net increases in criteria pollutant emissions would not be significant under Alternative 1 and therefore, would not be expected to result in an exceedance of the NAAQS for any criteria pollutant or cause an adverse impact on the attainment status of the Metropolitan San Antonio Intrastate AQCR.

Table 3.5-2 Estimated Total Annual Criteria Pollutant Emissions for Alternative 1

| Pollutant | Emissions (tons/year) | | | | | | Insignificance Indicator | Exceeds Indicator Level in any Year? |
|-------------------|------------------------|-------------------|-------------------|-------------------|-------------------|------------------------------|--------------------------|--------------------------------------|
| | 2026-2029 ¹ | 2030 ² | 2031 ² | 2032 ² | 2033 ² | 2034 and Beyond ³ | | |
| VOC | 1.36 | 1.87 | 2.38 | 2.89 | 3.40 | 3.91 | 250 | No |
| NO _x | 0.34 | 5.92 | 11.49 | 17.07 | 22.64 | 28.21 | 250 | No |
| CO | 31.92 | 26.18 | 20.44 | 14.70 | 8.96 | 3.22 | 250 | No |
| SO _x | 0.53 | 0.79 | 1.05 | 1.31 | 1.58 | 1.84 | 250 | No |
| PM ₁₀ | 0.88 | 0.75 | 0.62 | 0.49 | 0.36 | 0.22 | 250 | No |
| PM _{2.5} | 0.79 | 0.67 | 0.55 | 0.43 | 0.31 | 0.19 | 250 | No |
| Pb | 0 | 0 | 0 | 0 | 0 | 0 | 25 | No |
| NH ₃ | 0 | 0 | 0 | 0 | 0 | 0 | N/A | N/A |

Notes:

¹ Represents annual emissions from existing T-38C operations in the newly established Laughlin 2A Low MOA.

² Represents annual emissions from a mix of T-38C and T-7A operations in the Laughlin 2A Low MOA.

³ Represents annual emissions entirely from T-7A operations (T-38Cs phased out) in the Laughlin 2A Low MOA.

CO = carbon monoxide; N/A = not applicable; NH₃ = ammonia; NO_x = nitrogen oxides; Pb = lead; PM_{2.5} = particulate matter less than 2.5 microns; PM₁₀ = particulate matter less than 10 microns; SO_x = sulfur oxides; VOC = volatile organic compound

Although CO emissions in **Table 3.5-2** are the highest during the initial years of the Proposed Action (2026 to 2029), the highest emissions generated during the steady state⁴ (2034 and beyond)

⁴ Steady state means that the Proposed Action is considered to be fully implemented and no further net gain or loss in emissions would occur.

are for nitrogen oxides (NOx). This is because during the initial years of Proposed Action implementation only T-38Cs would operate in the proposed MOA and their engines generate more CO than NOx per sortie relative to T-7A engines, which emit more NOx than CO per sortie. By 2034, only T-7As would be operational and associated NOx emissions would be higher than CO. Regardless, annual emissions from both CO and NOx would be well below the insignificance indicator value of 250 tpy (25 tpy for Pb) and impacts on air quality would not be significant. The ACAM Report Record of Air Analysis and the Detailed ACAM Report are provided in **Appendix D.4.8**.

Greenhouse Gases. Table 3.5-3 summarizes estimated increases in maximum annual GHG emissions through the projected life cycle of Alternative 1 and provides its relative significance in a national and global context. Estimated annual GHG emissions for the projected life cycle of the Proposed Action would be well below the insignificance threshold value. Also, the total increase in GHG emissions from Alternative 1 is estimated to be 28,646 mton of CO₂e, which would result from the combustion of fossil fuels during aircraft operations in the proposed MOA. This increase would represent approximately 0.00034258 percent of total GHG emissions in the state and approximately 0.00004582 percent of total U.S. GHG emissions. At these low levels, Alternative 1 would not result in significant impacts from GHG on a regional or global scale.

Table 3.5-3 Estimated Annual GHG Emissions for Alternative 1 and Total GHG Relative Significance

| Year | GHG Emissions (mton/yr) ¹ | | | | Threshold (mton/yr) ² | Exceedance |
|---|--------------------------------------|-----------------------|-----------------------|------------------------|----------------------------------|------------|
| | CO ₂ | CH ₄ | N ₂ O | CO ₂ e | | |
| 2026 | 1,426 | 0.05994052 | 0.01169441 | 1,430 | 68,039 | No |
| 2027 | 1,426 | 0.05994052 | 0.01169441 | 1,430 | 68,039 | No |
| 2028 | 1,426 | 0.05994052 | 0.01169441 | 1,430 | 68,039 | No |
| 2029 | 1,426 | 0.05994052 | 0.01169441 | 1,430 | 68,039 | No |
| 2030 | 2,140 | 0.08999557 | 0.01755816 | 2,147 | 68,039 | No |
| 2031 | 2,855 | 0.12005063 | 0.0234219 | 2,865 | 68,039 | No |
| 2032 | 3,570 | 0.15010568 | 0.02928565 | 3,582 | 68,039 | No |
| 2033 | 4,285 | 0.18016074 | 0.0351494 | 4,299 | 68,039 | No |
| 2034 | 4,999 | 0.21021579 | 0.04101315 | 5,016 | 68,039 | No |
| 2035 [SS Year] | 4,999 | 0.21021579 | 0.04101315 | 5,016 | 68,039 | No |
| Total GHG (CO₂e) Relative Significance (mton)¹ | | | | | | |
| | CO₂ | CH₄ | N₂O | CO₂e | | |
| 2026-2032 (Action) | 28,550 | 1.200506 | 0.234219 | 28,646 | | |
| Percent of State Totals | | | | | 0.00034258 | |
| Percent of U.S. Totals | | | | | 0.00004582 | |

Notes:

¹ ACAM output results of GHG emissions and percent of Texas state and U.S. GHG emissions (see **Appendix D.3.7**).

² Air Force PSD threshold for GHG of 75,000 tpy of CO₂e (or 68,039 mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas.

CH₄ = methane; CO₂ = carbon dioxide; CO₂e = carbon dioxide equivalent; GHG = greenhouse gases; mton/yr = metric ton per year; N₂O = nitrous oxide; SS = steady state

3.5.2.3 No Action Alternative

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained and existing conditions in the ROI would continue. This would have no significant impact on air quality.

3.6 Biological Resources

3.6.1 Affected Environment

Wildlife. Wildlife within the ROI include a variety of grassland and generalist species, along with species that have successfully adapted to mixed agricultural landscapes. At least 45 species of mammals, 211 species of birds, and 54 reptile/amphibian species have the potential to occur within the ROI (iNaturalist, 2025a). Representative species with the potential to occur within the ROI include mammals such as big brown bat (*Eptesicus fuscus*), coyote (*Canis latrans*), common raccoon (*Procyon lotor*), rock squirrel (*Otospermophilus variegatus*), eastern cottontail rabbit (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), and wild boar (*Sus scrofa*); birds including American crow (*Corvus brachyrhynchos*), barn swallow (*Hirundo rustica*), purple martin (*Progne subis*), cliff swallow (*Petrochelidon pyrrhonota*), and mourning dove (*Zenaida macroura*); and reptiles and amphibians such as Blanchard's cricket frog (*Acris blanchardi*), gopher snake (*Pituophis catenifer*), checkered garter snake (*Thamnophis marcianus*), Texas horned lizard (*Phrynosoma cornutum*), diamondback water snake (*Nerodia r. rhombifer*), and Texas spiny lizard (*Sceloporus olivaceus*). Additional wildlife species with potential to occur in the ROI are listed in **Table D.5-1**. These species could be expected to breed, nest, and/or forage in terrestrial areas of the ROI where suitable habitat is present, while bird species could also occur within, below, or above the proposed airspace during migration or foraging activities.

The Ox Ranch, approximately 25 miles northwest of Uvalde, offers hunting opportunities for more than 70 species of exotic game such as aoudad (*Ammotragus lervia*), blackbuck (*Antilope cervicapra*), European fallow deer (*Dama dama*), lechwe (*Kobus leche*), red deer (*Cervus elaphus*), scimitar-horned oryx (*Oryx dammah*), and sika deer (*Cervus nippon*) (Ox Ranch, n.d.). The semi-arid conditions in the ROI are similar to habitats in east Africa and Asia from which some of these species originated.

Domestic Animals. Agricultural land uses within the ROI and surrounding Edwards Plateau / Texas Hill Country are dominated by large ranches (averaging 1,375 to 3,242 acres each) (NASS, 2022). At most ranches, domestic animals include sheep, goats, and cattle.

