ESTABLISHMENT OF RECIPROCAL INSTRUMENT ROUTE 187 (IR-187) FOR DYESS AIR FORCE BASE, TX

Draft

ENVIRONMENTAL ASSESSMENT

April 2018

Acronyms and Abbreviations

AFB	Air Force Base
AFI	Air Force Instruction
AGL	above ground level
Air Force	United States Air Force
ARTCC	Air Route Traffic Control Center
BASH	Bird/Wildlife-Aircraft Strike Hazard
BW	Bomb Wing
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FLIP	Flight Information Publication
FONSI	Finding of No Significant Impact
G	force of gravity
GHG	greenhouse gas
IFR	Instrument Flight Rule
IR	Instrument Route
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
$L_{eq(h)}$	hourly average noise levels
L_{max}	Maximum Sound Level
MOA	Military Operations Area
mph	miles per hour
MSL	mean sea level
MTR	Military Training Route
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
nm	nautical mile
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
PHL	Potential Hearing Loss
PL	Public Law
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
RBTI	Realistic Bomber Training Initiative
ROD	Record of Decision
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
TCEP	Texas Clean Energy Project
U.S.	United States
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VFR	Visual Flight Rule
VOC	volatile organic compound

Privacy Advisory for Draft Environmental Assessment

Letters or written comments received on the Draft EA may be published in the Final EA. As required by law, the Air Force will consider those comments in the Final EA. Any personal information was used only to identify your desire to make a comment during the public comment period or to fulfill a request for copies of the EA. Private address information provided with comments will be used solely to develop the Final EA and will not be otherwise released.

DRAFT ENVIRONMENTAL ASSESSMENT (EA)
ESTABLISHMENT OF RECIPROCAL INSTRUMENT ROUTE 187 (IR-187) FOR DYESS AIR FORCE BASE (AFB)

Responsible Agency: United States (U.S.) Air Force (Air Force)

Proposed Action: The Air Force, in cooperation with the Federal Aviation Administration (FAA), proposes to designate an existing Military Training Route (MTR), IR-178, as a reciprocal route where aircraft can fly in an opposite direction in accordance with strict scheduling procedures. The proposed reciprocal route, designated IR-187, would consist primarily of existing IR-178 (520 nautical miles [nm]) and a small portion (24 nm) of another existing MTR, IR-180 and its reciprocal IR-128 (referred to as IR-180/128); no new airspace is proposed. In addition to the reciprocal route, two new entry and one new exit points are proposed within this existing MTR. Located in west Texas and southeast New Mexico, and extending for approximately 544 nm, the MTR would continue to support training for B-1 Bombers operating out of Dyess AFB in Abilene, Texas. No new areas of land would be overflown, and B-1 aircraft will continue to fly at or above 500 feet above ground level (AGL) throughout the entirety of the MTR. There would be no changes in the number of flight operations identified and authorized in the 2007 Realistic Bomber Training Initiative (RBTI) Record of Decision (ROD) for Lancer Military Operations Area (MOA) and IR-178. B-1 aircrews would continue to use existing IR-178 in one direction and the proposed reciprocal IR-187 in the opposite direction. Operations on the two routes would be managed and scheduled by Dyess AFB. This ensures that aircraft go in the same direction when in use. In summary, under the proposed action, aircraft would fly in the MTR in both directions, remain at or above 500 feet AGL, create no new airspace, and not change the number of authorized flight operations in IR-178 and the small portion of IR-180/128.

Written comments and inquiries regarding this document should be directed to 7 CES/CENPP, 710 Third Street, Dyess AFB, TX 79607, ATTN: Tommy Downing

Designation: Draft EA

Abstract: The primary purpose of the proposed action is to enhance low-altitude bomber training for aircrews without overflying new ground areas. The proposed action would allow aircrew members to train in the opposite direction (east-to-west) compared to that currently flown on IR-178 and portion of IR-180 (west-to-east) and its reciprocal IR-128, referred to as IR-180/128. B-1 aircraft operations would be split between IR-178 and IR-187 and when combined, the total number of operations would not change or exceed those authorized in the MTR. B-1 aircraft will continue to fly no lower than 500 feet AGL within the existing and proposed MTRs, regardless of the FAA's charted floor altitude (i.e., if the charted floor in an MTR segment is 300 feet AGL, B-1s will go no lower than 500 feet AGL). No new airspace and no changes in total number of aircraft operations are proposed, nor would there be construction or personnel changes. By flying in an opposite direction in existing low-altitude MTRs, this proposal improves training by providing a new perspective for aircrew members on the best mountainous terrain in west Texas. Additionally, the establishment of entry points closer to Dyess AFB shortens flying time and thus reduces fuel costs.

The geographic scope of potential impacts includes those communities and resources that could be affected either directly or indirectly by the proposed action or no-action alternative. Proposed IR-187 would comprise a reciprocal MTR with portions of existing IR-178 and IR-180/128. The structure of the proposed IR-187 would occupy existing IR-178 and IR-180/128 MTR. No additional MTR is proposed. Aircraft operations would remain at the authorized annual number of up to 1,560 sorties.

This EA was prepared to comply with National Environmental Policy Act and implementing regulations and comprises the analysis of the potential environmental consequences resulting from implementing the proposed action and no-action alternative, and the cumulative environmental consequences of the proposed action and alternatives relative to pertinent past, present, and reasonably foreseeable future actions. Eight resource categories and cumulative effects received a thorough interdisciplinary analysis to identify potential impacts. According to the analysis in this EA, implementing the proposed action would have less than significant effects on current environmental conditions under the airspace.

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DRAFT
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Environmental Assessment:
Establishment of Reciprocal Instrument Route 187 for Dyess Air Force Base, Texas

Proposed Action

An Environmental Assessment (EA) was prepared to evaluate potential environmental impacts of the proposed action and no-action alternative for establishing a reciprocal (or reverse) Military Training Route (MTR) with portions of existing Instrument Route (IR) 178 and IR-180/128 for Dyess Air Force Base (AFB) in Texas. Under the proposed action, designated IR-187 would be established within the existing horizontal and vertical limits of IR-178 and portions of IR-180/128.

Proposed IR-187 would consist of 34 segments totaling 544 nautical miles (nm), all of which would occupy the existing MTR. Of that total, 33 segments covering approximately 520 nm would be structurally identical to IR-178 segments. Approximately 24 nm (1 segment) would match with a segment of IR-180/128 and IR-178. No new MTR would be created with the IR-187 proposal; aircraft would just fly in the opposite direction. The Air Force would fly a combination of five route options along IR-187 using different entry and exit points. Use of IR-178 would also continue to occur, coordinated through scheduling by Dyess AFB. Regardless of the route options or direction flown, aircraft would not exceed the total sorties authorized in the 2007 Realistic Bomber Training Initiative (RBTI) Record of Decision for any segment of IR-178, IR-180/128, or proposed IR-187.

Purpose and Need of the Proposed Action

The purpose of the proposed action is to enhance low-altitude bomber training for aircrews. This is driven by the need to meet an operational requirement (Air Force Instruction [AFI] 11-2 B1 Volume 1), the 7th Bomb Wing (7 BW) that requires continued low-altitude flight and terrain-following training under varying conditions. Currently, bombers use one-directional IR-178 and portions of IR-180 and its reciprocal 128 (referred to as IR-180/128) to maintain combat readiness in low-altitude and terrain-following maneuvers. Establishing IR-187 allows enhanced realistic training activities in existing airspace, maximizes use of existing airspace, and fulfills low-altitude training requirements over available high-quality mountainous terrain—all without creating a new MTR. No airspace reconfigurations or operational changes are proposed for Lancer Military Operations Area (MOA).

No-Action Alternative

The no-action alternative would involve no changes to the existing IR-178 and IR-180/128 MTR floor and ceiling altitudes or to the number of sorties authorized. If this alternative were chosen, operations in the MTRs would continue in the direction currently done; however, aircrews would not be challenged with a greater variety of low-altitude training or reduction of transit time to the MTR.

Summary of Findings

Eight resource categories received a thorough interdisciplinary analysis to identify potential impacts. Potential cumulative impacts were also considered. According to the analysis in the EA, implementing the proposed action would have a negligible to minimal effect on human and natural conditions under IR 187. In consultation with the U.S. Fish and Wildlife Service (New Mexico and Texas Field Offices), they concurred with the Air Force findings of “may affect, is not likely to adversely affect” the Mexican

spotted owl, Southwestern willow flycatcher, and Northern aplomado falcon. Both the Texas and New Mexico State Historic Preservation Offices agreed with the Air Force finding that no historic properties would be affected by the proposed action. Government-to-government coordination also occurred with American Indian tribes with potential interest in the proposed action and no indication was given that there were concerns with the proposed action.

Finding of No Significant Impact

Based on the information and analysis presented in the EA, conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality regulations, implementing regulations set forth in 32 Code of Federal Regulations 989 (*Environmental Impact Analysis Process*), as amended, and review of agency comments, we conclude that the environmental effects of activities contributing to the establishment of IR-187 are not significant. Therefore, preparation of an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

_____ Date _____

BRIAN C. LEE, GS-15, DAF
Senior Civil Engineer

Draft

ESTABLISHMENT OF RECIPROCAL INSTRUMENT ROUTE 187 (IR-187) FOR DYESS AIR FORCE BASE ENVIRONMENTAL ASSESSMENT

Dyess Air Force Base, Texas

April 2018

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Executive Summary

The United States (U.S.) Air Force (Air Force), in cooperation with the Federal Aviation Administration (FAA), proposes the designation of an existing Military Training Route (MTR), Instrument Route 178 (IR-178) and a small portion of IR-180 (and its reciprocal IR-128), as a reciprocal route where aircraft can fly in opposite directions in accordance with strict scheduling procedures.

An MTR is airspace of defined vertical and lateral dimensions established to conduct military flight training at airspeeds in excess of 250 knots indicated airspeed. An IR is used by the Department of Defense (DoD) and associated Reserve and Air National Guard units for the purpose of conducting low-altitude navigation and tactical training in both instrument flight rules and visual flight rules weather conditions below 10,000 feet mean sea level (MSL) at airspeeds in excess of 250 knots indicated airspeed.

This Environmental Assessment (EA) was prepared by the Air Force in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force's implementing regulations (32 CFR Part 989). This EA analyzes the potential environmental consequences resulting from the proposed action and no-action alternative.

ES.1 PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed action is to enhance low-altitude bomber training for aircrews. This is driven by the need to meet an operational requirement (Air Force Instruction [AFI] 11-2 B1 Volume 1), the 7th Bomb Wing (7 BW) that requires continued low-altitude flight and terrain-following training under varying conditions. Currently, bombers use one-directional IR-178 and portions of IR-180 and its reciprocal 128 (referred to as IR-180/128) to maintain combat readiness in low-altitude and terrain-following maneuvers. Under the proposed action, a reciprocal (or reverse) MTR, designated IR-187, would be established within the existing horizontal and vertical limits of IR-178 and portions of IR-180/128 to introduce varied training. Establishing IR-187 allows enhanced realistic training activities in existing airspace, maximizes use of existing airspace, and fulfills low-altitude training requirements over available high-quality mountainous terrain—all without creating a new MTR. No airspace reconfigurations or operational changes are proposed for Lancer Military Operations Area (MOA).

The FAA charted IR-178 in 2001, and the Air Force began using this route the same year. At that time, bomber training requirements included low-altitude, terrain-following maneuvers that connected to the Lancer MOA, where aircrews then engaged with threat emitters and an Electronic Scoring Site. A wider array of training conditions is now necessary for aircrews to remain current and able to respond effectively to threats worldwide. Reliance on the B-1 and increased aircraft deployment to mountainous regions of the world drives the need for low-altitude training for bomber aircrews in similar conditions within the continental U.S. Additionally, a leaner military budget requires the Air Force to conduct more training with fewer resources. To meet these requirements, 7 BW identified the need to:

- continue to achieve its low-altitude training on MTRs, particularly terrain-following flight;
- challenge aircrews with greater variety in low-altitude training;

- adapt to changes in operational requirements for different aircraft, including B-1s, B-52s, and other aircraft;
- reduce, as feasible, transit time to low-altitude training and time expended to achieve the training along an MTR; and
- do it without creating any new airspace or adding to total number of authorized sorties.

ES.2 PROPOSED ACTION AND ALTERNATIVES

ES.2.1 Proposed Action

Proposed IR-187 would comprise a reciprocal MTR with portions of existing IR-178 and IR-180/128. Like existing IR-178 and IR-180/128, IR-187 would be divided into route segments. Generically, each MTR segment is structurally defined by authorized floor and ceiling altitude restrictions and horizontal dimensions that vary along the route. Additionally, two entry points and one exit point would be newly designated along IR-187.

Route Structure

Proposed IR-187 would consist of 34 segments totaling 544 nautical miles (nm), all of which would occupy the existing MTR. Of that total, 33 segments covering approximately 520 nm would be structurally identical to IR-178 segments. Approximately 24 nm (1 segment) would match with a segment (A-B) of IR-180/128, this segment proposed as an entry point for the IR-187, also overlaps partially with segments AF-AH of IR-178 (Figure ES-1). No new MTR would be created with the IR-187 proposal; aircraft would just fly in the opposite direction.

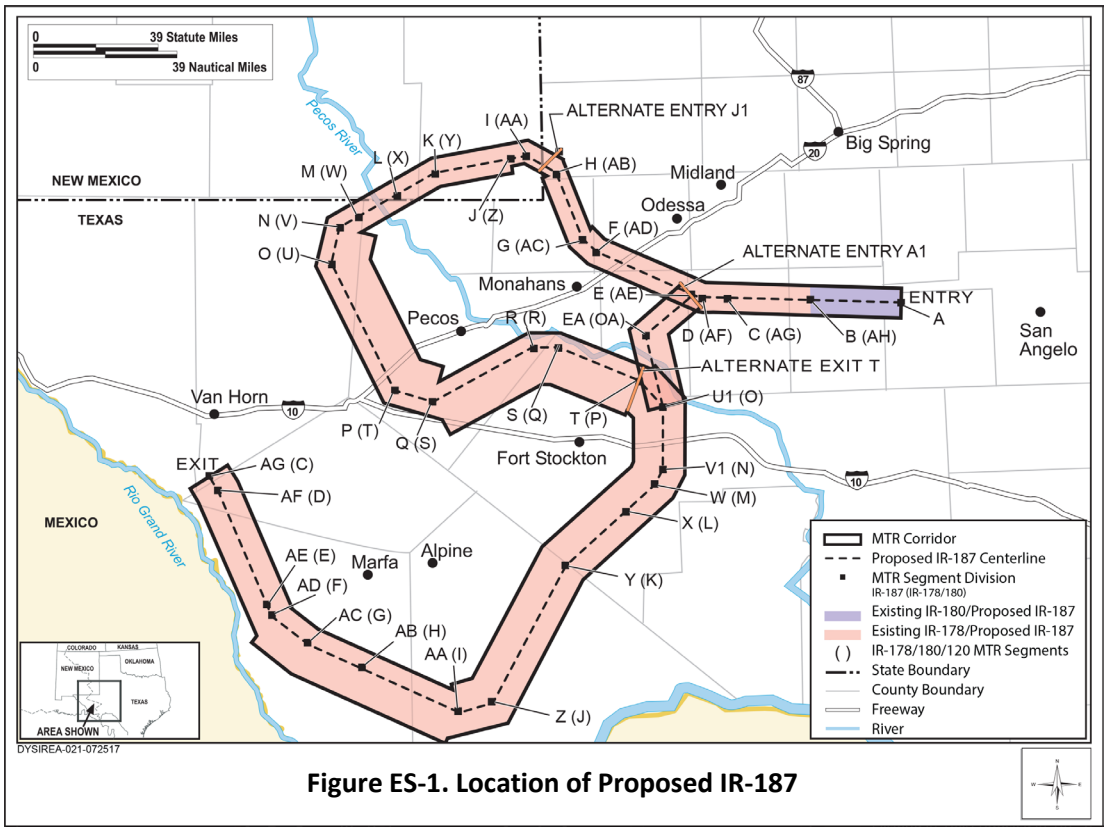

Figure ES-1. Location of Proposed IR-187

As a reciprocal MTR, IR-187 would be flown east-to-west, but military aircraft would continue to fly at different times on existing IR-178 from west-to-east. Establishing precise scheduling procedures would ensure safe operations for the reciprocal routes. Use of the small portion of IR-180/128 incorporated into proposed IR-187 would also be coordinated through scheduling. The authorized lower-altitude limits (i.e., floor) of IR-187 would remain the same as those on the existing MTRs IR-178 and IR-180/128. However, as noted below under operations, the B-1 aircrews will not fly below 500 feet above ground level (AGL) even though the authorized floor altitude of a given segment is below 500 feet AGL. The upper authorized altitudes (ceiling) of the segments would also not change.

The Air Force designed proposed IR-187 with more than one entry and exit point to enhance variability and flexibility in training, allowing aircrews to choose from five different route options (Figure ES-2). As proposed, a new primary entry point would be designated at A, which currently forms part of IR-180/128 (segment AH). See Figure ES-1 identifying IR-178 and IR-180/120 segments in parentheses. Alternate entry points at E1 and J1, also comprising segments of existing IR-178 (segments AF and AB), would also be designated. When using an entry, aircraft would descend on a glide path starting at altitudes ranging from 14,000 to 17,000 feet MSL, and over the course of several nm enter the MTR at a ceiling of 6,000 feet MSL. The proposed reciprocal MTR also includes a primary exit at AG (IR-178 segment C) and an alternate exit at T (IR-178 segment P). Exit from proposed IR-187 would involve climbs to 9,000 feet MSL to the primary point at AG, and to 5,000 feet MSL at alternate exit T—both existing MTR ceiling heights.

Scheduling

All military entities responsible for managing and scheduling MTRs provide specific route notes in the DoD Flight Information Publication (FLIP) AP/1B Special Operating Procedures to ensure aircrews are aware of specific route instructions, including noise sensitive areas, unusual bird activity, or conflicts with other routes. In establishing the new MTR, Dyess Air Force Base (AFB) would insert two additional notes into the FLIP AP/1B for IR-178, a portion of IR-180/128, and IR-187. They would include: 1) pilots are required to check with Dyess AFB scheduling as to the status of IR-178 and IR-180/128 when reserving IR-187, and to use caution, as it is a reverse routing of IR-178; and 2) IR-178 (and a portion of IR-180/128) and IR-187 will not be scheduled simultaneously due to their being a reverse route of each other. Normally, a minimum of 2-hours' notice is required to ensure civilian and other military users are notified of any MTR activation. Military pilots could also benefit from this information during flight planning by contacting the servicing Air Route Traffic Control Center (ARTCC), if necessary, to view routes that have been activated.

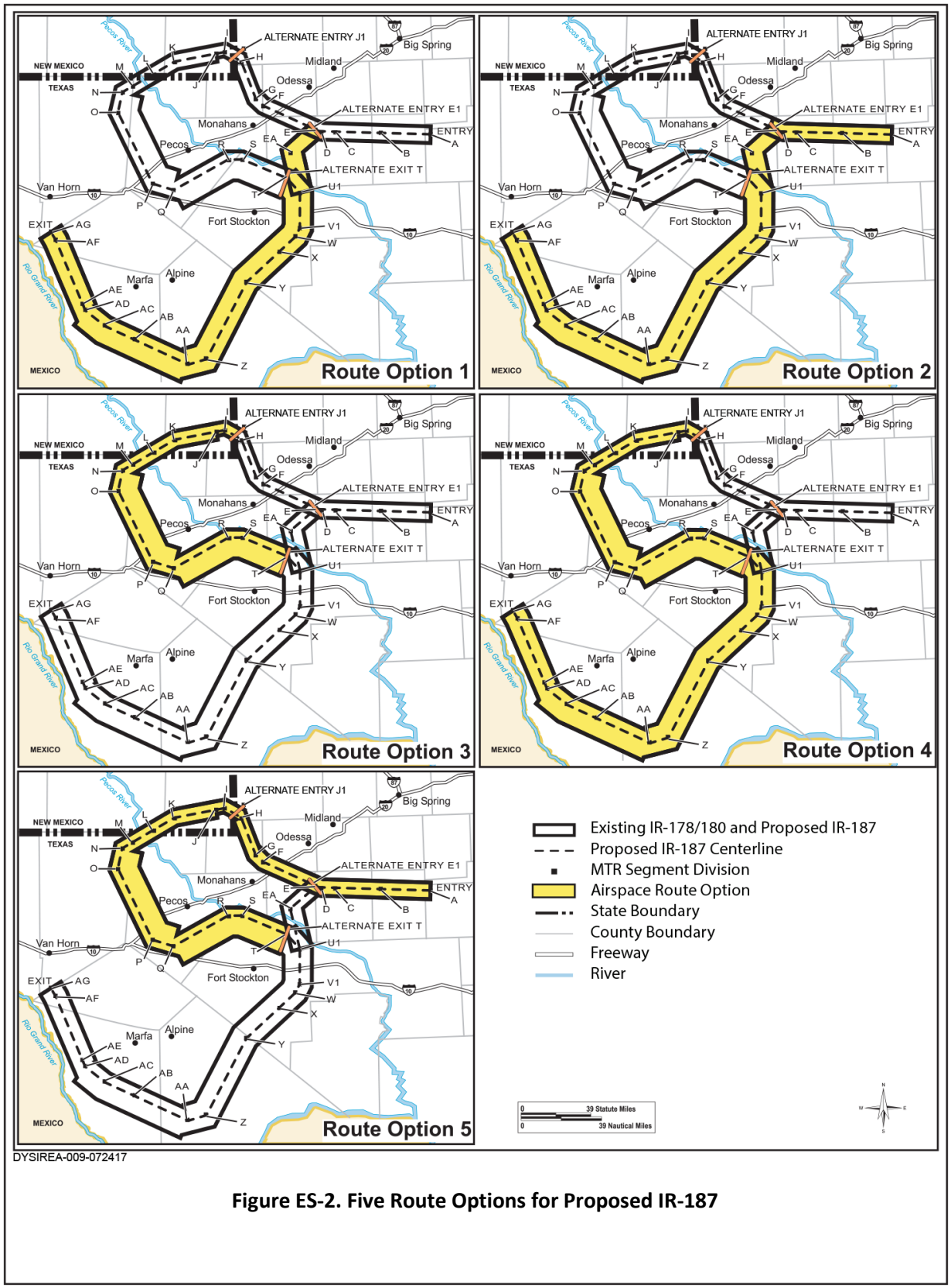

Figure ES-2. Five Route Options for Proposed IR-187

FAA Process

To establish IR-187, the FAA must approve the route. As a cooperating agency with the Air Force in preparing this EA, the FAA is involved with the development of the proposal and its assessment. The Air Force's goal for this EA is to fulfill the NEPA requirements of both agencies. Upon completion of the EA, the Air Force will document its determination on the IR-187 proposal. If a Finding of No Significant Impact (FONSI) were appropriate, the Air Force then submits a final IR-187 airspace proposal to FAA, requesting action on the airspace modifications as recorded in the Final EA and FONSI. The FAA reviews the airspace proposal submitted by the Air Force in accordance with its policies and procedures, including FAA Orders 1050.1F, 7400.2K, and 7610.4T (please note that FAA Order 7610.4T is for FAA specific use only). The regional ARTCC would also coordinate on the IR-187 proposal using FAA form 7110-4. After the Service Area's operational and environmental review and final approval, FAA submits the 7110-4 to the National Flight Data Center for publication.

IR-187 Aircraft Operations

As part of a need to enhance variability in aircrew training, the Air Force would fly a combination of five route options along IR-187 using different entry and exit points. The route options would extend for various lengths, incorporating differing numbers of segments and amounts of variable terrain (see Figure ES-2). Based on current operational considerations, the 7 BW anticipates that Route Option 1 may receive the most use. However, some use of each of the five route options is expected and preferences could change over time. Use of IR-178/180/128 would also continue and be coordinated through scheduling by Dyess AFB. Regardless of the route options or direction flown, aircraft would not exceed the total authorized 2007 Realistic Bomber Training Initiative (RBTI) Record of Decision sorties for any segment of IR-178 and IR-180/128, or proposed IR-187.

ES.2.2 No-Action Alternative

The no-action alternative would involve no changes to the existing IR-178 and IR-180/128 MTR floor and ceiling altitudes or to the number of sorties authorized. If this alternative were chosen, operations in the MTRs would continue in the direction currently done; however, aircrews would not be challenged with a greater variety of low-altitude training or reduction of transit time to the MTR.

ES.3 Cooperating Agency, Intergovernmental Coordination/Consultation, and Public Involvement

ES.3.1 Cooperating Agencies

The Air Force is the proponent for this proposed action and the lead agency preparing the EA. The FAA is a cooperating agency. Table ES-1 presents a list of relevant correspondence between the Air Force and the FAA and Appendix A provides copies of this correspondence.

Table ES-1. Correspondence with the FAA

From	*To*	*Letter Date*	*Subject*
Air Force	FAA	28 January 2011	Request for participation with FAA as a cooperating agency
FAA	Air Force	7 February 2011	Acceptance of participation as a cooperating agency

No decision on publishing the airspace has been made or will be made prior to completing the environmental review. After receipt and consideration of the public and agency comments on this Draft EA, the Air Force will work with the FAA preparing the Final EA. If a FONSI determination is made, the Air Force will request FAA action on the airspace modifications and establishment of IR-187 as recorded in the Final EA and FONSI.

ES.3.2 Interagency and Intergovernmental Coordination and Consultations

ES.3.2.1 Intergovernmental Coordination

In December 2010, the Air Force initially coordinated with the U.S. Fish and Wildlife Service (USFWS) regional offices and the State Historic Preservation Offices (SHPOs) notifying the agencies of the Air Force's intent to undertake the proposed action in the EA, as well as notifying the agencies of the initiation of informal consultation. In June 2017, the Air Force reinitiated intergovernmental coordination by notifying the Texas and New Mexico SHPOs and the regional USFWS districts of the Air Force intent to continue with the proposed action to establish IR-187. On July 31, 2017, the New Mexico SHPO indicated that they have no concerns; on July 19, 2017, the Texas SHPO responded that there were no historic properties affected and that the project may proceed; and on August 3, 2017, the USFWS, Austin Regional Office indicated that it had no comments or objections to the proposed action, this was also the case with the Texas Parks and Wildlife Department who responded that they had no concerns. On January 12, 2018, the USFWS New Mexico Ecological Services Field Office concurred with the Air Force findings of "may affect, is not likely to adversely affect" Mexican spotted owl, Southwestern willow flycatcher, and Northern aplomado falcon. Appendix A provides copies of the correspondence.

ES.3.2.2 Government-to-Government Consultation

In February 2010, the Air Force first initiated consultation with American Indian tribes in accordance with DoD Instruction 4710.05*, DoD Interactions with Federally Recognized* Tribes, September 14, 2006, which implements the DoD American Indian and Alaska Native Policy, assigns responsibilities, and provides procedures for DoD interaction with federally-recognized tribes, and AFI 90-2002, *Air Force Interactions with Federally Recognized Tribes*, November 19, 2014. In June 2017, the Air Force reinitiated government-to-government coordination by notifying American Indian tribes of the Air Force intent to continue with the proposed action to establish IR-187. The Air Force followed up this correspondence with calls or emails to ascertain whether the tribes wished to enter into government-to-government consultation or had any issues or concerns. On July 28, 2017, the Kickapoo Traditional Tribe of Texas indicated that the tribe does not own any land in the Area of Potential Effect, nor would the project affect any of the Tribe's historic or sacred sites that they are aware of; on August 3, 2017, the Kiowa Tribe of Oklahoma indicated that they would like to be included in the distribution of the EA but did not have any concerns; on August 24, 2017, the Comanche Nation indicated that no properties would be affected by the proposed action; and on January 5, 2018 the Caddo Nation of Oklahoma indicated they had no interests in the areas under consideration. On January 4 and 5, 2018, the Apache Tribe of Oklahoma, Fort Sill Apache Tribe of Oklahoma, Mescalero Apache Tribe of the Mescalero Reservation, Tonkawa Tribe of Oklahoma, and Ysleta Del Sur Pueblo were phoned and messages left to enquire whether they had any concerns with proposed IR-187. To date, no responses to the calls have been

received. Appendix A provides a copy of the letter, list of recipients, status of coordination efforts, and any responses.

ES.3.3 Public Involvement

An advertisement notifying the public that the Air Force intended to prepare this EA was published on December 17, 2010 in six local newspapers near the proposed MTR (IR-187): *Alpine Avalanche, Pecos Enterprise, Odessa American, and the Fort Stockton Pioneer*. Additionally, the Air Force sent postcards describing the proposed action and Air Force contact information to 39 individuals who had previously expressed interest in the RBTI Supplemental Environmental Impact Statement (EIS) and had mailing addresses in the vicinity of IR-178. Although scoping is not required for an EA, as per 32 CFR § 989.14, the Air Force recognized the potential for controversy over the proposed action, and that early public involvement could enhance the preparation and content of the EA. In response, the Air Force received comments identifying concerns such as the effects of the proposed action on domestic animals and wildlife, quality of life, recreation, and of wake vortices on ranch structures under the airspace. All comments were reviewed and considered in the preparation of the EA.

In June 2017, the Air Force reinitiated public involvement efforts by mailing flyers to the same individuals, attorney, and business concerns summarizing the proposed action and alternatives and the address to send comments. Two comments were received by the time this EA was published: one was from the Presidio County Airports expressing their concern regarding the safety of civilian aircraft flying in IR-178. Sections 3.5.2.1 and 4.5.3.1 address aircraft safety and mishaps. The other comment was from the legal counsel for the Davis Mountains Trans-Pecos Heritage Association and other individuals. The comments are summarized below and where they are addressed in the EA.

- Analyze civil and commercial aviation effects: these are addressed in Sections 3.2 and 4.2.
- Address livestock and wildlife related impacts: these are addressed in Sections 3.7 and 4.7.
- Address potential impact on private property rights: this is addressed in Sections 3.6 and 4.6.
- Address potential wake vortex effects: this is addressed in Sections 3.4 and 4.4.
- Address effects on other resources, land uses, and quality of life: these are addressed in Sections 3.1 through 3.9 and Sections 4.2 through 4.9.
- Address indirect and cumulative effects of the proposed action: direct and indirect effects are addressed in Chapter 4, cumulative effects are addressed in Chapter 5.
- Discuss measures to mitigate adverse environmental effects: these are not discussed because there are no adverse effects identified with implementation of IR-187.
- The Air Force should have a letter of agreement with the FAA: this is addressed in Section 1.6.1.

ES.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This EA provides an analysis of the potential environmental consequences resulting from implementing the proposed action and no-action alternative, and the cumulative environmental consequences of the proposed action relative to pertinent past, current, and foreseeable future actions. Eight resource categories received a thorough interdisciplinary analysis to identify potential impacts. Potential cumulative impacts were also considered. According to the analysis in this EA, implementing the proposed action would have a negligible to minimal effect on human and natural conditions under IR-187. Table ES-2 summarizes the results of the analysis by resource category. The proposed action, the creation of reciprocal IR-187 within the footprint of existing IR-178 and a portion of IR-180/128, would

not result in significant impacts to the environment. This is primarily because aircraft currently fly in IR-178 and IR-180/128 and proposed sortie numbers would not exceed authorized levels, nor would the altitudes at which the B-1s operate change.

Table ES-2. Summary of Environmental Consequences

Resource	*No Action*	*Proposed Action*
Airspace Management	• No change to MTR structure or management; scheduling and FAA procedures are designed to prevent conflicts between military and civil aviation. • Similar to current conditions. Total number of sorties would not exceed authorized levels; therefore, no impacts. • No significant cumulative impacts.	• No change to MTR structure or FAA procedures designed to prevent conflicts with civil aviation are anticipated. • Daily sorties on IR-178/187, combined, would not exceed the authorized number for any segment. • No significant impacts from the proposed action. • No significant cumulative impacts.
Noise	• Noise exposure would remain similar to current conditions. Maximum noise exposure (A-weighted) on IR-178 ranges between 48 decibels (dBA) and 61 dBA Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}). • No perceptible changes from current conditions; therefore, no significant impacts. • No significant cumulative impacts.	• Maximum noise exposure on proposed IR-187/178 and IR-180/128 would range from 50 dBA to 64 dBA L_{dnmr}, increasing 2 to 3 decibels (dB) depending on the MTR segment. In no instance would noise levels exceed 65 dBA. DNL would range from 49 to 61 dBA with increases of 1 to 2 dBA. • Less than significant noise impacts would be anticipated. • No significant cumulative impacts.
Aircraft Vortices and Wake Turbulence	• Flight activities along IR-178/180/128 would not exceed authorized levels. • Impacts from wake vortices would not likely harm people or animals on the ground, or cause damage to ground structures, including windmills. • Similar to current conditions; therefore, no significant impacts. • No significant cumulative impacts.	• The floor and ceiling altitudes, as well as the aircraft type and total number of operations, would not change when compared to the no-action alternative. The only difference is that aircraft would fly in both directions instead of in one direction. • No negligible changes to aircraft vortices and wake turbulence would occur. B-1s would continue to fly at altitudes as found under existing conditions but sometimes in a different direction. • No impacts that would likely harm people or animals on the ground, or cause damage to ground structures, including windmills are anticipated. • No significant cumulative impacts.

Table ES-2. Summary of Environmental Consequences

Resource	*No Action*	*Proposed Action*
Safety	• Aircraft mishap probability would not significantly change. B-1s would fly within the IR-178 and IR-180/128 at the authorized numbers and complying with operational safety procedures as currently is done. • Bird/wildlife-aircraft strike hazards (BASH) would not change from current conditions. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.	• Aircraft mishap probability would not significantly change. Aircraft would fly in IR-187 at the same authorized numbers, complying with the operational safety procedures as is currently done. B-2s would not be using the MTR. • BASH would not change from current conditions. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.
Land Use and Recreation	• No change to land use or recreation resources when compared to existing conditions; therefore, no impacts. • No significant cumulative impacts.	• No land disturbance or acquisition is proposed, so no changes to land use. • Noise levels would be consistent with no-action conditions, with minor increases of 2 to 3 dB, but would remain below 65 dB L_{dnmr} and 65 dB DNL. No significant impacts to public or private land uses or recreational opportunities due to noise. • No significant impacts. • No significant cumulative impacts.
Biological Resources	• No land disturbance to impact vegetation or wetlands. • Noise associated with an average of one to six low-altitude overflights per day has no adverse effects to three federally listed species and no significant effects on wildlife and domesticated animals. • No significant affects to wildlife, domestic animals, or federally listed species. • No significant cumulative impacts.	• No land disturbance to impact vegetation or wetlands. • Noise associated with an average of one to six low-altitude overflights per day would likely have no adverse effects to three federally listed species and no significant effects on wildlife and domesticated animals. • No significant affects to wildlife, domestic animals, or federally listed species. • No significant cumulative impacts.
Cultural Resources	• No land-disturbance activities take place. • Airspace operations do not change and aircraft-generated noise continues to not affect adversely historic properties or traditional cultural resources. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.	• Same as no action.
Air Quality	• All affected areas along IR-178 and IR-180/128 are in attainment. • Aircraft emissions would remain consistent with current conditions; therefore, no impacts. • No significant cumulative impacts.	• All affected areas along IR-178 and IR-180/128 are in attainment. • No net change of emissions; therefore, no significant impacts. • No significant cumulative impacts.

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1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

The United States (U.S.) Air Force (Air Force), in cooperation with the Federal Aviation Administration (FAA), proposes to designate an existing Military Training Route (MTR), Instrument Route (IR)-178 and a small portion of IR-180 (and its reciprocal route IR-128, and henceforth referred to as IR-180/128), as a reciprocal route. This would allow military aircraft to fly in the opposite direction in the newly designated MTR in accordance with strict scheduling procedures. The proposed reciprocal route, designated IR-187, would consist of existing IR-178 (520 nautical miles [nm]) and a small portion (24 nm) of IR-180/128. Located in west Texas and southeast New Mexico (Figure 1.1-1). Extending for approximately 544 nm, proposed IR-187 primarily would support training for B-1 Bombers operating out of Dyess Air Force Base (AFB) in Abilene, Texas. The lands underlying IR-178 and IR-180/128 would be the same as those underneath IR-187, no new land areas would be overflown. Bomber aircraft would fly at or above 500 feet above ground level (AGL) across the entirety of proposed IR-187, regardless of the FAA charted floor altitude. The B-1 aircrews would continue to use existing IR-178 and IR-180/128, as well as the proposed IR-187, flying the former west-to-east and the latter east-to-west. Scheduling by Dyess AFB would ensure that the existing and proposed MTRs would not be used simultaneously. The total number of proposed aircraft operations, regardless of the MTR (i.e., IR-178/187 or IR-180/128), would not exceed the number authorized in the 2007 Realistic Bomber Training Initiative (RBTI) Record of Decision (ROD) for Lancer Military Operations Area (MOA) and IR-178 (Air Force 2007). Please note that no changes to Lancer MOA are proposed.

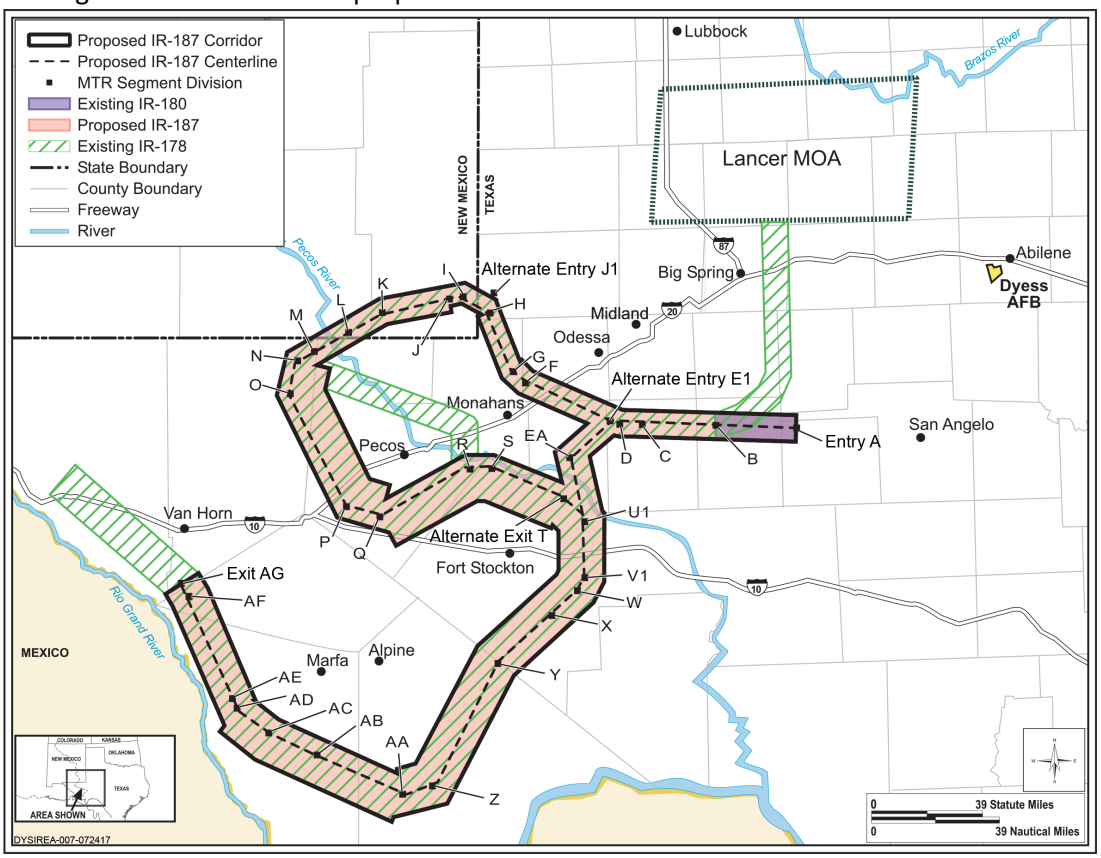

Figure 1.1-1. Location of Proposed IR-187

This Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (Public Law [PL] 91-190, 42 U.S. Code [U.S.C.] 4321 *et seq.*), implemented through the Council on Environmental Quality (CEQ) regulations of 1978 (40 Code of Federal Regulations [CFR] Parts 1500-1508) and Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process* as promulgated in 32 CFR 989.