Migratory Flyways. In North America, approximately 70 percent of bird species are known to migrate, with approximately 80 percent of these (especially smaller songbirds) primarily migrating at night (Job, 2023). Migrating at night may allow birds to take advantage of calmer air, avoid predators, use the stars and moon to aid navigation, and minimize the risk of overheating (Job, 2023). Based on available radar data, many of these species begin their migratory flights approximately 30 to 45 minutes after local sunset, with peak bird density normally occurring 2 to 4 hours after sunset (BirdCast, 2025), though some local variations to this pattern exist.

The ROI is within the Central Flyway, a major north-south migratory corridor for waterfowl and songbirds that passes through Texas. Approximately 400 avian species use this flyway to transit

through central North America between summer breeding grounds to the north and wintering grounds to the south. It is estimated that up to 50 percent of all migratory waterfowl in North America use this flyway/migratory route (Fritts, 2022).

Federally Listed, Proposed, and Candidate Species and Federally Designated Critical Habitat. Table 3.6-1 summarizes federally listed, proposed, and candidate species known or having potential to occur in the ROI, and federally designated critical habitat in the ROI. Additional information on these species is provided in Table D.5-2. Although they have potential to occur in the ROI, the federally threatened piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*) are only considered in Texas for proposed wind energy projects and therefore, are not addressed further in this EA. The USFWS Official Species List for the ROI is provided in Appendix E (USFWS, 2025a).

Table 3.6-1 Federally Listed, Proposed, and Candidate Species Known or Having Potential to Occur in ROI

| Common and Scientific Name | Federal Status | Critical Habitat in the ROI? |
|--|-----------------------|------------------------------|
| Mammals | | |
| tricolored bat (<i>Perimyotis subflavus</i>) | Endangered (Proposed) | No |
| Birds | | |
| golden-cheeked warbler (<i>Setophaga chrysoparia</i>) | Endangered | No |
| Amphibians | | |
| San Marcos salamander (<i>Eurycea nana</i>) | Threatened | No |
| Texas blind salamander (<i>Eurycea rathbuni</i>) | Endangered | No |
| Fishes | | |
| fountain darter (<i>Etheostoma fonticola</i>) | Endangered | No |
| Insects | | |
| Comal Springs dryopid beetle (<i>Stygoparnus comalensis</i>) | Endangered | No |
| Comal Springs riffle beetle (<i>Heterelmis comalensis</i>) | Endangered | No |
| monarch butterfly (<i>Danaus plexippus</i>) | Threatened (Proposed) | No |
| Crustaceans | | |
| Peck's cave amphipod (<i>Stygobromus pecki</i>) | Endangered | No |
| Flowering Plants | | |
| Bracted twistflower (<i>Streptanthus bracteatus</i>) | Threatened | Yes |
| Texas snowbells (<i>Styrax platanifolius</i>) | Endangered | No |
| Texas wild-rice (<i>Zizania texana</i>) | Endangered | No |
| Tobusch fishhook cactus (<i>clerocactus brevihamatus</i>) | Threatened | No |

Source: USFWS, 2025a

Migratory Bird Treaty Act (MBTA). Most bird species are protected under the MBTA, and their protection by federal agencies is mandated by E.O. 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.

Bald and Golden Eagle Protection Act. Bald (*Haliaeetus leucocephalus*) and golden (*Aquila chrysaetos*) eagles are federally protected under the Bald and Golden Eagle Protection Act. No

nesting bald or golden eagles are known to be present in the ROI or the four underlying counties (iNaturalist, 2025b). However, transient bald eagles have potential to occur in the ROI, with occurrences most likely between October and March (Monk, 2021), and transient golden eagles are considered rare (TBBA, 2007).

Parks and Other Managed Lands. Lands within the ROI that are managed or otherwise protected by state and local agencies or non-profit or private organizations to conserve natural features or minimize development include Garner State Park, managed by TPWD and conservation easements managed by The Nature Conservancy, the U.S. Department of Agriculture Natural Resources Conservation Service, Green Spaces Alliance, the City of San Antonio, or joint management by any of the aforementioned entities, and other privately-owned easements. These lands may provide suitable habitat for common or protected species of wildlife and plants described above.

Garner State Park is a 1,775-acre park in north-central Uvalde County owned and managed by TPWD. This park contains mixed Ashe juniper and oak woodlands that provide suitable habitat for the golden-cheeked warbler.

None of the following types of parks or managed lands are present within the ROI: State Wildlife Management Areas managed by the TPWD; National Parks managed by the National Park Service; National Wildlife Refuges or Fish Hatcheries managed by the USFWS; or National Forests or Grasslands managed by the U.S. Forest Service.

3.6.2 Environmental Consequences

3.6.2.1 Evaluation Criteria

Potential impacts on biological resources would be adverse if the Proposed Action resulted in the inadvertent injury or death of individual animals of common wildlife species, or the temporary removal of suitable habitat for one or more common wildlife species; temporarily impeded or prevented the continued foraging, breeding, nesting, or migration of common wildlife at the community, population, or species level; reduced the distribution of one or more common wildlife species; resulted in the spread of invasive or nonnative species; or if Section 7 consultation with USFWS determined that the Proposed Action would be likely to adversely affect federally listed threatened and endangered species under the ESA. Adverse impacts on biological resources would be considered significant if the Proposed Action permanently impeded or prevented the continued foraging, breeding, nesting, or migration of common wildlife at the community, population, or species level; resulted in the permanent destruction of suitable habitat for common wildlife species; or if adverse effects on special status species or critical habitat could not be mitigated through consultation with USFWS.

As required by the ESA, federal agencies must determine that their proposed actions do not adversely affect the existence of any threatened or endangered species. Federal agencies must avoid unauthorized “take” of federally threatened or endangered species or adverse modification of designated critical habitat. The ESA Section 7 consultation process results in a “no effect” determination, USFWS concurrence with the DAF’s determination of “may affect, but not likely to adversely affect” federally listed species, or a “may affect, likely to adversely affect” determination, resulting in a biological opinion with either an Incidental Take Statement that

authorizes a specified amount of “take” (or adverse modification of designated critical habitat) or a jeopardy determination.

3.6.2.2 *Alternative 1 – Proposed Laughlin 2A Low MOA*

Unless otherwise noted, potential impacts on biological resources from the Proposed Action would be the same regardless of which type of aircraft (T-38C, T-7A, or T-6A) would operate in the proposed MOA (also see **Sections 1.2.2** and **3.1**). The proposed T-7A recapitalization at Laughlin AFB was previously determined to have less than significant adverse effects on wildlife and no effect on federally listed, proposed, or candidate species (DAF, 2024a).

Several factors, including direct strikes and visual effects associated with approaching aircraft could potentially impact wildlife in the ROI. Any impacts from visual sightings of approaching aircraft would most likely occur within the ROI below 1,000 feet AGL, the altitude accounting for most reactions to visual stimuli by wildlife (Bowles, 1995). Studies investigating the effects of overflight noise on wildlife suggest that impacts vary depending on the species, as well as a variety of other factors such as type of aircraft, duration of overflight, frequency of overflights, and aircraft speed. In addition, natural factors that affect impacts include age and sex, reproductive condition, group size, season, terrain, weather, and temperament (Bowles, 1995). Responses to aircraft noise include no response, increased heart rate, turning toward stimuli, or fleeing (mammals) and flushing (birds) (NPS, 1994).

Studies on the effects of noise on wildlife have been predominantly conducted on mammals and birds. Studies of subsonic aircraft disturbances on ungulates (e. g., pronghorn, bighorn sheep, elk, and mule deer), in both laboratory and field conditions, have shown that effects are transient and of short duration, and suggest that the animals habituate to the sounds (Bowles, 1995; Larkin, 1994; Weisenberger et al., 1996; Krausman et al., 2010).

Noise that is close, loud, sudden, and combined with a visual stimulus produces the most intense reactions in animals. Rotary-wing aircraft (helicopters) generally induce startle effects more frequently than fixed-wing aircraft (Gladwin et al., 1988). Some species habituate to repetitive noises, especially noise associated with overflight of fixed-wing aircraft, better than other species (Krausman et al., 1999). Some studies suggest that hearing damage may occur at sound levels louder than 115 dB (Ising, 1990). Physiological and behavioral reactions to aircraft overflights are indications of temporary stress upon wildlife and domestic animals. However, the long-term implications to individuals have not been studied extensively.

Portions of the lands in the ROI support ranching and agriculture. The effects of aircraft overflights and their accompanying noise on domestic livestock (such as cattle and horses) have been the subject of numerous studies since the late 1950s (Gladwin et al., 1988; U.S. Forest Service [USFS], 1992). These studies have examined the effects on a wide range of livestock including poultry, cattle, sheep, pigs, goats, and mink. Exposure to multiple overflights at all altitudes provided the basis for testing the animal’s response. Several general conclusions are drawn from these studies:

- Overflights do not increase death rates and abortion rates or reduce productivity rates (e.g., birth rates and weights) and do not lower milk production among domestic livestock (Gladwin et al., 1988).