1.2 Background

The RBTI Environmental Impact Statement (EIS) (Air Force 2000a) identified a set of linked training assets to provide realistic bomber training for B-1s from Dyess AFB, Texas and B-52s from Barksdale AFB, Louisiana. The FAA, as a cooperating agency, participated in reviews and provided guidance throughout the development of the EIS. The Air Force conducted an extensive and comprehensive public scoping process, as required under CEQ regulations (40 CFR 1501.7), to help identify the issues that were analyzed in-depth in the Draft EIS. A Final EIS and ROD, identifying Alternative B: IR-178/Lancer MOA as the preferred alternative were announced in 2000.

A Supplemental EIS was undertaken and the Air Force signed another ROD identifying Alternative B once again as the preferred alternative on March 20, 2007. The FAA adopted the Air Force Supplemental EIS for RBTI and issued its own ROD, effective April 11, 2007 (Federal Register 2007). On February 5, 2009, the Fifth Circuit denied the Davis Mountains Trans-Pecos Heritage Association petition challenging the FAA's decision to adopt the Supplemental EIS, finding that the Supplemental EIS adequately addressed the court's concern.

1.3 Purpose of the Action

The purpose of the proposed action is to enhance low-altitude bomber training for aircrews without overflying new land areas. Driven by an operational requirement (AFI 11-2 B-1 Volume 1), the 7th Bomb Wing (7 BW) must perform low-altitude flight training and maintain currency in terrain-following procedures. Bombers use IR-178 (a one-directional MTR flown west-to-east) and a portion of IR-180/128, to fulfill these training requirements. Operations in IR-187 would provide aircrews a new perspective of the route and underlying terrain, thereby enhancing training variability. Permitting aircrews to fly along the IR-178/187 corridor in opposite directions (at different well-regulated times) would increase the challenges of training without creating "new" airspace or overflying additional lands. Additionally, designation of IR-187 would ensure that aircrews continue to train for their missions while maximizing combat training time; fly in existing airspace that supports realistic training; and fulfill low-altitude training requirements over available mountainous terrain.

1.4 Need for the Action

Reliance on the B-1 and increased aircraft deployment to mountainous regions of the world drives the need for low-altitude training for bomber aircrews in similar conditions within the continental U.S. Additionally, a leaner military budget requires the Air Force to conduct more training with fewer resources. Because of this, the 7 BW identified the need to:

- continue to achieve its low-altitude training via MTRs, particularly terrain-following flight;
- challenge aircrews with greater variety in low-altitude training;

- adapt to changes in operational requirements for different aircraft, including B-1s, B-52s, and other aircraft;
- reduce, as feasible, transit time to low-altitude training and time expended to achieve the training along an MTR; and
- do it without creating any new airspace or adding to total number of authorized sorties.

Establishing the proposed reciprocal route, IR-187, would fulfill all of these needs, which are detailed below.

1.4.1 Continuing Low-Altitude Training

The primary mission of the B-1 is worldwide rapid-response and sustained operations using all available technology and tactics. As such, the B-1 has a varied range of mission responsibilities and its training requirements have multiplied over the decade since establishing IR-178. Now aircrews must be proficient in a vast and growing suite of combat missions that employ a diverse array of weapons systems and tactics while facing increasingly sophisticated threats. The B-1 mission has evolved to include a range of activities from interdiction to close air support, show-of-force, and time-sensitive targeting. Low-altitude flight plays a major role in B-1 training, and is the most challenging aspect of the B-1 mission. Nearly every mission flown has a low-altitude component associated with it. This type of flight is the most demanding and is referred to as Visual Contour flying, whereby the pilot is hand flying the aircraft. This is the art of flying by the "seat of your pants," looking outside of the cockpit and manually keeping the distance between the aircraft and the terrain. Visual Contour flying requires high levels of concentration from the pilot, as well as from the Offensive and Defensive Operators (i.e., those who operate the weapons and employ defensive countermeasures in response to enemy fire).

Aircrews, therefore, must train to maintain proficiency in these tactics and activities. The Air Force developed the existing IR-178, to support realistic low-altitude training involving terrain-following flight. There are more than 240 nm of contiguous mountainous terrain, within the 520 nm IR-178 corridor. Any other or new MTR would also need to offer the same type and extent of mountainous terrain-following capabilities. By creating an MTR that conforms to all or part of existing IR-178, continued mountainous terrain-following training would be assured and no new airspace would be needed.

1.4.2 Challenging Aircrews with Variety in Low-Altitude Training

The Air Force maintains only two B-1 units, the 28th BW at Ellsworth AFB, South Dakota and the 7 BW at Dyess AFB. Since B-1 bases are limited, aircrews are assigned to Dyess AFB more often and for longer training periods than the standard "Time On Station" employed by the Air Force. Dyess AFB is one of the most frequently used training sites for B-1 aviators, and is the single location for initial training, requalification, and instructor courses in the aircraft. As such, there is a critical need for airspace variability near Dyess AFB to meet B-1 training requirements. Previous analysis (Air Force 2000a) demonstrated that IR-178 represented the best operational location for low-altitude training, within a reasonable distance from Dyess AFB. While IR-178 offers excellent mountainous terrain, flying only in one direction can result in stagnation and complacency in aircrew training. Repeatedly flying over the same terrain, with the same visual cues and instrument readings can eventually limit training realism and quality for aircrews. A reciprocal route creates new challenges, offers variety for aircrew training, and optimizes use of the MTR—all without creating new airspace.

1.4.3 Adapting to Changes in Operational Requirements for Different Aircraft

Evolving missions and tactics, along with changes in aircraft inventories, have led to shifts in the required amount of training sorties by bomber aircraft. Originally when proposed and established, IR-178 was intended to support B-1 and B-52 bombers as the primary users. Under those training regimes, the B-1s accounted for about 56 percent of the authorized MTR operations and the B-52s accounted for approximately 36 percent; the remaining 8 percent consisted of B-2 bombers and other fighter aircraft. Subsequent changes in B-1 and B-52 combat missions and related training reduced the need for B-52 operations to a minimal level, eliminated B-2 operations, and decreased fighter aircraft use. In contrast, these combat mission changes have placed a continued emphasis on low-altitude B-1 operations. The B-1s now comprise the majority of total authorized low-altitude operations on IR-178. As a result, the Air Force needs to adjust aircraft use patterns to reflect evolving requirements and changing mission conditions. In other words, decrease B-52, B-2, and fighter aircraft operations on IR-178 and replace them with an equal amount of B-1 operations.

1.4.4 Reducing Transit Time and Time Used to Achieve Training Requirements

The operation of B-1s takes a toll on both the aircraft and aircrews. Aircraft must undergo phased maintenance based on the number of hours flown, and flying longer durations reduces aircraft availability. In addition, funding levels set through the federal budget process establish finite amounts of flight hours. For these reasons, the Air Force seeks ways to achieve necessary training while more efficiently using available flight time. One way to make efficient use of flying hours is to reduce, where feasible, transit time to and from training airspaces. Longer transit time, which equates to distance, offers limited training value. To reduce transit time when conducting low-altitude training, the 7 BW needs to shorten the flight distance when possible to the MTR where such training occurs. Currently, the main entry for IR-178 lays 297 nm from Dyess AFB and requires about 50 minutes of transit time just to access the MTR (Figure 1.4-1). A standard 440-knots per hour cruising airspeed was assumed, plus additional time for Air Traffic Control vectoring and maneuvering.

Reduction in transit time required to access the MTR, would allow better use of limited training time. Table 1.4-1 presents the current distance and transit time to access IR-178, as well as potential distances and times to access IR-187 for comparison. The latter demonstrates that decreasing the distance to access an MTR would potentially achieve the needed reduction in transit time. Additionally, this table shows approximate reductions in operations costs for a B-1 flight. Other factors can affect these costs so the values presented in the table should be considered as approximations only.

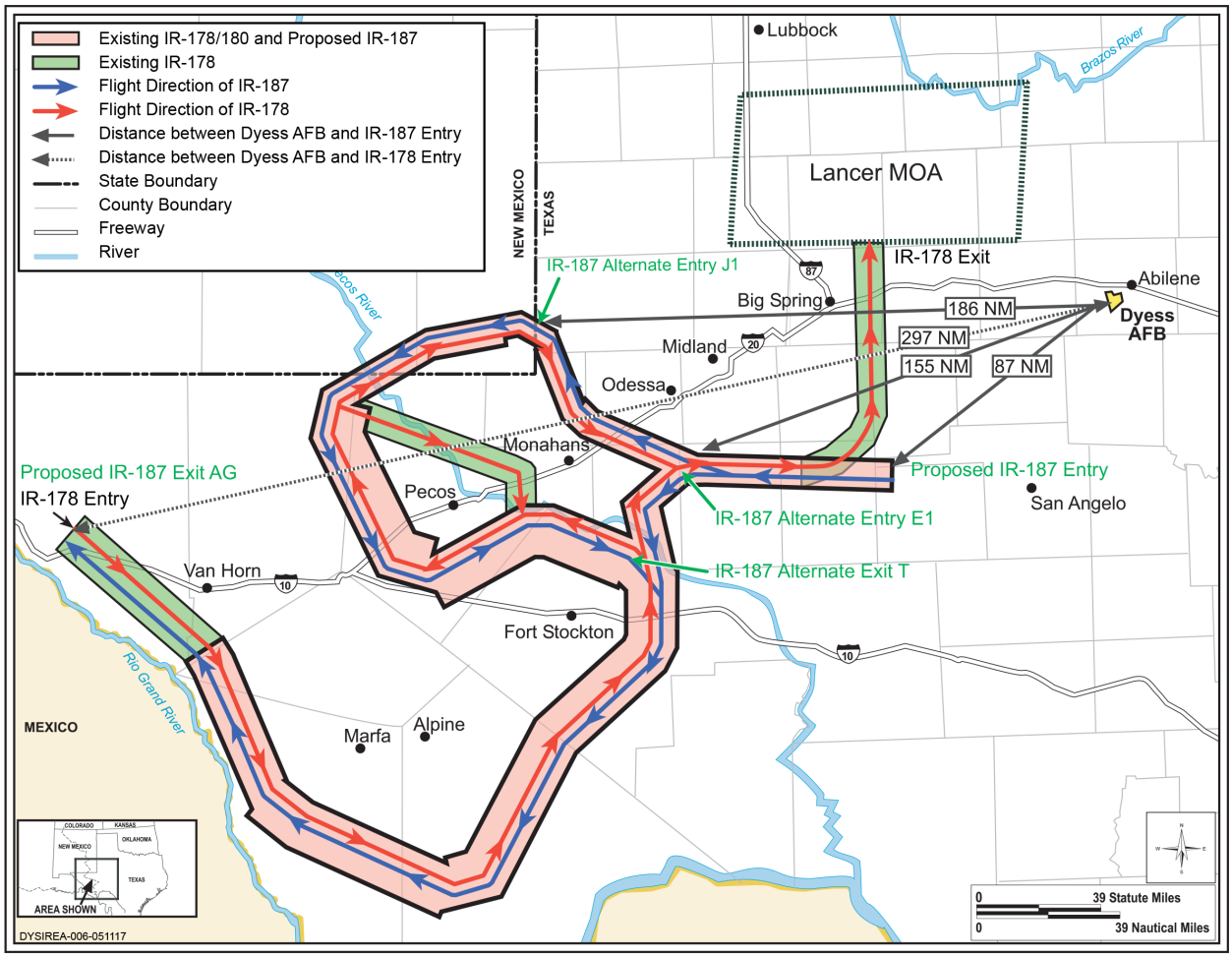

Figure 1.4-1. Transit Distances to Entries from IR-187 and IR-178

Table 1.4-1. Potential Distance, Transit Time, and Operations Costs for Accessing a MTR

Element	*To IR-178 Entry (Baseline)*	*To Potential Entry (Proposed)*	*To Potential Alternate Entry 1 (Proposed)*	*To Potential Alternate Entry 2 (Proposed)*
Distance from Dyess AFB (nm)[1]	297	87	155	186
Transit Time (in minutes)[2]	50	12	21	25
Approximate Operations Cost of Transit[3]	$41,700	$10,000	$17,500	$20,800
Approximate Operational Savings per Flight[3] Compared to Potential MTR Entries	N/A	$31,700	$24,200	$20,900

Notes:
[1]Distance based on actual operations in the region and includes departure pattern from Dyess AFB.
[2]Transit Time based on average cruise speed of 440 nm/hour plus additional time for Air Traffic Control vectoring and maneuvering.
[3]Costs, rounded to the nearest 100, based on average of $50,000 per hour to operate a B-1, rounded to nearest 100.
Legend: N/A = not applicable.

Based on this data, establishing an MTR (like IR-187) in proximity to Dyess AFB would optimize overall flight time. In conjunction with existing IR-178 and small portion of IR-180/128, a reciprocal MTR with an entry point only 87 nm away, would assist in improving the ratio of training time to transit time, which is currently 297 nm to IR-178's entry point.

A second way to use the finite flying hours efficiently is to accomplish training requirements in the briefest time feasible. Again, reducing the overall distance flown can reduce flight time. The primary route through existing IR-178 extends for 597 nm, requiring 67 minutes at an average airspeed of 540 knots per hour to complete the route. However, aircrew-training requirements for low-altitude flight do not always require flying this entire MTR. Over the past several years, the 7 BW recognized that some training missions could fly shorter routes as long as training requirements were met, especially if the MTR offers sufficient, quality terrain-following training over appropriate mountainous terrain. Existing IR-178 contains such contiguous mountainous terrain. The proposed IR-187 optimizes the use of the corridor by allowing aircrews to fly the route in a variety of ways to meet efficiently specific training requirements.

1.4.5 Meeting Needs without Creating New Airspace or Adding to Total Operations

For the FAA to establish or revise an MTR, military units must have the requirement validated by the appropriate military command. As part of the validation process, a determination must be made that other alternatives have been explored, such as the use of existing routes (FAA 7610.4T Change 1, 2, and 3, please note that the FAA identifies information associated with this order as Sensitive Unclassified Information and designates it as For Official Use Only). To comply with the validation requirement, the Air Force initially sought to minimize the addition of new airspace when establishing IR-178. This MTR consisted predominantly (96 percent) of existing MTR that was combined to form IR-178 in support of B-1 and B-52 low-altitude training (Air Force 2000a), the other 4 percent comprised IR-180/128.

Under this proposed action, the Air Force would continue using the existing MTR to meet training requirements by: 1) preventing unnecessary expansion of military airspace within the already complex National Airspace System; 2) precluding exposure of new areas to low-altitude overflights; and 3) taking advantage of already available airspace offering the needed attributes for training. Similarly, the Air Force, in its RBTI Supplemental EIS ROD (Air Force 2007) establishing IR-178, committed to maintain total flights to authorized levels, not to exceed the annual total of 1,560, this too would not change under the proposed action.

1.5 Decision to be Made

This EA evaluates the potential environmental consequences of implementing the proposed action of establishing a reciprocal MTR (IR-187) on existing IR-178 and a portion of IR-180/128. Based on the analysis in this EA, the Air Force will make one of three decisions regarding the proposed action. First, choose the alternative that best meets the purpose of and need for this proposal, sign a Finding of No Significant Impact (FONSI), and implement the selected alternative. Second, initiate preparation of an EIS if it is determined that significant impacts would occur through implementation of the proposed action. Third, select the no-action alternative, whereby the proposed action would not be implemented. As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed action and be available to inform the public and decision-makers of the potential environmental impacts.

1.6 Cooperating Agency, Intergovernmental Coordination/Consultation, and Public Involvement

1.6.1 Cooperating Agencies

The Air Force is the proponent for this proposed action and the lead agency preparing the EA. The FAA is a cooperating agency. Congress has charged the FAA with management of all navigable airspace in the public interest as necessary to ensure the safety of aircraft and the efficient use of airspace. The FAA is the agency with jurisdiction by law and special expertise with respect to national airspace. Therefore, the FAA is a cooperating agency and as such has participated in the preparation of this Draft EA. Table 1.6-1 presents a list of relevant correspondence between the Air Force and the FAA and Appendix A provides copies of this correspondence.

Table 1.6-1. Correspondence with the FAA

From	*To*	*Letter Date*	*Subject*
Air Force	FAA	28 January 2011	Request for participation with FAA as a cooperating agency
FAA	Air Force	7 February 2011	Acceptance of participation as a cooperating agency

No decision on publishing the airspace has been made or will be made prior to completing the environmental review. After receipt and consideration of the public and agency comments on this Draft EA, the Air Force will work with the FAA preparing the Final EA. If a FONSI determination is made, the Air Force will request FAA action on the airspace modifications and establishment of IR-187 as recorded in the Final EA and FONSI. See Section 2.1.1 for details on the FAA airspace charting process.

1.6.2 Interagency and Intergovernmental Coordination and Consultations

1.6.2.1 Intergovernmental Coordination

In December 2010, the Air Force initially coordinated with the U.S. Fish and Wildlife Service (USFWS) regional offices and the State Historic Preservation Offices (SHPOs) notifying the agencies of the Air Force's intent to undertake the proposed action in the EA, as well as notifying the agencies of the initiation of informal consultation. In June 2017, the Air Force reinitiated intergovernmental coordination by notifying the SHPOs of Texas and New Mexico and the regional USFWS districts of the Air Force intent to continue with the proposed action to establish IR-187. On July 31, 2017, the New Mexico SHPO indicated that they have no concerns; on July 19, 2017, the Texas SHPO responded that there were no historic properties affected and that the project may proceed; and on August 3, 2017, the USFWS, Austin Regional Office indicated that it had no comments or objections to the proposed action. Appendix B provides copies of the letters, list of recipients, and any responses.

1.6.2.2 Government-to-Government Consultation

In February 2010, the Air Force first initiated consultation with American Indian tribes in accordance with Department of Defense (DoD) Instruction 4710.05*, DoD Interactions with Federally Recognized* Tribes, September 14, 2006, which implements the DoD American Indian and Alaska Native Policy, assigns responsibilities, and provides procedures for DoD interaction with federally-recognized tribes, and AFI 90-2002, *Air Force Interactions with Federally Recognized Tribes*, November 19, 2014. In June 2017, the Air Force reinitiated government-to-government coordination by notifying American Indian

tribes of the Air Force intent to continue with the proposed action to establish IR-187. The Air Force followed up this correspondence with calls or emails to ascertain whether the tribes wished to enter into government-to-government consultation or had any issues or concerns. On July 28, 2017, the Kickapoo Traditional Tribe of Texas indicated that the tribe does not own any land in the Area of Potential Effect, nor would the project affect any of the Tribe's historic or sacred sites that they are aware of; on August 1, 2017, the Kiowa Tribe of Oklahoma indicated that they would like to be included in the distribution of the EA but did not have any concerns; and on August 24, 2017, the Comanche Nation indicated that no properties would be affected by the proposed action. Appendix B provides a copy of the letter, list of recipients, status of coordination efforts, and any responses.

1.6.3 Public Involvement

An advertisement notifying the public that the Air Force intended to prepare this EA was published on December 17, 2010 in six local newspapers near the proposed MTR (IR-187): *Alpine Avalanche, Pecos Enterprise, Odessa American, and the Fort Stockton Pioneer*. Additionally, the Air Force sent postcards describing the proposed action and Air Force contact information to 39 individuals who had previously expressed interest in the RBTI Supplemental EIS and had mailing addresses in the vicinity of IR-178. Although scoping is not required for an EA, as per 32 CFR § 989.14, the Air Force recognized the potential for controversy over the proposed action, and that early public involvement could enhance the preparation and content of the EA. In response, the Air Force received comments identifying concerns such as the effects of the proposed action on domestic animals and wildlife, quality of life, recreation, and of wake vortices on ranch structures under the airspace. All comments were reviewed and considered in the preparation of the EA.

In June 2017, the Air Force reinitiated public involvement efforts by mailing flyers to the same individuals, attorney, and business concerns summarizing the proposed action and alternatives and the address to send comments. Two comments were received by the time this EA was published: one was from the Presidio County Airports expressing their concern regarding the safety of civilian aircraft flying in IR-178. Sections 3.5.2.1 and 4.5.3.1 address aircraft safety and mishaps and the other was from the legal counsel for the Davis Mountains Trans-Pecos Heritage Association and other individuals. The comments are summarized below and where they are addressed identified following the comment.

- Analyze civil and commercial aviation effects: these are addressed in Sections 3.2 and 4.2.
- Address livestock and wildlife related impacts: these are addressed in Sections 3.7 and 4.7.
- Address potential impact on private property rights: this is addressed in Sections 3.6 and 4.6.
- Address potential wake vortex effects: this is addressed in Sections 3.4 and 4.4.
- Address effects on other resources, land uses, and quality of life: these are addressed in Sections 3.1 through 3.9 and Sections 4.2 through 4.9.
- Address indirect and cumulative effects of the proposed action: direct and indirect effects are addressed in Chapter 4, cumulative effects are addressed in Chapter 5.
- Discuss measures to mitigate adverse environmental effects: these are not discussed because there are no adverse effects identified with implementation of IR-187.
- The Air Force should have a letter of agreement with the FAA: this is addressed in Section 1.6.1.

1.7 Applicable Laws and Environmental Regulations

In accordance with CEQ NEPA regulations as well as AFIs, this EA was prepared concurrently with actions required by other environmental laws, regulations, and Executive Orders (EOs) as outlined by environmental resource in Table 1.7-1. Please note that only those resources evaluated in detailed are identified in the table. The justification for not evaluating other resources is provided in Chapter 3.

Table 1.7-1. Major Federal Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects

Environmental Resources	*Statute, Regulation, or EO*
Air Quality	Clean Air Act of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604); U.S. Environmental Protection Agency (USEPA), Subchapter C-Air Programs (40 CFR Parts 52-99); and 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants.
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); and USEPA, Subchapter G, Noise Abatement Programs (40 CFR Parts 201-211).
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act (ESA) of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79); and Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186).
Cultural and Traditional Resources	National Historic Preservation Act (Section 106, 54 U.S.C. 300108) (PL 89-865) as amended; Protection and Enhancement of the Cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 (EO 13007); American Indian Religious Freedom Act of 1978 (PL 94-341); Antiquities Act of 1906; American Indian Religious Freedom Act of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act of 1990 (PL 101-601); Protection of Historic Properties (36 CFR Part 800); Preserve America (EO 13287); Consultation and Coordination with Indian Tribal Governments (EO 13175), and Archeological Resources Protection Act (PL 96-95; 16 U.S.C 470).

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2 DESCRIPTION OF THE PROPOSED ACTION AND NO-ACTION ALTERNATIVE

This chapter describes the Air Force's proposal to establish an MTR designated IR-187. This corridor would consist entirely of the existing MTR. Ninety-six percent of the proposed route would follow existing IR-178 and 4 percent would overlap portions of existing IR-180/128. The following section describes the proposed action, including the proposed route structure, scheduling, and FAA airspace charting process. It also details sorties proposed for IR-187, along with those occurring in IR-178. Section 2.2 presents the no-action alternative as required by CEQ regulations (40 CFR 1502.14(d)). The no-action alternative reflects the status quo and includes no changes to the existing IR-178 footprint or to the authorized capacity provided by the route, i.e. the number of sorties. It also provides a benchmark against which the proposed action can be assessed. Section 2.3 describes the alternatives not carried forward for detailed analysis, while Section 2.4 summarizes the potential environmental consequences of the proposed action.

2.1 Proposed Action

2.1.1 Establish IR-187

2.1.1.1 Route Structure

Proposed IR-187 would use the same airspace segments but they would be labeled in a different manner. Segments are portions of a route bounded on each end by a fix or navigation aid, Figure 2.1-1 identifies IR-187 segments by letters and segments for IR-178 and IR-180/128 are indicated in parentheses. Segments are called out using the entry and exit letters, (e.g., AG to AH or AH-AG). Generically, each MTR segment is structurally defined by its authorized floor and ceiling altitudes, as well as horizontal dimensions, which vary along the route. Proposed IR-187 would comprise a reciprocal (or matching) MTR for most of IR-178 and a small portion of IR-180/128, but aircraft would travel in the opposite direction when compared to what is currently flown. The structure of proposed IR-187 consists of 34 segments totaling 544 nm. The horizontal dimensions of 33 of these segments (or about 520 nm) are identical to IR-178 segments. Approximately one segment (24 nm) matches IR-180/128 segment A-B and is proposed as an entry point for the new IR-187. This portion also partially overlaps with IR-178 segments AG-AF (Figure 2.1-1). No new MTR would be created by proposed IR-187.

As a reciprocal MTR, aircrews would fly IR-187 east-to-west, whereas at different times, aircraft on existing IR-178 would continue to fly west-to-east. Establishing precise scheduling procedures would ensure safe operations for the two coinciding routes. Use of the small portion of IR-180/128, incorporated into proposed IR-187, would also be coordinated through scheduling. The authorized floor of IR-187 would be the same as those currently found in IR-178 and IR-180/128 (Table 2.1-1). While the charted floor of some segments of IR-178 is charted below 500 feet AGL, B-1 aircrews will fly at 500 feet AGL and above, regardless of the designated floor altitude. This would apply to proposed IR-187.

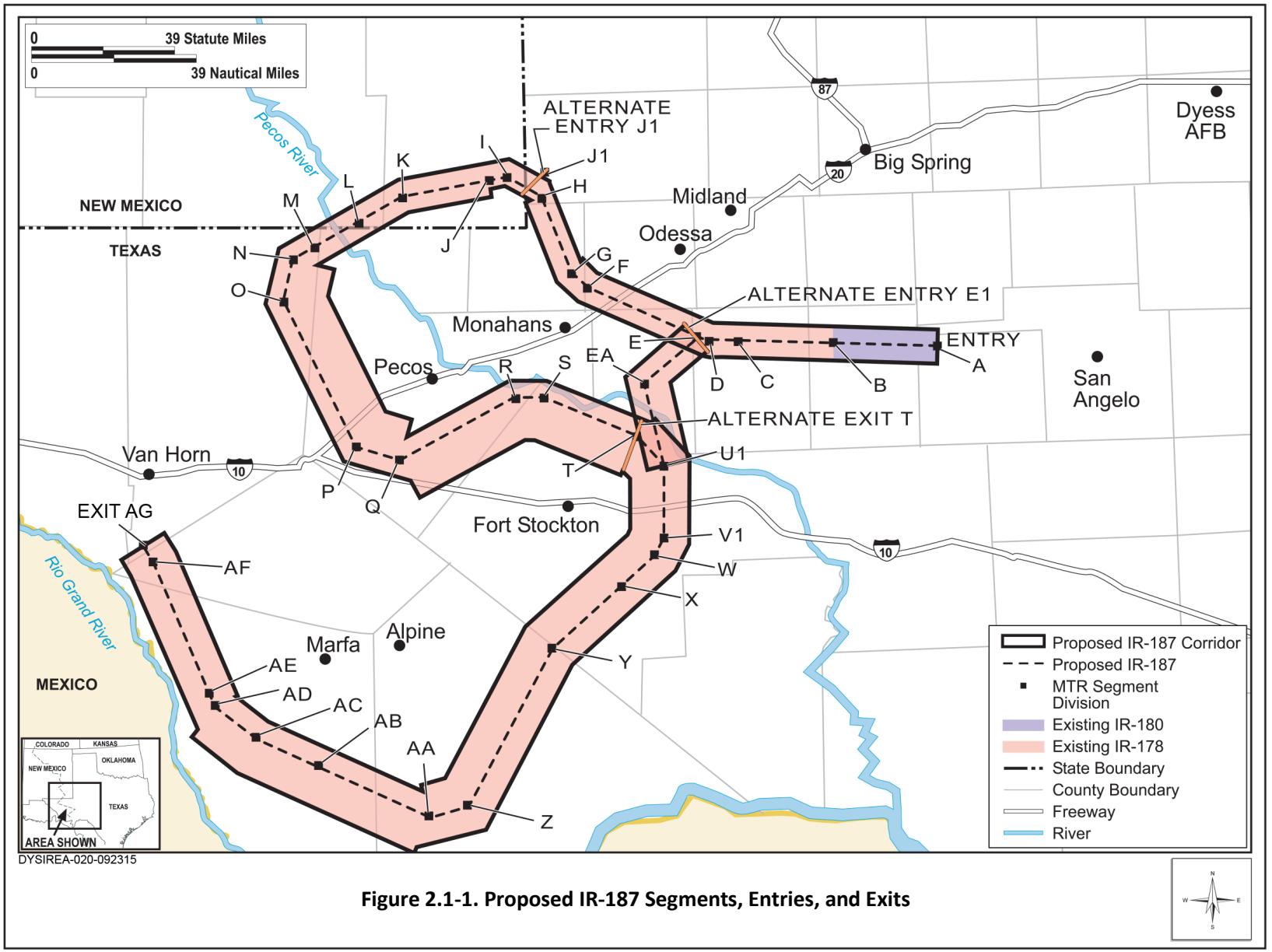

Figure 2.1-1. Proposed IR-187 Segments, Entries, and Exits

Table 2.1-1. Current and Proposed Route Limits

Existing Segment IR-178	***Route Limits[1]***				***Proposed Segment (IR-187)***	***Proposed Entries and Exits***
	Floor (feet AGL)	*Ceiling (feet MSL)*	*Route Width (nm)*			
			Left of Centerline	Right of Centerline		
(IR-180/128) [2]	200[2]	6,000	6	6	A-B	Entry: Cross A at 17,000 MSL and Descend to 6,000 MSL
AG-AH	2,000	6,000	6	6	B-C	
AF-AG	800	6,000	6	6	C-D	
AE-AF	800	6,000	6	6	D-E	
OA-AE	600	6,000	4	4	E-EA	
					E1-EA	Alternate Entry E1: Cross E1 at 15,000 MSL, Continue at 15,000 MSL to EA, and descend to 6,000 MSL at U1
O1-OA	600	6,000	4	6	EA-U1	
AD-AE	800	6,000	4	4	E-F	
AC-AD	800	7,000	4	4	F-G	
AB-AC	1,200	7,000	3	4	G-H	
AA-AB	1,200	7,000	4	2	H-I	
Z-AA	500	7,000	4	2	I-J	
					J1-J	Alternate Entry J1: Cross JA at 17,000 MSL and descend to 7,000 MSL at J
Y-Z	500	7,000	4	4	J-K	
X-Y	500	7,000	4	4	K-L	
W-X	500	7,000	4	4	L-M	
V-W	900	7,000	4	4	M-N	
U-V	900	7,000	4	10	N-O	
T-U	500	7,000	4	10	O-P	
S-T	400[2]	7,000	4	10	P-Q	
R-S	700	5,000	10	4	Q-R	
Q-R	700	5,000	10	4	R-S	
P-Q	600	5,000	10	4	S-T	
					S-Alternate Exit T	Cross S at 5,000 MSL and ascend to 7,000 MSL at T
O-P	600	5,000	8	6	T-U1	
N-O	400[2]	6,000	8	6	U1-V1	
M-N	600	6,000	8	6	V1-W	
L-M	600	7,200	8	6	W-X	
K-L	300[2]	7,200	8	6	X-Y	
J-K	300[2]	7,600	8	6	Y-Z	
I-J	300[2]	8,000	8	6	Z-AA	
H-I	300[2]	8,000	5	9	AA-AB	
G-H	300[2]	9,000	5	9	AB-AC	
F-G	300[2]	9,000	5	9	AC-AD	
E-F	400[2]	9,000	6	6	AD-AE	
D-E	400[2]	9,000	6	6	AE-AF	
C-D	400[2]	9,000	6	6	AF-AG Exit[3]	Cross AF at 9,000 MSL and ascend to 15,000 MSL at AG

Notes:
[1]This segment of IR-187 overlaps with a segment of IR-180/128 and portions of IR-178 as well. All other segments overlap with IR-178.
[2]Despite the lower authorized flight altitudes in the MTR segment, the B-1s would fly at or above 500 feet AGL.
[3]The distance between AF and AG is so short that most aircraft would already be flying at 2,000 feet AGL in segment AE-AF and climbing to cross AF at or above 9,000 MSL.
MSL = mean sea level.

The Air Force designed proposed IR-187 with more than one entry and exit point to enhance variability and flexibility in training. Multiple entry and exit points allow aircrews to choose from five different route options, Section 2.1.2 details all route options and their lengths. As proposed, IR-187 would establish a primary entry at point A (refer to Figure 2.1-1), which currently forms part of IR-180/128, and alternate entry points at E1 and J1. The proposed IR-187 includes a primary exit at AG and an alternate exit at T. When using the primary entry (A) or alternate entries (E1 or J1), aircraft would descend on a glide path starting at altitudes ranging from 14,000 to 17,000 feet mean sea level (MSL) down to 6,000 to 7,000 feet MSL over the course of several nm and one or more segments and entry IR-187 at the established ceiling altitude (Figure 2.1-2 and refer to Table 2.1-1). Similarly, exit from proposed IR-187 would involve climbs to 9,000 feet MSL from AF-AG to 15,000 feet MSL at the primary exit point AG, and 5,000 to 7,000 feet MSL at alternate exit T in segment S-T. Aircraft using the new entries or exits on IR-187 transit existing IR-178 and IR-180/128 MTR, no new land areas would be overflown (see Figure 1.1-1).

2.1.1.2 Scheduling

While flying reciprocal MTRs along the same corridor requires strict scheduling and adherence to procedures, it does not represent an uncommon or unsafe use of the airspace. Across the U.S., dozens of MTR reciprocal routes have operated safely and effectively for decades, primarily because of scheduling and steadfast adherence to procedures. Air Force schedulers and pilots are familiar with established procedures for reciprocal MTRs that ensure deconfliction and safety for aircrews and the public alike. All military entities responsible for managing and scheduling MTRs provide specific route notes in the DoD Flight Information Publication (FLIP) AP/1B Special Operating Procedures, published every 28 days, to ensure aircrews are aware of specific route instructions, including noise sensitive areas (e.g., schools, hospitals), unusual bird activity, or conflicts with other routes.

In establishing the new MTR, Dyess AFB would insert two additional notes into the FLIP AP/1B for both IR-178 and IR-187. They would include: 1) pilots are required to check with Dyess AFB scheduling as to the status of IR-178 and IR-180/128 when reserving IR-187, and to use caution, as it is a reverse routing of IR-178; and 2) IR-178 and IR-187 would not be scheduled simultaneously due to their being a reverse route of each other. Normally, a minimum of 2-hours' notice is required to ensure civilian and other military users are notified of any MTR activation. Military pilots also benefit from this information during flight planning by contacting the servicing Air Route Traffic Control Center (ARTCC), if necessary, to view routes that have been activated.

Real-time activation of the MTRs can be viewed through the FAA website (http://sua.faa.gov) geared toward general aviation and commercial pilots to determine what airspace is active, affording them the opportunity to flight plan accordingly. Pilots can also contact ARTCC to see what airspace is in use.

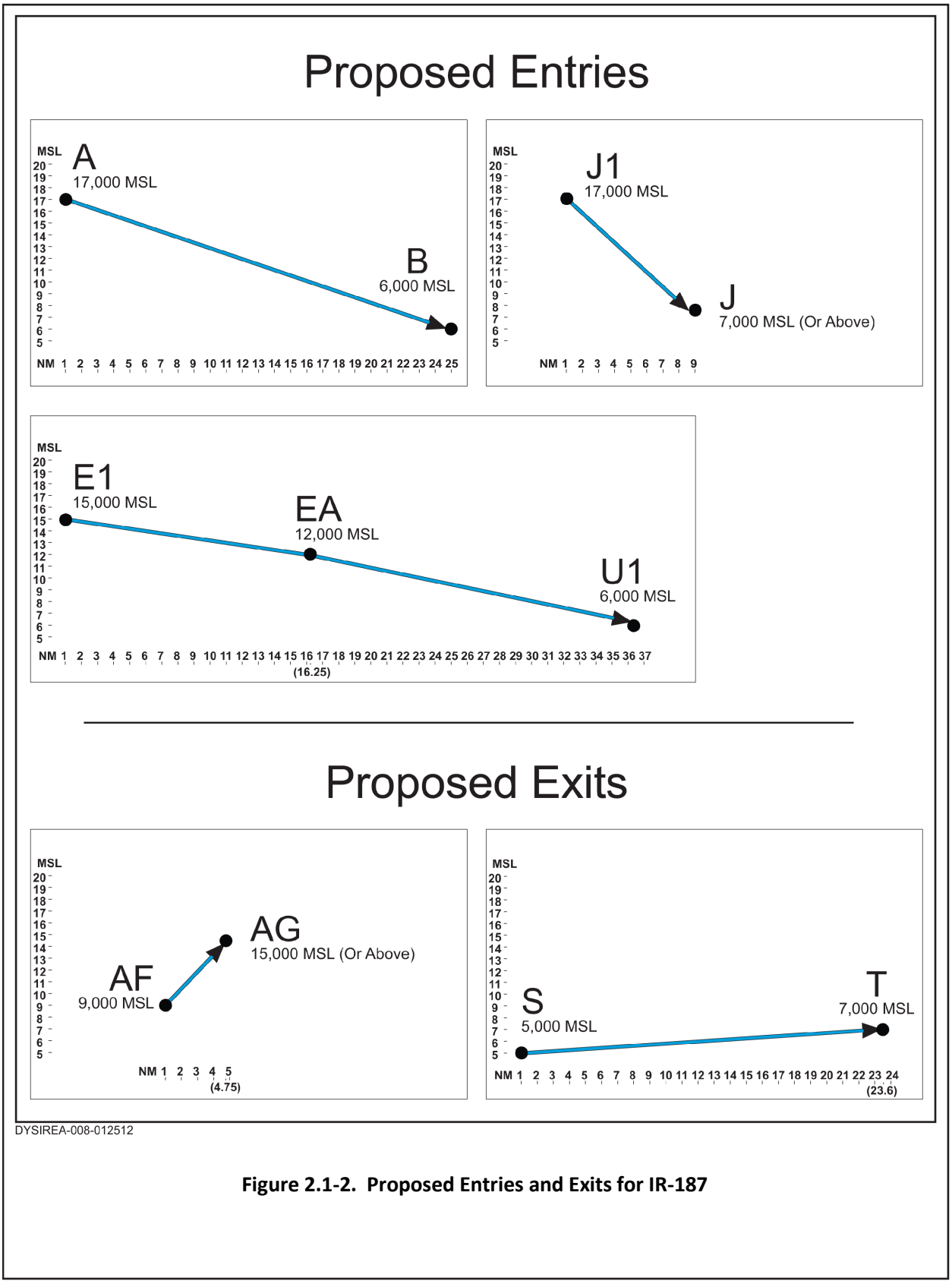

Figure 2.1-2. Proposed Entries and Exits for IR-187

2.1.1.3 FAA Process

To establish IR-187, the FAA must approve the route. As a cooperating agency with the Air Force in preparing this EA, the FAA is involved with the development of the proposal and its assessment. Upon completion of the EA, the Air Force will document its determination on the IR-187 proposal. The Air Force's goal in its cooperative effort with the FAA is for this EA to fulfill the NEPA requirements of both agencies. If a FONSI were appropriate, the Air Force submits a final IR-187 airspace proposal to FAA requesting action on the airspace modifications as recorded in the Final EA and FONSI. The FAA reviews the airspace proposal submitted by the Air Force in accordance with its policies and procedures, including FAA Orders 1050.1F, 7400.2L, and 7610.4T (Change 1, 2, and 3). The regional ARTCC also coordinates on the IR-187 proposal using FAA form 7110-4. After the Service Area's operational and environmental review and final approval, the FAA submits the 7110-4 to the National Flight Data Center for publication.

2.1.2 Proposed Aircraft Operations

As part of a need to enhance variability in aircrew training, the Air Force would fly a combination of five route options along IR-187 using the different entry and exit points. The route options would extend for various lengths, incorporating differing numbers of segments and amounts of variable terrain. Table 2.1-2 and the associated Figure 2.1-3 detail the composition of each route option in terms of the segments and total length.

Based on current operational considerations, the 7 BW anticipates that Route Option 1 may receive the most use. However, some use of each of the five route options is expected and preferences could change over time. Use of IR-178 and IR-180/128 would also continue to occur, coordinated through scheduling by Dyess AFB. Regardless of the route option or options used, the 7 BW would not exceed total authorized sorties for any segment of the MTR (Air Force 2007). Even in combination with flights on IR-178 and IR-180/128, total sorties would remain at or below authorized RBTI ROD numbers (Air Force 2007).