- Animals take care not to damage themselves and do not run into obstructions, unless confined or traversing dangerous ground at a high rate if overflown by aircraft 163 to 325 feet AGL (USFS, 1992).
- Domestic livestock habituate to overflights and other noise. Although they may look or startle at a sudden onset of aircraft noise, they typically resume normal behavior within two minutes after the disturbance.

Inconclusive results have been obtained in some cases because the effect observed is no different than any other disturbance livestock experience daily, such as from vehicles or blowing vegetation. Historical interactions between cattle and numerous overflights have not indicated a problem. For example, cattle have grazed under heavily used military airspace at Avon Park Range in Florida, Saylor Creek and Juniper Butte Ranges in Idaho, and Smoky Hill Air National Guard Range in Kansas for decades. At these training ranges, grazing cattle have been subject to upwards of 100 overflights per day, many as low as 100 feet AGL. No evidence exists that the health or well-being of the cattle have been threatened. The animals, including calves, show all indications of habituating to the noise and overflights.

Visual and noise effects from fixed-wing aircraft flying below 1,000 feet AGL on flight-capable wildlife are dependent upon species demeanor, time of day, migration cycle, and behavioral activity. These are largely bird aircraft strike hazard (BASH) considerations accommodated by flight scheduling. No ground disturbance is associated with the Proposed Action, and it is anticipated that wildlife and domestic animals would generally habituate to noise and visual elements associated with aircraft operating in the proposed MOA. Therefore, noise and visual effects associated with the Proposed Action would have no significant adverse effects on wildlife and domesticated animals.

The low floor (500 feet AGL) in the proposed MOA may increase the potential for bird strikes. However, given the large (976-square mile) area where the training would occur, that most training would occur during daytime hours (sunrise to sunset, adjusted seasonally as needed), and the relatively low numbers of sorties proposed (1,570 annually, which would equate to an average of approximately 4.3 sorties per day, distributed across the 976-square mile proposed MOA), the likelihood for birds to encounter aircraft during training operations would remain low. Research suggests that approximately 80 percent of birds (especially smaller songbirds) using the Central Flyway primarily migrate at night (with peak volumes 3 to 4 hours after sunset). As a result, no significant increase in impacts on these migratory species is anticipated.

If BASH risk increases, pilots would follow additional avoidance procedures during low-altitude training. The inadvertent injury or death of birds from collisions with aircraft operating in the proposed MOA would represent an adverse impact. However, such impacts would occur at the individual level and would not permanently impede or prevent the continued foraging, breeding, nesting, or migration of common bird species wildlife at the community, population, or species level. Therefore, adverse impacts on birds would not be significant. Any “take” of birds protected by the MBTA would be small on an annual basis and would be considered incidental to military readiness activities in accordance with 50 CFR § 21.42.

Through informal Section 7 consultation with USFWS Austin Ecological Services Field Office, the DAF has determined that Alternative 1 would have no effect on the golden-cheeked warbler for the following reasons:

- The low frequency of proposed flight operations in the proposed MOA;
- The large area covered by the proposed MOA, and;
- The lack of data to suggest that this species occurs at or above 500 feet AGL or would otherwise be disturbed by the noise generated at or above this altitude.

For the same reasons, Alternative 1 would not jeopardize the continued existence of the tricolored bat or monarch butterfly, should they become listed. The USFWS is not currently providing concurrence on species proposed for listing. Section 7 correspondence is included in **Appendix A**.

Alternative 1 would have no effect on federally listed plant species, aquatic or semi-aquatic species (fishes, crustaceans, and insects), or federally designated critical habitat because no earth disturbance or activities in or adjacent to surface water bodies would occur.

3.6.2.3 No Action Alternative

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained and existing conditions would continue. This would have no effect on biological resources.

3.7 Cultural Resources

3.7.1 Affected Environment

The proposed MOA overlies approximately 976 square miles of airspace in southwest Texas, including portions of Edwards, Kinney, Real, and Uvalde Counties (**Figure 2.2-1**). The southern portion of the APE straddles the interface of the interior coastal plain, Balcones Escarpment, and the Edwards Plateau, which is characterized by low rolling to nearly flat terrain, underlain by unconsolidated sands, muds, limestones, and dolomites (Bureau of Economic Geology, 1996). Vegetation consists of grasslands with live oak-ashe juniper communities grading westward to creosote bush–tarbush shrub communities. From west to east, the lands underlying the APE are dissected by tributaries of the southerly flowing Nueces and Frio Rivers. Elevations vary between 300 and 2,300 feet above MSL.

There are no National Register of Historic Places (NRHP)-listed properties within the APE. The State of Texas identifies three NRHP-eligible properties and three Recorded Texas Historic Landmarks (RTHL) within the APE (TDOT, 2024). These architectural resources include two churches, two courthouse buildings, a hotel, and a private home (**Table 3.7-1**). The resources are located along Highway 55 and US 83 in Edwards, Real, and Uvalde Counties.

Table 3.7-1 List of NRHP-Eligible and RTHL Resources in the APE

| Resource Name | Resource Status | Year | County |
|-----------------------------------|----------------------------|---------|---------|
| Church of the Ascension | RTHL | 1890 | Uvalde |
| Davenport Home | RTHL | ca 1880 | Uvalde |
| First Baptist Church of Barksdale | RTHL | 1883 | Edwards |
| Merritt Hotel | NRHP-Eligible; Criterion A | 1925 | Real |

Table 3.7-1 List of NRHP-Eligible and RTHL Resources in the APE

| Resource Name | Resource Status | Year | County |
|------------------------------|---------------------------------------|------|--------|
| Real County Courthouse | NRHP-Eligible RTHL; Criterion A and C | 1918 | Real |
| Real County Courthouse Annex | NRHP-Eligible; Criterion C | 1920 | Real |

Source: TDOT, 2024

No federally recognized tribal lands are present within the APE (Bureau of Indian Affairs, 2016). No traditional cultural properties or Indian sacred sites have been identified on lands underlying the APE. Native American tribes with ancestral ties to land underlying the APE are listed in **Appendix A**.

The DAF initiated government-to-government consultation with these tribes in April 2025. To date, responses received from the San Carlos Apache Tribe (May 8, 2025 and October 17, 2025), Comanche Nation (May 30, 2025), White Mountain Apache Tribe (June 6, 2025), Ysleta del Sur Pueblo (July 24, 2025), Delaware Nation (November 6, 2025), Eastern Shoshone Tribe (December 17, 2025), and Kickapoo Traditional Tribe of Texas (December 18, 2025) have expressed no concerns regarding potential effects from the Proposed Action on properties of religious, historic, or cultural importance to those or other tribes. Following the 30-day Draft EA public comment period, the DAF followed up with each tribe listed in **Appendix A** to ensure that they had been informed of the Proposed Action and been provided with adequate opportunity to comment; no substantive comments or concerns regarding the Proposed Action were received from the tribes during this process. Government-to-government consultation correspondence is in **Appendix A**.

3.7.2 Environmental Consequences

3.7.2.1 Evaluation Criteria

Adverse impacts on cultural resources could include altering characteristics of the resource that make it eligible for listing in the NRHP. Such impacts could include introducing visual or audible elements that are out of character with the property or its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property’s historic significance. For the purposes of this EA, an effect would be considered significant if it would alter the integrity of an NRHP-listed or eligible resource or if it has the potential to adversely affect traditional cultural properties or Indian sacred sites and the practices associated with the property or sacred site.

3.7.2.2 Alternative 1–Establish New Low-Altitude MOA Directly Under Laughlin 2 MOA

Noise analysis conducted for the Proposed Action indicates that estimated cumulative noise levels associated with Alternative 1 would not exceed 49.8 dBA in any area of the APE (following full transition to the T-7A in 2033) and would remain well below the 65 dBA threshold below which most types of land uses are compatible with aircraft noise (see **Section 3.3**). Noise levels that can negatively affect buildings and structures typically exceed 130 dBA (U.S. Navy, 2018), and noise levels at or below 35 dBA would not be expected to introduce audible elements that would alter the character, setting, or integrity of a historic property. Although some individual locations within the APE could experience noise levels from Alternative 1 that could exceed 49.8 dBA, these

occurrences would be brief and relatively infrequent and would be unlikely to affect the integrity or character-defining features of any historic property. No ground disturbance would take place as part of Alternative 1; therefore, no archaeological resources (surface or subsurface) would be disturbed or otherwise affected. Likewise, Alternative 1 would not physically disturb or otherwise affect the NRHP-eligible or RTHL architectural resources underlying the APE. Alternative 1 would have no potential to affect traditional cultural properties or Indian sacred sites, as no such properties or sites have been identified in the APE.

Therefore, per guidance set forth in 36 CFR § 800.5, the DAF has determined that Alternative 1 would have no adverse effect on historic properties. In a response dated November 5, 2025, the Texas SHPO concurred with the DAF's determination. Section 106 correspondence is included in **Appendix A**.

3.7.2.3 *No Action Alternative*

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained, and existing conditions would continue. This would have no impact on historic properties.

3.8 Safety

3.8.1 Affected Environment

3.8.1.1 *MOA Operating Procedures*

Military aircraft flight training operations in MOAs are governed by standard rules of flight and may be conducted on a scheduled basis. MOAs are charted so nonparticipating aircraft may be aware of these operations. Additional information and operational procedures applicable to MOAs, including the existing Laughlin 1, 2, and 3 MOAs, are provided in Flight Publication (FLIP) AP/1A (DoD, 2025). Units responsible for scheduling flight training activities on MOAs must ensure that airspace information and procedures listed in FLIP AP/1A are complete and accurate for the safe and efficient operation of aircraft in the MOAs for which they are responsible. At a minimum, operational procedures or remarks provided in FLIP AP/1A typically include the following:

Scheduling and Coordination. Each MOA has a designated military office responsible for scheduling all military flights for use of that area. Areas shall not be used for military training unless scheduled.

Special conditions of use and procedures for each MOA are established by Letter of Agreement between the local military authority and the concerned ATC facility. The scheduling office will advise all scheduled military users of the operating procedures contained in the Letter of Agreement.

Military operations in excess of 250 knots below 10,000 feet should be conducted in SUA to the maximum extent possible.

Flight Procedures. Military training operations within MOAs shall be conducted in accordance with the Letter of Agreement.

Although not required, ATC or a military radar unit may provide advisory/monitoring/separation services within the MOA. However, the pilot is responsible for remaining within the area and exercising "see and avoid" during visual conditions.

Basic airmanship procedures exist for handling any deviations from air traffic control procedures due to an in-flight emergency; these procedures are defined in Air Force Manual 11-202 Volume 3, *Flight Operations* and established aircraft flight manuals. The Flight Crew Information File is a safety resource for aircrew day-to-day operations which includes flight operation rules and procedures.

3.8.1.2 Aircraft Mishaps

Aircraft mishaps and their prevention represent a prime concern of the DAF. A mishap is an unplanned occurrence or series of occurrences, that result in damage or injury and meets Class A, B, C, D, and Class E event reporting criteria as defined in DAFMAN 91-224, *Ground Safety Investigations and Reports*. Class A mishaps are the most severe with total property damage of \$2 million or more or a fatality and/or permanent total disability. Class E mishaps consist of work-related mishap that fall below Class D criteria; reporting is voluntary, and events requiring mandatory reporting are listed in discipline-specific safety manuals. Mishap classes are defined in **Table D.7-1**.

Based on historical data on mishaps at all DoD installations, and under all conditions of flight, the military services calculate mishap rates per 100,000 flying hours for each type of aircraft in the inventory. Over the last decade, Air Force Safety Center reports of Class A mishaps for all manned aviation (excluding flight related ground operations) have ranged from 7 in 2014 (a rate of 0.44 per 100,000 flight hours) to 23 in 2018 (a rate of 1.51 per 100,000 flight hours) (HQ AFSEC, 2023a). Similarly, Air Force Safety Center reports of Class B mishaps for all manned aviation (excluding flight related ground operations) have ranged from 23 in 2019 (a rate of 1.54 per 100,000 flight hours) to 38 in 2016 (a rate of 2.34 per 100,000 flight hours) (HQ AFSEC, 2023b). In comparison, from 2012 through 2021, T-38 aircraft have had 8 Class A mishaps (a rate of 0.79 per 100,000 flight hours) and 6 Class B mishaps (a rate of 0.59 per 100,000 flight hours) (Air Force Safety Center, 2024a). Over the same period, F-16 aircraft have had 35 Class A mishaps (a rate of 1.81 per 100,000 flight hours) and 24 Class B mishaps (a rate of 1.24 per 100,000 flight hours) (Air Force Safety Center, 2024b).

Laughlin's *Mishap Response Plan* (Laughlin AFB, 2022) is implemented following any major (Class A or B) Aviation, Occupational, Weapons or other category of mishap in the Laughlin AFB area of responsibility. Class A and B mishaps are the two categories with the most severe outcomes with regard to property damage, including destroyed aircraft, and fatalities and injuries. Over the last 5 years, Laughlin's safety statistics show no mishaps involving flights within the MOAs.

3.8.1.3 Bird/Wildlife Aircraft Strike Hazard

Aircraft collisions with birds and wildlife present a safety concern for aircraft operations because of the potential for damage to aircraft or injury to aircrews or local populations if a crash should occur. Aircraft can encounter birds at nearly all altitudes up to 30,000 feet MSL; however, most birds fly close to the ground. Approximately 52 percent of strikes occur from birds flying below 400 feet and 88 percent occur at less than 2,000 feet AGL (Air Force Safety Center, 2016).

The Air Force BASH program was established to minimize the risk for collisions of aircraft with birds and wildlife and the potential for subsequent human injury or loss of life, and property damage. In accordance with DAF Instruction 91-202, *The DAF Mishap Prevention Program* (DAF, 2024f), each DAF flying unit is required to develop a BASH plan to reduce hazardous bird/wildlife activity relative to airfield flight operations. The intent of each plan is to reduce BASH risks at airfields by establishing an integrated hazard abatement program through monitoring, avoidance, and actively controlling bird and animal population movements. Laughlin AFB is located within the Central Flyway migration corridor (**Section 3.6**), resulting in increased potential for in-flight encounters with birds during migration.

Areas near the existing Laughlin 1, 2, and 3 MOAs are classified by the Avian Hazard Advisory System as having generally low bird-strike risk during the night and moderate risk during the day throughout most of the spring and summer months. From October through February, the risk increases to moderate-to-severe during the morning hours. The *Laughlin AFB BASH Plan 91-212* (Laughlin AFB, 2023) establishes a program designed to minimize local and transient aircraft exposure to potentially hazardous bird/wildlife strikes at or near Laughlin AFB, in addition to other areas owned or managed by Laughlin AFB, including MOAs, where Laughlin local and transient aircraft operate on a regular basis. BASH incidents that occur in MOAs are reported and included in each installation's BASH statistics. In the last year, no BASH incidents have been reported associated with flight operations in or under the existing Laughlin 1, 2, and 3 MOAs.

3.8.1.4 Obstructions to Flight

A flight obstruction is any obstruction in navigable airspace that applies to existing and proposed human-made objects, objects of natural growth, and terrain. Flight operations in the proposed MOA would begin and end outside the airfield traffic pattern airspace area or Class B, C, and D airspace areas. FAA considerations and guidance for evaluating obstructions in airspace where aircraft are operating under VFR (such as the MOAs) include (FAA, 2025a):

- A structure would have an adverse effect upon VFR air navigation if its height is greater than 500 feet above the surface at its site, and within 2 statute miles of any regularly used VFR route.
- Evaluation of obstructions located within MOAs or VFR routes must recognize that pilots may, and sometimes do, operate below the floor of controlled airspace during low ceilings and 1-mile flight visibility. When operating in these weather conditions and using pilotage navigation, these flights must remain within 1 mile of the identifiable landmark to maintain visual reference. Even if made more conspicuous by the installation of high intensity white obstruction lights, a structure placed in this location could be a hazard to air navigation because after sighting it, the pilot may not have the opportunity to safely circumnavigate or overfly the structure.
- Operations in MOAs and MTRs provide military aircrews low altitude, high speed navigation and tactics training, and are a basic requirement for combat readiness (see FAA Order JO 7610.14, *Non-Sensitive Procedures and Requirements for Special Operations*). Surface structures have their greatest impact on VFR operations when ceiling and visibility conditions are at or near basic VFR minimums. Accordingly, the guidelines for a finding of substantial adverse effect on en route VFR operations are based on consideration for those

operations conducted under 14 CFR Part 91 that permits flight clear of clouds with 1-mile flight visibility outside controlled airspace. A proposed structure's location within the boundaries of a MOA is not a basis for determining it to be a hazard to air navigation; however, in recognition of the military's requirement to conduct low-altitude training, the DAF would disseminate Part 77 notices and aeronautical study information to military representatives. Additionally, attempts are made to persuade the sponsor to lower or relocate a proposed structure that exceeds obstruction standards and has been identified by the military as detrimental to its training requirement.

Flight safety concerns include obstacle avoidance which varies by aircraft and is published for each aircraft's associated 11-series publication. For example, Air Force Instruction 11-2F-16 Volume 3, *F-16 Operations Procedures* directs flight leads who are unable to visually acquire or ensure lateral separation from known vertical obstructions in the route of flight, to direct a climb to an altitude that ensures vertical separation, no later than 3 NM prior to the obstruction.