Table 2.1-2. Route Options for Proposed IR-187 by Segment

Route Option 1	***Route Option 2***	***Route Option 3***	***Route Option 4***	***Route Option 5***
Total Length 241 nm	Total Length 297 nm	Total Length 180 nm	Total Length 394 nm	Total Length 294 nm
Alternate Entry E1-U1	Entry A-B	Alternate Entry J1-J	Alternate Entry J1-J	Entry A-B
EA-U1	B-C	I-J	I-J	B-C
U1-V1	C-D	J-K	J-K	C-D
V1-W	D-E	K-L	K-L	D-E
W-X	E-EA	L-M	L-M	E-F
X-Y	EA-U1	M-N	M-N	F-G
Y-Z	U1-V1	N-O	N-O	G-H
Z-AA	V1-W	O-P	O-P	H-I
AA-AB	W-X	P-Q	P-Q	I-J
AB-AC	X-Y	Q-R	Q-R	J-K
AC-AD	Y-Z	R-S	R-S	K-L
AD-AE	Z-AA	Alternate S-T Exit	S-T	L-M
AE-AF	AA-AB		T-U1	M-N
AF-AG Exit	AB-AC		U1-V1	N-O
	AC-AD		V1-W	O-P
	AD-AE		W-X	P-Q
	AE-AF		X-Y	Q-R
	AF-AG Exit		Y-Z	R-S
			Z-AA	Alternate S-T Exit
			AA-AB	
			AB-AC	
			AC-AD	
			AD-AE	
			AE-AF	
			AF-AG Exit	

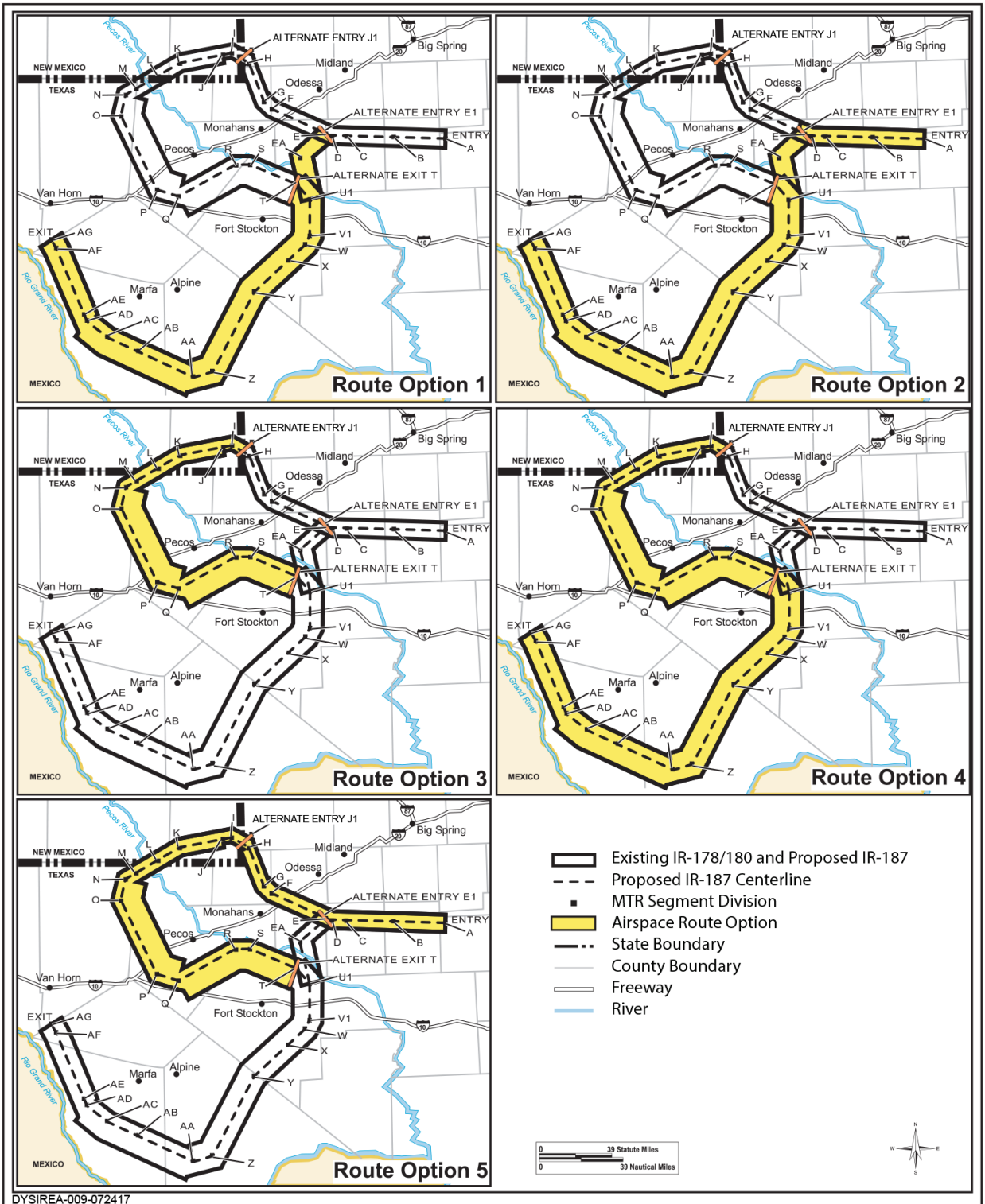

Figure 2.1-3. Five Route Options for Proposed IR-187

2.2 Selection Standards

As required by Air Force NEPA regulation, 32 CFR Part 989.8(c), all reasonable alternatives to a proposed action must be considered as part of the environmental analysis process. Only alternatives that are capable of fulfilling the purpose and need for the proposed action warrant consideration. The Air Force evaluated siting constraints, operational issues, resource utilization, and other factors to identify potential alternatives that would satisfy the need for increased training variability and reduced operational costs. The specific selection standards to establish reasonable alternatives were to:

- increase the quality and variability of low level training in mountainous terrain conditions;
- remain in operational proximity (600 nm) to Dyess AFB;
- reduce transit times between training areas; and
- maximize existing resources.

2.3 Screening of Alternatives

2.3.1 Preferred Alternative

No other alternatives, besides the proposed action of designating a reciprocal MTR for IR-178, met the selection criteria identified above. By allowing aircrews to fly in an opposite direction, IR-187 increases the quality and variability of low-altitude mountainous training; the airspace is within 600 nm to Dyess AFB; new entry and exit points closer to the base reduce non-training transit time; and using existing MTRs maximizes existing airspace. Refer to Section 2.1 for detailed description of the preferred alternative. Because existing IR-178 and proposed IR-187 would be used in conjunction (although not simultaneously), Dyess AFB would schedule flights to ensure combined total sorties of both MTRs would remain at or below authorized levels. For the purposes of analysis, this EA assesses the maximum use of the proposed IR-187, which would entail a corresponding reduction in the number of sorties available for IR-178 (Appendix C). Again, proposed operations on IR-187, when combined with IR-178 would not exceed the number of sorties authorized. As Table 2.2-1 demonstrates, the maximum total sorties would remain within authorized levels; Figure 2-2-1 illustrates the differences between the no-action (bottom number) and proposed action (top number) sorties along the various sets of segments. In flying IR-187, the 7 BW would continue to operate at or above 500 feet AGL along the entire route, even if the charted floor altitude is lower. While 11 segments have authorized floor altitudes less than 500 feet AGL, three segments, associated with entries or exits, would receive use at altitudes much higher than 500 feet AGL. Of the remaining 31 segments, five permit flight at 500 feet AGL or higher with the floors of the others ranging from 600 to 2,000 feet AGL.

The B-1 aircrews would conduct both terrain following training along IR-187, as well as straight and level flight. As under current conditions, turns would occur within the MTR but typically would not exceed 2.5 times the force of gravity (G). Because of the terrain-following system on the B-1, aircrews must practice maneuvers known as “fly-ups.” These maneuvers are automatic fail-safe climbs designed to prevent terrain impact and can require a 2.0 G climb to Minimum Safe Altitudes. For the purpose of terrain avoidance training, B-1 aircrews perform up to two planned rapid climbs and descents per sortie, avoiding either actual terrain or a simulated obstacle. As noted previously, authorized total sorties per segment for IR-178 do not exceed the level defined in the 2007 RBTI ROD (Air Force 2007).

Table 2.2-1. Comparison of Operations between the No-Action Alternative and the Proposed Action

No-Action Alternative						*Proposed Operations on IR-178*				*Proposed Operations on IR-187*						*Delta Between No Action and Proposed Action*
IR-178/ IR-180/128	**B-1**	**B-52**	**B-2**	**Other**	***Total***	**B-1**	**B-52**	**Other**	**Sub Total**	**IR-187**	**B-1**	**B-52**	**Other**	**Sub Total**	***Total***	
IR-180/128	679	450	69	23	*1,220*	39	6	9	54	A-B	1,098	18	50	1,166	*1,220*	0
AG-AH	679	450	69	23	*1,220*	39	6	9	54	B-C	1,098	18	50	1,166	*1,220*	0
AF-AG	679	450	69	23	*1,220*	39	6	9	54	C-D	1,098	18	50	1,166	*1,220*	0
AE-AF	679	450	69	23	*1,220*	39	6	9	54	D-E (Alternate entry E1)	1,098	18	50	1,166	*1,220*	0
OA-AE1	543	359	55	18	*975*	30	6	9	45	E-EA	862	18	50	930	*975*	0
O1-OA	543	359	55	18	*975*	30	6	9	45	EA-U1	862	18	50	930	*975*	0
AD-AE	136	90	14	5	*245*	15	4	12	31	E-F	214	0	0	214	*245*	0
AC-AD	136	90	14	5	*245*	15	4	12	31	F-G	214	0	0	214	*245*	0
AB-AC	136	90	14	5	*245*	15	4	12	31	G-H	214	0	0	214	*245*	0
AA-AB	136	90	14	5	*245*	15	4	12	31	H-I	214	0	0	214	*245*	0
Z-AA	837	555	85	28	*1,505*	100	12	29	141	I-J (Alternate entry J1)	1,323	12	29	1,364	*1,505*	0
Y-Z	837	555	85	28	*1,505*	100	12	29	141	J-K	1,323	12	29	1,364	*1,505*	0
X-Y	837	555	85	28	*1,505*	100	12	29	141	K-L	1,323	12	29	1,364	*1,505*	0
W-X	837	555	85	28	*1,505*	100	12	29	141	L-M	1,323	12	29	1,364	*1,505*	0
V-W	837	555	85	28	*1,505*	100	12	29	141	M-N	1,323	12	29	1,364	*1,505*	0
U-V	868	575	88	29	*1,560*	100	12	29	141	N-O	1,378	12	29	1,419	*1,560*	0
T-U	868	575	88	29	*1,560*	100	12	29	141	O-P	1,378	12	29	1,419	*1,560*	0
S-T	868	575	88	29	*1,560*	100	12	29	141	P-Q	1,378	12	29	1,419	*1,560*	0
R-S	868	575	88	29	*1,560*	100	12	29	141	Q-R	1,378	12	29	1,419	*1,560*	0
Q-R	837	555	85	28	*1,505*	100	12	29	141	R-S	1,323	12	29	1,364	*1,505*	0
P-Q	837	555	85	28	*1,505*	100	12	29	141	S-T (Alternate exit T)	1,323	12	29	1,364	*1,505*	0
O-P	837	555	85	28	*1,505*	130	12	29	171	T-U1	1,293	12	29	1,334	*1,505*	0
N-O	868	575	88	29	*1,560*	468	12	44	525	U1-V1	994	12	29	1,035	*1,560*	0
M-N	868	575	88	29	*1,560*	468	12	44	525	V1-W	994	12	29	1,035	*1,560*	0
L-M	868	575	88	29	*1,560*	468	12	44	525	W-X	994	12	29	1,035	*1,560*	0
K-L	868	575	88	29	*1,560*	468	12	44	525	X-Y	994	12	29	1,035	*1,560*	0
J-K	868	575	88	29	*1,560*	468	12	44	525	Y-Z	994	12	29	1,035	*1,560*	0
I-J	868	575	88	29	*1,560*	468	12	44	525	Z-AA	994	12	29	1,035	*1,560*	0
H-I	868	575	88	29	*1,560*	468	12	44	525	AA-AB	994	12	29	1,035	*1,560*	0
G-H	868	575	88	29	*1,560*	468	12	44	525	AB-AC	994	12	29	1,035	*1,560*	0
F-G	868	575	88	29	*1,560*	468	12	44	525	AC-AD	994	12	29	1,035	*1,560*	0
E-F	868	575	88	29	*1,560*	468	12	44	525	AD-AE	994	12	29	1,035	*1,560*	0
D-E	868	575	88	29	*1,560*	468	12	44	525	AE-AF	994	12	29	1,035	*1,560*	0
C-D	868	575	88	29	*1,560*	468	12	44	525	AF-AG Exit	994	12	29	1,035	*1,560*	0

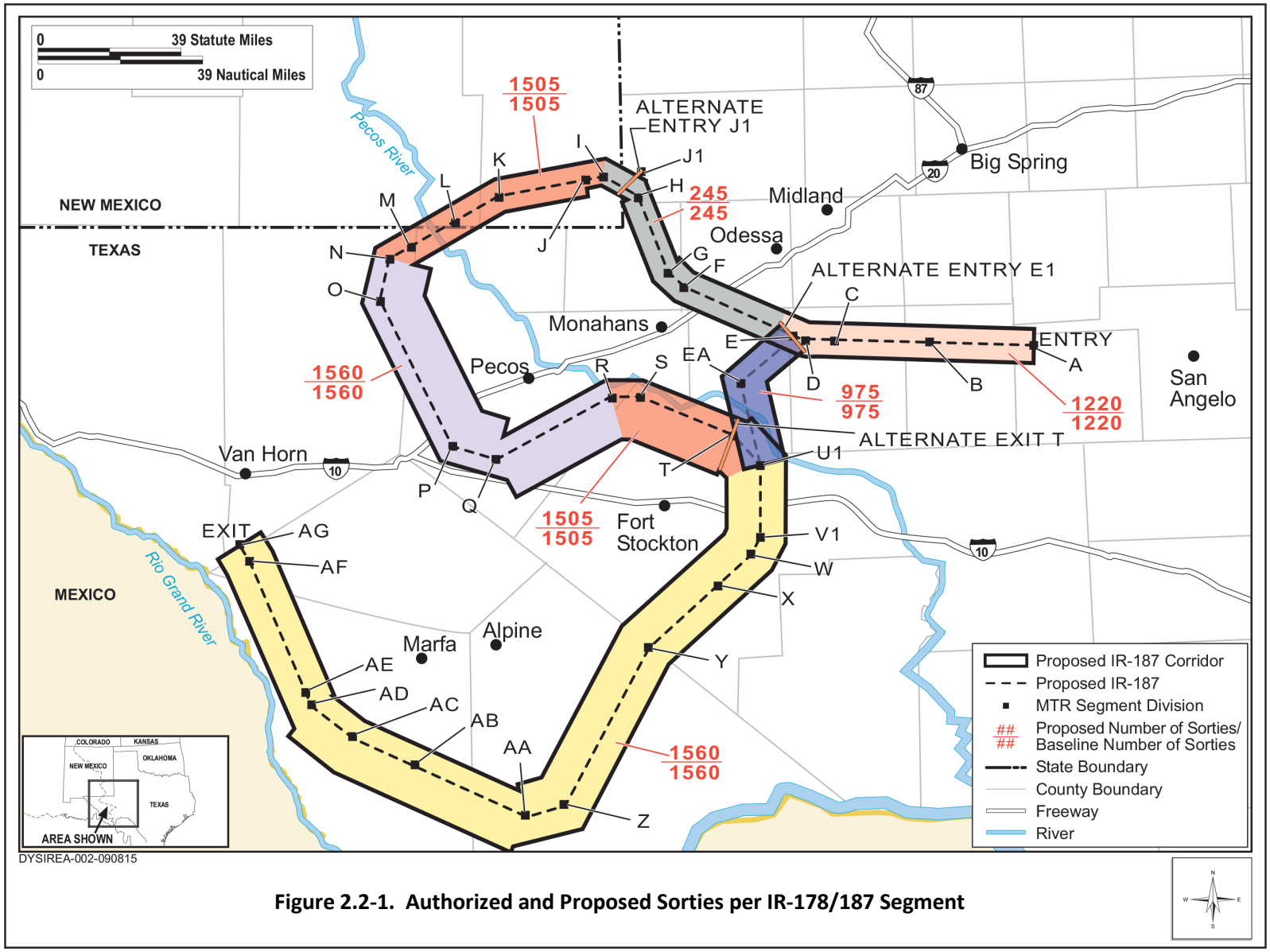

Figure 2.2-1. Authorized and Proposed Sorties per IR-178/187 Segment

2.3.2 No-Action Alternative

Under the no-action alternative, IR-187 would not be established. Transit time from the base to the MTR would not be reduced and increased training variability would not be realized. Operations on IR-178 and IR-180/128 would continue as identified in the RBTI ROD (2007). Under this alternative, the maximum authorized sorties range from 245 to 1,560 (depending on the route segment). Table 2.2-1 presents no-action authorized sorties and compares them to the proposed operations on reciprocal IR-187. As indicated, the number of B-1 operations would increase by 458; however, sorties by the B-2 would no longer occur and sorties by the B-52 and other aircraft would decrease; the reduction would be 458. In the end, total proposed operations would not differ from what is already authorized under the no-action alternative or the 2007 RBTI ROD.

2.3.3 Current Conditions

For purposes of this analysis, a comparison of what current operational conditions comprise (i.e., how aircraft are currently flying in IR-178 and IR-180/128), versus those authorized in the ROD is presented. The "current" condition comprises the number of sorties that have actually been flown during a given time. The actual number of sorties flown varies from those authorized due to several reasons: training requirements may change to meet mission needs; aircraft may be temporarily moved or deployed overseas or to other locations in the U.S.; mechanical issues may arise and scheduled training does not occur; and inclement weather may cause conditions that limit aircrews' ability to train in the airspace. The current condition presented in this document provides a snapshot in time to illustrate how the route has been used. To estimate the current condition on IR-178, Dyess AFB analyzed records from January 2013 to April 2017. From these records, sorties were estimated at 1,012 on IR-178, with an average estimated monthly count of 84 sorties. See Appendix C for further details regarding current conditions.

To remain consistent with previous documentation and authorized operational limits, the current conditions comprise the affected environment; however, the no-action alternative (i.e., 2007 RBTI ROD authorized sortie numbers) represents the conditions that would exist if the proposed action were not implemented. Therefore, environmental consequences of the proposed action were compared to the no-action alternative or the conditions identified in the 2007 RBTI ROD (Air Force 2007).

2.4 Alternatives Eliminated from Further Consideration

2.4.1 New MTR in a New Location

The Air Force considered the development of an entirely new MTR that provides mountainous terrain characteristics with entry and exit points close enough to Dyess AFB to reduce transit time to training events, while optimizing training time. This alternative was not pursued due to the lack of available unencumbered airspace within 600 nm with characteristics necessary to increase the quality/variability of low level training in mountainous terrain conditions. Unencumbered airspace is airspace that is open, clear, and free of civil airways, flight restrictions, regulations or control. The creation of an MTR within unencumbered airspace would increase the land area overflown by military aircraft. An alternative establishing an MTR in a new location would not meet the need for increased variability, because no

such airspace exists over mountainous terrain nor would it meet the criteria for maximizing existing resources, transit times would not be reduced, and existing resources would not be maximized.

2.4.2 Simulator Training for Low Level Flight

The Air Force considered increased use of flight simulation to meet the need for greater training variability while maximizing existing resources. While simulators have improved over the years and represent a valuable training aid, they cannot meet the bomber aircrew training requirements and do not comprise a reasonable alternative warranting further analysis.

Simulators present significant limitations for replicating the low-altitude flight environment. While simulator training is adequate for procedural high-altitude training, it cannot replicate realistic conditions sufficiently for the "seat of the pants" feedback necessary for low-altitude proficiency. Significantly, simulators cannot replicate G-forces created by different maneuvers in low-altitude flight. For example, use of terrain-following radar results in far less force (less than 1.5 G) than hand flying (up to 2.5 G). In low-altitude flight, the pilot must constantly crosscheck windshield views with instrument readings. Simulator display systems, however, cannot realistically replicate depth perception at B-1 speed and altitude. Nor can the simulator replicate environmental conditions such as sunlight, wind, and temperature that affect how the aircraft is flown. In addition, B-1 aircrews are required to conduct visual contour maneuvers in the aircraft and not in the simulator because headquarters has deemed visual contour maneuver training in the simulator as ineffective. Therefore, flight simulation was not pursued as a viable alternative because it would not sufficiently replicate the B-1 flight conditions in mountainous terrain and would not fulfill the need as described in Chapter 1.

2.5 Summary of Environmental Consequences

2.5.1 Introduction

Table 2.5-1 presents a summary of the impacts associated with the proposed action. The table compares the effects of establishing IR-187 to those of the no-action alternative. For more detailed information see the resource discussion in Chapter 4.0 and associated appendices.

2.5.2 Description of Environmental Consequences

Table 2.3-1. Summary of Environmental Consequences

Resource	*No Action*	*Proposed Action*
Airspace Management	• No change to the MTR structure or management; scheduling and FAA procedures are designed to prevent conflicts between military and civil aviation. • Similar to current conditions. Total number of sorties would not exceed authorized levels; therefore, no impacts. • No significant cumulative impacts.	• No change to the MTR structure or FAA procedures designed to prevent conflicts with civil aviation are anticipated. • Daily sorties on IR-178/187, combined, would not exceed the authorized number for any segment. • No significant impacts from the proposed action. • No significant cumulative impacts.

Table 2.3-1. Summary of Environmental Consequences

Resource	*No Action*	*Proposed Action*
Noise	• Noise exposure would remain similar to current conditions. Maximum noise exposure (A-weighted) on IR-178 ranges between 48 decibels (dBA) and 61 dBA Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}). • No perceptible changes from current conditions; therefore, no significant impacts. • No significant cumulative impacts.	• Maximum noise exposure on proposed IR-187/178 and IR-180/128 would range from 50 to 64 dBA L_{dnmr}, increasing 2 to 3 decibels (dB) depending on the MTR segment. In no instance would noise levels exceed 65 dBA L_{dnmr} or 65 dB DNL. • Less than significant noise impacts would be anticipated. • No significant cumulative impacts.
Aircraft Vortices and Wake Turbulence	• Flight activities along IR-178/180/128 would not exceed authorized levels. • Impacts from wake vortices would not likely harm people or animals on the ground, or cause damage to ground structures, including windmills. • Similar to current conditions; therefore, no significant impacts. • No significant cumulative impacts.	• The floor and ceiling altitudes, as well as the aircraft type and total number of operations, would not change when compared to the no-action alternative. The only difference is that aircraft would fly in both directions instead of in one direction. • No negligible changes to aircraft vortices and wake turbulence would occur. B-1s would continue to fly at altitudes as found under existing conditions but sometimes in a different direction. • No impacts that would likely harm people or animals on the ground, or cause damage to ground structures, including windmills are anticipated. • No significant cumulative impacts.
Safety	• Aircraft mishap probability would not significantly change. B-1s would fly within IR-178 and IR-180/128 at the authorized numbers and complying with operational safety procedures as currently is done. • Bird/wildlife-aircraft strike hazards (BASH) would not change from current conditions. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.	• Aircraft mishap probability would not significantly change. Aircraft would fly in IR-187 at the same authorized numbers, complying with the operational safety procedures as is currently done. B-2s would not be using the MTR. • BASH would not change from current conditions. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.

Table 2.3-1. Summary of Environmental Consequences

Resource	*No Action*	*Proposed Action*
Land Use and Recreation	• No change to land use or recreation resources when compared to existing conditions; therefore, no impacts. • No significant cumulative impacts.	• No land disturbance or acquisition is proposed, so no changes to land use. • Noise levels would be consistent with no-action conditions, with minor increases of 2 to 3 dB (decibels), but would remain below 65 dB. No significant impacts to public or private land uses or recreational opportunities due to noise. • No significant impacts. • No significant cumulative impacts.
Biological Resources	• No land disturbance to impact vegetation or wetlands. • Noise associated with an average of one to six low-altitude overflights per day has no adverse effects to three federally listed species and no significant effects on wildlife and domesticated animals. • No significant affects to wildlife, domestic animals, or federally listed species. • No significant cumulative impacts.	• No land disturbance to impact vegetation or wetlands. • Noise associated with an average of one to six low-altitude overflights per day has no adverse effects to three federally listed species and no significant effects on wildlife and domesticated animals. • No significant affects to wildlife, domestic animals, or federally listed species. • No significant cumulative impacts.
Cultural Resources	• No land-disturbance activities take place. • Airspace operations do not change and aircraft-generated noise continues to not affect adversely historic properties or traditional cultural resources. • Similar to current conditions; therefore, no impacts. • No significant cumulative impacts.	• Same as no action.
Air Quality	• All affected areas along IR-178 and IR-180/128 are in attainment. • Aircraft emissions would remain consistent with current conditions; therefore, no impacts. • No significant cumulative impacts.	• All affected areas along IR-178 and IR 180/128 are in attainment. • No net change of emissions; therefore, no significant impacts. • No significant cumulative impacts.

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3 AFFECTED ENVIRONMENT

NEPA requires focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that a NEPA document should consider, but not analyze in detail, those areas or resources *not* potentially affected by the proposal. Therefore, a NEPA document should not be encyclopedic; rather, it should be succinct and to the point. Both description and analysis in an EA should provide sufficient detail and depth to ensure that the agency (i.e., Air Force) took a critical look at all resources potentially impacted by an action. NEPA also requires a comparative analysis that allows decision makers and the public to differentiate among the alternatives. This EA focuses on those resources that would be affected by the proposed IR-187 and the no-action alternative.

CEQ regulations (40 CFR Parts 1500-1508) for NEPA also require an EA to discuss impacts in proportion to their potential magnitude and present only enough discussion of peripheral issues as necessary to demonstrate why more study is not warranted.

3.1 Introduction

The geographic scope of potential impacts includes those communities and resources that directly or indirectly could be affected by a proposed action or alternative. Proposed IR-187 would comprise a reciprocal MTR with portions of existing IR-178 and IR-180/128. No additional or new airspace is proposed. Aircraft operations would remain within the authorized annual number of 1,560 (Air Force 2007). The focus of environmental analysis considers those resources that could be affected by implementing the proposed action or no-action alternatives in areas underneath proposed IR-187.

Air Force and FAA regulations require analyses of slightly different resource categories. Table 3.1-1 lists Air Force resource categories and Table 3.1-2 lists FAA resource categories. Resource categories that are carried forward for more in-depth analysis are identified; the reasons why some resource categories are not carried forward for further analysis follow the tables. The section where each of the resources is evaluated is also identified. Based on the components of the proposed action, and through interagency coordination comments and scoping, the Air Force and FAA identified the affected environment and the resource categories potentially affected by the proposed action. The following resources have been evaluated in this EA: airspace and aircraft operations; noise; safety; wake vortices; land use and recreation; biological resources; and cultural resources. Justification as to why certain resources (identified as not applicable in the tables) are not carried forward for detailed analysis follows the tables.

Table 3.1-1. Resources Analyzed in the Environmental Impact Analysis Process – Air Force

Resource category	*Carried Forward*	*Section Addressed*
Airspace and Aircraft Operations	Yes	Airspace Management
Noise	Yes	Noise
Aircraft Vortices and Wake Turbulence	Yes	Aircraft Vortices and Wake Turbulence
Safety	Yes	Safety
Land Use and Recreation	Yes	Land Use and Recreation
Visual Resources	No	Not applicable
Biological Resources	Yes	Biological Resources

Table 3.1-1. Resources Analyzed in the Environmental Impact Analysis Process – Air Force

Resource category	*Carried Forward*	*Section Addressed*
Community Facilities and Infrastructure	No	Not applicable
Cultural Resources	Yes	Cultural Resources
Socioeconomics/Quality of Life	No	Not Applicable
Environmental Justice and Protection of Children	No	Not Applicable
Air Quality	Yes	Air Quality
Geology, Soils, and Water	No	Not Applicable
Hazardous Materials and Waste	No	Not Applicable
Global Climate Change	Yes	Air Quality

Table 3.1-2. Resources Analyzed in the Environmental Impact Analysis Process – FAA

Resource Category	*Carried Forward*	*Section Header*
Compatible Land Use	Yes	Land Use and Recreation
Construction Impacts	No	See Section 3.1.1.9
Department of Transportation Act: Section 4(f)	No	Exempt
Farmlands	No	See Section 3.1.1.8
Fish, Wildlife, and Plants	Yes	Biological Resources
Floodplains	No	See Section 3.1.1.6
Hazardous Materials, Pollution Prevention, and Solid Waste	No	See Section 3.1.1.11
Historical, Architectural, Archeological, and Cultural Resources	Yes	Cultural Resources
Light Emissions and Visual Impacts	No	See Section 3.1.1.4
Natural Resources and Energy Supply	No	See Section 3.1.1.12
Noise	Yes	Noise
Secondary (Induced) Impacts	No	See Section 3.1.1.10
Socioeconomic Impacts, Environmental Justice, Children's Health	No	See Section 3.1.1.1
Environmental Health and Safety Risks	Yes	Safety
Water Quality	No	See Section 3.1.1.5
Wetlands	No	See Section 3.1.1.6
Wild and Scenic Rivers	No	Not Applicable
Air Quality	Yes	Air Quality
Greenhouse Gas (GHG) Emissions	Yes	Air Quality
Coastal Resources	No	See Section 3.1.1.6

3.1.1 Resources Not Carried Forward for Further Analysis

Several resources do not warrant detailed analysis for this proposal. These include environmental justice and protection of children; community facilities and infrastructure; socioeconomics/quality of life; light emissions and visual resources; geology, soils, and water resources; floodplains, wetlands, and coastal resources; U.S. Department of Transportation Act of 1966: Section 4(f); farmlands; construction; secondary induced impacts; Hazardous Materials and Hazardous Waste Management, Pollution Prevention, Solid Waste, and Environmental Health and Safety Risks; and Natural Resources and Energy Supply. These resource categories were eliminated from further examination because the proposed action, to change the direction of aircraft flying in an already existing MTR, would not introduce any impacts. Detailed justification of their elimination is provided below.

3.1.1.1 Environmental Justice and Protection of Children

Environmental justice, as defined in EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, looks at whether an action disproportionately affects these types of populations. The Air Force 2014 *Guide for Environmental Justice Analysis under the Environmental Impact Analysis Process* provides guidance on analyzing potential impacts to low-income and minority populations, as well as for children. Department of Transportation Order 5610.2(a) sets forth the FAA policy to consider environmental justice principles in all Department of Transportation projects. Additionally, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* requires that federal agencies identify and assess risks that may disproportionately affect children.

The RBTI EIS (Air Force 2000a) established that no populations of any kind, including minority, low-income, or children under the age of 18 populations, would be exposed to noise levels exceeding A-weighted, 65 dBA Day-Night Average Sound Level (DNL) under IR-178 (Air Force 2000b). The threshold of 65 dBA DNL is used by the Air Force for land use recommendations that can be considered compatible or incompatible with noise levels generated at an airfield (DoD Instruction 4165.57). Noise levels less than 65 dBA DNL are generally considered compatible with residential areas, schools, day care centers, hospitals, places of worship, and nursing homes.

Environmental justice communities are affected by noise generated from military aircraft overflights under current conditions and would continue to be so under both the no-action alternative and the proposed action. All communities underlying IR-178 and a portion of IR-180/128 (i.e., proposed IR-187) are equally exposed to noise levels less than 65 dBA DNL, levels that are considered compatible with any populations. Therefore, no disproportionate impacts would be anticipated to environmental justice communities underlying the existing and proposed MTR. When compared to the analysis and findings identified for the sortie numbers in the RBTI EIS (i.e., the no-action alternative), the proposed action would not impose significant impacts. There would be no change in the number of total aircraft overflights, would not introduce new aircraft types or overfly any new land areas, nor would it introduce any perceptible changes to the noise levels already generated within the MTR. There are no discernable differences in the health and safety conditions presented in the RBTI EIS, subsequent Supplemental EIS, or the conditions now existing within the affected area. Consequently, there would be no disproportionate health or safety impacts to minority, low-income, children, or elderly populations.

No construction, decommissioning of facilities, or operation of new facilities would occur under the proposed action. Individually and collectively, these various factors indicate minority and low-income populations would not be affected. For this action, no further assessment of environmental justice is warranted.

3.1.1.2 Community Facilities and Infrastructure

Community facilities and infrastructure include potable water systems, wastewater treatment systems, electric and natural gas utilities, and solid waste management. The proposed action would not change facilities or infrastructure that supports the delivery of community services from baseline conditions; therefore, no further assessment of community facilities and infrastructure is warranted.

3.1.1.3 Socioeconomics/Quality of Life

Socioeconomic impacts include changes to population, jobs, income, housing, and access to public services. Proposed aircraft operations are dispersed across the width of the corridor and at various altitudes. Consequently, no single location under the airspace is subject to consistent, direct overflight and associated noise. Because of this variability and because the proposed action maintains the existing number of sorties in the airspace overall, changes are not likely to affect social or economic conditions under the airspace.

The proposed action does not include employment opportunities associated with construction or ground operations; nor does the proposal include the addition or decommission of personnel within the affected area. Thus, implementation of the proposed action would not affect population, employment opportunities, or demand for housing and public services.

In addition to the standard socioeconomic impacts described above, scoping revealed concerns about impacts to property value, livestock, and quality of life. These issues were not carried forward, as discussed in the following subsections.

Property Value

The occurrence of aircraft noise in an MTR is episodic and the duration each event is short, lasting only a few seconds. Additionally, the variability of land values due to the diversity of land uses, locations, and improvements make potential impacts from aircraft difficult to quantify. There is little evidence in literature to suggest the sporadic and dispersed nature of overflight in the existing airspace affects property values (Air Force 2000a). In fact, as Table 3.1-3 presents, median home values from 2010 to 2015 rose in 10 of the 11 sampled west Texas counties over which aircraft fly in IR-178 and a portion of 180/128. Economic activities in this region have a long shared history with the Air Force and its training activities. The proposed action does not represent a new use. It does not change the floor or ceiling altitudes of the MTR, nor does it increase the number of authorized sorties. The proposed action, therefore, would not affect the economic value of private property under the airspace.

Table 3.1-3. Median Home Values in Sample West Texas Counties

County	*2010 Census Year Median Value ($)*	*2015 Census Year Median Value ($)*	*Increase (+)/ Decrease (-)*
Brewster	101,200	112,700	+
Crane	54,200	75,900	+
Culberson	39,900	60,700	+
Jeff Davis	101,300	93,300	-
Loving	66,700	92,500	+
Midland	121,200	166,700	+
Pecos	50,900	68,800	+
Reeves	31,400	44,600	+
Upton	42,800	57,600	+
Ward	45,200	72,200	+
Winkler	38,900	45,200	+

Source: U.S. Census Bureau 2017.

Livestock

Past studies of the effects of aircraft noise on livestock indicate some behavioral responses to aircraft overflight; however, domestic animals generally seem to habituate to the disturbances over a period of time (Wyle 2008). The literature suggests no proven cause-and-effect link between overflight startle effect and cattle abortion rates or lower milk production (Wyle 2008). Cattle that are corralled seem to exhibit stronger startle reactions than individual animals that are not confined. Horses and cattle have been known to stampede when aircraft fly overhead, breaking through fences and injuring themselves (Air Force 1993). Several studies noted that horses gallop more randomly or exhibit biting and kicking behavior in response to low-altitude overflight. No cattle injuries or abortions, however, have been reported to Dyess AFB since the Air Force RBTI ROD. Additionally, the Air Force has a policy of compensation should confirmed loss of livestock occur due to training operations. The proposed action does not increase overall sorties from those already authorized, and therefore no change in impacts to livestock would be expected because of its implementation.

Ranching

Scoping comments listed quality of life as an issue of concern under the proposed action. Typically, quality of life is a subjective term, constructed on a variety of factors including individual perceptions, attitudes, and beliefs; social groupings; and geographic context, among other factors. Specific quality of life indicators noted in scoping comments focus on the disruption of traditional ranching activities such as cattle gathering, driving, and sorting; as well as, forage and range management activities. Scoping comments noted low-altitude flight could startle horses and cattle, and result in hazards for ranch workers. Commenters noted that continued IR-178 use is viewed as dangerous for civilian aircraft used in ranch management. To date, no incidences of military aircraft overflights endangering ranch management have been reported to Dyess AFB.

Regional character attributes such as quietness, remoteness, and serenity are seen as compromised by military aircraft overflight. Commenters were concerned that continued disruption of these regional characteristics by military aircraft could affect non-traditional tourism opportunities such as lease hunting and eco-tourism. As reported in the RBTI EIS (Air Force 2000a), evidence does not support the assertion that hunting leases and the hunting experience would be negatively impacted by military overflights. Individual game animals may be startled by aircraft noise, especially those unaccustomed to the overflight (see Biological Resources 3.7 and 4.7); however, studies conclude that populations of animals are not likely to be affected. Hunters may be startled and annoyed by intermittent aircraft overflights, but there is no evidence to suggest that hunters as a group would modify or cease their hunting activities because of the proposed action. A study conducted by the U.S. Forest Service (1992) concludes aircraft noise intrusions were not generally noticed by wilderness area visitors. However, if noticed, low-altitude, high-speed aircraft were reported as the most annoying types of aircraft to hear or see. This finding was largely attributable to the "startle effect." The startle effect occurs when a very loud noise is experienced in a setting where it is not expected and when there is no visual or audible warning. In primitive backcountry areas, the startle effect can negatively affect wilderness and solitude experiences. Conversely, observation of aircraft overflights can appeal to some members of the public and be considered a positive experience.

3.1.1.4 Light Emissions and Visual Resources

Light emissions from aircraft operations would be minimal and would not noticeably change the nighttime view scape. No impacts would occur because of the proposed action or no-action alternative; therefore, no further analysis is warranted.

Visual Resources are components of the environment as perceived through the visual sense only and typically refer to beauty in both form and appearance. Because the overall number of authorized overflights will not change, the potential for visual impacts from aircraft overflight would remain the same as current conditions. Therefore, impacts to visual resources will not be considered further in this EA.

3.1.1.5 Geology, Soils, and Water Resources

Geology, soil, and water resources generally refer to soil and water composition and ground water and hydrology in the proposal area. The proposed action would not involve construction or soil disturbance of any kind; therefore, this EA does not analyze in more detail impacts to geology and soils. Neither water quantity nor quality would be impacted by the proposed action because it involves only airspace operations; therefore, analysis of potential impacts to water resources is not considered further in this EA.

3.1.1.6 Floodplains, Wetlands, Coastal Resources, and Wild and Scenic Rivers

The proposed action does not include construction that would affect floodplains and wetlands. The type and number of flight operations within the proposed MTR would not differ considerably from current conditions; therefore, no impacts to floodplains and wetlands. There are no coastal resources or wild and scenic rivers located underneath the proposed MTR; therefore, no impacts to these resources.

3.1.1.7 Department of Transportation Act: Section 4(f)

Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966, which provided for consideration of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, applies only to the U.S. Department of Transportation. Designation of airspace for military flight operations is exempt from the Department of Transportation Act, Section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (PL 105-85) provided that "[no] military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purpose of section 303(c) of title 49, U.S.C." Therefore, Department of Transportation Section 4(f) was not considered further in this analysis.

3.1.1.8 Farmlands

The proposed action does not involve conversion of farmlands to non-agricultural uses. Therefore, this resource is not carried further for detailed analysis.

3.1.1.9 Construction

The proposal to establish a reciprocal MTR would not involve any construction activities or affect land transportation resources. As such, construction impacts are not analyzed.

3.1.1.10 Secondary Induced Impacts

The proposed action would not cause shifts in patterns of population movement and growth, public service demands, or changes in business and economic activity. No known induced secondary impacts, as described in FAA 1050.1F, are anticipated or expected from either the proposed action or no-action alternative.

3.1.1.11 Hazardous Materials and Hazardous Waste Management, Pollution Prevention, Solid Waste, and Environmental Health and Safety Risks

Hazardous materials are regulated under the Comprehensive Environmental Response, Compensation and Liability Act; the Occupational Safety and Health Act; and the Emergency Planning and Community Right-to-Know-Act. Resource Conservation and Recovery Act defines hazardous waste as any solid, liquid, contained gaseous or semisolid waste, or any combination of waste that could or does pose a substantial hazard to human health or the environment. Waste may be classified as hazardous because of its toxicity, reactivity, ignitability, or corrosiveness. The proposed action does not involve construction activities, nor would there be any changes to the existing conditions associated with hazardous materials, hazardous or solid waste, or require pollution prevention measures; therefore, these resources have not been further assessed.