With gentle, rolling plains in and around the ROI, potential flight obstructions in or near these airspaces include commercial wind turbines and cellular towers which are both prevalent throughout southwest Texas. The U.S. Wind Turbine Database, which provides the location of land-based and offshore wind turbines in the United States, does not identify any wind turbines in the ROI. There are a small number of built and pending wind turbines approximately forty miles west of the proposed MOA (USGS, 2025). Safety concerns would involve proper monitoring and updating for future towers. Mitigation of these towers would include maintaining draw files on the T-38C to include updated tower locations and avoidance areas. Any safety concerns would be mitigated by applying similar procedures as Laughlin does with low level training.

3.8.2 Environmental Consequences

3.8.2.1 Evaluation Criteria

Impacts on safety from the Proposed Action are assessed according to the potential to increase or decrease safety risks to personnel, the public, property, or the environment. Adverse impacts on safety may include modifying the airspace such that aircraft would overfly populated areas at lower altitudes or implementing new flight procedures that result in greater flight safety risk; both types of changes could result from the establishment of the proposed MOA. For the purposes of this EA, an impact is considered significant if the proposed safety measures are not consistent with Air Force Office of Safety and Health and Occupational Safety and Health Administration standards resulting in unacceptable safety risks. Analysis of aircraft flight safety risks correlates projected Class A mishaps and potential collisions between birds with current airspace use to consider the magnitude of the change in risk associated with the Proposed Action.

Unless otherwise noted, potential effects described in this section would be the same regardless of whether T-38Cs, T-7As, or T-6As would be operating in the proposed MOA.

3.8.2.2 Alternative 1 - Establish New Low-Altitude MOA Directly Under Existing Laughlin 2 MOA

Aircraft Mishaps. Under Alternative 1, DAF pilots would utilize the proposed MOA, with vertical extents from 500 feet AGL up to, but not including 7,000 feet MSL possibly along with the existing Laughlin 1, 2, and 3 MOAs and ATCAA as described for Alternative 1. The proposed MOA would

be managed and operated as a separate airspace distinct from the existing Laughlin 1, 2, and 3 MOAs and ATCAA. This would allow FAA civilian ATC to restrict military operations in the airspace, when needed, to facilitate safe transit of the airspace by civilian aircraft (including any civil airports located directly below the airspace). The proposed MOA could be combined with the existing Laughlin 1, 2, and 3 MOAs and ATCAA to provide seamless flight operations from 500 feet AGL to FL 220, which would increase the space for vertical maneuverability and improve flight safety in that respect. However, the Proposed Action includes reasons why flight safety could potentially deteriorate. Foremost, there would be new, low-altitude military flights in the proposed MOA (initially including 1,570 T-38C and 10 T-6A annual operations, which would be below 2,000 feet AGL most of the time, and down to 500 feet AGL), whereas all operations are currently above 7,000 feet MSL. Aircraft mishaps due to BASH incidents, weather-related accidents, mechanical failure, or pilot error would therefore have the potential to increase.

With the T-7A recapitalization at Laughlin AFB, T-7A operations would gradually replace T-38C operations; the 47 FTW would continue to fly the T-38C in the FBF program until the transition to the T-7A is complete in 2033 (when 1,570 T-7A and 10 T-6A annual operations would occur in the proposed low MOA [Section 2.1]). However, the FBF training syllabus would require that the T-7A fly similar low-level mission profiles and otherwise fly like the T-38C throughout the Laughlin low and high MOAs.

The risk of aircraft mishaps under Alternative 1 would likely increase due to the introduction of low-level flying, whereas flights are currently conducted at higher altitudes. However, the limited amount of time an aircraft would be over any specific location, combined with sparsely populated areas under the proposed MOA and existing Laughlin 1, 2, and 3 MOAs and ATCAA, including limited areas that would be crossed by existing MTRs (IR-149, IR-170, VR-140, VR-168, VR-1122, and VR-1123; see Figure 3.2-1), would minimize the probability that an aircraft mishap would occur over a populated area. All MOA flight operations would continue to be conducted in accordance with procedures established in applicable DAF regulations and orders with the safety of its pilots and people in the surrounding communities as the primary concern. DAFMAN 13-201 addresses participation in the Midair Collision Avoidance Program, which helps inform the local civil aviation community of mission flight activities and the locations and times when those activities occur. Such ongoing interactions help promote a safe flying environment for both military and civil aviation pilots. Strict control and use of established safety procedures would minimize the potential for aircraft mishaps and safety risks in general and would ensure that any potential adverse impacts would not be significant.

Bird/Wildlife-Aircraft Strike Hazards. Military aircrews (T-38C, T-7A, T-6A, and others) operating within the proposed MOA and existing Laughlin 1, 2, and 3 MOAs and ATCAA would continue to follow applicable procedures outlined in the *Laughlin AFB BASH Plan 91-212* (Laughlin AFB, 2023). General flight safety risks and BASH risks would be assessed for flights lower than 1,000 feet AGL, and additional avoidance procedures outlined in the *Laughlin AFB BASH Plan* would be followed during low-altitude training as applicable. Continued adherence to current safety procedures, and taking preventive action when BASH risk increases, would ensure that potential impacts from BASH under Alternative 1 would not be significant.

Obstructions to Flight. Under Alternative 1, with the establishment of the proposed MOA and implementation of low altitude flying as low as 500 feet AGL, pilots would exercise "see and

avoid" actions during visual conditions to avoid potential obstructions in accordance with all applicable DAF procedures and requirements. As such, potential adverse impacts on safety from flight obstructions under Alternative 1 would not be significant.

All MOA flight operations would continue to be conducted in accordance with procedures established in the applicable DAF regulations and orders with the safety of its pilots and people in the surrounding communities as the primary concern. Therefore, Alternative 1 would have no significant adverse impacts on flight safety.

3.8.2.3 *No Action Alternative*

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained and existing conditions would continue. Flight training operations would continue in existing Laughlin 1, 2, and 3 MOAs and ATCAA in accordance with all applicable safety requirements. The No Action Alternative would have no adverse impacts on safety.

3.9 Socioeconomics

3.9.1 Affected Environment

3.9.1.1 *Population and Economy*

In 2024, the socioeconomics ROI had a population of 32,484 people (**Table 3.9-1**). Edwards County (1,383 people) had the smallest population and Uvalde County (25,138 people) had the largest. Kinney and Real Counties had populations of 3,191 and 2,772 people in 2024, respectively. The ROI had a population per square mile of 5.7 people in 2020 (U.S. Census Bureau, 2024).

In 2024 dollars, the ROI had a median household income of \$52,027 and a per capita income of \$27,292, which were lower than the respective amounts for the state of Texas as a whole (\$76,292 and \$39,446). The ROI had an unemployment rate of 4.2 percent, which was comparable to that of the state (4.1 percent) (U.S. Bureau of Labor Statistics, 2024).

The average percentages of people younger than 5 years of age and persons 65 years and older in the ROI were 20.9 and 25.7 percent, respectively. These were somewhat lower and notably higher than the respective statewide percentages for the same age groups in Texas (24.8 and 13.7 percent), indicating that the ROI contains a larger concentration of people 65 years of age and older relative to the statewide population (U.S. Census Bureau, 2024).

3.9.1.2 *Air Travel and Transport*

According to the Texas Department of Transportation (TDOT, 2018), Texas has one of the largest airport systems in the United States. Texas also has 25,000 registered aircraft, more than any other state. Overall, Texas airports provide \$94 billion in annual economic output, ranking first in the United States for air transportation employment with 789,000 jobs at 289 system facilities and a \$30 billion payroll. The economic impacts of these airports account for a wide variety of aviation services. At commercial airports, airlines move large volumes of people and cargo through the system. General aviation airports offer accessibility across Texas.

At least 18 airports or airfields are in the four Texas counties that make up the socioeconomics ROI (**Table 3.9-1**). Of these, three are general aviation airports (Edwards County, Real County,

and Garner Field Airport) and the remainder are private-use airfields associated with ranches. Two facilities in Real County and three in Uvalde County are directly below the proposed MOA (**Figure 3.2-1**). None of the airports in Edwards or Kinney Counties are under the proposed MOA.

Table 3.9-1 Airports in the Socioeconomics ROI

| Airport Name | Airport Symbol | County | Type | Directly Under Proposed Laughlin 2A Low MOA? |
|----------------------|----------------|---------|------------------|--|
| Edwards County | ECU | Edwards | General Aviation | No |
| Four Square Ranch | 3TA0 | Edwards | Private | No |
| Freeman Ranch | 8TX2 | Edwards | Private | No |
| Hackberry Ranch | XS69 | Edwards | Private | No |
| Pinon Ranch | 1XS8 | Edwards | Private | No |
| Fort Clark Springs | 74TX | Kinney | Private | No |
| L. Davis Ranch | 5XS8 | Kinney | Private | No |
| Leona Ranch | 75TX | Kinney | Private | No |
| Flying Bull Ranch | TA52 | Real | Private | Yes |
| Prade Ranch | 57TE | Real | Private | No |
| Real County | 49R | Real | General Aviation | Yes |
| Fossil Creek Ranch | TE78 | Uvalde | Private | Yes |
| Flying J Ranch | 7TE4 | Uvalde | Private | Yes |
| K Bar Ranch | 83TE | Uvalde | Private | No |
| Annandale Ranch | 2XS7 | Uvalde | Private | Yes |
| Benson Airstrip | 2XS8 | Uvalde | Private | No |
| Garner Field Airport | UVA | Uvalde | General Aviation | No |

Source: tollfreeairline.com, n.d.

3.9.2 Environmental Consequences

3.9.2.1 Evaluation Criteria

Impacts on socioeconomics would be considered significant if they resulted in either substantial changes in the local or regional population, housing, community general services (health, police, and fire services), disproportionate impacts on children, or social conditions from the demands of additional population/population shifts, (e.g., local or regional economy, employment, or spending or earning patterns).

3.9.2.2 Alternative 1

Alternative 1 consists entirely of activities that would occur in airspace above the earth’s surface and would not involve changes to the number of personnel assigned to any DoD or DAF installation; construction, demolition, or other ground-disturbing activities in the ROI; or any other associated activities that could result in changes in population, employment, income, or other social or economic activity in the ROI. Sustained aircraft noise levels associated with Alternative 1 would not exceed 65 dBA in any given location in the ROI, and as such, would be unlikely to directly result in either population growth or loss within the ROI. Therefore, Alternative 1 would have no potential to result in changes in population, disproportionate impacts on children or senior citizens, employment, income, or other social or economic activity within the ROI.

Increased noise levels from aircraft operating at lower altitudes in the proposed MOA would be comparable to existing conditions and not frequent enough, or loud enough, in the ROI to

permanently impede or prevent the continued operation of existing businesses or other economic activities, prevent the establishment of new businesses in the ROI, or adversely affect property values or the continued occupation or operation of underlying land uses, including those where concentrations of persons under the age of 18 or over 65 years of age could be present.

Civilian and commercial flights from airports in the ROI could be delayed slightly or be required to deviate for avoidance of military training activities in the airspace. However, during times when the proposed MOA would be active, Laughlin AFB ATC would implement and adhere to applicable airspace deconfliction procedures in accordance with its FAA-delegated ATC authority to ensure the safe operation and transit or avoidance of the airspace by commercial and general aviation aircraft. In compliance with FAA Order 7400.2 Section 25-1-4, Laughlin AFB ATC and pilots would also observe a 3-NM exclusion zone starting at 1,500 feet AGL around the Real County (49R) and Ox Ranch (10X) airports to prevent disruptions to ongoing operations at those facilities (**Section 3.2.2.2**). As such, Alternative 1 would not affect the economic activity or output of municipal and regional airfields or notably impede the movement of people and goods. Generally, these impacts would be the same whether T-38C, T-7A, or T-6A aircraft are operating in the proposed MOA. Therefore, impacts on socioeconomics from Alternative 1 would not be significant.

3.9.2.3 *No Action Alternative*

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained, and existing conditions would continue. This would have no impact on socioeconomics.

3.10 Visual Resources

3.10.1 Affected Environment

The visual character of the ROI is characterized by environments ranging from mostly flat to low rolling topography with rounded limestone hills and upland plateaus interspersed with dry creek beds and shallow drainages. The landscape exhibits moderate relief, with hilltops and occasional escarpments providing intermittent vistas across wooded uplands and open grasslands. Scrubland vegetation including live oak-ashe juniper communities and grasses are generally dominant, with denser brush cover along riparian corridors. Development within the ROI is sparse and primarily rural. Scattered residential dwellings, ranches, and outbuildings such as barns, sheds, and water storage tanks are visible throughout the landscape. Small, unincorporated communities are present but widely dispersed. Transportation infrastructure primarily includes two-lane paved roads such as U.S. Highway 377 and Farm-to-Market roads (secondary roads primarily in rural areas maintained by the Texas Department of Transportation), along with unpaved county roads and private ranch access roads. Utility lines, including overhead electrical distribution supported by wooden or metal poles, are common along transportation corridors. There is minimal non-agricultural commercial or industrial development within the ROI. Visibility is typically high throughout the ROI due to the relatively open terrain and low building density. In elevated areas, long sight distances afford views of surrounding ridgelines and valleys extending for several miles. Seasonal variation in vegetative cover and atmospheric clarity may slightly alter visibility, but unobstructed views are common during clear weather.

State and national parks and other natural areas place a value on maintaining and preserving natural features that contribute to a natural, rural, or rustic visual character. Such features include native vegetation and wildlife, naturally occurring topography and landscape features, and minimal buildings, structures, lighting, roads and infrastructure, and other features associated with human development. Wildlife management areas (WMAs) have a similar goal, providing opportunities for research and education by preserving natural habitats and wildlife populations of representative ecological systems. No national parks or WMAs are located within the ROI; however, Garner State Park is located within the eastern portion of the ROI along the Frio River, south of the unincorporated community of Rio Frio, and is a popular location for camping, hiking, bicycling, nature study, fishing, and non-motorized watersports (TPWD, 2025). Small local parks and natural areas may also be present in towns and communities within the ROI. Public recreational infrastructure is minimal and typically associated with rural roadways or small community gathering spaces, such as local churches or volunteer fire departments. These areas offer limited recreational amenities and are not focused on preserving scenic or natural visual resources.

Aircraft activity is part of the visual character in the ROI given the presence of the existing Laughlin 2 MOA, MTRs, and the approximately 3,100 military and civilian overflights that occurred within the proposed MOA airspace between September 2023 and August 2024 (**Section 3.2.1**). Most of these operations take place during daytime hours, contributing to the visual landscape by briefly altering the sky's appearance during the passage of aircraft through the airspace. As described in **Section 3.2.1.1**, 23 percent of the total operations within the proposed airspace consisted of military aircraft, with the remainder (77 percent) consisting of either civilian operators or aircraft of unknown origin. Approximately 49 percent of all operations in the ROI occurred at an average altitude of 6,000 feet MSL, with the remainder operating at an average of 5,000 feet MSL or below. Approximately 6 percent of aircraft in the proposed airspace operated at average altitudes of 3,000 feet MSL or less. Most military activity in the region occurs above 7,000 feet MSL (the floor of the Laughlin 2 MOA), although the ROI is crossed by MTRs with floors as low as surface level or 100 feet AGL (**Section 3.2.1.4**).

Given the ROI's large size (approximately 976 square miles), rugged terrain, low population density (approximately 5.7 persons per square mile; [U.S. Census Bureau, 2024]), and the distribution of aircraft operations throughout the airspace, most aircraft in the ROI are likely observed by a limited number of people at any given time, particularly aircraft operating at 7,000 feet MSL and higher. Wildlife and domestic animals in the region have likely adapted to the presence of military aircraft operating in the airspace. Overall, aircraft operating in airspace in the ROI have been a consistent part of the visual landscape for decades.

3.10.2 Environmental Consequences

3.10.2.1 Evaluation Criteria

The FAA has not established a significance threshold for light emissions or visual resources. However, factors considered in determining whether effects on visual resources from the Proposed Action would be considered significant include the following: the Proposed Action would affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; the Proposed Action would contrast with the visual resources and/or visual character in the ROI; the Proposed Action would block or obstruct the views of visual

resources, including whether these resources would still be viewable from other locations; light emissions associated with the Proposed Action would create annoyance or interfere with normal activities, or would affect the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; and unless otherwise noted, effects on visual resources from the Proposed Action would be the same regardless of which type of aircraft (T-38C, T-7A, or T-6A) would operate in the proposed airspace.

3.10.2.2 *Alternative 1*

Alternative 1 does not involve construction, demolition, or other earth-disturbing activities and therefore, would not introduce new permanent or temporary buildings, structures, light sources, or other constructed, inanimate features that would alter or block visual resources in the existing visual landscape of the ROI. Additionally, Alternative 1 would not change, modify, remove, or otherwise alter existing topography, vegetation, or other naturally occurring features. Therefore, Alternative 1 would have no permanent impacts from light emissions, and no permanent impacts on visual resources, in the ROI.

Aircraft operating in the proposed airspace at altitudes as low as 500 feet AGL would likely be visible to viewers in the ROI, given the relatively clear weather conditions that occur most days in the area; however, given that these operations would consist of jet aircraft traveling at hundreds of miles per hour, their appearance in the overlying airspace would be brief (likely less than a few minutes) at any given time as observed from a particular location. Given the need for pilots to adjust their flight patterns to prevent unintentional “spill outs” of the proposed airspace boundaries (**Section 3.3.1.2**), most aircraft operations would likely only be observable for a few moments by viewers in lands adjacent to the proposed Laughlin 2A MOA. The distribution of proposed low-altitude aircraft operations throughout an approximately 976 square mile area, combined with the low population density of the ROI, would further minimize the appearance of aircraft to viewers at any particular location in the ROI.