3.1.1.12 Natural Resources and Energy Supply

The proposed action would have no measurable direct, indirect, or cumulative effect on local supplies of energy or natural resources.

3.2 Airspace Management

3.2.1 Definition of the Resource

Under Title 49, U.S.C. § 40103, *Sovereignty and Use of Airspace* and PL 103-272, the U.S. government has exclusive sovereignty over the nation's airspace. The FAA has the responsibility to plan, manage, and control the structure and use of all airspace over the U.S., including that associated with the proposed action. FAA rules govern the national airspace system, and FAA regulations establish how and where aircraft may fly. Collectively, the FAA uses these rules and regulations to make airspace use as safe, effective, and compatible as possible for all types of aircraft, from private propeller-driven planes to large, high-speed commercial and military jets.

Military training has occurred over west Texas for 90 years. Given the vast expanses of land and the importance of ranching and farming, there is a long tradition of civil aviation as well. Today, civil aviation activities in the affected environment include weather modification (cloud seeding), pest (e.g., boll weevils) eradication, crop spraying, range distribution and water assessments for livestock, emergency medical flights, pipeline surveillance, predator (e.g., coyotes) control, wildlife management, drug

interdiction, and pleasure flights. Neither the FAA nor state aviation agencies maintain comprehensive records on visual flight rules (VFRs) traffic for civil aviation. Jet routes and federal airways also transit the affected environment, and thousands of commercial flights use them every year.

Two types of flight rules (VFRs and instrument flight rules [IFRs]) apply to airspace, providing a general means of managing its use. Both military and civil aviation abide by these rules to ensure safe operations. For example, private pilots flying between airports to survey oil fields or livestock typically operate under VFR. The VFR pilots fly using visual cues along their desired flight route, as long as appropriate visibility conditions exist, day or night. Pilots flying IFR undergo much more flight training, operate using instruments without the aid of ground-based visual cues, and may fly during periods of reduced visibility. All commercial and military pilots are IFR certified.

FAA rules and regulations serve to separate VFR and IFR flights from each other and from other aircraft using the same rules. These rules always recommend that VFR pilots carefully examine aeronautical charts and communicate with the nearest FAA facility to obtain information on what other aircraft are flying in the area. The rules also separate VFR air traffic by designating altitudes for flying based on the direction of flight. IFR air traffic is under more stringent flight controls and requires continuous communication with an FAA facility throughout the flight.

Aircraft use different kinds of airspace according to the specific rules and procedures defined by the FAA for each type of airspace. For the proposed action, the type of airspace used is an MTR; no changes are proposed to the Lancer MOA. MTRs are 3-dimensional “roads” in the sky, or flight paths, which provide corridors for low-altitude navigation and training. Low-altitude navigation training is important because aircrews may be required to fly low for many miles to avoid detection in combat conditions. MTRs allow military aircraft to conduct low-altitude navigation training at airspeeds in excess of 250 knots indicated airspeed (approximately 285 miles per hour [mph]). The FAA requires publication of the hours of operation for any MTR so that all pilots, both military and civilian, are aware of when other aircraft could be in the airspace.

Each military organization responsible for an MTR develops a daily use schedule. Although the FAA designates MTRs for military use, other pilots may transit the airspace. When flying VFR, the FAA urges pilots to contact the nearest flight service station for detailed information on use of the MTR at that time, and VFR pilots must use “see and avoid” techniques to prevent conflicts with military aircraft using the MTR. Pilots flying IFR must follow essentially the same procedures, but need to communicate with air traffic controllers consistently during their flight. Two types of MTRs exist: IRs and Visual Routes. To avoid conflicts, MTRs are designed to avoid entirely or have specific avoidance procedures around busy airports; these procedures also apply to small private and municipal airfields. Such avoidance procedures are maintained for each MTR, and military aircrews build them into daily flight plans.

In addition to the lower limits of charted airspace, all aircrews adhere to FAA avoidance rules. Aircraft must avoid congested areas of a city, town, settlement, or any open-air assembly of persons by 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft. Outside of congested areas, aircraft must avoid any person, vessel, vehicle, or structure by 500 feet. Bases may establish additional avoidance restrictions under MTRs.

3.2.2 Affected Environment

The affected environment for airspace management includes IR-178's lateral and vertical confines of the route, including alternate entry and exit points, as well as a small portion of IR-180/128 (Figure 3.2-1).

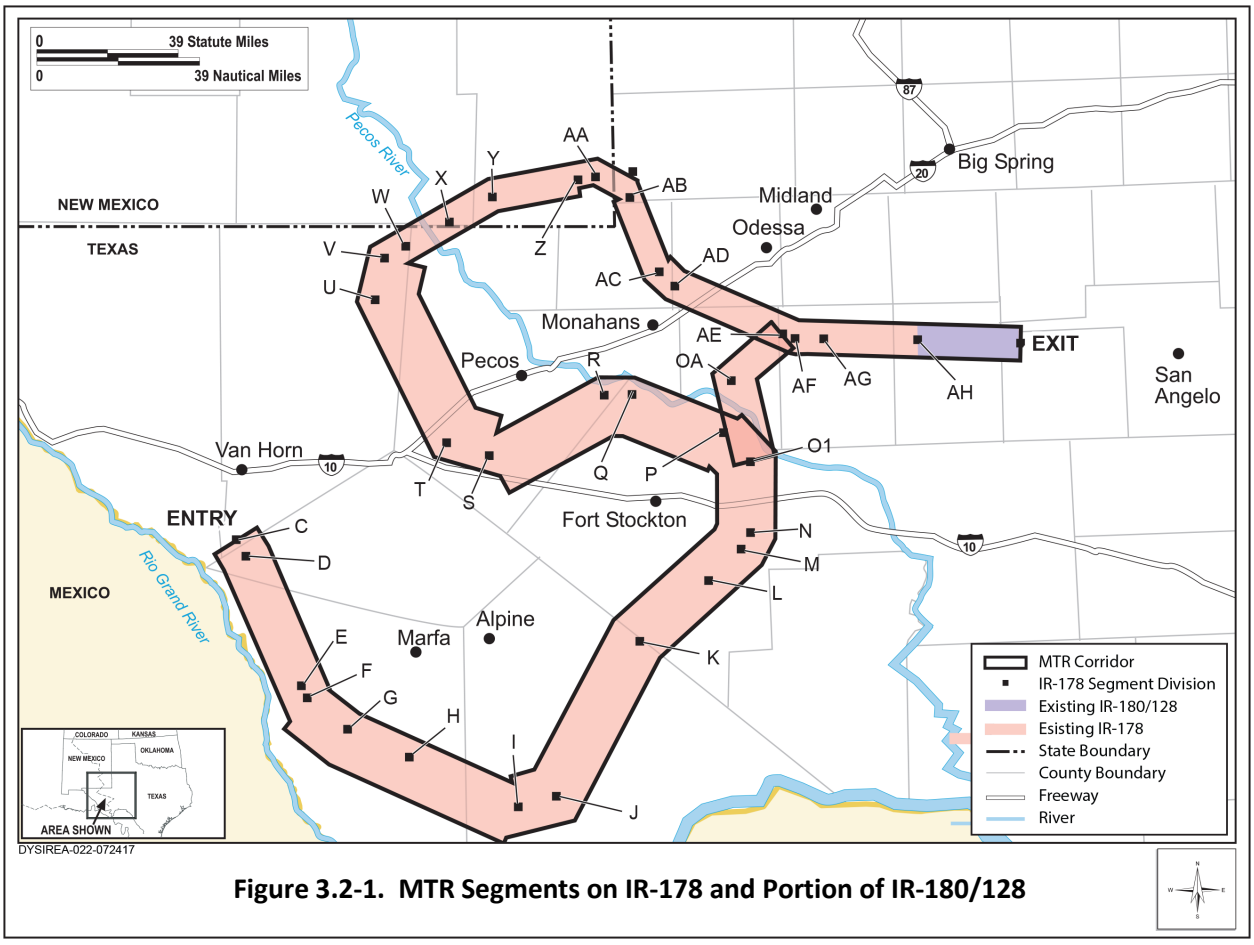

Figure 3.2-1. MTR Segments on IR-178 and Portion of IR-180/128

3.2.3 Military Aircraft Operations

Dyess AFB manages and schedules IR-178 and IR-180/128. Each MTR is scheduled daily by the base responsible for its management so that conflicts among the users do not occur. Flying units from Dyess AFB, as well as any other units wishing to fly the MTRs, must schedule appropriate blocks of time for its use. In this way, aircraft scheduling a specific time block are assured that no other aircraft will be in the same segment of the MTRs at the same time. Coordination of scheduling among managing bases for MTRs that overlap or intersect other MTRs follows similar procedures. Through this coordination, the Air Force avoids the possibility of aircraft flying on two separate MTRs in the same place (i.e., intersection), at the same time.

Data used for this analysis were obtained from the DoD FLIP AP/1B (DoD 2017). The Special Operating Procedures section of the FLIP provides notification, operational procedures, and avoidance criteria for noise-sensitive receptors, airfields, environmentally sensitive areas, flight safety considerations, obstructions, and other areas of concern within the IR-178 and IR-180/128 environs.

It is estimated that current conditions comprise about 1,012 sorties conducted by military aircraft on IR-178 and the portion of IR-180/128. Depending on the MTR segment, there is an estimated average of 84 sorties per month or about 1 to 6 daily sorties. Again, as noted earlier in Section 2.3.3, current condition comprises the number of sorties that have actually been flown during a given time. The actual number of sorties flown varies from those authorized due to several reasons: training requirements may change to meet mission needs; aircraft may be temporarily moved or deployed overseas or to other locations in the U.S.; mechanical issues may arise and scheduled training does not occur; and inclement weather may cause conditions that limit aircrews' ability to train in the airspace. The current condition presented in this document provides a snapshot in time to illustrate how the route has been used. To estimate the current condition on IR-178, Dyess AFB analyzed records from January 2013 to April 2017.

3.2.3.1 IR-178

The IR-178 route intersects six MTRs (VR-196, VR-197, VR-1116, IR-180/128, IR-102/141, and Mountain Tactical Route). The FLIP lists multiple noise-sensitive or avoidance areas that require avoidance, typically by 1,000 feet vertically or 0.25 nm horizontally. These avoidance areas include residences and small airports along the route. Caution is advised for uncharted power lines on the route and migratory bird activity during the spring and fall (DoD 2017). Figure 3.2-2 identifies avoidance areas as of August 2017; however, these are subject to change over the years and are identified in the DoD FLIP AP/1B (DoD 2017).

3.2.3.2 IR-180/128

The IR-180/128 route intersects two MTRs (IR-178 and VR-1116). Three noise-sensitive areas and six airports are listed as avoidance areas and require avoidance by 1,000 feet or 0.30 nm. Caution is advised for migratory bird activity during the spring and fall (DoD 2017). No avoidance areas are identified in this portion of IR-180/128.

3.2.4 Civilian Aircraft Operations

Numerous federal airways, jet routes, and civil aviation airports occur within the affected environment. Ranchers, crop dusters, and other local VFR pilots may operate at lower altitudes equivalent to those of MTRs. FAA charts, publications, and procedures provide the means for VFR pilots to plan for and safely transit an MTR. Neither the FAA nor the state maintains records of the amount of VFR flight activity by civil aviation in the area. It is known, however, that ranchers, cloud seeding pilots, and other local VFR pilots frequently fly in these areas. Air traffic control procedures, charting of MTRs for pilot awareness, pilot compliance with FAA flight procedures, and required "see-and-avoid" techniques collectively make MTR use compatible with civil aviation activities.

Airfields ranging from regional county airports to small airstrips on ranches are located within the affected environment. Figure 3.2-2 identifies the airports within the affected environment for IR-178 and IR-180/128. By design, MTRs avoid busier airports and employ specific avoidance procedures for smaller airfields. For the affected environment, three small airports lie under the MTR, and six within 10 nm; these are labeled in the figure. Also labeled are county and municipal airports that are found near the MTR. Traffic at the airfields ranges from under 10 to almost 8,000 operations per year.

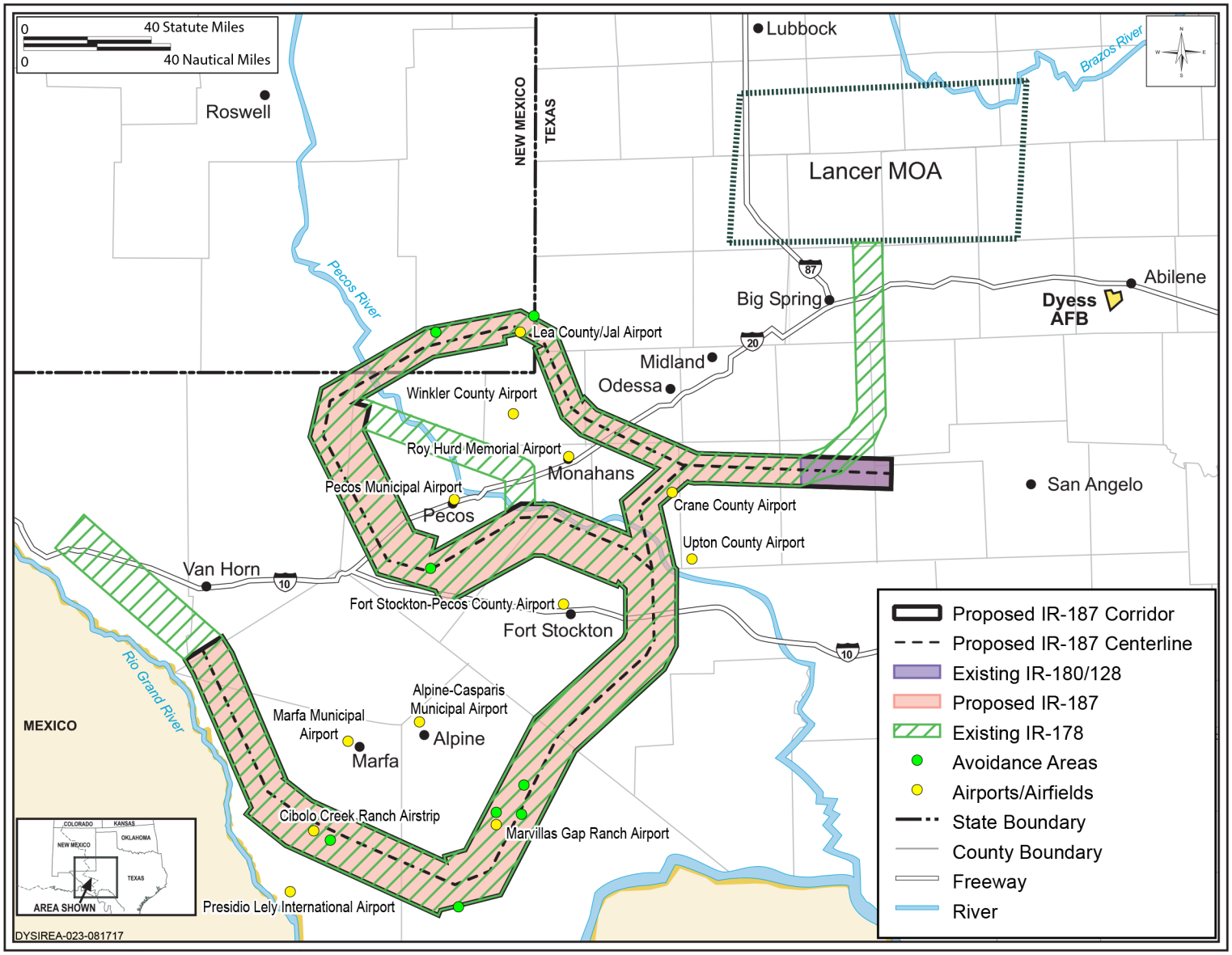

Figure 3.2-2. Airports, Airfields, and Avoidance Areas within the Affected Environment

3.3 Noise

3.3.1 Definition of the Resource

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. Noise is generally described as unwanted sound. Unwanted sound can be based on objective effects (such as hearing loss or damage to structures) or subjective judgments (community annoyance). The response of different individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual. Noise also may affect wildlife through disruption of nesting, foraging, migration, and other life-cycle activities.

Sound is expressed in logarithmic units of dB. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB; sound levels above 120 dB begin to be felt inside the human ear as discomfort. Sound levels between 130 to 140 dB are felt as pain (Berglund and Lindvall 1995). The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB.

All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second, or hertz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements usually employ an "A-weighted" scale that filters out very low and very high frequencies to replicate human sensitivity. It is common to add the "A" to the measurement unit to identify that the measurement was made with this filtering process, for instance dBA. In this document, the dB unit refers to A-weighted sound levels. In accordance with DoD guidelines and standard practice for environmental impact analysis documents, the noise analysis herein uses the A-weighted dB unless specified differently.

Noise Metrics

Maximum Sound Level and Sound Exposure Levels

During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the receptor, and returns to the background level as the aircraft recedes into the distance. The variation in sound level with time is shown by the solid line in Figure 3.3-1. The Maximum Sound Level (L_{max}) is the instantaneous maximum sound level measured/heard during the event. The L_{max} is important in judging the interference caused by a noise event with sleep, conversation, television, or radio listening, or other common activities. Although it provides some measure of the intrusiveness of the event, it does not completely describe the total event, because it does not include the period of time that the sound is heard.

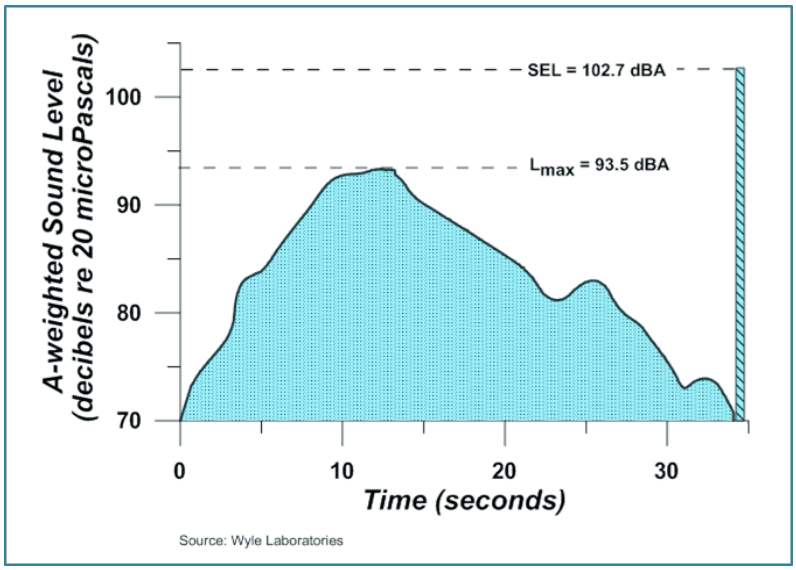

Figure 3.3-1. Example of L_{max} and SEL from an Individual Event

As a composite metric, Sound Exposure Level (SEL) represents all of the sound energy of the single event and includes both the intensity of a sound and its duration. The SEL metric is the best metric to compare noise levels from overflights of different aircraft types. For sound from military aircraft overflights near airfields, the SEL is usually 5 to 10 dBA greater than the L_{max}. For example, the L_{max} of the sample event in Figure 3.3.1 is 93.5 dBA whereas the SEL is 102.7 dBA. However, for sound from military aircraft overflights on MTRs, the SEL is usually 3 to 5 dBA greater than the L_{max}, with the difference generally lessening for decreasing altitude and increasing speed (Plotkin and Croughwell 1987; Plotkin and Bradley 1991).

Table 3.3-1 presents SEL and L_{max} values at representative altitudes (feet AGL) for the aircraft currently using IR-178. Typically, the noise environment is dominated by the aircraft performing the majority of operations, although it could be dominated by fewer operations of louder aircraft. The B-1 dominates the noise environment in IR-178. As indicated in Table 3.3-2, in the MTR, B-1s spend 85 percent of their time at altitudes ranging from 500 to 999 feet AGL and the B-52s spend 70 percent of the time at altitudes ranging from 1,000 feet to 1,999 feet AGL. Both aircraft predominantly operate in the MTR during the environmental daytime hours (7:00 a.m. to 10:00 p.m.)—80 percent of the time for the B-1s and 85 percent of the time for the B-52. These hours are used to evaluate noise levels; operations during environmental nighttime hours (between 10:00 p.m. and 7:00 a.m.) represent a period when the effects of noise on people are accentuated and, therefore, receive special consideration.

Table 3.3-1. SEL and L_{max} (dBA)[1] for Aircraft at Various Altitudes[2]

Aircraft Type	*Airspeed (nm/hour)*	*500*		*1,000*		*2,000*		*3,000*		*5,000*		*10,000*		*20,000*	
		SEL	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*
B-1	550	112	113	107	106	101	98	97	92	92	86	82	75	70	60
B-52	360	107	104	100	96	92	85	86	77	78	69	68	57	56	44

Notes:

[1]Level flight, steady high-speed conditions.

[2]In accordance with Air Force regulations AFI 11-202, Vol 3, para. 5.14 (2010) and FAA Regulations Part 91-119 (FAA 1992), aircraft must avoid congested areas and settlements by 1,000 feet, within a horizontal radius of 2,000 feet of the aircraft, and isolated people, vessels, vehicles, or structures by 500 feet. (Air Force 2000a).

Table 3.3-2. Altitude and Temporal Distribution in MTRs

Altitude (feet AGL)	*B-1*	*B-52*	*Other Aircraft*
100-499	0%	0%	-
500-999	85%	0%	90%
1,000-1,999	10%	70%	7%
2,000-2,999	5%	30%	3%
Daytime (7:00 a.m. -10:00 p.m.)	80%	85%	98%
Nighttime (7:00 a.m. -10:00 p.m.)	20%	15%	2%

Again, depending on the segment, there are on average, 1 to 6 sorties in IR-178 and IR-180/128 on a daily basis.

Day-Night Average Sound Level

The DNL is a composite noise metric accounting for the A-weighted sound of all noise events in a 24-hour period. To account for increased human sensitivity to noise at night, a 10-dB penalty is applied to nighttime events occurring between 10:00 p.m. and 7:00 a.m. Noise-sensitive land uses such as housing, schools, and medical facilities are considered acceptable in areas where the DNL is less than 65 dBA. Noise sensitive land uses are discouraged in areas where the DNL is between 65 and 69 dBA, and strongly discouraged where the DNL is between 70 and 74 dBA. At higher levels, i.e. greater than 75 dBA, certain land uses and related structures are not compatible.

Because it is an energy-based quantity, DNL tends to be dominated by the noisier events. As an example, consider a case in which only one daytime aircraft overflight occurs over a 24-hour period, creating a sound level of 100 dBA for 30 seconds. During the remaining 23 hours, 59 minutes and 30 seconds of the day, the ambient sound level is 50 dBA. The resultant DNL would be 66 dBA. In comparison, consider a second example that 10 such 30-second overflights occur during daytime hours instead, with the same ambient sound level of 50 dBA during the remaining 23 hours and 55 minutes. The resultant DNL would be 76 dBA. The energy averaging of noise over a 24-hour period does not ignore the louder single events and tends to emphasize both the sound levels and the number of those events.

Figure 3.3-2 graphically describes A-weighted DNL using notional equivalent hourly average noise levels ($L_{eq(h)}$) for each hour of the day as an example. Note the $L_{eq(h)}$ for the hours between 10 p.m. and 7 a.m. have a 10-dB penalty assigned. The DNL for the example noise distribution shown in Figure 3.3-2 is 65 dBA.

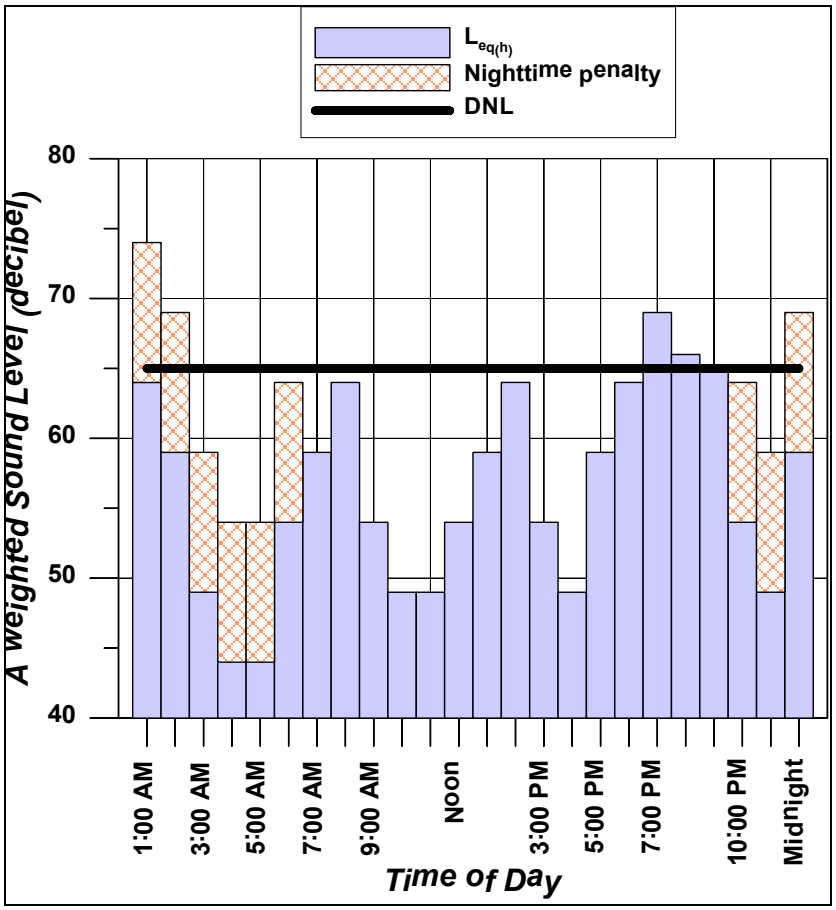

Figure 3.3-2. Example of DNL Computed from $L_{eq(h)}$

Onset-Rate Adjusted Monthly Day-Night Average Sound Level

Military aircraft operating in MTRs generate a noise environment that is somewhat different from that associated with airfield operations. As opposed to patterned or continuous noise environments associated with airfields, aircraft noise events in MTRs are highly sporadic and often seasonal, ranging from 10 events per hour to one event every few weeks. Individual military overflight events also differ from typical community noise events in that noise from a low-altitude, high-airspeed flyover can have a rather sudden onset, exhibiting a rate of increase in sound level (onset rate) of up to 150 dB per second.

To represent these differences, the conventional SEL metric is adjusted to account for the "surprise" effect of the sudden onset of aircraft noise events on humans with an adjustment ranging up to 11 dB above the normal SEL (Stusnick et al. 1992). This measurement is called the Onset-Rate Adjusted Monthly Day-Night Average Sound Level or L_{dnmr}. Onset rates between 15 to 150 dB per second require an adjustment of 0 to 11 dB, while onset rates below 15 dB per second require no adjustment. The adjusted SEL is designated as the onset-rate adjusted SEL.

Because of the sporadic characteristic of MTR activity, noise assessments are normally conducted for the month with the most operations or sorties—or the busiest month. The cumulative exposure to noise in these areas is computed by the DNL over the busy month instead of SEL. This monthly average is denoted L_{dnmr} in dBA.

MR_NMAP

When the aircraft flight tracks are not well defined and are distributed over a wide area, such as in MTRs with wide corridors, the Air Force uses the DoD approved MR_NMAP program (Lucas and Calamia 1996). MR_NMAP is a distributed flight track and area model that allows for entry of airspace information, the distribution of operations, flight profiles (average power settings, altitude distributions, and speeds), and numbers of sorties. "Distribution of operations" refers to the modeling of airspace utilization via three general representations: broadly distributed operations for modeling of MOA and range events, operations laterally distributed for modeling of MTR events, and operations on specific tracks for modeling of unique MOA, range, MTR, or target area activity. The core program of MR_NMAP incorporates the number of monthly operations by time, specified distributions, volume of the airspace being modeled, and profiles of the aircraft primarily to calculate: a) L_{dnmr} or DNL at many points on the ground, b) average L_{dnmr} or DNL for entire airspaces, or c) maximum L_{dnmr} or DNL under MTRs or specific tracks.

In calculating time-average sound levels for airspace, the reliability of the results varies at lower levels (below 55 dBA L_{dnmr}). Time-averaged outdoor sound levels less than 45 dBA are well below any currently accepted guidelines for aircraft noise compatibility. In this analysis, time-averaged sound levels less than 45 dBA are denoted as "<45" if applicable.

For modeling noise levels in MTRs, the Air Force uses L_{dnmr}, which includes an adjustment for noise onset rate while operations during the busiest month are averaged over 30 days to assess the average busy month noise levels. The FAA uses DNL, which is the total annual operations averaged over 365 days, but does not include an onset rate adjustment. This results in L_{dnmr} calculating a more conservative, or louder, noise level than the DNL average annual day. However, for purposes of this analysis both modeling approaches are undertaken.

3.3.2 Affected Environment

The affected environment for noise includes those areas underlying noise generated by military aircraft operating in IR-178 and IR-180/128.

3.3.2.1 Noise Exposure

Based on the 2014 noise study, and updated in 2017, sorties representing current operations were estimated for Calendar Year 2013 through an analysis of flight records from January 2013 to July 2014 provided by Dyess AFB (Wyle 2014) and reconfirmed in April 2017 by the 7 BW OSS as representing current operations. Based on 260 flying days, the analysis determined that February 2013 was the busiest month for IR-178 in terms of numbers of flights. Aircraft using IR-178 during this busiest month were B-1s, B-52s, C-17s, and C-130s. The C-130s use the Mountain Tactical route, which follows much of IR-178, but deviates in some segments. The maximum total number of sorties on segments C to O is estimated at 1,049. Because of the alternate entry and exit points, the total number of estimated annual sorties varies by segment. Table 3.3-3 shows the number of sorties and noise exposure by segment on IR-178. The greatest L_{dnmr} is 57 dBA at the centerline for segments N-O through C-D (see Figure 4 in Appendix D). Many segments have L_{dnmr} less than 45 dBA. The greatest DNL of 55 dBA occurs at the centerline from segment N-O through C-D while all other segments are less than 45 dBA DNL.

Table 3.3-3. IR-178 Annual Sorties and L_{dnmr} and DNL Noise Levels for Current Operations

IR-178 Segment	*Annual Sorties*			*Average Sorties per Day*	*Maximum Centerline L_{dnmr} (dBA)[1]*	*Maximum Centerline DNL (dBA)[2]*
	Day (7:00 a.m. – 10:00 p.m.)	*Night (10:00 p.m. – 7:00 a.m.)*	*Total*			
A-B (IR-180)	58	6	64	<1	<45	<45
AG-AH					<45	<45
AF-AG					<45	<45
AE-AF					<45	<45
OA-AE1	43	4	47	<1	<45	<45
O1-OA					<45	<45
AD-AE	12	1	13	<1	<45	<45
AC-AD					<45	<45
AB-AC					<45	<45
AA-AB					<45	<45
Z-AA	70	6	76	<1	<45	<45
Y-Z					48	<45
X-Y					47	<45
W-X					47	<45
V-W					47	<45
U-V	72	7	79	<1	<45	<45
T-U					<45	<45
S-T					45	<45
R-S					45	<45
Q-R	70	6	76	<1	<45	<45
P-Q					<45	<45
O-P					<45	<45
N-O	970	79	1,049	4	<45	<45
M-N					57	54
L-M					56	54
K-L					56	54
J-K					57	54
I-J					57	54
H-I					57	54
G-H					57	54
F-G					57	54
E-F					57	54
D-E					57	55
C-D					57	55

Notes:

[1]Ldnmr assessed on a busy month basis.

[2]DNL assessed on an average day basis.

3.3.2.2 Supplemental Analysis

Potential Hearing Loss (PHL) applies to people living in high noise environments (greater than 80 dB DNL) over a long period of time (40 years). The threshold for screening PHL is exposure to DNL greater than or equal to 80 dB (OSD 2009). Both DNL and the more conservative L_{dnmr} noise levels associated with IR-178 are more than 20 dB DNL below the screening threshold so a PHL analysis is not applicable. Additionally, aircraft operations in this MTR occur at varied altitudes, rarely over the same point on the ground repeatedly during a short period, and occur sporadically over a day. In other words, aircraft operations on IR-178 do not occur with the intensity or duration to cause PHL.

Speech interference for normal conversation is another indicator of noise effects. Such interference typically is measured by the number of average daily daytime (7:00 a.m. to 10:00 p.m.) events per hour generating indoor L_{max} of at least 50 dBA. MR_NMAP computes outdoor noise levels which must be converted to interior noise levels by accounting for the noise attenuation provided by the structure (e.g., house or school) dependent upon whether the windows are open or closed. The noise attenuation is known as Noise Level Reduction (NLR). Federal Interagency Committee on Noise guidance suggests NLRs of 15 dB and 25 dB to account for the effect of a typical home with windows open and windows closed, respectively (Federal Interagency Committee on Noise 1992). The B-1B generates the greatest L_{max} of up to 113 dB at 500 feet AGL with equivalent interior levels of 98 dB and 88 dB for windows open and windows closed, respectively. Although these events likely interfere with speech, no segment of IR-178 averages more than four overflights per day or less than one per hour. Sleep disturbance is another measure of noise conditions. The Federal Interagency Committee on Aviation Noise recommends use of the American National Standards Institute 2008 standard to predict awakenings from aircraft noise, which considers the interior SEL of each aircraft event and the number events per night (Federal Interagency Committee on Aviation Noise 2008, American National Standards Institute 2008). Using that standard, each B-1B overflight at 500 feet generates a probability of awakening of 4 to 7 percent. Segments C-D through N-O experience the greatest nighttime flights of approximately seven per month while the rest average less than seven per year.

3.4 Aircraft Vortices and Wake Turbulence

3.4.1 Definition of the Resource

Wake turbulence represents complex phenomena that form as concentrated vortices behind wing tips, rapidly descend, destabilize, and decay. The core of a vortex, as it decays, can only reach minimum height above the ground depending upon the wingspan of the aircraft (the minimum height being approximately one-third of the wingspan). In addition, other factors, such as atmospheric turbulence, tend to reduce their strength and persistence, limiting their potential to affect trailing aircraft, ground structures, vehicles, or to pose a hazard to people or animals on the surface.

3.4.2 Affected Environment

The affected environment for aircraft vortices and wake turbulence are the areas underlying IR-178 and IR-180.

3.4.2.1 B-1 Operations and Vortices

B-1 operations along IR-178 generate vortices. Three factors affect vortices: altitude, speed, and flight profile of the aircraft. For B-1s flying on IR-178, the lowest authorized altitude is 500 feet AGL. Twenty-three of 41 segments (56 percent of total length) require flight above 500 feet AGL and up to altitudes of 11,000 feet MSL. The remaining 18 segments permit B-1s to fly at 500 feet AGL. Previous analysis (Air Force 2006) demonstrated that at altitudes above 500 feet AGL, vortices generated by B-1s would not reach the ground in a coherent fashion. At 500 feet AGL and under rare calm atmospheric conditions (i.e., almost no wind and no convection to cause turbulence), the vortex from a B-1 descends to below 100 feet AGL within 1 minute, then moves laterally (i.e., perpendicular to the aircraft) above the ground until it dissipates within about 1 minute.

In terms of speed and flight profile, MTR training operations for the B-1s predominantly involve straight and level flight using a cruise power setting of Mach 0.85. Almost all (90 percent) B-1 training would employ straight and level flight. Quick and sharp turns are used 10 percent or less within the MTR, with a possible maximum of 2.5 Gs. For the purposes of terrain avoidance training, B-1 aircrews perform one to two planned rapid climbs and descents per sortie, avoiding either actual terrain or a simulated obstacle. Although rare and brief, these maneuvering events influence vortex behavior.

Previous analysis demonstrated that vortices resulting from standard B-1 training operations flown at 500 feet AGL would generate vortex velocities of 10 mph at the surface, and 27 mph at 22 feet AGL. Under rare calm atmospheric conditions, the vortices can decay more slowly, resulting in higher velocities than presented here. However, this is considered an extremely low probability especially considering the typical average wind and temperature conditions experienced in the area overlain by IR-178.

Under conditions where a B-1 performs a pull-up or rapid turn, for terrain or threat avoidance, the activity can generate higher vortex velocities. For example, with a possible maximum 2.5 G load factor from the maneuver, a B-1 flying at 500 feet AGL could produce a vortex velocity of 91.6 mph at 46 feet AGL. In a little more than 30 seconds, the vortex begins laterally moving above the ground and decays quickly. The potential for such occurrences is low for several reasons. First, aircrews perform only one to two planned pull-up maneuvers and few if any, rapid turns per sortie on the MTR. Second, not all pull-ups or turns start at altitudes of 500 feet AGL. Third, the load factor on these maneuvers range from slightly greater than 1.0 G to 2.0 Gs with a possible maximum of 2.5 G's. Lesser load factors would yield lower vortex velocity. During only 10 percent of sorties, maneuvering occurs for about 2 to 7 minutes total along an MTR, with each maneuvering event lasting a few seconds. Combined, these factors limit the number of events potentially producing greater vortex velocities. It must also be noted that the defined wind speeds for these vortices represent momentary gusts; they do not comprise sustained winds like those depicted in many wind scales.

3.4.2.2 Vortex Effects on Ground Structures

Both past analyses (Air Force 2000a and 2006) addressed the potential of B-1 vortices to damage windmills. The detailed analysis conducted for the RBTI Supplemental EIS (Air Force 2006) confirmed that:

1) Wind gusts from normal operations by B-1s at 500 feet AGL are insufficient to cause damage.
2) Ambient winds cause vortex decay rather than resulting in the improbable condition of combining with a vortex at or near the ground surface.
3) The probability that a rapid pull-up maneuver by a B-1 would occur over a windmill and cause damage as a result of higher velocity vortices is exceedingly remote (1 in 2.5 million) (Air Force 2006).

To date, no claims or complaints associated with windmill or any other type of vortex-related damage have been submitted to the Air Force. Moreover, the Air Force and Dyess AFB have an existing claim process for damage caused by military aircraft operating on the MTR or other Dyess controlled airspace.

3.5 Safety

3.5.1 Definition of the Resource

Aircraft flight operations on MTRs are governed by standard rules of flight. Additionally, specific procedures applicable to local operations are contained in detailed standard operating procedures that must be followed by all aircrews operating from the installation. For IR-178, these procedures are detailed in Dyess AFB Instruction 11-250. The primary safety concern is the potential for aircraft accidents. Such mishaps may occur because of mid-air collisions, collisions with manmade structures or terrain, weather-related accidents, mechanical failure, pilot error, or BASH and collisions. Flight risks apply to all aircraft; they are not limited to the military.

Analysis of flight risks correlates Class A mishap rates (this is detailed below) and BASH with airspace utilization. Since fire and crashes are also a function of the risks associated with mishaps and BASH, those statistical data are also considered in assessing that risk. Route obstructions, wind, and explosive risks for flight safety are also analyzed.

3.5.2 Affected Environment

The safety analysis contained in the following section addresses issues related to the health and well-being of both military personnel and civilians living under or near IR-178 and portion of IR-180/128, the affected environment. Specifically, this section provides information on hazards associated with aircraft mishaps, BASH, wind power, and explosives under current conditions.

3.5.2.1 Aircraft Mishaps

Aircraft mishaps and their prevention represent a paramount concern of the Air Force. Aircraft mishaps are classified as A, B, C, or D. Class A mishaps are the most severe with total property damage of $2 million or more or a fatality and/or permanent total disability. Table 3.5-1 provides the mishap classes and how they are categorized. This EA focusses on Class A mishaps because of their potentially catastrophic results. Based on historical data on mishaps at all installations, and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours for each type of aircraft in the inventory. Combat losses are excluded from these mishap statistics.

Table 3.5-1. Aircraft Class Mishaps

Mishap Class	*Total Property Damage*	*Fatality/Injury*
A	$2,000,000 or more and/or aircraft destroyed	Fatality or permanent total disability
B	$500,000 or more but less than $2,000,000	Permanent partial disability or three or more persons hospitalized as inpatients
C	$50,000 or more but less than $500,000	Nonfatal injury resulting in loss of one or more days from work beyond day/shift when injury occurred
D	$20,000 or more but less than $50,000	Recordable injury or illness not otherwise classified as A, B, or C

Source: AFI 91-204, January 2017.

B-1 aircraft have flown more than 711,309 hours since the aircraft entered the Air Force inventory in 1985. Over that period, 28 Class A mishaps have occurred, resulting in a Class A lifetime mishap rate of 3.94 per 100,000 flight-hours (Air Force Safety Center 2017a). B-1 aircraft would be the primary users of the airspace; however, other aircraft would be authorized to operate in the airspace. Table 3.5-2 provides mishap Class A mishap rates for the predominant aircraft flying in the MTRs.

Table 3.5-2. Class A Mishap Rates for Specific Aircraft per 100,000 Flight Hours

Aircraft	*Lifetime Class A Mishaps*	*Lifetime Class A Mishap Rate*	*Cumulative Hours Flown*
B-1	28	3.94	711,309
B-52	102	1.30	7,849,334

Source: Air Force Safety Center 2017a.

Aircraft flight operations from Dyess AFB are governed by standard flight rules. Specific procedures for the base are contained in standard operating procedures that must be followed by all aircrews operating from the installation (AFI 13-204 *Airfield Operations Procedures and Programs*) to ensure flight safety. The 7 BW experienced one Class A aircraft mishap in 2004 with an inflight fire, but has avoided Class A mishaps since that time.

It is impossible to predict the precise location of an aircraft accident. Major considerations in any accident are loss of life and damage to property. The aircrew's ability to exit from a malfunctioning aircraft is dependent on the type of malfunction encountered. The probability of an aircraft crashing into a populated area is extremely low, but it cannot be totally discounted. Several factors are relevant and include the low population densities in the affected environment; avoidance at low altitudes of direct overflights of population centers; and the small amount of time aircraft spend over any specific geographic point. These factors limit the probability of a disabled aircraft affecting a populated area.

Secondary effects of an aircraft crash include the potential for fire and environmental contamination. The extent of secondary effects is dependent on the situation, and therefore is difficult to quantify. The regional terrain that is overflown is diverse. For example, should a mishap occur, highly vegetated areas during a hot, dry summer would have a higher risk of experiencing extensive fires than would more barren and rocky areas during winter. When an aircraft crashes, it may release hydrocarbons. The petroleum, oils, and lubricants not consumed in a fire could contaminate soil and water. The potential for contamination is dependent on several factors. The porosity of the surface soils determines how rapidly contaminants are absorbed. The specific geologic structure in the region determines the extent and direction of the contamination plume. The locations and characteristics of surface and groundwater also affect the extent of contamination to those resources.

Should a mishap occur, response and recovery operations could necessitate activities such as the use of motorized vehicles and excavation to contain contamination. When responding to a crash site, the Air Force consults with the appropriate land use manager or landowner to minimize direct damage and coordinate actions. Due to the myriad factors in such an occurrence, detailed steps cannot be foreseen; however, each crash response is considered on a case-by-case basis to protect life and property from further risk, minimize evidence of the accident to the maximum extent practicable, and be consistent with national security considerations.

3.5.2.2 Bird/Wildlife-Aircraft Strike Hazard

According to the Air Force Safety Center BASH statistics, over 60 percent of bird/wildlife strikes occur below 500 feet, and 90 percent occur at less than 2,000 feet AGL (Air Force Safety Center 2017b). The Air Force BASH Team maintains a database that documents all reported bird/wildlife-aircraft strikes and has developed an Avian Hazard Advisory System to help avoid bird/wildlife-strikes during flight. The Avian Hazard Advisory System considers extensive operational (exposure potential) and biological (bird populations and densities) data and indicates the relative risk of bird-aircraft strikes in specific geographic areas at varying times of the year and hours of the day.

Bird/wildlife-aircraft strikes present a potential threat to 7 BW aircraft and aircrew safety due to the installation's proximity to the Central Flyway, a bird migration route that extends from central Canada to the western coast of the Gulf of Mexico, generally following the Great Plains in the U.S. and Canada. The 7 BW has an effective, on-going BASH program through which information and assistance is freely shared between airfield users, the operations and civil engineering staffs, and local air traffic controllers.

According to Dyess AFB BASH data from the previous 9 years, there were four BASH incidents that occurred while operating in IR-178. Of these, most were minor incidents with only two Class B (i.e., cost totaling $500 or more but less than $2,000,000) and five Class C mishaps (i.e., cost totaling $50,000 or more but less than $500,000).

3.5.2.3 Wind Power

Wind power generation is a renewable source of electricity that produces power without depleting water resources, producing emissions, or generating solid waste. Commercial wind power generation in the U.S. currently is concentrated in the western and central states. Texas is one of the leaders in wind power production and numerous turbines exist in the areas surrounding IR-178, particularly 23 to 29 miles east of Fort Stockton. To ensure flight safety, wind turbines and windmills are charted with aircraft flying above the obstructions.

3.6 Land Use and Recreation

3.6.1 Definition of the Resources

Land use generally refers to human modification of land, often for residential or economic purposes. It also refers to the use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. Human land uses include residential, commercial, industrial, agricultural, public, and recreational. Unique natural features are often designated as national or state parks, forests, wilderness areas, or wildlife refuges.

Attributes of land use include general land use and ownership, land management plans, and special use areas. Land ownership is a categorization of land according to type of owner. The major land ownership categories include federal, state, American Indian, and private. Federal lands are further described by the managing agency, which may include the U.S. Forest Service, Bureau of Land Management, or the DoD. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of activities that are allowed or that protect specially designated or environmentally sensitive uses. Special use land management areas (e.g., national parks) are identified by federal and state agencies as being worthy of more rigorous management.

Recreation refers to the use of natural resources in an outdoor setting for human enjoyment. Recreational resources consider outdoor recreational activities that take place away from the residences of participants. They can include natural resource areas and man-made facilities that are designated or available for public or private recreational use.

3.6.2 Affected Environment

The affected environment for land use and recreation are the areas underlying IR-178 and IR-180/128.

3.6.2.1 Land Use and Land Ownership

Land underneath IR-178 is located almost wholly in western Texas, with a small portion extending into southeastern New Mexico. Segments of IR-180/128 affected by the proposed action, lie within west Texas. The area consists primarily of large, sparsely inhabited open space with isolated towns, small communities, homesteads, and ranches. The majority of the land is in private ownership, with a variety of state and federal interests overseeing the remainder. The MTRs overlay portions of the following Texas counties: Andrews, Brewster, Crane, Crockett, Culbertson, Ector, Irion, Jeff Davis, Loving, Pecos, Presidio, Reagan, Reeves, Sterling, Tom Green, Upton, Ward, and Winkler. In New Mexico, portions of Lea and Eddy Counties lie under the IR-178 airspace.

Land cover under the airspace is predominantly mixed shrub/brush, with smaller percentages of woodland and grassland. Vegetation regimes are illustrated in Figure 3.6-1; the route corridor is predominately mixed shrub/brush, and to a lesser extent, grassland. Urban/built-up areas make up less than 1 percent, and surface water/wetland and agriculture areas make up less than 1 percent each. Residential uses are highly dispersed.

Portions of two state parks and one national park underlie the MTR (Figure 3.6-2). The Chinati Mountains State Natural Area is owned by the Texas Parks and Wildlife Department and is currently not open to the public (Texas Parks and Wildlife Department 2017a). Portions of this natural area underlie IR-178, between segments AD-AC. Big Bend Ranch State Park is located in a remote and unpopulated area and composed of Chihuahuan Desert wilderness. The state park underlies the edge of IR-178, between segments AB-AC. The North Rosillos Mountains, in northern Big Bend National Park, underlie IR-178 between segments AA-Z and Z-Y. Please note that this portion of Big Bend National Park did not

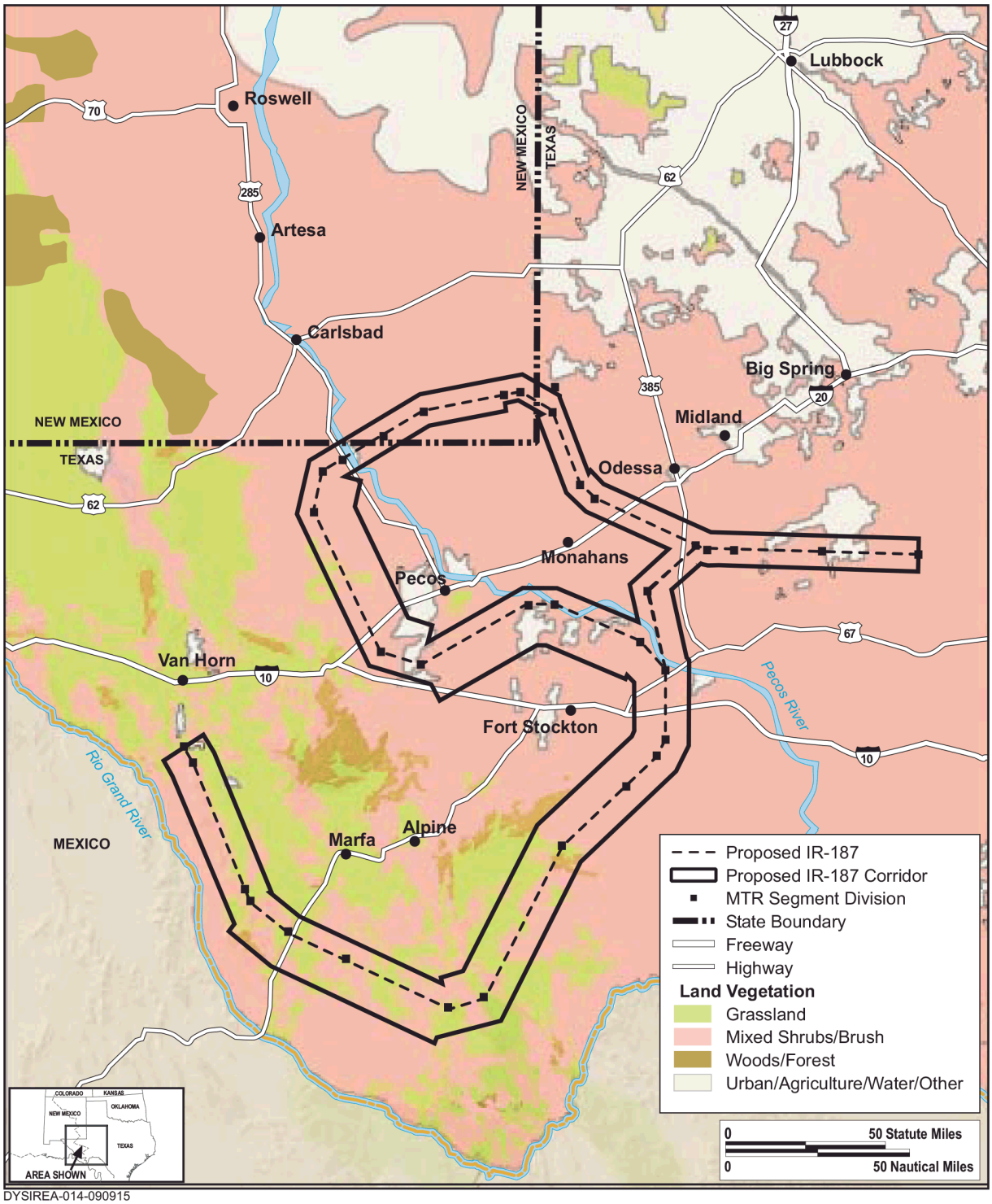

Figure 3.6-1. Vegetation Type and Land Cover Underlying IR-178 and IR-180/128

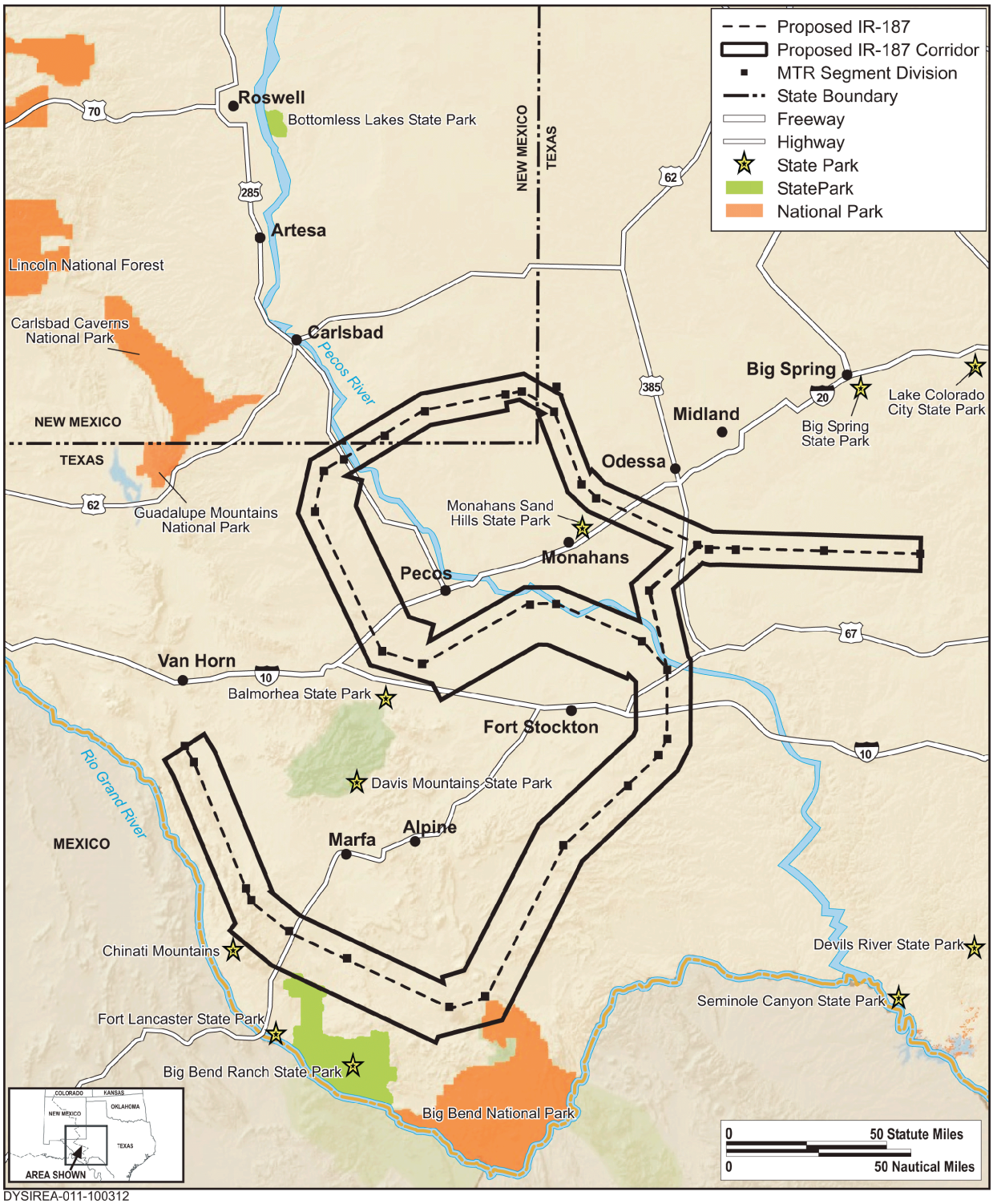

Figure 3.6-2. Special Land Management Areas underlying IR-178 and IR-180/128

exist when IR-178 was originally charted. The current noise environment affecting these special use areas range from less than 45 to 48 dBA DNL (see Table 3.3-3).

Another land use, alternative energy production in the form of wind farms are proliferating in central and west Texas. This is a result of the Texas Public Utility Commission's Competitive Renewable Energy Zones Transmission Program. The program has identified five areas suitable for wind development, three areas underlie portions of IR-178 and include the "Central," "Central West" and "McCamey" Zones, which encompass areas in Brewster, Crockett, Ector, Irion, Midland, Pecos, Reagan, Tom Green, Upton, and Winkler Counties (Public Utility Commission of Texas 2014). Wind towers and transmission facilities greater than 200 feet tall are subject to FAA avoidance requirements.

3.6.2.2 Recreation

Public

Numerous opportunities for public recreation are available in this part of west Texas and include Monahans Sand Hills State Park, Balmorhea State Park, Davis Mountains State Park, Fort Lancaster State Park, and Big Bend Ranch State Park. National parks include Guadalupe Mountains National Park and Big Bend National Park. All these parks offer a wide range of recreational opportunities, including hiking, biking, roadside and primitive camping, boating, picnicking, wildlife viewing, and 4x4 trails. There are also commercially guided tours and outfitters. Recreational use tends to be greatest from the spring to fall months. The noise environment for these special use areas range from less than 45 to 48 dBA DNL (see Table 3.3-3). Texas Parks and Wildlife also offers several public hunting areas by permit or drawing within the region of IR-178.

Private

Leasing private agricultural and ranch land for hunting and fishing is prevalent in west Texas and is a primary private recreational activity. Ecotourism/nature tourism is also occurring, encompassing many different activities including, but not limited to, hiking, backpacking, rafting, wildlife viewing, dude ranches, and nature festivals. The noise environment across the MTRs range from less than 45 to 57 dBA DNL.

3.7 Biological Resources

3.7.1 Definition of the Resources

Biological resources include native, or naturalized living plant and animal species and the habitats within which they occur. Plant associations are generally referred to as *vegetation* and animal species are referred to as *wildlife*. Habitat is defined as the resources and conditions present in an area that produce occupancy of a plant or animal (Hall et al. 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This analysis focuses on species or vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under federal law or statute. For purposes of this EA, these resources are divided into four major categories: vegetation, wetlands, wildlife, and special status species.

Vegetation types include all existing terrestrial plant communities as well as their individual component species that occur or may occur within the project area.

Wetlands are considered sensitive habitats and are subject to federal regulatory authority under section 404 of the Clean Water Act and EO 11990, *Protection of Wetlands*. Jurisdictional wetlands are defined by the U.S. Army Corps of Engineers as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory 1987). Areas meeting the federal wetland definition are under the jurisdiction of the U.S. Army Corps of Engineers.

Wildlife generally includes all fish, amphibian, reptile, bird, and mammal species with the exception of those identified as special status species, which are treated separately. Wildlife also includes those bird species protected under the federal Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and other species-specific conservation legal authorities.

Special status species are defined as those plant and animal species listed as endangered, threatened, candidate, or species proposed for listing by the USFWS under the ESA. The federal ESA protects federally listed endangered and threatened plant and animal species, but the protections are not extended to any state listed species unless they also currently hold a federal listing. Federally identified candidate species and species proposed for listing are not protected under law; however, these species could become federally listed over the near-term. Therefore, these species are considered to avoid future conflicts if they were to be listed during the preparation of this EA. Additionally, the Texas Parks and Wildlife Department protects state-listed plant and animal species through state environmental conservation administrative codes. The New Mexico Department of Game and Fish similarly protects state-listed species under the New Mexico Wildlife Conservation Act.

3.7.2 Affected Environment

The affected environment includes the areas underlying IR-178 and portion of IR-180/128, which are located primarily in the Rio Grande Basin, supporting both the Southwest Plateau and Plains Dry Steppe and Shrub and the Chihuahuan Semi-Desert Provinces in southeastern New Mexico and west Texas. Because no ground disturbance is associated with the proposed action, no further analysis was done on vegetation or wetlands.

3.7.2.1 Wildlife

The Southwest Plateau and Plains Dry Steppe and Shrub Province supports many of the same species found within the Chihuahuan Desert Province, but typically associated with grassland areas. Common mammals include the swift fox (*Vulpes velox*), pronghorn (*Antilocapra americana*), ringtail (*Bassariscus astutus*), Mexican ground squirrel (*Spermophilus mexicanus*), and Mexican freetail bat (*Tadarida brasiliensis*). Amphibians include the Texas toad (*Bufo speciosus*) and Couch's spadefoot toad (*Schaphiopus couchii*). Reptiles common to the area include the corn snake (*Elaphe guttata*), plains hognose snake (*Heterodon nasicus nasicus*), and Texas horned lizard (*Phrynosoma cornutum*) (McNab and Avers 1994). Wild turkey (*Meleagris gallopavo*), mourning dove (*Zenaida macroura*), scaled quail

(*Callipepla squamata*), and bobwhite (*Colinus virginianus*) are common game birds, and several species of hawks and owls are present in this province (U.S. Forest Service no date).

Species typical of the Chihuahuan Desert Province include mammals such as pronghorn (*Antilocapra americana*), desert mule deer (*Odocoileus hemionus crooki*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), and Merriam's kangaroo rat (*Dipodymys merriami*). Amphibians include Mexican mud turtle (*Kinosternon integrum*) and Great Plains toad (*Bufo cognatus*). Reptiles include Texas-Pecos ratsnake (*Elaphe subcularis*), Texas banded gecko (*Coleonyx brevis*), canyon lizard (*Sceloporus merriami*), and Mohave rattlesnake (*Crotalus scutulatus*). Common birds are the scaled quail (*Callipepla squamata*), white-necked raven (*Corvus cryptoleucus*), cactus wren (*Campylorhynchus brunneicapillus*), golden eagle (*Aquila chrysaetos*), and great horned owl (*Bubo virginianus*) (McNab and Avers 1994; U.S. Forest Service no date).

Additionally, big and exotic game hunting ranches are found in west Texas and offer hunting opportunities for mule deer, whitetail deer, aoudad, axis, blackbuck, sika, javelin, quail, dove, duck, and predators (West Texas Hunt Organization 2017).

Several factors, including direct strikes and visual effects associated with approaching aircraft potentially impact wildlife in areas underlying the MTRs. BASH considerations are discussed in Section 3.5. Any impacts from visual sightings of approaching aircraft most likely occur along MTR segments below 1,000 feet AGL, the altitude accounting for most reactions to visual stimuli by wildlife (Lamp 1989; Bowles 1995). All but three segments of the proposed IR-178 have a floor altitude below 1,000 feet AGL. 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) (National Park Service 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 (Workman et al. 1992; Bowles 1995; Weisenberger et al. 1996). In a study performed on bighorn sheep, elevated heart rates occurred during low-altitude overflights by F-16 jets, but this response rarely lasted more than 30 seconds and the sheep seemed to be less responsive after the first flyover (Workman et al. 1992). The sheep also responded behaviorally in various studies including no response, minor behavior changes, and running (National Park Service 1994). Similarly, the impacts to raptors and other birds from low-altitude aircraft overflights were found to be brief, insignificant, and not detrimental to reproductive success (Smith et al. 1988; Lamp 1989; Ellis et al. 1991; Grubb and Bowerman 1997).

Noise that is close, loud, and sudden and is combined with a visual stimulus produce the most intense reactions in animals. Rotary-wing aircraft (helicopters) generally induce the startle effect more frequently than fixed-wing aircraft (Gladwin et al. 1988b; Workman et al. 1992). Some species habituate to repetitive noises, especially noise associated with overflight of fixed-wing aircraft, better than other

species (Krausman et al. 1993). 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.

3.7.2.2 Domestic Animals

Much of the area underlying IR-178 and IR-180/128 supports 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. 1988a; U.S. Forest Service 1992; Air Force 1993). 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.
- 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 (U.S. Forest Service 1992).
- Domestic livestock habituate to overflights and other noise. Although they may look or startle at a sudden onset of aircraft noise, they resume normal behavior within 2 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 on a daily basis, such as from vehicles or blowing vegetation. Historical interactions between the 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 has been threatened. The animals, including calves, show all indications of habituating to the noise and overflights.

3.7.2.3 Special Status Species

Special status species are those species listed as threatened or endangered under the ESA; species afforded federal protection under the Migratory Bird Treaty Act; and the Bald and Golden Eagle Protection Act.

Endangered Species Act. The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to recover listed species. Section 7 of the ESA requires action proponents to consult with the USFWS or National Oceanic and Atmospheric Administration to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of National Oceanic and Atmospheric Administration are mainly marine wildlife such as whales and anadromous fish such as salmon. Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant

portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened (USFWS 2013).

There are 12 animal species listed under the ESA as either threatened or endangered species known to occur, or that may occur within the 20 counties that underlie the MTR. As indicated in Table 3.7-1, federally listed wildlife consists of nine bird and three mammal species, a dash (-) indicates that the species is not found in that state. Again, listed plant, fish, and invertebrate species were excluded from analysis due to the absence of construction or ground disturbance associated with the proposed action.

Table 3.7-1. Federally-Listed Species Known to Occur or with the Potential to Occur within the Affected Environment

Common Name	*Scientific Name*	*Airspace States and Counties of Occurrence*		*Federal Status*[1]	*Expected Occurrence and Habitat*
		Texas	*New Mexico*		
Birds					
Black-capped vireo	*Vireo atricapilla*	Brewster, Crockett, Pecos, Reagan, Sterling, Tom Green	-	E	Dependent upon broad-leaved shrubs that extend to ground level, or canyon bottoms and slopes that provide sufficient moisture. Historically nested throughout Texas, now limited to central and southwest counties.
Interior least tern	*Sterna antillarum athalassos*	Brewster, Crane, Crockett, Jeff Davis, Loving, Pecos, Presidio, Reeves, Tom Green, Ward	Eddy, Lea	E	Potential during migration, nesting occurs along the Pecos and Rio Grande rivers. Uses sandbars, islands, and shorelines.
Mexican Spotted Owl	*Strix occidentalis lucida*	Culberson, Jeff Davis, Presidio	Eddy	T	Dependent upon mature and old growth forests, or canyons with riparian or conifer communities.
Northern aplomado falcon	*Falco femoralis septentrionalis*	Brewster, Culberson, Jeff Davis, Pecos, Presidio, Reeves	Eddy, Lea	E	Open terrain with scattered trees and shrubs. Potential resident along the Texas/Mexico border.
Piping plover	*Charadrius melodus circumcinctus*	-	Eddy	T	Potential during migration. Uses sandbars, islands, and shorelines.
Red knot	*Calidris canutus rufa*	Brewster, Reeves	-	T	Low potential during migration. Uses beaches, herbaceous wetlands, and tidal flats.
Southwestern willow flycatcher	*Empidonax traillii extimus*	Brewster, Culberson, Jeff Davis, Presidio	Eddy	E	Dense riparian areas typically dominated by cottonwoods. Resident of areas south and west of affected area.
Yellow-billed cuckoo	*Coccyzus americanus*	Brewster, Jeff Davis, Pecos, Presidio, Reeves	-	T	Potential in areas west of the Pecos River, dependent upon riparian area.

Table 3.7-1. Federally-Listed Species Known to Occur or with the Potential to Occur within the Affected Environment

Common Name	*Scientific Name*	*Airspace States and Counties of Occurrence*		*Federal Status*[1]	*Expected Occurrence and Habitat*
		Texas	*New Mexico*		
Whooping crane	*Grus americana*	Andrews, Midland, Reagan, Sterling	-	E	Low Potential during migration. Uses marshes, lakes, rivers, croplands, and pastures.
Mammals					
Mexican long-nosed bat	*Leptonycteris nivalis*	Brewster, Jeff Davis, Presidio	Eddy, Lea	E	Summer visitors. Only known roosting location in the U.S. is in Big Bend National Park.
Black-footed ferret	*Mustela nigripes*	Andrews, Brewster, Crane, Crockett, Culberson, Ector, Jeff Davis, Loving, Midland, Pecos, Presidio, Reagan, Reeves, Sterling, Upton, Ward, Winkler	-	E	Extirpated.
Mexican gray wolf	*Canis lupus baileyi*	Andrews, Brewster, Crane, Crockett, Culberson, Ector, Jeff Davis, Loving, Midland, Pecos, Presidio, Reagan, Reeves, Sterling, Upton, Ward, Winkler	-	E	Extirpated.

Sources: Texas Parks and Wildlife 2017b; New Mexico Department of Game and Fish 2017; USFWS 2017a.
Note: [1]T=Threatened, E=Endangered.

Five species have specific habitat requirements that are not commonly found in the areas underneath the MTRs. The Mexican spotted owls are residents of closed canopy, old growth, or mature forests, also canyons with riparian or coniferous communities (USFWS 2017b). The closest population of Mexican spotted owls is found in the Guadalupe Mountains, west of IR-178 along the New Mexico/Texas border, and is considered a rare transient in Eddy County, New Mexico (New Mexico Department of Game and Fish 2012a). The southwestern willow flycatcher breeds in the southwestern U.S. in dense riparian habitats with standing water or saturated soils (USFWS 2017b). Breeding sites are typically found in areas west of the Rio Grande, which is well outside the MTR; however, rare migrating individuals could occur along the species' eastern range (New Mexico Department of Game and Fish 2012b). The interior least tern is found along barren sandbars and gravel beaches of rivers and lakes including the Pecos River, located underneath IR-178. Given the proximity of suitable breeding habitat, there is a low potential for the species to occur along tributaries within the affected environment (USFWS 2017b). The piping plover and whooping crane are also dependent upon large bodies of water and would occur as rare transient visitors during migration (USFWS 2017b).

The endangered black-capped vireo historically bred from Kansas, southward through Oklahoma and Texas, down into Mexico. Reasons for reduction in the distribution of vireo habitat include large-scale brush clearing, urbanization, and over-browsing by deer and livestock (Campbell 2003). Currently,

breeding occurs centrally in Texas where broad-leaved shrubs that reach to ground level provide adequate cover for nesting. In the western portion of the vireo's range in the Trans-Pecos region, the vireo is found in canyon bottoms and slopes where water resources support diverse shrub vegetation (Campbell 2003). In the Trans-Pecos region, the vireo is known to breed at Big Bend National Park in southern Brewster County. Private land in this region is abundant, and extensive surveys have not been conducted, so it is likely that the vireo breeds in other areas outside of Big Bend National Park.

The endangered northern aplomado falcon was considered extirpated from the Unites States in the 1950's. Historically, the northern aplomado falcon habitat was estimated to extend from western New Mexico through southwestern Texas. Currently, the USFWS considers the species to be a potential resident along the Texas/Mexico border. Aplomado falcon habitat consists of open terrain with scattered trees or shrubs and relatively low ground cover (USFWS 2014). In 2002, the Peregrine Fund began reintroducing northern aplomado falcons in the Trans-Pecos region of west Texas due to the success of similar programs in coastal southeastern Texas. However, by 2013 no nesting pairs have been observed in the Trans-Pecos region that underlies a good portion IR-178 airspace (USFWS 2014). While there have been no specific studies on the responses of aplomado falcons to aircraft overflights, there have been studies on the closely related peregrine and prairie falcons and other raptor species (e.g., Ellis et al. 1991). These studies suggest that breeding birds do flush at times in response to aircraft overflight; however, they return and the nest success is not affected.

Three federally listed endangered mammal species are potentially found in the counties underlying the MTRs: Mexican long-nosed bat (*Leptonycteris nivalis*), black-footed ferret (*Mustela nigripes*), and gray wolf (*Canis lupus*). The Mexican long-nosed bat is found in the mountains of the Trans-Pecos along the Texas/Mexico border. They prefer desert scrub vegetation dotted with agave, mesquite, creosote bush, and a variety of cacti. The bats use caves, crevices, abandoned mines, tunnels, and old buildings as day roosting sites. Reasons for decline include loss of roost areas and their primary food source, blooming agave. The only known roosting site in the U.S. is in Big Bend National Park (Campbell 2003; Davis and Schmidly 1994).

The black-footed ferret is largely dependent upon the black-tailed prairie dog for sources of shelter and food (New Mexico Department of Game and Fish 2012c). There have been no observations of the species in Texas since 1963 and in New Mexico since 1934; as of 1988, it was presumed extirpated from New Mexico (Campbell 2003; New Mexico Department of Game and Fish 2012c).

The gray wolf formerly ranged over the western two-thirds of Texas but was extirpated in the entire west. The gray wolf inhabited forest, brushlands, or grasslands where the abundance of open country allows for suitable cover and denning sites. Negative interactions with livestock induced widespread trapping and hunting of the wolf and the last authenticated reports of gray wolves in Texas occurred in 1970 (Davis and Schmidly 1994).

Bald and Golden Eagle Protection Act. Bald and golden eagles are protected by this act. It prohibits anyone, without a permit issued by the Secretary of the Interior, from taking eagles, including their parts, nests, or eggs. The act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. "Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle,

2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (16 U.S.C. §§ 668-668c).

Bald eagles are found in the affected environment, primarily during the winter when they are known to nest between October and July. Eagles are primarily found near water sources as they feed primarily on fish, but also eat a variety of waterfowl, small mammals, and turtles (Texas Parks and Wildlife 2017b). Golden eagles are resident in Texas (breeding pairs have been observed in the Davis Mountains area), and breed from early February to November. This eagle species is found primarily in mountainous and canyon habitats (Texas A&M University 2017).

Migratory Bird Treaty Act. Most birds are protected under the Migratory Bird Treaty Act, and their conservation by federal agencies is mandated by EO 13186 (*Responsibilities of Federal Agencies to protect Migratory Birds*). Under the Migratory Bird Treaty Act, it is illegal for anyone, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. Under EO 13186, each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement a Memorandum of Understanding with the USFWS that promotes the conservation of migratory bird populations.

In July 2006, the DoD and USFWS signed the Memorandum of Understanding to promote the conservation of migratory birds. In it, specific activities were identified (e.g., Partners in Flight and Integrated Natural Resources Plans) where cooperation between the two agencies will contribute to the conservation of migratory birds and their habitats. In February 2007, 50 CFR part 21.15 authorized the take incidental to military readiness activities. It states that the Armed Forces may take migratory birds incidental to military readiness activities provided that, for those ongoing or proposed activities that the Armed Forces determine may result in a significant adverse effect on a population of a migratory bird species, the Armed Forces must confer and cooperate with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate such significant adverse effects. Military readiness activities, as defined in PL 107-314, section 315(f) in the 2003 National Defense Authorization Act, includes all training and operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.

The Trans-Pecos region supports a large number of migratory birds due to its varied habitat (desert to mountains) and location within the Central Flyway. According to the USFWS's database, there are 45 migratory birds of conservation concern that could occur in areas underlying IR-178 (USFWS 2017a). The 7 BW adheres to a BASH program whereby information and assistance is freely shared between pilots, the operations and civil engineering staffs, and local air traffic controllers to identify risks and minimize BASH potential (see Section 3.5.2.2 for detailed information on BASH).

3.8 Cultural Resources

3.8.1 Definition of the Resources

Cultural resources are prehistoric and historic sites, buildings, districts, or objects that are important to a culture or community. Cultural resources are generally divided into three categories: archaeological resources, architectural resources, and traditional cultural resources.

Archaeological resources occur in places where people altered the ground surface or left artifacts or other physical remains (e.g., arrowheads, glass bottles, pottery). Archaeological resources can be classified as either sites or isolates. Isolates generally cover a small area and often contain only one or two artifacts, while sites are usually larger, contain more artifacts, and sometimes contain features or structures. Archaeological resources can be either prehistoric or historic.

Architectural resources are standing buildings, dams, canals, bridges, windmills, oil wells, and other such structures. They are generally historic in affiliation.

Traditional cultural resources are those associated with the cultural practices or beliefs of a living community that link the community to its past and help maintain its cultural identity. Most traditional cultural resources in Texas and New Mexico are associated with American Indians. Traditional cultural resources can include archaeological resources, locations of prehistoric or historic events, sacred areas, sources of raw materials used in the manufacture of tools and/or sacred objects, certain plants, or traditional hunting and gathering areas.

Under the National Historic Preservation Act and various federal regulations, only significant cultural resources are considered when assessing the possible impacts of a federal undertaking or action. Significant archaeological, architectural, and traditional cultural resources include those that are eligible or recommended eligible for inclusion on the National Register of Historic Places (National Register). The significance of archaeological and architectural resources is usually determined by using specific criteria (listed in 36 CFR part 60.4), including: association with important events, association with a famous individual, embodiment of the characteristics of a period, and ability to contribute to scientific research. Cultural resources are generally at least 50 years old to be considered eligible for listing in the National Register. However, more recent resources, such as Cold War-era buildings, may warrant protection if they manifest “exceptional significance.” Traditional cultural resources can be evaluated for National Register-eligibility, as well. However, even if a traditional cultural resource is determined not eligible to the National Register, it may still be significant to a particular American Indian tribe. In this case, such resources may be protected under the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and EO 13007, which address Indian sacred sites. The significance of American Indian traditional cultural resources is determined by consulting with the appropriate American Indian tribe(s).

3.8.2 Affected Environment

For this EA the affected environment includes lands beneath IR-178 and a portion of IR-180/128. Because the proposed project is an airspace action only, those cultural resources that would reasonably be affected by visual overflights and noise intrusions were considered in this EA. These include resources

such as historic ranches, ghost towns, American Indian settlements; and traditional cultural resources where the setting is considered an important characteristic of what makes the resource significant. Prehistoric and historic archaeological sites are not included as they are generally ground surface or even subsurface deposits that are not affected by aircraft overflights. As no supersonic events occur, impacts from vibrations and effects from sonic booms on structures are not addressed.

Subsonic, noise-related vibration damage to structures requires high dB levels generated at close proximity to the structures and in a low frequency range (U.S. Forest Service 1992; Battis 1983, 1988). Aircraft must generate an L_{max} of at least 120 dB at a distance of no more than 150 feet AGL to result potentially in structural damage (Battis 1988) and, even at 130 dB, structural damage is unlikely. In other words, the probability of an aircraft, such as a B-1, operating at 500 feet AGL and generating a maximum sound of 112 dB directly over such a structure is extremely unlikely to cause damage.

Information on cultural resources within the affected environment was derived from conducting background research to identify previously recorded National Register-listed properties beneath the affected airspace. The Air Force recognizes that hundreds of other cultural resources, some documented and some not yet discovered, exist under the airspace. However, aircraft operations are most likely to affect historic structures and districts where setting is an important criterion for significance and where noise vibrations from subsonic noise could adversely affect those types of resources. These resources are ones typically found in the National Register. Conversely, if National Register listed properties are not affected by the project elements then non-listed resources are unlikely to be affected.

3.8.2.1 Architectural Resources

Six historic properties are located under IR-178, all within Texas. Table 3.8-1 identifies these properties and provides the National Register site numbers and short description of the site. No historic properties are located under the MTR in New Mexico. Three of the historic districts, El Fortin del Cibolo, La Morita, and the historic ranch (Fortin de la Cienega), are associated with Milton Faver (National Register of Historic Places 2011). El Fortin del Cibolo was constructed in 1857, and was the headquarters of the ranching empire of Milton Faver. It was the first major outpost built between Fort Davis and the Rio Grande. He also built an irrigation system that supplied water for his vegetable gardens and a peach orchard. These ranch crops supplied soldiers living at Fort Davis and citizens of the nearby mining town of Shafter (Nienke and Morrow 2005). Structures associated with La Morita were first constructed around 1858 and the area was used for sheep ranching (Smith 2012a). Fortin de la Cienega was the second property developed by Milton Faver in the 1850s. The Cienega cattle ranch headquarters was constructed of adobe and built surrounded by hills and a creek. The natural springs on the property were used to provide water for the stock and gardens. Also located at the Cienega site are dwellings, workrooms, stone corrals, fences, and holding pens (Nienke and Morrow 2005).

Table 3.8-1. Historic National Register-Listed Cultural Resources beneath the Affected MTR

Site Number	*Site Description*
76002058	Shafter Historic Mining District
76002059	Fortin de la Cienega
95000366	El Fortin del Cibolo Historic District
95000367	La Morita Historic District
75001993	Hudspeth County Courthouse
78002976	Old Reagan County Courthouse

The fourth historic district is the Shafter Mining District located in south central Presidio County. Fifteen prospects were mined for silver and related ores between 1883 and 1952. The district's boundary runs from the Chinati Mountains on the northwest to the flats of the Rio Grande on the southwest and to the Cienega Mountain on the east (Smith 2012b). The fifth, Hudspeth County Courthouse, was built in 1922 and is a State Antiquities Landmark and Recorded Texas Historic Landmark (National Park Service 2017). The sixth property is the Old Reagan County Courthouse located in Stiles, Texas. It was built in 1911 and is listed because of its social history, architecture, and association with politics.

3.8.2.2 Traditional Cultural Resources

There are no American Indian pueblos or reservations within the affected environment. The nearest reservations are the Mescalero Apache Reservation in New Mexico, which is about 100 miles from the nearest segment of the MTR; the Kickapoo Traditional Tribe of Texas, which is located about 182 miles from the MTR; and the Ysleta del Sur Pueblo located approximately 130 miles from the MTR, near the southern boundary of New Mexico. No traditional cultural properties have been identified under the affected environment.