Although overflights as low as 500 feet AGL over Garner State Park could occur under Alternative 1, such overflights would be unlikely given the park’s proximity to the proposed MOA’s eastern boundary and the need for pilots to adjust their flight patterns to avoid unintentionally and temporarily flying beyond the airspace boundary (“spill outs”; see **Section 3.3.1.2**). Any such overflights would be infrequent, given the relatively low number of proposed daily sorties (4.3 on average; see **Section 2.1**) and the distribution of proposed aircraft operations throughout the 976-square mile airspace, and brief, given aircraft operating speeds. Furthermore, the occasional appearance of an aircraft associated with Alternative 1 over Garner State Park would not introduce a new or unusual visual feature given the presence of existing aircraft operations already occurring in the ROI; this includes existing MTRs with floors as low as 100 feet AGL that cross the park, including VR-1123 and VR-1122 (the reverse of VR-1123). Alternative 1 would have no effects on visual resources in national parks, WMAs, and other designated areas because none of these resources are present in the ROI.

Aircraft operations at altitudes ranging from surface level or 100 feet AGL to 8,000 feet MSL are already a common occurrence throughout the year in the proposed airspace. In addition to existing aircraft operations (**Section 3.2.1.1**), segments of six existing MTRs with floors of surface level, 100 feet AGL, and 500 feet AGL cross the proposed airspace (**Section 3.2.1.4** and **Figure 3.2-1**).

Therefore, aircraft passing overhead are already part of the existing visual landscape in the ROI, and aircraft operations under Alternative 1 would not introduce a new visual element that is not already commonly observed within the ROI. Wildlife and domestic animals in the ROI are likely conditioned to the presence of aircraft transiting the airspace. In the event that the visual appearance of an aircraft in the proposed airspace elicited a startle response in animals within the ROI, it is anticipated that they would quickly resume typical behaviors within a few minutes of the aircraft's passing (**Section 3.6.2**).

Aircraft operations under Alternative 1 would have no effect on traditional cultural places or Indian sacred sites, as no such properties or sites have been identified in the APE. In a response dated November 5, 2025, the Texas SHPO concurred with the DAF's determination of no adverse effect on historic properties (**Section 3.7.2.2; Appendix A**).

For these reasons, adverse impacts on visual resources in the ROI from Alternative 1 would be temporary and not significant.

3.10.2.3 No Action Alternative

Under the No Action Alternative, the proposed low-altitude airspace would not be obtained, and existing conditions would continue. This would have no effect on visual resources.

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4 References

- ACAM. 2024. Air Conformity Applicability Model. Air Impact Modeling Software by Solutio Environmental, Inc. for U.S. Air Force Civil Engineering Center (AFCEC/CZTQ), Version 5.0.24a, 2024.
- AFCEC. 2023. Air Force Civil Engineer Center. Compliance Technical Support Branch (CZTQ). DAF Greenhouse Gas (GHG) & Climate Change Assessment Guide. December. <https://www.aqhelp.com/AQdocs.html>. Accessed January 2025.
- Air Force Safety Center. 2016. USAF Wildlife Strikes by Altitude (AGL) FY 1995-2016. <https://www.safety.af.mil/Portals/71/documents/Aviation/BASH%20Statistics/USAF%20Wildlife%20Strikes%20by%20Altitude.pdf>. Accessed 25 September 2025.
- Air Force Safety Center. 2024a. T-38 Flight Mishap History, 9 July 2024. <https://www.safety.af.mil/Portals/71/documents/Aviation/Aircraft%20Statistics/T-38FY23.pdf>. Accessed 5 September 2025.
- Air Force Safety Center. 2024b. F-16 Flight Mishap History, 25 June 2024. <https://www.safety.af.mil/Portals/71/documents/Aviation/Aircraft%20Statistics/F-16FY23.pdf>. Accessed 5 September 2025.
- Air Force. 2020. Air Force Air Quality EIAP Guide, Volume II - Advanced Assessments. July.
- ATAC. 2025. Final Report for Airspace Analysis in Support of the Environmental Impact Analysis Process (EIAP) for the United States Air Force (USAF) Laughlin 2 Military Operating Area (MOA), Texas. Prepared for Department of the Air Force. June 2025.
- BirdCast, 2025. Migration Dashboard. <https://birdcast.info/migration-tools/migration-dashboard/>. Accessed May 12, 2025.
- Bowles, A.E. 1995. Responses of Wildlife to Noise – Wildlife and Recreationalists: Co-existence Through Management and Research. Island Press. Chapter 8, pp 154-213.
- Bureau of Economic Geology. 1996. Physiographic Map of Texas. The University of Texas at Austin, Austin, Texas.
- Bureau of Indian Affairs. 2016. Indian Lands of Federally Recognized Tribes of the United States. Department of the Interior, Bureau of Indian Affairs, Office of Trust Services. <https://www.bia.gov/sites/default/files/dup/assets/bia/ots/webteam/pdf/idc1-028635.pdf>. Accessed March 2025.

- Czech, J.J. and K.J. Plotkin. 1998. NMAP 7.0 User's Manual. Wyle Research Report WR 98-13. Wyle Laboratories, Inc. November.
- DAF. 2022. Department of the Air Force. DAF Manual 13-201, *Nuclear, Space, Missile, Command and Control – Airspace Management*, 11 January 2022. https://static.e-publishing.af.mil/production/1/afsoc/publication/dafman13-201_afsocsup/dafman13-201_afsocsup.pdf. Accessed November 6, 2024.
- DAF. 2023. “Low-Altitude Flying Training.” <https://www.af.mil/AboutUs/FactSheets/Display/Article/104591/low-altitude-flying-training/>. Accessed November 9, 2024.
- DAF. 2024a. *Final Environmental Impact Statement for T-7A Recapitalization at Laughlin Air Force Base, Texas*. <https://laughlin.t-7anepadocuments.com/documents>. Accessed November 6, 2024.
- DAF. 2024b. T-6A *Texan* II. <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104548/t-6a-texan-ii/>. Accessed November 10, 2024.
- DAF. 2024c. T-1A *Jayhawk*. <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104542/t-1a-jayhawk/>. Accessed November 10, 2024.
- DAF. 2024d. Laughlin AFB Data Validation Package.
- DAF. 2024e. Department of the Air Force Manual 91-224, Ground Safety Investigations and Reports.
- DAF. 2024f. Department of the Air Force Instruction 91-202. The Department of the Air Force (DAF) Mishap Prevention Program, 20 March 2020, Incorporating Change 1, 10 April 2024. Certified current on 10 April 2024.
- DAF. 2025. Draft Environmental Assessment for Randolph 2A Low Military Operations Area Special Use Airspace. January.
- DNWG. 2013. Department of Defense Noise Working Group. Technical Bulletin, Noise-Induced Hearing Impairment, Defense Noise Working Group. December.
- DoD. 2025. Flight Information Publication AP/1A, Area Planning Special Use Airspace, North and South America. Published by National Geospatial-Intelligence Agency. July.
- FAA. 2023a. Chapter 15 “Airspace” in *Pilot's Handbook of Aeronautical Knowledge*. https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak. Accessed November 6, 2024.
- FAA. 2023b. FAA Aeronautical Information Manual. Official Guide to Basic Flight Information and ATC Procedures. April.
- FAA. 2025a. FAA Order JO 7400.2, *Procedures for Handling Airspace Matters*, February 20, 2025. https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentNumber/7400.2. Accessed March 21, 2025.