3.9 Air Quality

Because military aircraft are mobile and cover very long distances over many different areas, they commonly contribute little to the total emissions in a region. This is especially true since they fly at altitudes where emissions would tend to be dispersed and not result in effects on human health or visibility. Despite these factors, federal actions such as this proposal must be assessed for their potential effects on air quality.

3.9.1 Definition of the Resource

3.9.1.1 National Ambient Air Quality Standards

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern with respect to the health and welfare of the public. Six major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), total suspended particulate matter less than or equal to 10 (PM_{10}) and 2.5 ($PM_{2.5}$) micrometers in aerodynamic diameter, and lead. Table 3.9-1 outlines the USEPA standards for criteria pollutants; these represent the pollutants this EA evaluates. These standards represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect human health and welfare. These standards are presented in terms of concentration (e.g., parts per million)

averaged over time ranging from 1 hour to annually according to the degree of potential health effects. States, as well as local agencies, may set their own standards as long as they are at least as stringent as the National Ambient Air Quality Standards (NAAQS). Texas follows the federal NAAQS; however, New Mexico adopted its own Ambient Air Quality Standards (New Mexico Administrative Code 2002). New Mexico standards include total suspended particulates, hydrogen sulfide, and total reduced sulfur.

Table 3.9-1. National and State Ambient Air Quality Standards

Air Pollutant	*Averaging Time*	*NAAQS (Texas adopted)*		*New Mexico Ambient Air Quality Standards*
		Primary	*Secondary*	*Primary*
CO	8-hour 1-hour	9 ppm 35 ppm	-- --	8.7 ppm 13.1 ppm
NO_2	1 year 24-hour 1-hour AAM	0.053 ppm -- 0.100 ppm --	0.053 ppm -- -- --	-- 0.10 ppm -- 0.05 ppm
SO_2	1-hour 3-hour AAM 24-hour	0.075 ppm -- -- --	-- 0.5 ppm -- --	Same as NAAQS Same as NAAQS 0.02 ppm 0.10 ppm
PM_{10}	24-hour	150 µg/m^3	150 µg/m^3	Total Suspended Particulates: 24-hour average: 150 µg/m^3 7-day average: 110 µg/m^3 30-day average: 90 µg/m^3 Annual: 60 µg/m^3
$PM_{2.5}$	1 Year 24-hour	12 µg/m^3 35 µg/m^3	15 µg/m^3 35 µg/m^3	
O_3	8-hour	0.070 ppm	0.070 ppm	Same as NAAQS

Sources: USEPA 2017; New Mexico Administrative Code 2011.
Legend: AAM = Annual Arithmetic Mean; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Pollutants considered in this EA include volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which are precursors to O_3; CO; SO_2, particulate matter, which includes $PM_{2.5}$ and PM_{10}, and the GHG carbon dioxide (CO_2). Airborne emissions of lead, total suspended particulates, total reduced sulfur, and hydrogen sulfide are not addressed because the affected environment contains no significant sources of emissions of these pollutants, and aircraft operations in IR-178 do not materially contribute to increased pollutant levels in the region.

3.9.1.2 Greenhouse Gas Emissions

GHGs trap heat in the atmosphere and result from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Some scientific evidence suggests a trend of increasing global temperature over the past century possibly due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative environmental, economic, and social consequences across the globe.

The most common GHGs emitted from natural processes and human activities include CO_2, methane, and nitrous oxide. Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride. Total GHG source emissions are often reported as a CO_2 equivalent (or CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its global warming potential and adding the results together to produce a

single, combined emission rate representing all GHGs. Total emissions have been converted to metric tons and presented as CO_2e.

3.9.2 Affected Environment

The affected environment for air quality analysis includes portions of the Midland-Odessa-San Angelo Intrastate Air Quality Control Region (40 CFR 81.137) in Texas and the Pecos-Permian Basin Intrastate Air Quality Control Region (40 CFR 81.242) in New Mexico. The entirety of the affected environment is in attainment with the NAAQS and state standards. Therefore, no State Implementation Plan requirements exist and the General Conformity Rule does not apply.

In the absence of a mixing height established in a State Implementation Plan, the USEPA has defined a default mixing height of 3,000 feet AGL as the vertical region of the atmosphere where pollutant mixing occurs. This default mixing height is recognized by the Air Force and FAA. It is estimated that 98 percent of aircraft operations in the MTRs occur below the 3,000 feet AGL. Above this height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations in the local area. For GHGs, the mixing height is not relevant, as they have long residence times in the atmosphere and their effects are global in nature. Therefore, primary sources of quantifiable GHG emissions (CO_2, NO_x, and methane) are based upon the entire flight time, including flight above 3,000 feet AGL.

Using the data on sorties currently performed in the MTRs, annual aircraft emissions were estimated for the B-1, the B-52, the B-2, and the T-38. The aircraft engine modes (e.g., after burner and military power) and speed were used to determine the emissions generated along the MTR. The T-38 was also used as a surrogate aircraft to represent the small number of sorties that fell into the "other aircraft" category. The T-38 was selected based on its inclusion in the Dyess AFB Mid-Air Collision Avoidance Handbook (Air Force 2006) and its similarity to the other aircraft operating in the MTR. Aircraft emissions were calculated using data provided by Dyess AFB personnel, the Air Emissions Guide for Air Force Mobile Sources (Air Force 2013), the Petroleum Quality Information System 2009 Annual Report (Defense Energy Support Center 2010), and Federal GHG Accounting and Reporting Guidance Technical Document (CEQ 2010). Table 3.9-2 presents emissions for aircraft in IR-178 and IR-180 based on current sortie numbers.

Table 3.9-2. Current Conditions Annual Operational Emissions

Aircraft	*NO_x*	*CO*	*VOCs*	*PM_{10}*	*$PM_{2.5}$*	*SO_2*	*CO_2e*
B-1	30.18	21.16	0.87	4.25	3.19	2.34	8,324
B-52H	38.83	0.00	1.77	11.80	10.61	3.41	11,403
B-2	77.89	1.53	0.07	3.86	3.48	2.49	8,513
T-38	2.43	28.68	1.98	7.71	0.08	0.58	3,001
Total Tons	*149.32*	*51.37*	*4.69*	*27.61*	*17.36*	*8.82*	*31,242*
						Total Metric Tons	**28,342**

4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

Chapter 4 presents the data and analytic methods used to project the potential environmental consequences of the proposed action and the no-action alternative. NEPA requires a comparative analysis that allows decision-makers and the public to differentiate among the alternatives. This EA focuses on those resources that would be affected by creating a reciprocal route, IR-187, by using existing IR-178 and a portion of IR-180/128. The reciprocal MTR would allow aircraft to fly in the opposite direction in accordance with strict scheduling procedures.

4.2 Airspace Management

4.2.1 Analysis Methodology

This assessment included analyzing the capability of affected airspace elements to accommodate projected military and civil flight activities, and determining whether the proposed action would have any adverse impacts on overall airspace use in the area. Also included are considerations of such factors as the interaction of the proposed use of the MTR with adjacent controlled, uncontrolled, or other military training airspace, possible impacts to other non-participating civil and military aircraft operations, and possible impacts to civil airports that underlie or are proximate to the airspace involved in the proposal.

4.2.2 No-Action Alternative

Under the no-action alternative, the Air Force would not establish IR-187 and would operate as authorized in the Air Force RBTI ROD for IR-178 (Table 4.2-1). By adopting this alternative, the training inefficiencies resulting from routinely flying the same low-altitude route and performing the same terrain avoidance maneuvers would continue. The no-action alternative would incur 200 to 300 more annual operations (or about 1 more sortie per day over 260 flying days) when compared to current conditions. However, no significant impacts would result from this alternative; existing scheduling and operational procedures would be maintained and the IR-178 and IR-180/128 have the capacity to support this activity.

Table 4.2-1. No-Action Alternative (RBTI Authorized Operations)

MTR	*B-1*	*B-52*	*B-2*	*Other*	*Total*
IR-180/128	679	450	68	23	1,220
IR-178					
AG-AH	679	450	68	23	1,220
AF-AG	679	450	68	23	1,220
AE-AF	679	450	68	23	1,220
OA-AE1	543	359	55	18	975
O1-OA	543	359	55	18	975
AD-AE	136	90	14	5	245
AC-AD	136	90	14	5	245
AB-AC	136	90	14	5	245
AA-AB	136	90	14	5	245
Z-AA	837	555	85	28	1,505

Table 4.2-1. No-Action Alternative (RBTI Authorized Operations)

MTR	*B-1*	*B-52*	*B-2*	*Other*	*Total*
Y-Z	837	555	85	28	1,505
X-Y	837	555	85	28	1,505
W-X	837	555	85	28	1,505
V-W	837	555	85	28	1,505
U-V	868	575	88	29	1,560
T-U	868	575	88	29	1,560
S-T	868	575	88	29	1,560
R-S	868	575	88	29	1,560
Q-R	837	555	85	28	1,505
P-Q	837	555	85	28	1,505
O-P	837	555	85	28	1,505
N-O	868	575	88	29	1,560
M-N	868	575	88	29	1,560
L-M	868	575	88	29	1,560
K-L	868	575	88	29	1,560
J-K	868	575	88	29	1,560
I-J	868	575	88	29	1,560
H-I	868	575	88	29	1,560
G-H	868	575	88	29	1,560
F-G	868	575	88	29	1,560
E-F	868	575	88	29	1,560
D-E	868	575	88	29	1,560
C-D	868	575	88	29	1,560

4.2.3 Proposed Action

4.2.3.1 Military Airspace

There would be no difference in the MTR structure under the proposed action when compared to the no-action alternative and current conditions. Under the proposed action, IR-178 and a portion of IR-180/128 would still occupy the same airspace and have the same floor and ceiling altitudes. For IR-187, the only difference from the no-action alternative and current conditions would be that the aircraft would fly in the opposite direction and new entry and exit points would be created. Operations for all aircraft, by MTR segment, are identified in Table 4.2-2. As depicted, when IR-178 is flown in the east-to-west direction, there would be fewer operations than under the no-action alternative; however, this decrease in operations would be subsumed in aircraft operations in IR-187 in the west-to-east direction. When operations are added together for IR-178 and IR-187, they would total the same amount of aircraft operations, by segment, found under the no-action alternative, which is authorized in the Air Force RBTI ROD.

Table 4.2-2. Proposed Operations on IR-178 and IR-187

Segments	*IR-178*				*IR-187*				*Total Operations on IR-178 and IR-187*
	B-1	*B-52*	*Other*	*Total*	*B-1*	*B-52*	*Other*[1]	*Total*	
A-B (Entry at IR-180/128)	39	6	9	**54**	1,098	18	50	**1,166**	**1,220**
B-C	39	6	9	**54**	1,098	18	50	**1,166**	**1,220**
C-D	39	6	9	**54**	1,098	18	50	**1,166**	**1,220**
D-E	39	6	9	**54**	1,098	18	50	**1,166**	**1,220**
E-EA (Alternate entry E1)	30	6	9	**45**	862	18	50	**930**	**1,220**
EA-U1	30	6	9	**45**	862	18	50	**930**	**975**
E-F	15	4	12	**31**	214	0	0	**214**	**975**
F-G	15	4	12	**31**	214	0	0	**214**	**245**
G-H	15	4	12	**31**	214	0	0	**214**	**245**
H-I (Alternate entry J1)	15	4	12	**31**	214	0	0	**214**	**245**
I-J	100	12	29	**141**	1,323	12	29	**1,364**	**245**
J-K	100	12	29	**141**	1,323	12	29	**1,364**	**1,505**
K-L	100	12	29	**141**	1,323	12	29	**1,364**	**1,505**
L-M	100	12	29	**141**	1,323	12	29	**1,364**	**1,505**
M-N	100	12	29	**141**	1,323	12	29	**1,364**	**1,505**
N-O	100	12	29	**141**	1,378	12	29	**1,419**	**1,505**
O-P	100	12	29	**141**	1,378	12	29	**1,419**	**1,560**
P-Q	100	12	29	**141**	1,378	12	29	**1,419**	**1,560**
Q-R	100	12	29	**141**	1,378	12	29	**1,419**	**1,560**
R-S	100	12	29	**141**	1,323	12	29	**1,364**	**1,560**
S-T (Alternate exit T)	100	12	29	**141**	1,323	12	29	**1,364**	**1,505**
T-U1	130	12	29	**171**	1,293	12	29	**1,334**	**1,505**
U1-V1	468	12	44	**525**	994	12	29	**1,035**	**1,505**
V1-W	468	12	44	**525**	994	12	29	**1,035**	**1,560**
W-X	468	12	44	**525**	994	12	29	**1,035**	**1,560**
X-Y	468	12	44	**525**	994	12	29	**1,035**	**1,560**
Y-Z	468	12	44	**525**	994	12	29	**1,035**	**1,560**
Z-AA	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AA-AB	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AB-AC	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AC-AD	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AD-AE	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AE-AF	468	12	44	**525**	994	12	29	**1,035**	**1,560**
AF-AG	468	12	44	**525**	994	12	29	**1,035**	**1,560**

Note: [1]Under the proposed action, B-52 and T-38 operations are reduced and B-2 operations removed compared to the No-Action Alternative.

To ensure safe operations, Dyess AFB would insert two additional notes into the FLIP AP/1B for both IR-187 and IR-178 and IR-180/128. The notes would include: 1) pilots are required to check with Dyess AFB scheduling as to the status of IR-178 and IR-180/128 when reserving IR-187, and to use caution, as it is a reverse routing; and 2) IR-178 and IR-187 will not be scheduled simultaneously due to their being a reverse route of each other. Normally, a minimum of 2-hours' notice is required to ensure civilian and other military users are notified of any MTR activation. Military pilots would also benefit from this

information during flight planning by contacting the servicing ARTCC, to determine which routes are activated. Real-time activation of Special Use Airspace, including MTRs can be viewed through the FAA website at http://sua.faa.gov. This website is designed for general aviation and commercial pilots to determine which MTR is active, affording them the opportunity to flight plan accordingly. Pilots can also contact ARTCC to determine which MTR is in use.

4.2.3.2 Civilian Aircraft Operations

Flight activity information on the MTRs would continue to be available through Flight Service Station by dialing 1-800-WX-BRIEF or by contacting the Fort Worth automated Flight Service Station on the frequency listed in the Airport/Facility Directory.

No significant impacts to airspace management would result from implementing the proposed action. There would be no increases in the annual use of proposed IR-187 and IR-178 over the limits authorized in the RBTI ROD and identified in Table 4.1-2. Floor altitudes would remain the same as those charted on IR-178 and IR-180/128, and the horizontal airspace of IR-187 would not differ from the current MTR widths.

4.3 Noise

4.3.1 Analysis Methodology

As described in Section 3.5, potential noise levels resulting from aircraft operations along the MTRs were calculated using the DoD's Military Operating Area and Range Noise Model, Version 2.2 (MR_NMAP) program to compute the DNL. FAA has approved MR_NMAP for use for detailed noise analysis. The DNL is a composite noise metric accounting for the A-weighted sound of all noise events in a 24-hour period. To account for increased sensitivity to noise at night, a 10 dB penalty is applied to nighttime events (10:00 p.m. to 7:00 a.m.). The analysis includes SEL metrics, a methodology that accounts for the effect of both the duration and intensity of a single noise event. It factors the flight profile and operational parameters of a particular aircraft as well as the change in noise level as an aircraft approaches, flies overhead, and recedes into the distance. A comparison of no action and proposed action SELs and number of operations identifies the expected change in the noise environment for each segment. The potential environmental impacts (e.g., on wildlife) associated with changes in the noise environment are evaluated in the appropriate subsections for each environmental resource or land use that might be affected.

4.3.2 No-Action Alternative

The no-action alternative reflects the operations authorized under the RBTI ROD (2007). No-action alternative conditions would occur if the proposed action were not implemented. Presented as baseline in Appendix D, the noise report, the number of operations differs from those depicted under current conditions (see Table 3.3-3). When compared to current conditions, noise levels under the no-action alternative are 5-dB greater; however, the noise environment would still be less than 65 dBA L_{dnmr} (see Figure 2 in Appendix D). No significant impacts to the noise environment underlying IR-178 and IR-180/128 would occur under the no-action alternative.

4.3.3 Proposed Action

4.3.3.1 Noise Exposure

Under the proposed action, the same percentage of day and night total sorties would occur as authorized under no-action conditions. B-1s and B-52s fly, respectively, 20 and 15 percent of the time during night hours (from 10:00 p.m. to 7:00 a.m.). Other aircraft using the airspace fly from 2 to 7 percent of the time during night hours. The number of night sorties would remain the same under the proposed action as found under the no-action alternative. Similar to the no-action alternative, MTR operations would average about one to six per day. Additionally, all bomber aircraft would continue to fly at or above 500 feet AGL even if the designated floor of the MTR segment is lower. Table 4.3-1 identifies the operations by segment. The daily averages are based on 260 flying days; however, weather, maintenance, mission requirements, and other factors can cause variations in daily activities. Just as under the no-action and current conditions, proposed IR-187 flights would be dispersed both horizontally and vertically within the corridor; occur at different times throughout a given day; and the wider the MTR the more dispersed operations are across the route.

Under the proposed action, single-event noise levels in all MTR segments would remain at or below no-action conditions, at a maximum of 112 dB (SEL) per event; Table 4.3-1 identifies the SEL per MTR segment. Using the methodology described in Chapter 3, MR_NMAP computed the A-weighted 60 dB through 85 dB L_{dnmr} noise levels, identified in Table 4.3-1 and illustrated in Figure 4.3-1. The greatest centerline L_{dnmr} among all segments would be less than 65 dB, therefore, Figure 4.3-1 only shows the 60 dB L_{dnmr} contour in green. The centerline represents the highest noise level (listed for each segment in Table 4.3-1), and the 60-dBA contour line identifies those areas where this noise level would occur. Areas outside the green line (i.e., the 60 dBA contour line) would experience noise levels less than 60 dBA L_{dnmr}. However, under the proposed action, many of the route segments are FAA reportable with a 3 dB increase; however, these increases would be considered less than significant.

In terms of DNL, Table 4.3-1 presents maximum centerline DNL results for the proposed action while Figure 4.3-2 depicts the 60 dB DNL contour. No areas would experience a DNL equal to or greater than 65 dB. The greatest maximum centerline DNL of 61 dB would occur at segment I-J on IR-187 (or Z-AA on IR-178). Relative to the no-action alternative, DNL would increase 1 to 2 dB for most segments while three segments would experience no change. Per the FAA, changes of 5 dB DNL between 45 to less than 60 dB and 3 dB from 60 to less than 65 dB are reportable, but not significant. In no instance, do noise levels increase by 5 or 3 dB DNL reportable levels. Therefore, DNL noise impacts under the proposed action would not be considered significant.

Table 4.3-1. Aircraft L_{dnmr} and DNL Noise Levels and Sortie Numbers by MTR Segment

Segment		*SEL by Primary Aircraft[1]*		*Maximum Average Projected Number of Sorties per Day[3]*			*Maximum Average L_{dnmr} (dBA)*			*Maximum Average DNL (dBA)*		
New Segment (IR-187)	*Floor (feet AGL)*	*B-1*	*B-52*	*No Action*	*Proposed*	*Change from No Action*	*No Action*	*Proposed IR-187 and IR-178[4]*	*Change from No Action*	*No Action*	*Proposed IR-187 and IR-178[4]*	*Change from No Action*
Entry A-B	200[2]	112	107	5	5	0	52	55	+3	51	53	+2
B-C	2,000	101	92	5	5	0	52	55	+3	51	53	+2
C-D	800	109	103	5	5	0	57	59	+2	56	58	+2
D-E	800	109	103	5	5	0	57	59	+2	56	58	+2
E-EA	600	111	106	4	4	0	57	59	+2	55	57	+2
EA-U1	600	111	106	4	4	0	57	59	+2	55	57	+2
E-F	800	109	103	1	1	0	50	52	+2	49	51	+2
F-G	800	109	103	1	1	0	50	52	+2	49	51	+2
G-H	1,200	106	98	1	1	0	48	50	+2	47	49	+2
H-I	1,200	106	98	1	1	0	48	51	+3	48	49	+1
I-J	500	112	107	6	6	0	61	64	+3	60	61	+1
J-K	500	112	107	6	6	0	60	63	+3	58	60	+2
K-L	500	112	107	6	6	0	60	63	+3	58	60	+2
L-M	500	112	107	6	6	0	60	63	+3	58	60	+2
M-N	900	108	101	6	6	0	57	60	+3	57	58	+1
N-O	900	108	101	6	6	0	55	58	+3	54	56	+2
O-P	500	112	107	6	6	0	58	61	0	56	58	0
P-Q	400[2]	112	107	6	6	0	56	61	0	56	58	0
Q-R	700	110	104	6	6	0	56	59	+3	55	57	+2
R-S	700	110	104	6	6	0	56	59	0	55	57	0
S-T	600	111	106	6	6	0	57	60	+3	56	57	+1
T-U1	600	111	106	6	6	0	57	60	+3	56	57	+1
U1-V1	400[2]	112	107	6	6	0	58	61	+3	56	58	+2
V1-W	600	111	106	6	6	0	57	60	+3	56	57	+1
W-X	600	111	106	6	6	0	57	60	+3	56	57	+1
X-Y	300[2]	112	107	6	6	0	58	61	+3	56	58	+2
Y-Z	300[2]	112	107	6	6	0	58	61	+3	56	58	+2
Z-AA	300[2]	112	107	6	6	0	58	61	+3	56	58	+2

Table 4.3-1. Aircraft L_{dnmr} and DNL Noise Levels and Sortie Numbers by MTR Segment

Segment		*SEL by Primary Aircraft[1]*		*Maximum Average Projected Number of Sorties per Day[3]*			*Maximum Average L_{dnmr} (dBA)*			*Maximum Average DNL (dBA)*		
New Segment (IR-187)	*Floor (feet AGL)*	*B-1*	*B-52*	*No Action*	*Proposed*	*Change from No Action*	*No Action*	*Proposed IR-187 and IR-178[4]*	*Change from No Action*	*No Action*	*Proposed IR-187 and IR-178[4]*	*Change from No Action*
AA-AB	300[2]	112	107	6	6	0	58	61	+3	56	58	+2
AB-AC	300[2]	112	107	6	6	0	58	61	+3	56	58	+2
AC-AD	300[2]	112	107	6	6	0	58	61	+3	56	58	+2
AD-AE	400[2]	112	107	6	6	0	59	61	+2	57	59	+2
AE-AF	400[2]	112	107	6	6	0	59	61	+2	57	59	+2
AF-Exit AG	400[2]	112	107	6	6	0	59	61	+2	57	59	+2

Notes:

[1]The values represent the SEL of an average aircraft overflight. These levels may vary up to 11 dB to account for sudden onset of sounds created by low-altitude high-speed aircraft.

[2]Low Altitude Training is limited to no lower than 500 feet AGL even though MTR floors may be lower (Air Force 2011).

[3]Based on 260 training days per flight year calendar and projected sorties on IR-187 segments.

[4]Decibel levels under the proposed action that are 60 dB to <65 with a net increase of 3 dB are considered reportable under FAA Order 1050.1F.

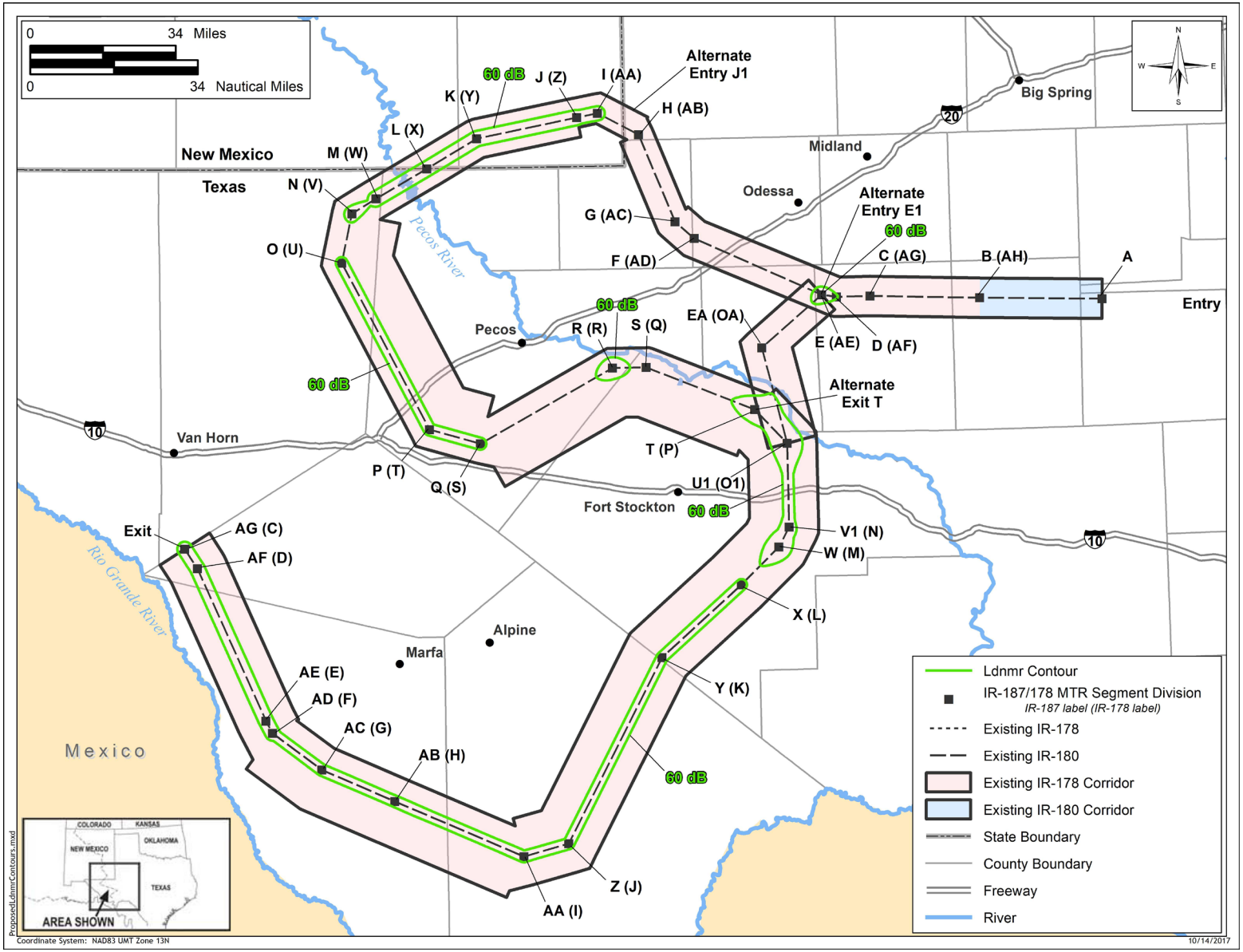

Figure 4.3-1. A-Weighted L_{dnmr} Contours on IR-178 and Proposed IR-187

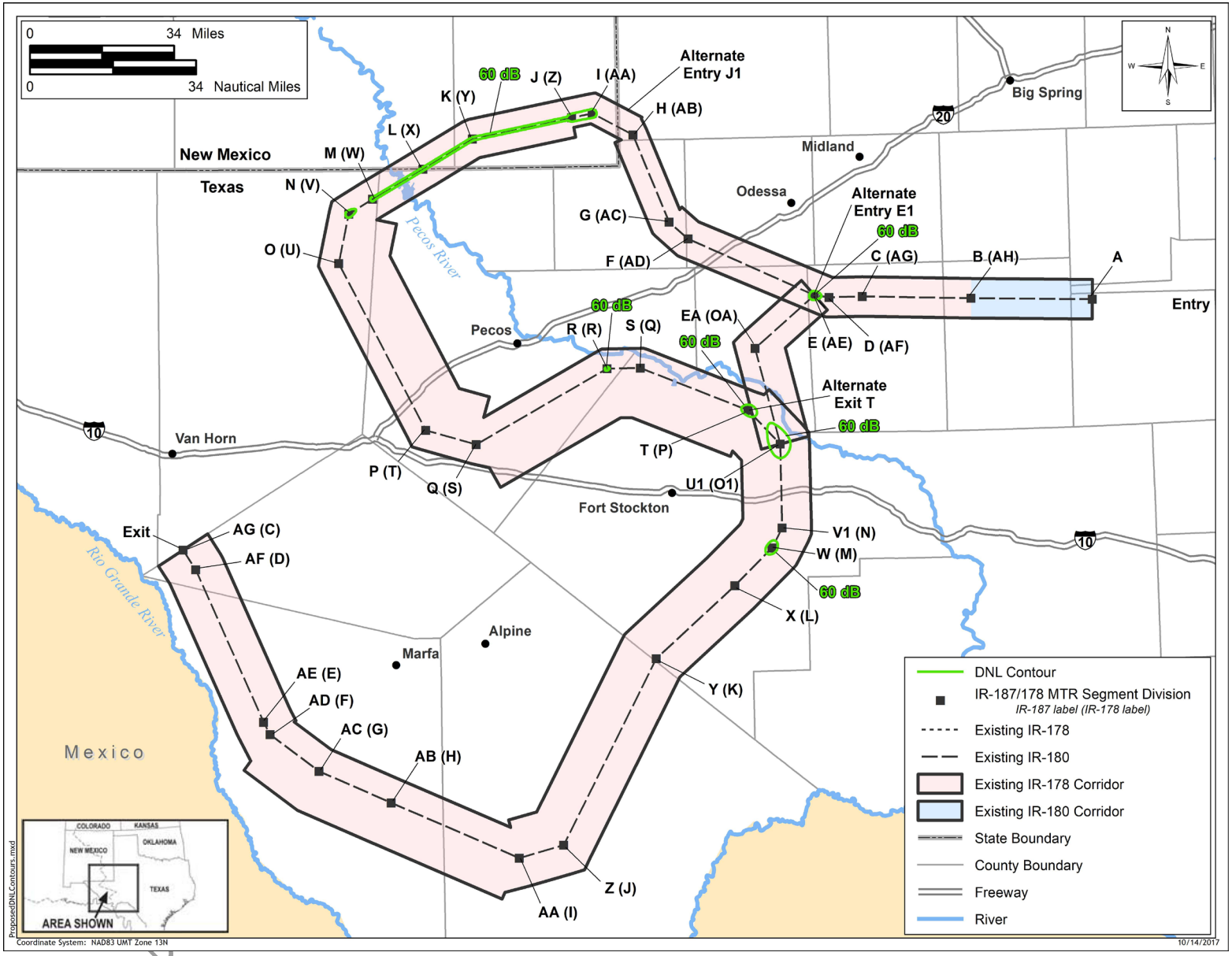

Figure 4.3-2. A-Weighted DNL Contours on IR-178 and Proposed IR-187

4.3.3.2 Supplemental Analysis

Both DNL and the more conservative L_{dnmr} noise levels would be at least 19 dB DNL below the screening threshold of 80 DNL dB so a PHL analysis is not applicable to the proposed action. Additionally, PHL applies to people living in high noise environments (greater than 80 dB DNL) over a long period of time (40 years). Both the intensity and frequency of low altitude aircraft overflights would not be great enough to cause hearing loss due to the proposed action.

The B-1B generates the greatest L_{max} of up to 113 dB at 500 ft AGL with equivalent interior levels of 98 dB and 88 dB for windows open and windows closed, respectively. Although these events likely interfere with speech, no segment of IR-178 or IR-187 averages more than six overflights per day, which equates to less than one per hour. The number of speech interfering events would not change for the proposed action when compared with the no-action alternative so no significant speech interfering affects would occur due to the proposed action.

Consistent with the no-action alternative, B-1B overflights at 500 feet would generate the greatest probability of awakening of 4 to 7 percent each overflight. With each overflight generating the same interior SEL as no action, the probability of awakening would not increase for a single night but the number of nights subjected to overflights would increase. The greatest number of B-1B nighttime overflights, 295 per year, would occur on segments U-V to R-S of IR-178 (N-O to Q-R of IR-187). The nighttime flight events would increase up to 70 percent relative to no action. With MTR widths of 10 to 14 nm, aircraft overflights would be spread across the MTR corridor, so no single location is likely to experience all 295 annual events. Due to the large flight corridor, low density of residential structures, and relatively low numbers of B-1B nighttime operations, there would not be a significant increase in sleep affects.

4.4 Aircraft Vortices and Wake Turbulence

As described in Section 3.4, wake vortices, collectively called wake turbulence, form as air passes both over and under the wing tips. The pressure differential caused by the passing of air over and under the wings creates a “rollup” of the airflow behind the wing. The rollup produces a wake consisting of a counter-rotating vortex extending from each wing tip. Wake turbulence from these vortices occurs continuously during flight and can be a potential hazard to trailing aircraft.

Vortices extend behind the aircraft for various distances, depending largely on aircraft altitude and speed. As vortices descend, crosswinds and other atmospheric influences cause them to decay, reducing their strength and persistence.

4.4.1 Analysis Methodology

A complex set of variables and conditions influence the behavior and persistence of vortices. These variables include aircraft weight and size, wingspan, wind and weather conditions, atmospheric turbulence, flight mode, altitude, G-forces, and airspeed. The Air Force analysis into the effects of vortices on ground structures concluded that a B-1 in standard training mode, at either 300 or 500 feet AGL, would generate a vortex wind speed of 10 mph at ground level. A B-1 would produce a vortex with a core velocity of 22 mph (500 feet), and 27 mph (300 feet) at approximately 20 feet AGL. Under calm

atmospheric conditions, the vortices could decay more slowly, resulting in higher velocities. However, this is considered an extremely low probability especially considering the typical windy conditions experienced in the west Texas area of proposed flight.

Due to the wingspan of a B-52, the core of the vortex would not be expected to descend below the minimum height of 66 feet AGL, where the velocity of the vortex gust would be 27 mph. A B-52 flying at 500 feet AGL would produce even lower vortex velocities due to longer decay and descent times. For this scenario, the vortex core would reach approximately 64 feet AGL with a velocity of 21 mph. Such vortices would not likely reach the ground since it would take almost 3 minutes to descend to that level and they would commonly dissipate by then (Air Force 2006)

Once or twice on a low-altitude route, a B-1 might perform a rapid climb, or pull-up maneuver, for terrain avoidance. This activity can generate vortex strength higher than those discussed above. These vortices represent momentary gusts; however, and do not comprise sustained winds.

The RBTI Supplemental EIS reported the probability of a windmill being damaged on IR-178. It was calculated after plotting all the known locations of windmills under the MTR (Air Force 2006). The results demonstrated that the probability of an overflight of a windmill would be extremely low. Given all the limiting factors described, including the natural wind, atmospheric turbulence, and dispersed windmills, vortices would not likely produce sufficiently sustained wind gusts to damage ground structures except under rare conditions (Air Force 2006).

For reasons similar to those described above, vortices generated by B-1s and B-52s would not cause damage to or adversely impact other structures, objects, persons, wildlife, or livestock. First, most vortices would dissipate before reaching ground level. Second, vortex velocities would not exceed normal winds experienced in the affected areas. Third, even under the rare conditions that produce higher velocities, the potential for interaction between a vortex and a structure, object, person, wildlife, or livestock would be extremely unlikely due to required FAA avoidance procedures. Whereby all aircraft are required to avoid any city, town, or settlement by 1,000 feet above the highest obstacle within a 2,000-foot radius of the aircraft. Outside of these congested areas, aircraft must also avoid visible persons, vessels, and structures (including windmills) by 500 feet (Air Force 2010).

4.4.2 No-Action Alternative

Selection of the no-action alternative would not alter vortex impacts from current conditions, where to date no damage to windmills or structures have been reported to the Air Force. No significant effects are expected if this alternative were implemented.

4.4.3 Proposed Action

During scoping, commenters presented declarations from Dr. Ronald Stearman of the University of Texas, which suggested that the wake turbulence analysis supporting the RBTI Final Supplemental EIS inadequately considered certain factors. Dr. Steadman's hypothesis, that low-flying bomber aircraft have the potential to damage windmills and other ranch structures, is based on the following factors: a) maneuvering aircraft create loads that affect vortex strength; b) rapid velocity reversal inherent in the

rotating wingtip vortex can affect aerodynamic ground structures like windmills; and c) natural wind gusts and wingtip vortex flows of a similar speed are inherently different (Holland and Hart 2011).

In preparing this EA, the Air Force relied upon the continued input of Ojars Skujins, Ph.D. and his branch's assessment of the potential for wing-tip wake vortices to affect ground structures (Skujins 2011). Dr. Skujins serves as the Chief of the Flight Mechanics Branch, Engineering Directorate, Aeronautical Systems Center at Wright-Patterson AFB. Dr. Skujins re-confirmed the previous analysis done for the RBTI Supplemental EIS (April 2006), and indicated its applicability to the proposed action, and noted no new or different data would affect the previous conclusions. In addition, the Air Force and FAA used the best available information in conducting the analysis of vortices. This information included previous research conducted on the complex phenomena of vortices, long-term records for natural wind velocities in west Texas, and varying data on locations of windmills in the potentially affected areas.

Under the proposed action, the potential for wake vortex impacts to windmills and other structures would remain low. The B-1 operations would occur no lower than 500 feet AGL, beyond the distance which vortices could damage structures and authorized sortie numbers would either remain unchanged from those evaluated in the RBTI Supplemental EIS. The probability of a maneuver with a high G affecting a windmill or other structure would remain rare, as it is under current conditions. Maneuvers, such as climb outs at new exit points on IR-187 would start at 500 feet AGL or higher, and would be sufficiently gradual, to keep vortex velocities low (i.e., 10 mph) and similar to those produced during standard level flight. Please note that since IR-178's inception (about 17 years ago), there have been no claims or complaints lodged with the Air Force related to windmill or structural damage from overflying B-1 aircraft. Moreover, the Air Force and Dyess AFB have an existing claim process for damage caused by military aircraft operating on the MTR or other Dyess controlled airspace.

In summary, the wake vortices generated by flight activities, along proposed IR-187, would not likely cause damage to windmills, structures, or harm people, wildlife, or livestock on the ground. There would be no significant impacts from aircraft vortices or wake turbulence due to the proposed action.

4.5 Safety

4.5.1 Analysis Methodology

Analysis of aircraft flight safety risks correlates projected Class A mishaps and BASH with current airspace use to consider the magnitude of the change in risk associated with the proposal. If a unique situation is anticipated to develop because of the proposed action, the ability to manage that situation is assessed. Finally, when the changes in risk arising from the proposed action are considered individually and collectively, assessments can be made about the adequacy of emergency response planning and the need for new or modified procedures and requirements that may become necessary.

4.5.2 No-Action Alternative

Under the no-action alternative, the 7 BW would not establish IR-187 and would maintain its current use of IR-178 and IR-180/128 in an east-to-west direction. While the 7 BW experienced one Class A aircraft mishap in 2004 with an inflight fire, aircraft have avoided further Class A mishaps since that time (Dyess

AFB 2011). The safety conditions involving the 7 BW described in Section 3.5 would remain unchanged. Under the no-action alternative, there would be no significant impacts to safety.

4.5.3 Proposed Action

4.5.3.1 Aircraft Mishaps

Under the proposed action, the 7 BW would continue to overfly the terrain found under IR-178 and IR-180/128; however, IR-187 use would be from the opposite direction. To ensure flight safety, aircrews would continue to adhere to specific procedures for operating in the MTR contained in AFI 13-204 *Airfield Operations Procedures and Programs*. Dyess AFB aircraft have used IR-178 and IR-180/128 for about 17 years and no change would occur to impact civilian air traffic near those routes. The limited amount of time an aircraft is over any specific geographic location, combined with the absence or sparsity of population under the affected airspace, minimizes the probability that an aircraft mishap would occur over a populated area. All airspace flight operations would continue to be conducted in accordance with procedures established in the applicable Air Force regulations and orders with the safety of its pilots and people in the surrounding communities as the primary concern. Strict control and use of established safety procedures would minimize the potential for safety risks and ensure the separation of MTR operations from non-participants. These ongoing safety procedures would limit the potential risk of flight operations. Since there would be no change in overall use of the MTR, and no unique situations arise to implement it, there would be no significant impacts to aircraft mishaps and aviation safety.

4.5.3.2 Bird/Wildlife-Aircraft Strike Hazards

The areas of IR-187 in west Texas proposed for use by the 7 BW 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. B-1 aircrews operating within IR-187 would continue to follow applicable procedures outlined in the 7 BW BASH Plan (Dyess AFB 2006). The 7 BW has developed aggressive procedures designed to minimize the occurrence of bird aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird strikes (Dyess AFB 2006). When risk increases, limits are placed on low-altitude flight. Special briefings are provided to pilots whenever the potential exists for greater bird-strike hazards within the training airspace. Continued adherence to these procedures would result in no significant BASH impacts under the proposed action.

4.5.3.3 Wind Power

Private wind towers and commercial wind-based energy systems continue to proliferate in the region of IR-187. To date, no instances of damage to the towers, caused by B-1s, have been reported. Therefore, wind towers would not represent a significant impact to safety to either aircraft or turbine development under the proposed action.

4.6 Land Use and Recreation

4.6.1 Analysis Methodology

Impact analysis for land use considers whether the proposed action would change the status of land ownership or is inconsistent with land management plans. Impacts to recreational resources were determined by assessing change to the opportunities for and access to recreational activities (e.g., camping, hiking, fishing, canoeing) and predicting user response to those changes. Potential effects to recreation would result from changes in the noise environment that could be perceived as incompatible with current uses, particularly wilderness aesthetics.

4.6.2 No-Action Alternative

Under the no-action alternative, IR-187 would not be implemented and authorized aircraft operations on IR-178 would continue. Noise levels would remain below 60 dBA L_{dnmr} and range between 57 and 59 dBA. Portions of Chinati Mountains State Natural Area, Big Bend Ranch State Park, and Big Bend National Park would continue to experience occasional overflights with noise levels averaging 58 dBA L_{dnmr}. No perceptible changes to the noise environment would occur; therefore, no significant impacts to land uses or recreational sites are anticipated.

4.6.3 Proposed Action

No portion of the proposed action would alter the structure, size, or operation of existing land uses, nor would the Air Force need to acquire any lands. The only action proposed is a change in the direction of military aircraft currently operating in IR-178 and small portion of IR-180/128. Implementing the proposed action would not preclude existing land uses or continued use or occupation of an area, preempt recreational uses, or be inconsistent with applicable land management plans and objectives. Flight operations would not change features of the physical environment or block aesthetic landscape features from view. B-1 aircraft would continue to fly no lower than 500 feet AGL. The likelihood of being overflown varies, in MTRs flights are dispersed within the corridor both horizontally and vertically. The wider the MTR, the less likely a person or specific location would be repeatedly overflown. The following discusses impacts to public and private land areas.

4.6.3.1 Public

Portions of two parks and one natural area underlie edges of IR-187 airspace, Chinati Mountains State Natural Area, Big Bend Ranch State Park, and Big Bend National Park (see Figure 3.6-2). Noise and visual intrusions of military aircraft have the potential to affect the recreational experiences of visitors to these areas underlying the MTR. However, when compared to the no-action alternative, there would be no more than a 3-dBA change in noise levels and would not exceed 61 dBA L_{dnmr}, well below the 65 dB guidance used by the Air Force. In terms of DNL, noise levels would increase by no more than 2 dB, less than the reportable levels used by the FAA when considering compatibilities of land uses with aircraft-generated noise. In terms of the potential for deterioration of the view scape due to emissions, there would be a net decrease in emissions over the parks when compared to the no-action alternative because of the decrease in B-52 and T-38 operations and removal of B-2 operations. No significant effects in the Chinati Mountains State Natural Area would occur because public recreational use is

currently not allowed; however, the state is preparing a public access plan and the park may be opened within a few years once the plan is complete in 2018 (Texas Parks and Wildlife Department 2017a). Once the park opens to the public, aircraft operations would be considered as part of the existing conditions because they have been operating over the park for 17 years. In summary, no significant impacts are anticipated to public land uses or recreation under the proposed action.

4.6.3.2 Private

Leasing private agricultural and ranch land for hunting and fishing is prevalent in west Texas. Ecotourism/nature tourism is also occurring, encompassing many different activities including, but not limited to, hiking, backpacking, rafting, wildlife viewing, dude ranches, and nature festivals. To minimize impacts to these other land uses, FAA regulations would be complied with and aircraft traveling in IR-187 would continue to avoid congested areas by 1,000 feet above the highest obstacle and by a horizontal radius of 2,000 feet of the aircraft. Outside congested areas, aircraft would avoid isolated persons, structures, or vessels by 500 feet.

Noise exposure is an important factor in land use compatibility, whether over public or private lands. A change in L_{dnmr} begins to be perceptible to the human ear at about 3 dB L_{dnmr}. Under the proposed action, when compared to the no-action alternative, L_{dnmr} noise levels would increase by 3 dB along the MTR segments and be 61 dB L_{dnmr} or less. These levels, however, would remain below 65 dB, the guidance used by the Air Force. In terms of DNL, noise levels would increase by no more than 2 dB, less than the reportable levels used by the FAA. Use of proposed entries and exits would occur at altitudes that would not result in perceptible changes in the noise environment.

Land under most of the affected airspace has been subject to military aircraft overflights for more than 40 years. Low-altitude military aircraft are part of the existing environment. The Air Force's special operating procedures avoid overflight of specific locations considered sensitive to aircraft noise. These avoidance procedures form part of the information used by military aircrews to plan missions.

The proposed action would not generate changes to the status or use of underlying lands, nor would it affect existing plans or policies implemented for land management. This is supported by the fact that no indications have been given to the Air Force, over the past 17 years IR-178 has been flown, that land management activities have been impacted by military aircraft overflights. Recreational opportunities would remain consistent with the no-action alternative. Therefore, no significant impacts to private land use or recreational resources would occur by implementing the proposed action.

4.7 Biological Resources

4.7.1 Analysis Methodology

Analysis of environmental consequences to biological resources considered whether aspects of the proposed action could result in direct habitat loss, direct mortality of wildlife, or indirect effects on wildlife, such as disturbance from noise, within the affected environment.

4.7.2 No-Action Alternative

Under the no-action alternative, there would be no changes in the authorized flight activities within IR-178 and IR-180/128. Therefore, the no-action alternative would result in no significant impacts to biological resources and would similar to what is found under current conditions.

4.7.3 Proposed Action

4.7.3.1 Vegetation and Wetlands

There would be no ground disturbance associated with the proposed action; therefore, no impacts to vegetation or wetlands would occur under the proposed action.

4.7.3.2 Wildlife and Domestic Animals

The only differences from current conditions and the no-action alternative are that the aircraft would fly in the opposite direction; there would be fewer B-52 and other aircraft operations; and B-2 operations would cease. B-1 operations would replace the number of aircraft operations no longer flying in the MTR. No net change in the total number of operations than those already authorized in the RBTI ROD would occur and no changes in the noise environment would be perceived. Therefore, no significant impacts to wildlife or domestic animals due to noise or overflights would occur if IR-187 were implemented.

4.7.3.3 Special Status Species

Endangered Species Act. Similar to the potential effects on wildlife described above, only temporary, minor behavioral disturbance to federally protected species may occur resulting from aircraft overflight noise. Table 4.7-1 lists the species found within the area underlying IR-187; the table also identifies the potential effect of implementing the proposed action; as identified, the total number of flights would not differ from the no-action alternative. Continued adherence to BASH procedures would minimize encounters with birds.

Table 4.7-1. Endangered Species Act Conclusions for Proposed IR-187

Species	***Scientific Name***	***Conclusion***	
		Species	***Critical Habitat***
Birds			
Black-capped vireo	*Vireo atricapilla*	No affect	N/A
Interior least tern	*Sterna antillarum athalassos*	No affect	N/A
Mexican Spotted Owl	*Strix occidentalis lucida*	May affect, not likely to adversely affect	No affect
Northern aplomado falcon	*Falco femoralis septentrionalis*	May affect, not likely to adversely affect	N/A
Piping Plover	*Charadrius melodus*	No affect	N/A
Red Knot	*Calidris canutus rufa*	No affect	N/A
Southwestern willow flycatcher	*Empidonax traillii extimus*	May affect, not likely to adversely affect	N/A
Yellow-billed cuckoo	*Coccyzus americanus*	No affect	N/A

Table 4.7-1. Endangered Species Act Conclusions for Proposed IR-187

Species	*Scientific Name*	*Conclusion*	
		Species	*Critical Habitat*
Whooping crane	*Grus americana*	No affect	N/A
Mammals			
Mexican long-nosed bat	*Leptonycteris nivalis*	No affect	N/A
Black-footed ferret	*Mustela nigripes*	Extirpated in New Mexico and Texas	N/A
Mexican gray wolf	*Canis lupus baileyi*	Extirpated in New Mexico and Texas	N/A

Legend: N/A = Not Applicable.

Please note that in 2012, the USFWS New Mexico Ecological Field Office (during consultations associated with RBTI, which created IR-178), concurred with the Air Force finding of may affect, but not likely to adversely affect, the Mexican spotted owl, northern aplomado falcon, and southwestern willow flycatcher (letter dated June 7, 2012, Cons #02ENNM00-2012-I-0065, see Appendix E for a copy of the letter) (USFWS 2012). According to data and monitoring studies, military jet overflights do not flush the Mexican spotted owl and southwestern willow flycatcher; therefore, flying aircraft in a different direction and at similar operational tempo, and therefore noise levels, would not likely have adverse effects to these listed species. Currently, there are no known northern aplomado falcon nesting pairs in the area underlying IR-178/187; therefore, it is not likely that the proposed action would have adverse effects on this species.

In December 2010, the Air Force initially coordinated with the USFWS regional offices notifying the agency of the Air Force's intent to undertake the proposed action in the EA, as well as notifying the agencies of the initiation of informal consultation. In June 2017, the Air Force reinitiated intergovernmental coordination by notifying the regional USFWS offices of the Air Force intent to continue with the proposed action to establish IR-187. On August 3, 2017, the USFWS, Austin Regional Office indicated that it had no comments or objections to the proposed action. Additionally, on August 3, 2017, the Texas Parks and Wildlife Department indicated that they do not anticipate significant adverse impacts to rare, threatened, or endangered species or other fish and wildlife resources from the project as proposed. On January 18, 2018, the USFWS, New Mexico Ecological Services Field Office concurred with the Air Force findings of "may affect, is not likely to adversely affect" the Mexican spotted owl, Southwestern willow flycatcher, and Northern aplomado falcon. Appendix A provides a copy of the correspondence.

Bald and Golden Eagle Protection Act. Noise from flight operations would not adversely affect bald eagles because there would be no perceptible changes in noise exposure or altitudes at which B-1s fly. Aircraft would just be flying in the opposite direction. Continued adherence to BASH procedures would minimize encounters with eagles and preclude significant impacts.

Migratory Bird Treaty Act. Noise from flight operations would not adversely affect migratory birds because no changes in operational numbers or flight altitudes are proposed; aircraft would just be flying in the opposite direction. Continued adherence to BASH procedures would minimize encounters with migratory birds and preclude significant impacts.

4.8 Cultural Resources

4.8.1 Analysis Methodology

Procedures for assessing adverse effects to cultural resources are discussed in regulations for National Historic Preservation Act, 36 CFR 800. An action results in adverse effects to cultural resources eligible for the National Register when it alters the characteristics that qualify the resource for inclusion in the register (its integrity). Adverse effects are most often a result of physical destruction, damage, or alteration of a resource; alteration of the character of the surrounding environment that contributes to the resource's integrity; introduction of visual, audible, or atmospheric intrusions out of character with the resource or its setting; neglect of the resource resulting in its deterioration or destruction; or transfer, lease, or sale of the property.

Possible sources of adverse effects can include ground disturbance, vandalism, noise vibrations, visual intrusions, and change in land status that reduces legal protection of the resource. However, for the proposed action, the potential impacts would be visual and noise related. Impacts due to visual intrusion or noise may occur through overflights in an area not primarily exposed to such intrusions. Impacts due to noise vibrations would not occur, as subsonic, noise-related vibration damage to structures requires high dB levels generated at close proximity to the structures and in a low frequency range (U.S. Forest Service 1992; cf. Battis 1983, 1988). Aircraft must generate an L_{max} of at least 120 dB at a distance of no more than 150 feet AGL to potentially result in structural damage (Battis 1988) and, even at 130 dB, structural damage is unlikely. In other words, the probability of an aircraft, such as a B-1, operating at 500 feet AGL and generating a maximum sound of 117 dB directly over such a structure is extremely unlikely to cause damage.

4.8.2 No-Action Alternative

Under the no-action alternative, there would be no changes in airspace activities within IR-178. Aircraft operations would continue as authorized in the RBTI ROD. There would be no change in visual or noise intrusions. Therefore, the no-action alternative would result in no significant impacts to cultural resources.

4.8.3 Proposed Action

4.8.3.1 Architectural Resources

Impacts to cultural resources beneath IR-187 were assessed by using noise analysis data and sortie numbers to determine whether there would be an increase in noise or visual intrusion for overflights sufficient to affect cultural resources known to exist underneath the airspace.

Six National Register properties are located under IR-187: Hudspeth County Courthouse, Old Reagan County Courthouse, and the El Fortin del Cibolo Historic District, Shafter Historic Mining District, Fortin de la Cienega, and La Morita Historic District all located near Shafter, Texas in Presidio County. Currently, these properties are exposed to military overflights in IR-178, and over the past 17 years (since IR-178was charted) neither the noise nor the visual presence of these overflights has affected the National Register-eligibility status of the properties. Because there would be no increases to flight

operations, and B-1s would continue to fly no lower than 500 feet AGL, there would be no perceptible changes in the noise environment. The proposed action would have no effect to these listed properties.

Dyess AFB initiated Section 106 consultation with the New Mexico and Texas SHPOs on the proposed action. In previous consultation with these SHPOs, associated with RBTI, both concurred that no historic properties (i.e., eligible for or listed on the National Register) would be affected (Air Force 2000a). In June 2017, the Air Force reinitiated intergovernmental coordination by notifying the SHPOs of Texas and New Mexico of the Air Force intent to continue with the proposed action to establish IR-187. On July 19, 2017, the Texas SHPO responded that there were no historic properties affected and that the project may proceed; on July 31, 2017, the New Mexico SHPO indicated that they have no concerns (see Appendix A: Correspondence and Consultation).

4.8.3.2 Traditional Cultural Resources

There are no American Indian pueblos or reservations underlying proposed IR-187. However, government-to-government consultation is being conducted with American Indian tribes with potential interests in areas underlying the airspace. To date, no traditional cultural resources have been identified. Significant impacts to this category of cultural resources are considered unlikely. In June 2017, the Air Force reinitiated government-to-government coordination by notifying American Indian tribes of the Air Force intent to continue with the proposed action to establish IR-187. The Air Force followed up this correspondence with calls or emails to ascertain whether the tribes wished to enter into government-to-government consultation or had any issues or concerns. On July 28, 2017, the Kickapoo Traditional Tribe of Texas indicated that the tribe does not own any land in the Area of Potential Effect, nor would the project affect any of the Tribe's historic or sacred sites that they are aware of; on August 3, 2017, the Kiowa Tribe of Oklahoma indicated that they would like to be included in the distribution of the EA but did not have any concerns; on August 24, 2017, the Comanche Nation indicated that no properties would be affected by the proposed action; and on January 5, 2018 the Caddo Nation of Oklahoma indicated they had no interests in the areas under consideration. On January 4 and 5, 2018, the Apache Tribe of Oklahoma, Fort Sill Apache Tribe of Oklahoma, Mescalero Apache Tribe of the Mescalero Reservation, Tonkawa Tribe of Oklahoma, and Ysleta Del Sur Pueblo were phoned and messages left to enquire whether they had any concerns with proposed IR-187. To date, no responses to the calls have been received. Appendix A provides a copy of the letter, list of recipients, status of coordination efforts, and any responses.

4.9 Air Quality

4.9.1 Analysis Methodology

Pollutants considered in this analysis include the criteria pollutants, excluding lead (airborne emissions of lead are not included because there are no known significant lead emission sources in the region or associated with the proposed action). For criteria pollutant emissions, 250 tons per year per pollutant was used as a comparative analysis threshold. This value is used by the USEPA in their New Source Review Standards as an indicator for impact analysis for listed new major stationary sources in attainment areas. No similar regulatory threshold is available for mobile source emissions, which are the emissions sources for the proposed action. Lacking any mobile source emissions thresholds, the 250 tons per year major stationary source threshold was used to equitably assess and compare mobile source emissions.

Potential air quality impacts include: 1) increases of ambient air pollution concentrations above the NAAQS, or 2) increasing net mobile source emissions in excess of 250 tons per year for any criteria pollutant. Because the entire region underlying the flight corridor is in attainment for NAAQS, the Clean Air Act General Conformity Rule (40 CFR §§ 51 and 93) does not apply.

Air quality impacts were assessed by comparing the net change in operational emissions associated with the no-action alternative and the proposed action. The aircraft inventory utilizing the airspace consists of B-1s operated by Dyess AFB 7 BW, B-52s operated by Barksdale AFB 2 BW, and a general category of "other" aircraft from nearby military installations. The T-38 Talon aircraft was selected to serve as the surrogate for those "other" operations. No construction or ground operations would occur.

4.9.2 No-Action Alternative

Under the no-action alternative, IR-187 would not be implemented. All airspace use would reflect conditions already authorized for military operations in IR-178 (see Table 4.9-1). Therefore, no significant impacts to air quality would occur under the no-action alternative.

Table 4.9-1. No-Action Alternative Operational Emissions in IR-178 and IR-180

Aircraft	*NO_x*	*CO*	*VOCs*	*PM_{10}*	*$PM_{2.5}$*	*SO_2*	*CO_2e*
B-1	30.18	21.16	0.87	4.25	3.19	2.34	8,324
B-52H	38.83	0	1.77	11.80	10.61	3.41	11,403
B-2	77.89	1.53	0.07	3.86	3.48	2.49	8,513
T-38	2.43	28.68	1.98	7.71	0.08	0.58	3,001
Total Tons	*149.32*	*51.37*	*4.69*	*27.61*	*17.36*	*8.82*	*31,242*
						Total Metric Tons	**28,342**

4.9.3 Proposed Action

Implementation of the IR-187 corridor would result in a decline in emissions when compared to no-action conditions. This is due to the reduction in B-52 and T-38 sorties, the removal of all B-2 sorties, and replacement with B-1 sorties (Table 4.9-2). GHG emissions would decrease as well. Detailed emissions calculations can be found in Appendix E. Based on these data, implementing IR-187 would not have a significant impact on air quality and would generate fewer emissions when compared to no-action conditions.

Table 4.9-2. Proposed and Net Change in Operational Emissions in IR-187

Aircraft	*NO_x*	*CO*	*VOCs*	*PM_{10}*	*$PM_{2.5}$*	*SO_2*	*$^1CO_2e$*
B-1	38.95	33.87	1.33	5.58	4.25	2.97	10,921.14
B-52H	0.60	0.00	0.03	0.18	0.16	0.05	173.42
B-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38	0.09	1.04	0.07	0.26	0.00	0.02	108.85
Total Tons	*39.63*	*34.91*	*1.42*	*6.03*	*4.41*	*3.04*	*11,203*
						Total Metric Tons	**10,164**
Net Change in Emissions							
B-1	8.77	12.72	0.46	1.34	1.05	0.63	2,598
B-52H	-38.23	0.00	-1.74	-11.61	-10.44	-3.35	-11,230
B-2	-77.89	-1.53	-0.07	-3.86	-3.48	-2.49	-8,513.41
T-38	-2.34	-27.64	-1.91	-7.45	-0.08	-0.56	-2,892.62
Total Change	*-109.69*	*-16.45*	*-3.27*	*-21.58*	*-12.95*	*-5.78*	*-20,038*
						Total Metric Tons	**-18,178**

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5 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis within an environmental document should consider "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action. It must also evaluate the nature of interactions among the actions. In this section, an effort has been made to identify past and present actions in the region and those reasonably foreseeable actions that are in the planning phase at this time. Actions that have a potential to interact with the proposed action are included in this cumulative analysis.

Dyess AFB is an active military installation that undergoes changes in mission and in training requirements in response to defense policies, current threats, and tactical and technological advances. Any actions (i.e., mission changes, tenant use) will continue to occur before, during, and after the proposed action is implemented.

5.2 Scope of Cumulative Effects Analysis

The scope of the cumulative effects analysis involves both the geographic extent of potential effects and the time in which the effects could occur. This cumulative effects analysis includes the boundaries of the affected areas for the proposed action. Actions not occurring within or near these are not considered in the analysis. The time frame for cumulative effects starts in 2018 when IR-187 could be established and would continue into the foreseeable future. Public documents prepared by federal, state, and local government agencies were the primary sources of information to identify reasonably foreseeable actions.

5.2.1 Past and Present Actions

Past actions include the establishment of IR-178, which operations are described under the no-action alternative. A Controlled Firing Area managed by Applied Research Associates of Littleton, Colorado formally was located about 20 miles southeast of Pecos, Texas, at the old Goodyear Test Track and near the centerline of IR-178. The facility frequently conducted explosive blast testing. Dyess AFB schedulers and airspace managers notified the facility when IR-178 was being flown so that blasting was curtailed for an approximately 2-hour window. This window allowed a liberal safety buffer in case the aircraft was delayed. This facility was moved outside of IR-178 in 2015. No other past or present actions interact within the temporal or geographic confines of the proposed action.

5.2.2 Reasonably Foreseeable Future Actions

To identify proposals that might impose cumulative environmental effects in the region, this analysis included a search for projects and activities that might have effects that would overlap with the proposed action in space and time. This included search for other airspace actions, projects that with potential for increased noise, and projects with potential air quality impacts. Actions geographically overlapping or close to the proposed action would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with a proposed action would have a higher potential for cumulative effects.

The U.S. Department of Energy issued the Final EIS in August 2011 for its proposal to provide financial assistance ($450 million) for the Texas Clean Energy Project (TCEP). The project is the construction of a power plant that implements coal-based integrated gasification combined-cycle technology located about 15 miles southwest of Odessa in Penwell. The power plant would occupy 600 acres near the northern boundary of IR-178, or point F of proposed IR-187. Commercial operation is scheduled for 2018 (TCEP 2017).

5.2.3 Analysis of Cumulative Impacts

5.2.3.1 Airspace Management

There would be no change in airspace management practices or procedures due to the construction and operation of the TCEP.

5.2.3.2 Noise

There would be increased noise levels during the construction periods of the TCEP. During operation, ambient noise levels are anticipated to rise to about 60 dB at the two noise receptors closest to the TCEP plant. Although Penwell is close to the boundary of the existing and proposed MTRs, military aircraft trajectories would be dispersed both horizontally and vertically throughout the corridor. In addition, FAA and Air Force procedures require aircraft to avoid congested areas by 1,000 feet AGL above the highest obstacle within 2,000 feet of the aircraft and to avoid isolated persons, structures, or vessels by 500 feet. These procedures would include the avoidance of Penwell and the TCEP power plant, so noise from aircraft on the MTR, when considered with temporary, short-term construction noise associated with the power plant, would not introduce significant cumulative noise impacts.

5.2.3.3 Aircraft Vortices and Wake Turbulence

As indicated in Section 4.4, it is unlikely that wake vortices generated by B-1s would cause harm or damage to people, animals, or structures under IR-178 or IR-187, especially since it will not fly below 800 feet AGL, the charted floor altitude within segment AD-AE of IR-178 and E-F of IR-187. The TCEP plant is no exception; the TCEP plant would be close to the edge of the MTR but as mentioned above, existing procedures would ensure avoidance. No significant cumulative effects are anticipated to aircraft vortices and wake turbulence.

5.2.3.4 Safety

The FAA may determine that strobe lighting is necessary on some of the taller structures of the TCEP power plant for the safety of aircraft flying in the area. The B-1s from the 7 BW would continue to fly at or above 800 feet AGL (the charted floor altitude) through the MTR segment adjacent to the power plant; therefore, no significant cumulative effects are anticipated to safety.

5.2.3.5 Land Use and Recreation

As indicated in Section 4.6, the proposed action is not anticipated to have any effect on land use under the existing and proposed MTRs. Big Bend Ranch State Park, Chinati Mountains State Natural Area, and Big Bend National Park lie at the outside edge of IR-178/187. No other actions were identified that could cumulatively affect land uses or recreation, noise levels would continue to be less than 65 dB DNL and would not introduce significant impacts.

The change in land use of the 600-acre lot in Penwell from undisturbed land to an industrial site is not anticipated to have any cumulative impact on regional land use when considered along with implementing proposed IR-187. The proposed action would not interact in any way to affect the change in land use. No recreation would be impacted cumulatively when the proposed action is considered with TCEP power plant construction and operation.

5.2.3.6 Biological Resources

The construction of the TCEP power plant would have minor adverse effects on biological resources as it would involve the clearing of land and removal of habitat. However, this project would not interact with the proposed action because no ground-disturbing activities would occur to establish IR-187. Should the TCEP energy project dislocate wildlife away from the project site during construction and onto land beneath the MTR, there would be a change in the noise environment. Animals newly exposed to aircraft overflights are expected to be temporarily more sensitive to noise due to lower previous exposure than animals under the existing MTRs. However, as discussed in Section 3.7.2, wildlife typically become habituated to the noise with no adverse effects. Thus, no significant impacts to biological resources would be expected cumulatively with implementation of the proposed action and the TCEP action.

5.2.3.7 Cultural Resources

The proposed action is not anticipated to have any effect on cultural resources under proposed IR-187. The Rhodes Welding Complex, located near the future site of the TCEP plant, is eligible for the National Register of Historic Places. However, neither the proposed action nor TCEP action is expected to have any adverse effects to the complex's status or condition. Therefore, no significant cumulative effects are anticipated to cultural resources.

5.2.3.8 Air Quality

Fewer B-52 and other aircraft operations and removal of B-2 operations would result in lower emissions overall, and a reduction in GHGs on IR-187. The TCEP power plant will operate under permit numbers 92350 and PSDTX1218, which establish annual maximum allowable emission rates and authorizes

emissions from planned maintenance, startup, and shutdown activities (TCEP 2017). When combined with emissions from the proposed power plant, the annual emissions from the aircraft flying IR-178 and IR-187 would be negligible and would not have a cumulative impact on regional air quality.

5.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the proposed action, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary, or longer lasting, but negligible. Those limited resources that may involve a possible irreversible or irretrievable commitment are discussed below.

Continued training under the proposed action would result in fuel use for as long as the reciprocal MTR is needed. Flight activities would use similar amounts of fuels, oils, and lubricants as at present. As such, the proposed action would not increase consumption of these resources.

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7 PERSONS AND AGENCIES CONTACTED

United States Fish and Wildlife Service
Wally Murphy, Field Supervisor
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113

United States Fish and Wildlife Service
Adam Zerrenner, Field Supervisor
Austin Texas Ecological Field Office
10711 Burnet Road, Suite 200
Austin, Texas 78758

U.S. Environmental Protection Agency
Region VI
Scott Pruitt, Regional Administrator
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

State Historic Preservation Office
Jeff Pappas, PhD
New Mexico Historic Preservation Division
Department of Cultural Affairs
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

Texas Historical Commission
Mark Wolfe
State Historic Preservation Officer

Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

Texas Parks and Wildlife
Carter Smith, Executive Director
4200 Smith School Road
Austin, TX 78744

Texas Commission on Environmental Quality
Winona Henry, Regional Director
622 S. Oakes, Suite K
San Angelo, TX 79603

Kickapoo Traditional Tribe of Texas
Juan Garza, Jr., Chairman
HC 1, Box 9700
Eagle Pass, TX 78852

Wichita and Affiliated Tribes
Terri Parton, President
P.O. Box 729
Anadarko, OK 73005

Ysleta Del Sur Pueblo of Texas
Carlos Hisa, Governor
P.O. Box 17579
El Paso, TX 79917

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8 LIST OF PREPARERS AND CONTRIBUTORS

Erica Boulanger, *Deputy Project Manager/Senior Analyst*
B.S., Environmental Sciences, 2002
Years of Experience: 10

James Campe, *Project Director/Senior Analyst*
B.S., Naval Architecture and Offshore Engineering, 1986
Years of Experience: 27

Christina Cummings, *Project Administrator*
A.A.S., Administrative Office Technology, 1999
Years of Experience: 20

Cathy Doan, *Environmental Analyst*
B.S., English, 1980
M.A., Human Resources Development, 1985
Years of Experience: 18

Travis P. Gahm, *Geographic Information Systems*
B.S. Biology, 2009
Years of Experience: 8

Edie Mertz, *Graphics*
A.A. General Education, 1994
Years of Experience: 20

Kathy L. Rose, *Project Manager/Senior Analyst*
B.A., Political Science/German, 1980
M.A., International Relations, 1983
M.S., Forest Resource Management, 1996
Years of Experience: 25

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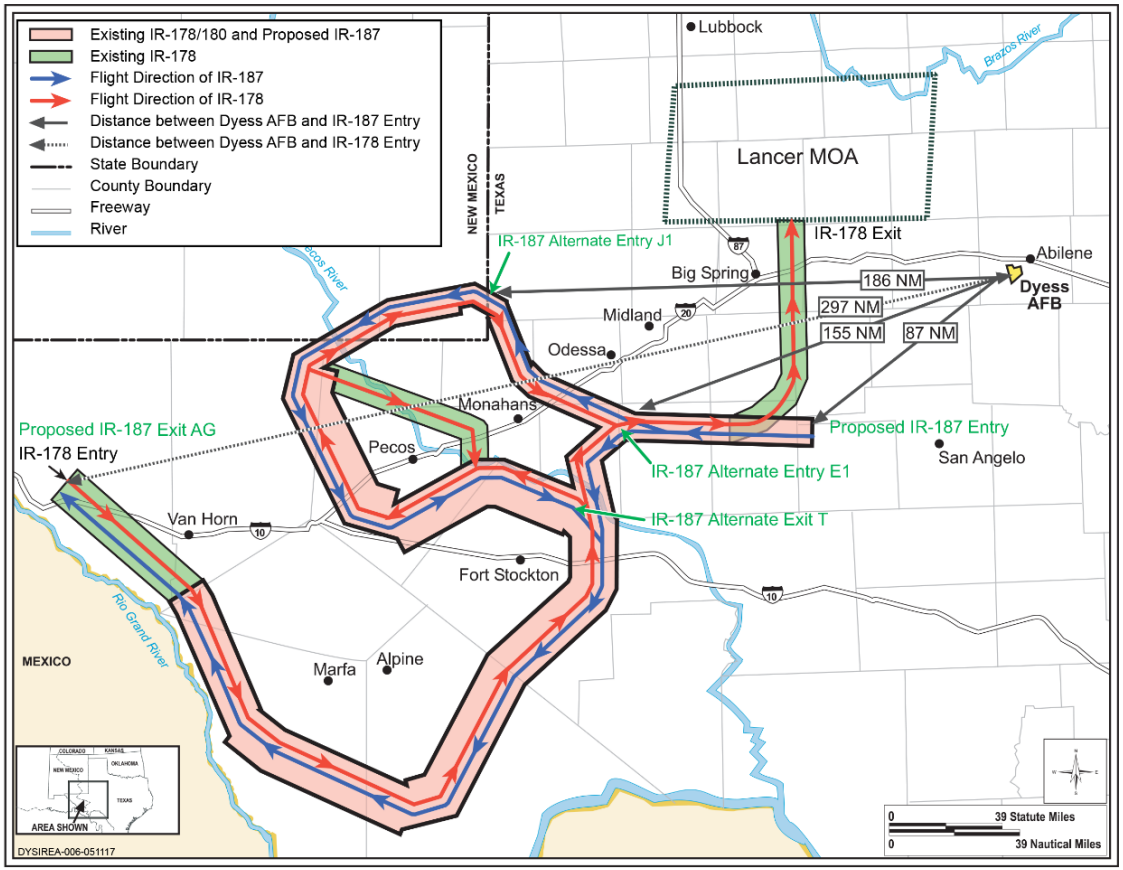
Appendix A: Correspondence and Consultation

Public Notification

The Air Force is reinitiating the Environmental Assessment (EA) to Designate Instrument Route 187 (IR-187) for Dyess Air Force Base (AFB), Texas (TX)

The U.S. Air Force is preparing an Environmental Assessment (EA) to enhance training opportunities for B-1 aircrew members assigned to the 7th Bomb Wing (7 BW) at Dyess AFB, TX. Under the proposed action, existing Instrument Route 178 (IR-178) and a portion of IR-180/128 would be used to fly in the opposite direction with alternate entry and exit points available. These changes would permit aircrew members to train in the opposite direction, which would be east-to-west, compared to the west-to-east direction currently flown on IR-178/180/128. By allowing flying in an opposite direction, in existing IRs, this proposal improves training by providing a new perspective for aircrew members on the mountainous terrain in West Texas. Additionally, the establishment of entry points closer to Dyess AFB would shorten flying time and thus improve fuel efficiency. The figure to the right depicts existing IR-178/180/128 and the proposed reciprocal route IR-187 with additional entry/exit points. No new airspace or changes in authorized number of aircraft operations would occur and there would be no construction or ground disturbing activities proposed. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry/exit points would be identified, and the authorized number of aircraft operations in IR-178 would remain unchanged.



Existing IR-178/180/128 and Proposed IR-187

B-1 aircraft operations would be split between IR-178 and IR-187, and when combined, the total number of aircraft operations would not change or exceed those currently authorized in the military training route (MTR); the aircraft would just fly in an opposite direction. B-1 aircraft would continue to remain at or above 500 feet above ground level, regardless of the Federal Aviation Administration's charted floor altitude of the airspace. Operations on the two routes would continue to be managed and scheduled by Dyess AFB. Air Force schedulers and pilots follow established procedures for reciprocal MTRs that ensure deconfliction and safety for aircrews and the public alike. All military entities responsible for managing and scheduling MTRs provide specific route notes in the Department of Defense Flight Information Publication (FLIP) AP/1B *Special Operating Procedures*, updated every 28 days, to ensure aircrews are aware of specific route instructions, including noise sensitive areas, unusual bird activity, or conflicts with other routes. In establishing IR-187, Dyess AFB would insert two additional notes into the FLIP AP/1B for both IR-178 and IR-187. They would include: 1) pilots are required to check with Dyess AFB scheduling as to the status of IR-178 and IR-180/128 when reserving IR-187, and to use caution, as it is a reverse routing of IR-178; and 2) IR-178 and IR-187 would not be scheduled simultaneously due to their being a reverse route of each other. Normally, a minimum of 2-hours' notice is required to ensure civilian and other military users are notified of any MTR activation.

The Air Force is committed to community outreach and would like your input into the development of the draft EA. While it is still in the early stage, the Air Force would appreciate your comments on this proposal. To ensure consideration of your comments in the draft EA, we request that comments be submitted to the address below within 30 days of receipt of this letter. As a recipient of this announcement, you are also on our list to receive a copy of the draft EA when it is published. At that time, you will have 30 days to review the draft and provide comments to the Air Force.

Please submit comments to:
7 CES/CENPP
710 3rd Street
Dyess AFB TX 79607

For additional information contact:
7 BW Public Affairs
325-696-2863

Agency Coordination

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

JAN 28 2011

SAF/IEI
1665 Air Force Pentagon
Washington, DC 20330-1665

Elizabeth L. Ray
Director, Airspace Services
Mission Support Services
Federal Aviation Administration
800 Independence Avenue, SW
Suite 400 East
Washington, DC 20591

Dear Ms. Ray:

In accordance with the President's Council on Environmental Quality National Environmental Policy Act Regulations 40 CFR § 1501.6, Cooperating Agencies, the Air Force requests the participation of the Federal Aviation Administration (FAA) as a cooperating agency in the preparation of an Air Force Environmental Assessment (EA) for:

a. Establishment of a new Military Training Route, IR-187, in West Texas, coinciding with the existing footprint of IR-178 and partially overlapping a segment of IR-180 (see attached map);

b. Establishment of three entry and two exit points along the proposed MTR (see attached map); and

c. Performance of training operations along the proposed MTR at or above 500 feet AGL not to exceed the number of sortie-operations outlined in the Record of Decision for the Realistic Bomber Training Initiative (RBTI) Supplemental Environmental Impact Statement (SEIS) and Record of Decision signed in 2006.

As the lead agency, the Air Force requests the FAA participate in various portions of the EA development as may be required. Specifically, the Air Force asks the FAA to support as a cooperating agency by:

a. Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which the FAA has special expertise; and

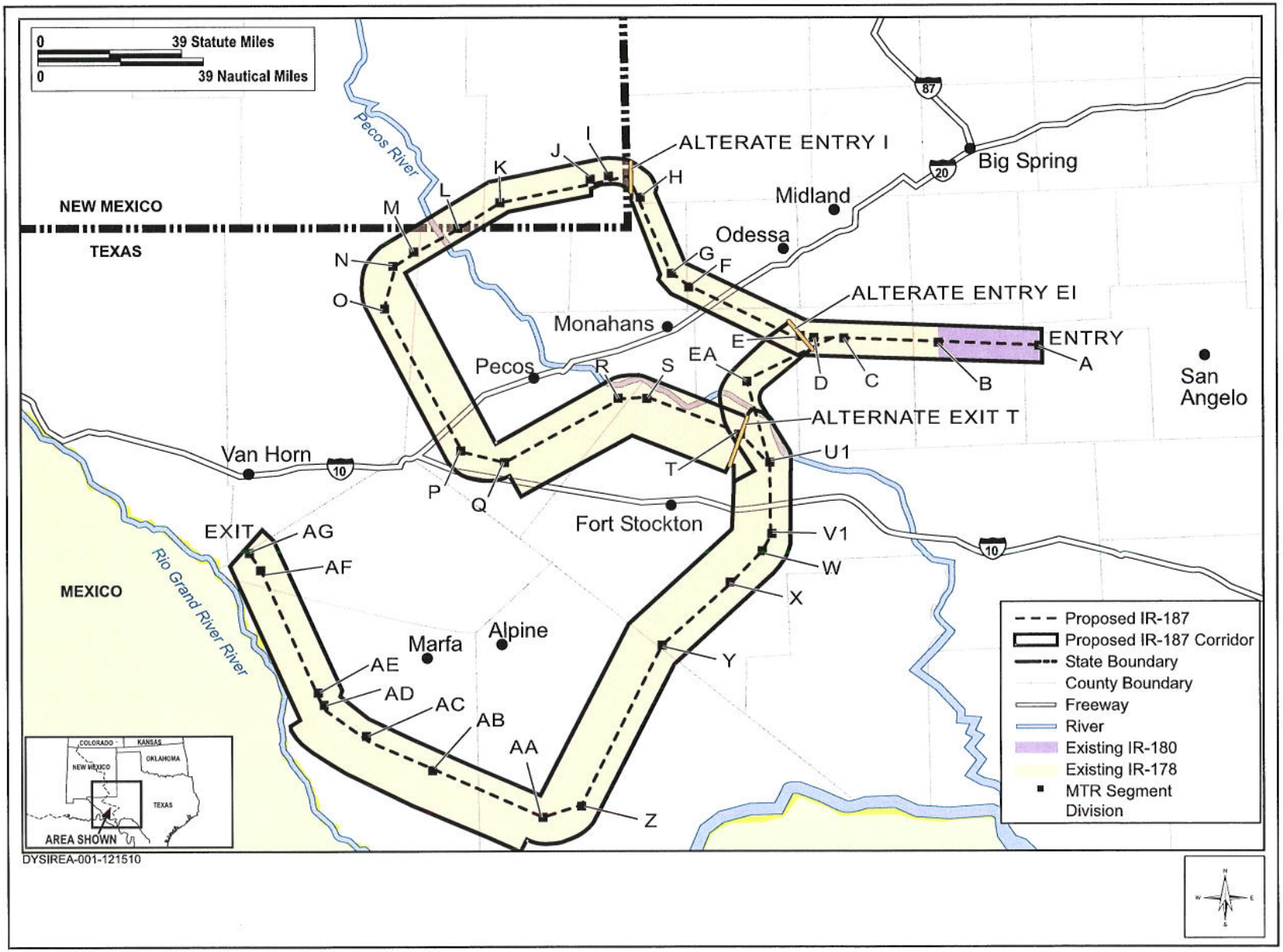
b. Making staff support available to enhance interdisciplinary review capability.

Should you or your staff have any questions, please contact our POCs: Mr. Jack Bush, HQ USAF/A7C, (703) 614-0237, or Ms Linda DeVine, Headquarters Air Combat Command, HQ ACC/A7PP, (757) 764-9434.