- FAA. 2025b. FAA CDM International Online Workshop. <https://tfmlearning.faa.gov/tfm-training/atfm-basics/cdm-t1-lesson5b.html>. Accessed April 14, 2025.
- FICAN. 1997. Federal Interagency Committee on Aviation Noise. Effects of Aviation Noise on Awakenings from Sleep. June.
- Fritts, Rachel. 2022. Avian Superhighways - The Fourt Flyways of North America. <https://abcbirds.org/blog/north-american-bird-flyways/>. Accessed May 14, 2025.
- Gladwin, D.N., K.M. Mancini, and R. Villeda. 1988. Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: A Literature Synthesis. Report AFESC TR 88-14. U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Air Force. 88 pp.
- HQ AFSEC. 2023a. Headquarters Air Force Safety Center. Department of the Air Force. Aviation Class A Mishap Summary by Fiscal Year, 5 September.
- HQ AFSEC. 2023b. Department of the Air Force. Aviation Class B Mishap Summary by Fiscal Year, 25 September.
- Ikelheimer, B. and M. Downing. 2013. MR_NMap Noise Model Improvements. Blue Ridge Research and Consulting Technical Report. August.
- iNaturalist. 2025a. iNaturalist Species Search. https://www.inaturalist.org/observations?nelat=29.750086856214907&nelng=-99.71813255171308&page=16&quality_grade=research&subview=map&swlat=29.25407014004412&swlng=-100.08068137983808&iconic_taxa=Aves. Accessed May 13, 2025.
- iNaturalist. 2025b. iNaturalist - Texas Eagle Nests. <https://www.inaturalist.org/projects/texas-eagle-nests>. Accessed May 14, 2025.
- Ising, H. 1990. Annoyance and Health Risk Caused by Military Low-Altitude Flight Noise. https://www.academia.edu/83999958/Annoyance_and_health_risk_caused_by_military_low_altitude_flight_noise. Accessed May 16, 2025.
- Job, Jacob. 2023. Scientific American Podcast Series: They Tap Into the Magical, Hidden Pulse of the Planet, but What is the Nighttime Bird Surveillance Network? <https://www.scientificamerican.com/podcast/episode/they-tap-into-the-magical-hidden-pulse-of-the-planet-but-what-is-the-nighttime-bird-surveillance-network/>. Accessed May 12, 2025.
- Krausman, P.R., L.K. Harris, C.L. Blasch, K.G. Koenen, and J. Francine. 2010. Effects of Military Operations on Behavior and Hearing of Endangered Sonoran Pronghorn. <https://wildlife.onlinelibrary.wiley.com/doi/abs/10.2193/0084-0173%282004%29157%5B1%3AEOMOOB%5D2.0.CO%3B2>. Accessed May 16, 2025.

- Krausman, P.R., M.C. Wallace, and D.W. De Young. 1999. The Effects of Low-Altitude Jet Aircraft on Desert Ungulates. International Congress on Noise. Conference Proceedings 6(3): pp 471-478.
- Larkin. 1994. Effects of Military Noise on Wildlife: A Literature Review. U.S. Army Corps of Engineers, Defense Technical Information Center. Report ADA 305234. 111 pp.
- Laughlin AFB. 2022. Laughlin AFB Mishap Response Plan. Headquarters 47th Flying Training Wing. July.
- Laughlin AFB. 2023. Laughlin AFB Bird/Wildlife Aircraft Strike Hazard (BASH) Plan 91-212. Headquarters 47th Flying Training Wing. January.
- Laughlin AFB. 2024. 47th Flying Training Wing History. <https://www.laughlin.af.mil/About-Us/Fact-Sheets/Display/Article/354526/47th-flying-training-wing-history/>. Accessed November 9, 2024.
- Lucas, Michael J. and Paul T. Calamia. 1997. Military Operating Area and Range Noise Model MR_NMAP User's Manual. Wyle Research Report WR 94-12-R. Wyle Laboratories, Inc. March.
- Monk, Matthew. 2021. Bald Eagles in Texas and Making a Comeback: Where You Can See Them. <https://texashillcountry.com/bald-eagles-in-texas-are-making-a-comeback/>. Accessed May 15, 2025.
- NASS. 2022. National Agricultural Statistics Service - County Profiles. https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Texas/. Accessed May 14, 2025.
- NPS. 1994. Report on Effects of Aircraft Overflights on the National Park System. Report to Congress.
- NPS. 2012. National Park Service – Amistad Bird Studies. <https://home.nps.gov/articles/amistad-bird-studies.htm>. Accessed May 15, 2025.
- Ox Ranch. n.d. Hunting. <https://www.oxhuntingranch.com/hunting/>. Accessed June 11, 2025.
- Stusnick, E., K.A. Bradley, J.A. Molino, and G. DeMiranda. 1992. The Effect of Onset Rate on Aircraft Noise Annoyance, Volume 2: Rented Home Experiment. Wyle Laboratories Research Report WR 92-3, March.
- TBBA. 2007. The Texas Breeding Bird Atlas: Golden Eagle. <https://txtbba.tamu.edu/species-accounts/golden-eagle/>. Accessed August 20, 2025.
- TDOT. 2018. Texas Department of Transportation. Aviation Division Texas Aviation Economic Impact Study. Accessed April 10, 2025.
- TDOT. 2024. Historic Resources Aggregator. TxDOT Environmental Affairs Division. <https://www.arcgis.com/home/item?id=9953d9460ca24701b997bcb176da0fb0>. Accessed December 2024.

- Tollfreeairline.com. n.d. Texas airports by county. <https://www.tollfreeairline.com/texas.htm>. Accessed May 5, 2025.
- TPWD. 2025. Texas Parks and Wildlife Department. Garner State Park. <https://tpwd.texas.gov/state-parks/garner>. Accessed May 5, 2025.
- U.S. Bureau of Labor Statistics. 2024. Employment/Unemployment Data_2024. <http://data.bls.gov/pdq/SurveyOutputServlet>. Accessed April 15, 2025.
- U.S. Census Bureau. 2020a. Barksdale Census Designated Place, Texas. https://data.census.gov/profile/Barksdale_CDP,_Texas?g=160XX00US4805648. Accessed on May 29, 2025.
- U.S. Census Bureau. 2020b. Camp Wood City, Texas. https://data.census.gov/profile/Camp_Wood_city,_Texas?g=160XX00US4812388. Accessed on May 29, 2025.
- U.S. Census Bureau. 2020c. Knippa Census Designated Place, Texas. https://data.census.gov/profile/Knippa_CDP,_Texas?g=160XX00US4839664. Accessed on May 29, 2025.
- U.S. Census Bureau. 2020d. Leakey City, Texas. https://data.census.gov/profile/Leakey_city,_Texas?g=160XX00US4842004. Accessed on May 29, 2025.
- U.S. Census Bureau. 2020e. ZIP Code Tabulation Area 5 78879 (includes Rio Frio). https://data.census.gov/profile/ZCTA5_78879?g=860XX00US78879. Accessed on May 29, 2025.
- U.S. Census Bureau. 2024. Quick Facts: <https://www.census.gov/quickfacts/fact/table/US/PST045222>. Accessed April 8, 2025.
- U.S. Navy. 2018. U.S. Department of the Navy (Environmental Impact Statement for EA-18G “Growler” Airfield Operations at Naval Air Station Whidbey Island Complex, Appendix A1 https://media.defense.gov/2019/Feb/04/2002085739/-1/-1/1/APPENDIX%20A%20NOISE%20STUDY_MAIN%20BODY.PDF Accessed December 2024.
- USDOE. 2023. U.S. Department of Energy. Wind Power Resource at 100-Meter Hub Height. <https://windexchange.energy.gov/maps-data/324>. Updated January 9, 2023. Accessed June 17, 2025.
- USEIA. 2024. U.S. Energy Information Administration. Wind explained: Where wind power is harnessed. <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php>. Updated June 12, 2024. Accessed June 17, 2025.
- USEPA. 2024. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022. EPA 430-R-24-004. https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf.

- USFS. 1992. U.S. Forest Service. Potential Impacts of Aircraft Overflights of National Forest System Wildernesses. Report to Congress. Authors R.T. Harrison and W.J. Makel.
- USFWS. 2017. U.S. Fish and Wildlife Service. ESA Basics - 40 Years of Conserving Endangered Species. <https://www.fws.gov/sites/default/files/documents/endangered-species-act-basics.pdf>. Accessed May 14, 2025.
- USFWS. 2025a. Information Planning and Consultation. <https://ipac.ecosphere.fws.gov/>. Accessed May 15, 2025.
- USFWS. 2025b. Golden-Cheeked Warbler (*Setophaga chrysoparia*) 5-Year Status Review: Summary and Evaluation.
- USGS. 2024. U.S. Geological Survey. National Land Cover Database. <https://www.usgs.gov/data/annual-national-land-cover-database-nlcd-collection-1-products>. Accessed January 30, 2025.
- USGS. 2025. U.S. Wind Turbine Database. Updated May, 2025. <https://energy.usgs.gov/uswtodb/viewer/#6.88/32.577/-100.962>. Accessed June 17, 2025.
- Wasmer, F. and F. Maunsell. 2024a. BaseOps 7.370 User's Guide. Wasmer Consulting.
- Wasmer, F. and F. Maunsell. 2024b. NMPlot 4.975 User's Guide. Wasmer Consulting.
- Weatherspark. 2025. Climate and Average Weather Year Round in Leakey Texas, United States. <https://weatherspark.com/y/6205/Average-Weather-in-Leakey-Texas-United-States-Year-Round>. Accessed May 6, 2025.
- Weisenberger, M.E. 1996. Effects of Simulated Jet Aircraft Noise on Heart Rate and Behavior of Desert Ungulates. *Journal of Wildlife Management*, 60(1): pp 52-61.