Sincerely,

Kathleen I. Ferguson

KATHLEEN I. FERGUSON, P.E.
Deputy Assistant Secretary of the Air Force
(Installations)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TEXAS
MEXICO
Pecos River
Rio Grande River River
ALTERATE ENTRY I
ALTERATE ENTRY EI
ALTERNATE EXIT T
ENTRY
EXIT
Big Spring
Midland
Odessa
Monahans
Pecos
Van Horn
Fort Stockton
Marfa
Alpine
San Angelo
A
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Proposed IR-187
Proposed IR-187 Corridor
State Boundary
County Boundary
Freeway
River
Existing IR-180
Existing IR-178
MTR Segment Division
COLORADO
KANSAS
OKLAHOMA
NEW MEXICO
TEXAS
AREA SHOWN
DYSIREA-001-121510

U.S. Department
of Transportation
**Federal Aviation
Administration**

FEB 7 2011

Kathleen I. Ferguson P.E.
Deputy Assistant Secretary of the Air Force
SAF/IEI
1665 Air Force Pentagon
Washington, DC 20330-1665

Dear Ms. Ferguson:

Thank you for your letter requesting the Federal Aviation Administration participate as a cooperating agency in the environmental assessment (EA) for the proposed modifications and establishment of Military Training Route (MTR) IR-187 in West Texas.

The FAA is pleased to participate in the EA process in accordance with the National Environmental Policy Act of 1969 as amended, and its implementing regulations. While the FAA does not consider the establishment or modification of MTRs as special use airspace (SUA), because of this proposal's relationship to the Realistic Bomber Training Initiative (RBTI) Supplemental Environmental Impact Statement (SEIS), the FAA will cooperate following the guidelines described in the Memorandum of Understanding between the FAA and the Department of Defense Concerning SUA Environmental Actions, dated October 4, 2005.

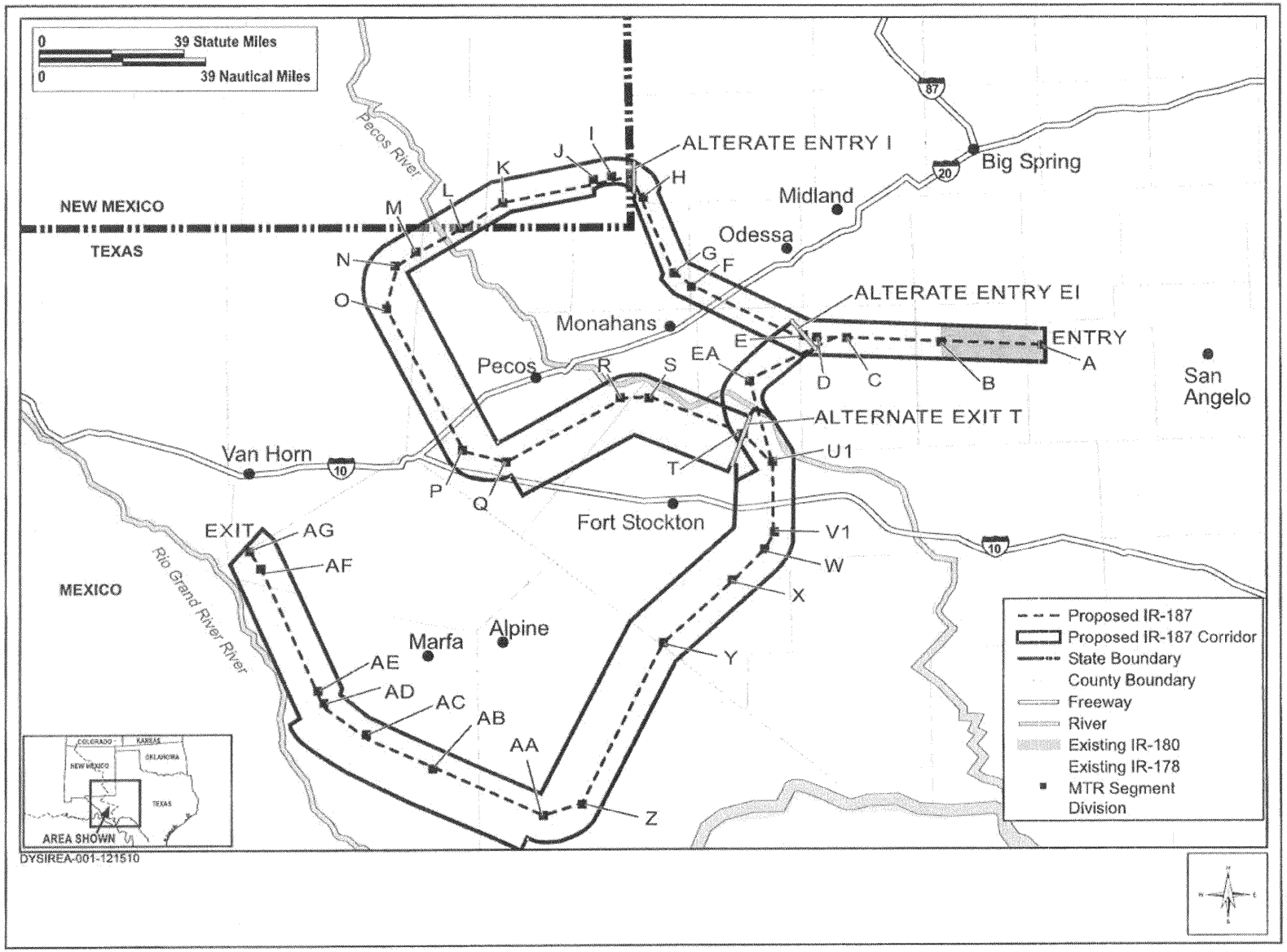
Modification of the SUA resides under the jurisdiction of the Central Service Center, Operations Support Group, Fort Worth, TX. The Central Service Center will be the primary focal point for matters related to both airspace and environmental matters. Mr. Rick Kervin is the Acting Manager of the Operations Support Group. FAA Order 7400.2, Chapter 32 indicates the airspace and environmental processes should be conducted in tandem as much as possible; however, they are separate processes. Approval of either the aeronautical process or the environmental process does not automatically indicate approval of the entire proposal. I have attached Appendix 2, 3, and 4 of FAA Order 7400.2 for additional details.

A copy of the incoming correspondence and this response is being forwarded to Mr. Kervin of the Central Service Center, Operations Support Group. Mr. Kervin can be contacted at (817) 321-7731 for further processing of your proposal.

Sincerely,

Dennis E. Roberts
Director, Airspace Services
Air Traffic Organization

3 Enclosures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Proposed IR-187 Corridor
State Boundary
County Boundary
Freeway
River
Existing IR-180
Existing IR-178
MTR Segment
Division
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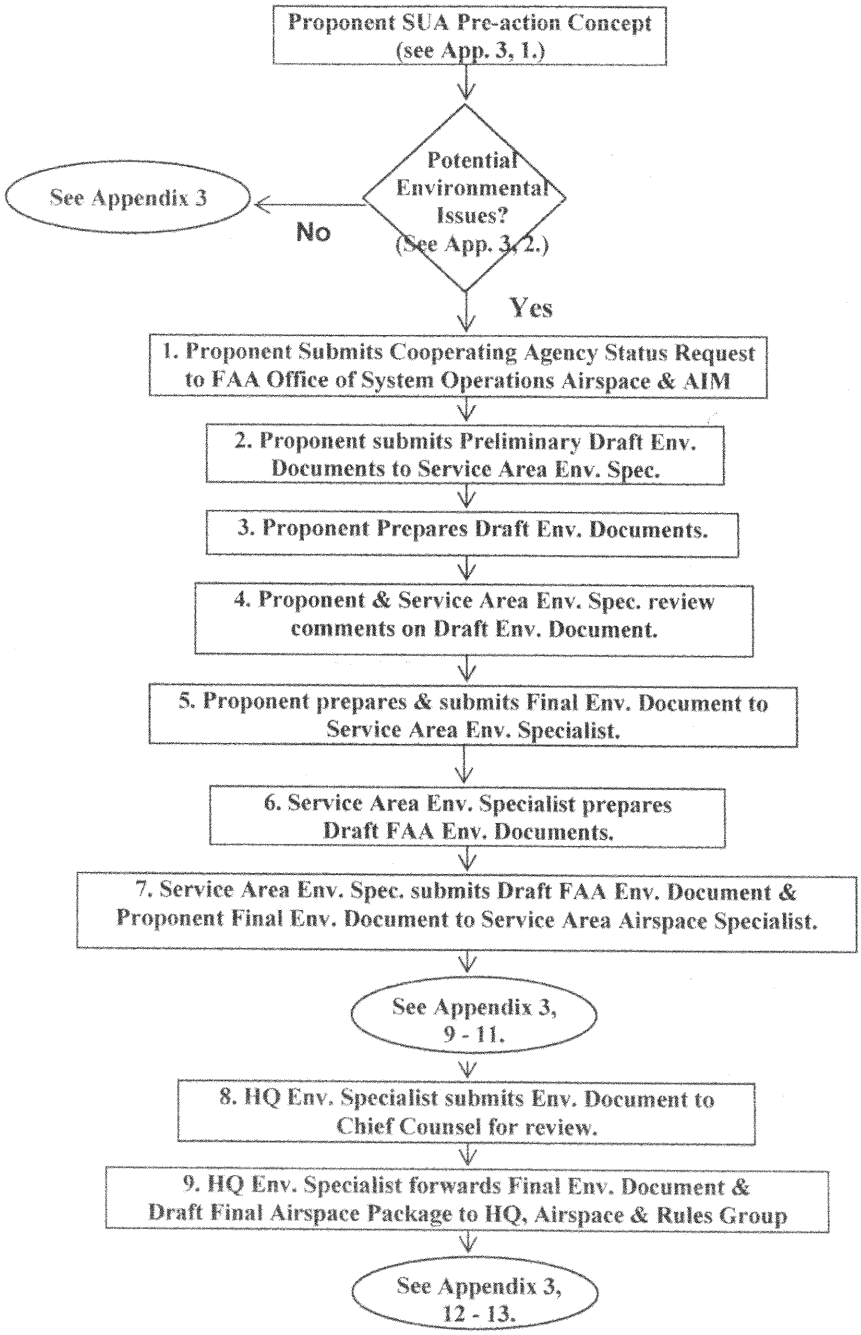
DYSIREA-001-121510

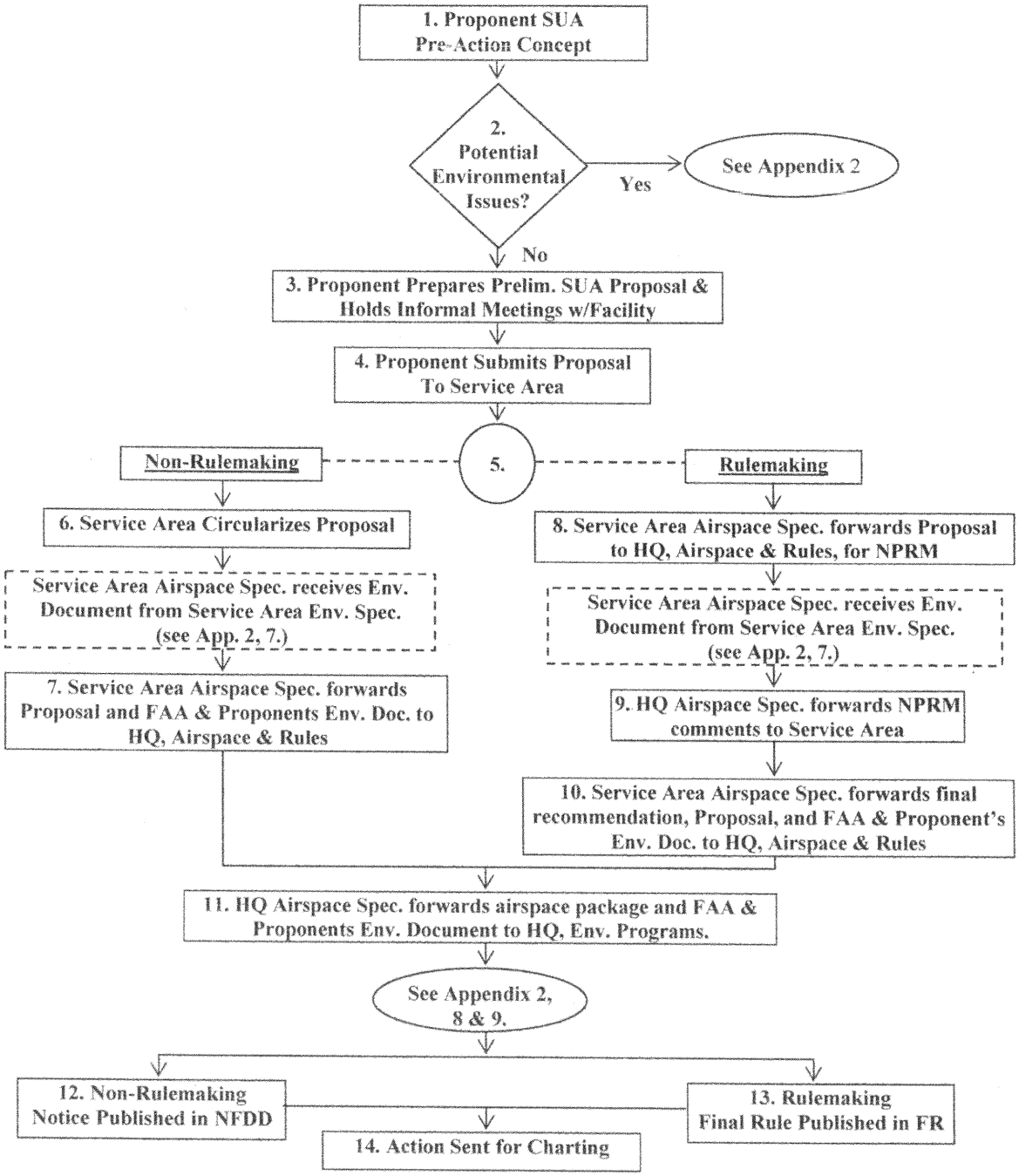
Appendix 2. Procedures For Processing SUA Actions Environmental Process Flow Chart

(This Chart is for use with Appendix 4 and the numbers correlate to the numbers in the Environmental column of that table.)



Appendix 3. Procedures For Processing SUA Actions Aeronautical Process Flow Chart

(This Appendix is for use with Appendix 4 and the numbers correlate to the numbers in the Aeronautical column of that table.)



Appendix 4. FAA Procedures for Processing SUA Actions Aeronautical and Environmental Summary Table

(The aeronautical and environmental processes may not always occur in parallel.)
(This Appendix is for use with Appendix 2 and Appendix 3, and the numbers correlate to numbers on those charts.)

(See note below.)

AERONAUTICAL	ENVIRONMENTAL
1. Proponent shall present to the Facility a Pre-draft concept (i.e., new/ revisions to SUA needed or required).	1. Proponent shall discuss with the Service Area, at the earliest time, the potential for environmental impacts associated with the proposal.
	2. If there is the potential for environmental impacts, Proponent shall make a request to the FAA for a Cooperating Agency (CA) status when Proponent decides to initiate the environmental process. Proponent shall forward the request to the Director of the System Operations Airspace and AIM. The Director will transmit the request to the Environmental Programs Group who prepares and forwards the response to Proponent. The Environmental Programs Group will send a courtesy copy of the response to the responsible Service Area. The Service Area environmental specialist works as the FAA point of contact throughout the process in development of any required environmental documentation.
	3. Proponent submits a Preliminary Draft EA or EIS to the Service Area environmental specialist. The Service Area environmental specialist shall provide comments, in consultation with the airspace specialist and the Environmental Programs Group, back to Proponent.

2. Proponent forwards the aeronautical proposal to the FAA Service Area for review and processing by the airspace specialist.	4. Proponent prepares a Draft EA or EIS with a 45-day public comment period. As the FAA CA point of contact, the Service Area environmental specialist reviews the associated draft environmental documentation to ensure that the Proponent addressed adequately all environmental concerns submitted on the Preliminary Draft. If required, the Service Area environmental specialist forwards the draft environmental documentation to the Environmental Programs Group for review and comment by the headquarters environmental specialist and the Office of Chief Counsel.
3. The Service Area airspace specialist, in accordance with this order, determines the type of airspace action(s) necessary, either Non-Rulemaking or Rulemaking. FAA Service Area and Proponent determine if informal Airspace Meetings are required.	
For Non-Rulemaking:	
4. The Service Area airspace specialist sends out a circularization with a 45-day public comment period. The Service Area airspace specialist reviews and prepares, in consultation with the Proponent, responses to the aeronautical comments from the study and circularization in accordance with Chapter 21 of this order.	5. The Proponent reviews comments received on their Draft EA/FONSI or EIS and prepares their responses to the comments, in consultation with the FAA and other cooperating agencies, if necessary, and in accordance with Chapter 32 of this order.
	6. Proponent prepares and submits their Final EA/FONSI or EIS/ROD to the Service Area environmental specialist.
	7. The Service Area environmental specialist prepares a Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD.
	8. The Service Area environmental specialist submits the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD and the Proponent's Final EA/FONSI or EIS/ROD to the Service Area airspace specialist for inclusion with the airspace proposal package.
5. The Service Area airspace specialist then sends the completed package containing the aeronautical proposal, response to comments, Proponent's Final EA/FONSI, and the Draft FAA FONSI/ROD to the Headquarters Airspace and Rules Group with their recommendation.	

For Rulemaking:	
6. The Service Area airspace specialist sends the proposal to the Airspace and Rules Group who prepares a Notice of Proposed Rulemaking (NPRM). The Headquarters Airspace and Rules Group submits the NPRM for publication in the Federal Register with a 45-day comment period in accordance with Chapter 2 of this order.	
7. The Headquarters airspace specialist sends comments received on the NPRM to the Service Area airspace specialist for resolution.	
8. The Service Area airspace specialist then sends the completed package containing the response to comments, final service area recommendation, the proposal, Proponent's Final EA/FONSI or EIS/ROD, and the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD to the Headquarters Airspace and Rules Group for preparation of the Final Rule.	
9. The Headquarters airspace specialist forwards the draft final rule package or draft non-rulemaking case summary (NRCS) with all supporting documentation to the Headquarters Environmental Programs Group for review (after all aeronautical comments have been resolved).	9. The Headquarters environmental specialist reviews the package for environmental technical accuracy; then submits the environmental documentation to the Office of the Chief Counsel, Airports and Environmental Law Division, for legal sufficiency review (having collaborated throughout the process).
	10. The Chief Counsel's environmental attorney's comments are incorporated into the final FAA environmental decision and signed by Headquarters Environmental Programs Group Manager. The package is then returned to the Headquarters Airspace and Rules Group.
10. For Non-rulemaking: The non-rulemaking action is published in the National Flight Data Digest. 11. For Rulemaking: The Final Rule is published in the Federal Register. The Final Rule will contain a reference to the decision rendered and location of documentation for the associated environmental process.	

Consult the following documents throughout the process for further information:

- Council on Environmental Quality Regulations for Implementing the National Environmental Policy Act (NEPA), 40 CFR Parts 1500-1508
- FAA Order 1050.1E, "Environmental Impacts: Policies and Procedures"
- FAA Order 7400.2, "Procedures for Handling Airspace Matters," Part 5
- FAA Order 7400.2, Chapter 32, "Environmental Matters" and the associated appendixes (for specific SUA environmental direction)

NOTE: The time periods below are for a non-controversial aeronautical proposal and its associated environmental process. The time periods are for FAA review/processing only. Times for proponent and/or environmental contract support processing must be added.

ENVIRONMENTAL: The estimated time of completion for EA processing is 12 to 18 months or, for EIS processing, 18 to 36 months.

AERONAUTICAL (Non-Rulemaking): A minimum 4 months is required from submission of the Formal Airspace Proposal by the Proponent to the Service Area through completion of the circularization process. Additionally, a minimum of 6 months is required from submission of the Formal Airspace Proposal by the Service Area to Headquarters through completion of the charting process.

AERONAUTICAL (Rulemaking): A minimum 6 weeks for Service Area processing, and a minimum of 9 months to complete rulemaking once the formal package is received at Headquarters.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office
2105 Osuna Road NE
Albuquerque, New Mexico 87113
Telephone 505-346-2525 Fax 505-346-2542
www.fws.gov/southwest/es/newmexico/

January 12, 2018

Cons. #02ENNM00-2012-I-0065-R001

Shamekia N. Toliver, Lt. Col
Commander, 7th Civil Engineer Squadron
Department of the Air Force
710 3rd Street
Dyess Air Force Base, TX 79607

Dear Lt. Col. Tolivar,

Thank you for your November 14, 2017, letter requesting re-initiation of consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended, for the German Air Force Beddown (Consultation #2012-I-0065, June 7, 2012) in the Southwest (NM, TX, AZ). Your letter included a biological assessment (BA), dated November 2017 and hereby incorporated by reference, which analyzed the effects of the U.S. Air Force changing the direction of flight along existing Instrument Route (IR) 178 and a portion of IR-180/128 in Southeastern New Mexico. You concluded that implementation of the proposed action "may affect, is not likely to adversely affect" the Mexican spotted owl *(Strix occidentalis lucida)* (MSO), southwestern willow flycatcher *(Empidonax traillii extimus)*, and Northern aplomado falcon *(Falco femoralis septentrionalis)* within New Mexico.

The U.S. Air Force is proposing to utilize the existing IR-178 and a portion of IR-180/128 as training routes for aircrew members of the 7th Bomb Wing at Dyess Air Force Base (AFB). These routes would be used in the opposite direction, with alternate entry and exit points, from the proposed action identified in the previous consultation. The total number of aircraft operations would not exceed those authorized under the Realistic Bomber Training Initiative Record of Decision (Consultation #2-22-98-I-124, April 12, 2000).

Mexican spotted owl

The Service concurs with your determination of “may affect, is not likely to adversely affect” for the Mexican spotted owl. As background, Term and Condition 1.2.1 of the biological opinion for the German Air Force Beddown (Consultation #2-22-96-F-334, May

8, 1998) required the Air Force to conduct a study to determine the effects of low-altitude military jet aircraft overflights on the occupancy and nesting success of the MSO under Visual Route (VR) 176. The Air Force conducted a six-year study on the MSO to investigate whether low-flying F-16, T-38, and Tornado military jet aircraft affect the species. Overall, the study did not find any effects of military jet aircraft on MSO nesting success, habitat use, or activity center occupancy. Females were never observed flushing from nests in response to military jets or other low-flying aircraft. No effects of military jet aircraft activity were found on owl nesting success. In addition, the results of noise monitoring indicated that aircraft contributed little to the overall noise environment. This study and prior monitoring efforts were used to validate your determination for the previous BA associated with the 2012 consultation cited above. Since there will be no changes in the overall number of operations nor the altitude at which the B-1s fly from what was previously authorized within the IR-178, the effects to the MSO continue to be insignificant and discountable.

Southwestern willow flycatcher/Northern aplomado falcon

The Service concurs with your determination of "may affect, is not likely to adversely affect" for the Southwestern willow flycatcher and the Northern aplomado falcon within New Mexico. The Service bases this conclusion on the absence of changes in the overall number of operations or altitude at which the B-1s fly from what was previously authorized within the IR-178.

This concludes informal section 7 consultation with the U.S. Fish and Wildlife Service for implementation of the German Air Force Beddown. Please contact the Service if: 1) new information reveals changes to the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, 2) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not previously considered, or 3) a new species is listed or critical habitat designated that may be affected by the action.

Thank you for your concern for endangered species and New Mexico's wildlife habitats. If you have any questions, please contact Susan Pruitt of my staff at the letterhead address, by phone at (505)761-4707, or by electronic mail at mary_pruitt@fws.gov.

Sincerely,

Susan S. Millsap
Field Supervisor

cc: (electronic)

Natural Resources Manager, 7th Civil Engineer Squadron, Dyess Air Force Base, Texas
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division, Santa Fe, New Mexico

Literature Cited

U.S. Fish and Wildlife Service. 1998. Biological Opinion for The Proposed Expansion of the German Air Force. Consultation #2-22-96-F-334. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

U. S. Fish and Wildlife Service. 2000. Biological Opinion for Realistic Bombing Training Initiative. Consultation #2-22-98-I-124. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

U.S. Fish and Wildlife Service. 2012. Biological Opinion for the German Air Force Beddown. Consultation #2012-I-0065. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

From:	DOWNING, TOMMY J GS-11 USAF AFGSC 7 CES/CENPL
To:	Kathy Rose
Subject:	FW: [Non-DoD Source] Consultation No 02ETAU00-2017-CPA-0008, Dyess AFB Env. Assmnt Designate Instrument Route 187 and part of IR-180/128.
Date:	Thursday, August 03, 2017 3:53:34 PM

One down!

Tommy Downing, AICP
Community Planner
7 CES/CENPP
710 3rd St.
Dyess AFB, TX 79607
(325) 696-2050
DSN 461-2050

From: Connor, Patrick [mailto:patrick_connor@fws.gov]
Sent: Thursday, August 3, 2017 1:23 PM
To: DOWNING, TOMMY J GS-11 USAF AFGSC 7 CES/CENPL <tommy.downing@us.af.mil>
Subject: [Non-DoD Source] Consultation No 02ETAU00-2017-CPA-0008, Dyess AFB Env. Assmnt Designate Instrument Route 187 and part of IR-180/128.

Mr. Downing:

We assigned the consultation no. above to the NEPA review of the proposed changes to training routes for the 7th Bomb Wing. We have no comments and no objections to the proposed action as there appear to be no fish and wildlife trust resources affected by the change in training routes.

Thank you for coordinating with our office.

Patrick Connor, Fish and Wildlife Biologist

Patrick_Connor AT fws.gov

USFWS Ecological Services
10711 Burnet RD STE 200
Austin, TX 78758

http://www.fws.gov/southwest/es/austintexas/

DEPARTMENT OF THE AIR FORCE
7TH CIVIL ENGINEER SQUADRON (ACC)
710 3RD STREET
DYESS AIR FORCE BASE TEXAS 79607-1670

DEC 17 2010

MEMORANDUM FOR INTERESTED INDIVIDUALS, ORGANIZATIONS, PUBLIC GOUPS, AND GOVERNMENT AGENCIES

Texas Parks & Wildlife Dept.

FROM: 7 CES/ CEAN
710 Third Street
Dyess AFB TX 79607

DEC 20 2010

Wildlife Habitat Assessment Program

SUBJECT: Environmental Assessment (EA) for IR-187 at Dyess Air Force Base (AFB), Texas

1. The U.S. Air Force is preparing an Environmental Assessment to enhance training opportunities for B-1 aircrew members assigned to the 7th Bomb Wing at Dyess AFB, TX. Under the proposed action, existing training route IR-178 and a portion of IR-180 would be combined (IR-187) and additional entry and exit points established to permit aircrew members to fly in the opposite direction (east-to-west) of that currently permitted on IR-178 (west-to-east). B-1 aircraft operations would be split between IR-178 and IR-187 and, when combined, the proposed number of training operations would not exceed those currently authorized in the airspace. B-1 aircraft would fly no lower than 500 feet above ground level. No construction would occur in conjunction with the proposed action. The attached map shows the location of the proposed airspace.

2. This action would improve training opportunities for aircrew members by providing a new perspective on the best mountainous terrain in West Texas while taking advantage of existing low-level training routes. Additionally, the establishment of entry points closer to Dyess Air Force Base would shorten flying time and reduce expenses.

3. The EA will analyze impacts resulting from implementation of the proposed action while examining the potential for cumulative impacts when combined with past, present, and any future proposals.

4. As part of the environmental analysis, Dyess AFB or its contractor, TEC Inc., may contact you during data collection efforts. In advance, we thank you for your assistance in this activity. If you have any questions relative to the proposal, we would like to hear from you. Please contact me at (325) 696-5664.

David E. Laurence

DAVID E. LAURENCE, P.G.
Chief of Environmental

Attachment
Map of Proposed MTR IR-187

TEXAS

Based on the project description, the Wildlife Habitat Assessment Program does not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources.
Signed: Millie C. Wicker
Date: 12/14/2011

Global Power For America

(41)

TEXAS PARKS & WILDLIFE

Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744-3291

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Mr. David E. Laurence, P.G.
7 CES/CEAN (NEPA Program Manager)
710 3rd Street
Dyess AFB, TX 79607

LA*P531 79607

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

MEMORANDUM FOR DISTRIBUTION

JUN 29 2017

FROM: 7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

SUBJECT: Environmental Assessment (EA) to Designate Instrument Route 187 (IR-187) for Dyess Air Force Base (AFB), Texas

1. The U.S. Air Force is preparing an Environmental Assessment to enhance training opportunities for B-1 aircrew members assigned to the 7th Bomb Wing. Under the proposed action, existing Military Training Routes (MTRs), IR-178 and a portion of IR-180/128, would be used but flown the opposite direction and be designated as IR-187 with alternate entry and exit points established. The proposed action would allow aircrew members to train in the opposite direction (east-to-west) compared to that currently flown on IR-178 (west-to-east). The total number of aircraft operations would not change or exceed those currently authorized by the Realistic Bomber Training Initiative Record of Decision in 2000; the aircraft would just fly in an opposite direction. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed MTRs, regardless of the lower Federal Aviation Administration-charted floor altitude. The attached map depicts existing IR-178/180/128 and the proposed reciprocal IR-187. No new airspace and no changes in the total number of authorized aircraft operations are proposed. Also, there is no construction or personnel changes associated with this proposed action. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR-178 would remain unchanged.

2. By allowing flying in an opposite direction in existing low-altitude MTRs, this proposal would improve training by providing a new perspective for aircrew members on the mountainous terrain in West Texas. Additionally, the establishment of entry points closer to Dyess AFB would shorten flying time and thus reduce fuel consumption. The EA will analyze impacts resulting from implementing the proposed action while examining the potential for cumulative impacts when combined with past, present, and reasonably foreseeable projects.

3. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we solicit your comments concerning the proposal identified above and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that may create cumulative impacts in

association with the proposed action. Please provide any comments you may have within 30 days of receipt of this letter. If you have any questions regarding this proposal you may contact me at (325) 696-2121, or my action officer, Mr. Tommy Downing at (325) 696-2050.

DAVID M. BENSON, Colonel, USAF
Commander

Attachment
Map of Existing IR-178 and IR-180/128 and Proposed IR-187

DISTRIBUTION (listed on next page)

County Judge
Brewster County Commission
P.O. Box 482
Rankin, TX 79778

County Judge
Crane County Commission
201 W. 6th St.
Crane, TX 79731

County Judge
Culberson County Commission
300 N. Grant, Room 227
Odessa, TX 79761

County Judge
Ector County Commission
400 S Allen St., Ste. 100
Monahans, TX 79756

County Judge
Jeff Davis County Commission
P.O. Drawer Y
Kermit, TX 79745

County Judge
Loving County Commission
P.O. Box 193
Mentone, TX 79754

County Judge
Midland County Commission
P.O. Box 867
Pecos, TX 79772

County Judge
Pecos County Commission
P.O. Box 1857
Ozona, TX 76943

County Judge
Presidio County Commission
103 W. Callaghan
Fort Stockton, TX 79735

County Judge
Reagan County Commission
P.O. Box 1630
Alpine, TX 79831

County Judge
Reeves County Commission
P.O. Box 606
Marfa, TX 79843

County Judge
Sterling County Commission
P.O. Box 836
Fort Davis, TX 79734

County Judge
Tom Green County Commission
1806 25th Street, Ste. 200
Snyder, TX 79549

County Manager
Ward County Commission
100 North Main
Lovington, NM 88260

Chairman
Winkler County Commission
101 W. Greene Street
Carlsbad, NM 88220

The Honorable David Gallegos
New Mexico House of Representatives
P.O. Box 998
Eunice, NM 88231

Ms. Denise S. Francis
Director, State Grants Team
Governor's Office of Budget and Planning
P.O. Box 12428
Austin, TX 78711

Mr. Ken Hughes
Local Government Division
Bataan Memorial Building
407 Galisteo Street, Room 201
Santa Fe, NM 87503

Mr. Scott Pruitt
Regional Administrator
U.S. EPA Region VI
1445 Ross Ave., Ste 1200
Dallas, TX 75202

Mr. Carter Smith
Executive Director
Texas Parks and Wildlife
4200 Smith School Road
Austin, TX 78744

Ms. Winona Henry
Regional Director
Texas Commission on Environmental Quality
622 S. Oakes, Ste. K
San Angelo, TX 79603

Mr. Adam Zerrenner
Field Supervisor
USFWS Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, TX 78758

Mr. Wally Murphy
Field Supervisor
USFWS Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113

Mr. Mark Wolfe
SHPO
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Dr. Jeff Pappas
SHPO
Department of Cultural Affairs
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

The Honorable Chris Alexander
Mayor of Fort Stockton
P.O. Box 1000
Fort Stockton, TX 79735

The Honorable Ted Ward
Mayor Pro-tem of Monahans
112 W. 2nd Street
Monahans, TX 79756

The Honorable David Turner
Mayor of Odessa
411 W 8th Street, P.O. Box 4398
Odessa, TX 79760

The Honorable Venetta Seals
Mayor Pecos
P.O. Box 929
Pecos, TX 79772

The Honorable Daniel Dunlap
Mayor of Marfa
113 S. Highland Avenue
Marfa, TX 79843

The Honorable Andres "Andy" Ramos
Mayor of Alpine
100 N. 13th Street
Alpine, TX 79830

County Judge
Lea County Commission
P.O. Box 68
Sierra Blanca, TX 79851

County Judge
Eddy County Commission
P.O. Box 927
Van Horn, TX 79855

County Judge
Andrews County Commission
P.O. Box 100
Big Lake, TX 76932

The Honorable Ted Cruz
United States Senator
9901 IH-10W, Ste. 950
San Antonio, TX 78230

The Honorable John Cornyn
United States Senator
600 Navarro Street, Suite 200
San Antonio, TX 78205

The Honorable Martin Heinrich
United States Senator
200 East 4th Street, Ste. 300
Roswell, NM 88201

The Honorable Tom Udall
United States Senator
102 W. Hagerman Street, Ste. A
Carlsbad, NM 88220

The Honorable Jodey Arrington
US Representative
500 Chestnut Street, #819
Abilene, TX 79602

The Honorable Will Hurd
US Representative
1104 West 10th
Del Rio, TX 78840

The Honorable Mike Conaway
US Representative
33 Twohig, Suite 307
San Angelo, TX 76903

The Honorable Steve Pearce
US Representative
200 East Broadway, Suite 200
Hobbs, NM 88240

The Honorable Susana Martinez
Governor of New Mexico
490 Old Santa Fe Trail
Santa Fe, NM 87501

The Honorable Greg Abbott
Governor of Texas
1100 San Jacinto
Austin, TX 78701

The Honorable Carlos Uresti
Texas Senate
312 S. Cedar
Pecos, TX 79772

The Honorable Kel Seliger
Texas Senate
6 Desta Drive, Suite 3360
Midland, TX 79705

The Honorable Charles Perry
Texas Senate
36 West Beauregard #510
San Angelo, TX 76903

The Honorable José Rodriguez
Texas Senate
300 W. Columbia St., Room 102
Marfa, TX 79843

The Honorable Drew Darby
Texas House of Representatives
36 West Beauregard #517
San Angelo, TX 76903

The Honorable Alfonso "Poncho" Nevárez
Texas House of Representatives
117 Ogden Street
Del Rio, TX 78840

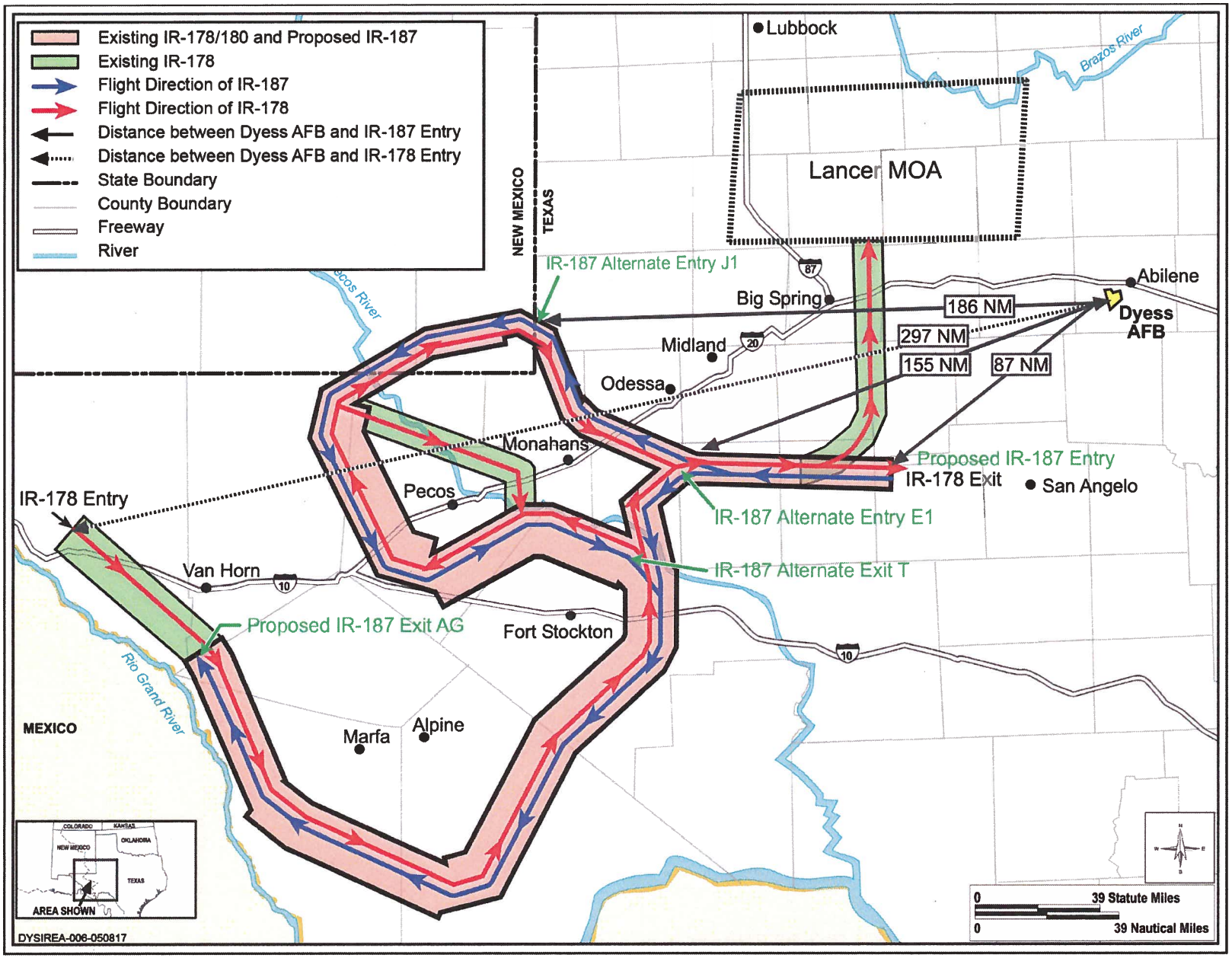
The Honorable Brooks Landgraf
Texas House of Representatives
P.O. Box 2910
Austin, TX 78768

The Honorable Tom Craddick
Speaker of the Texas House of Representatives
500 West Texas, Suite 880
Midland, TX 79701

The Honorable Carroll Leavell
New Mexico Senate
P.O. Drawer D
Jal, NM 88252

The Honorable Cathrynn Brown
New Mexico House of Representatives
1814 North Guadalupe
Carlsbad, NM 88220

Attachment 1



Existing IR-178/180 and Proposed IR-187

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

MEMORANDUM FOR DISTRIBUTION wg 106079 JRE JUN 29 2017

FROM: 7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

SUBJECT: Environmental Assessment (EA) to Designate Instrument Route 187 (IR-187) for Dyess Air Force Base (AFB), Texas

1. The U.S. Air Force is preparing an Environmental Assessment to enhance training opportunities for B-1 aircrew members assigned to the 7th Bomb Wing. Under the proposed action, existing Military Training Routes (MTRs), IR-178 and a portion of IR-180/128, would be used but flown the opposite direction and be designated as IR-187 with alternate entry and exit points established. The proposed action would allow aircrew members to train in the opposite direction (east-to-west) compared to that currently flown on IR-178 (west-to-east). The total number of aircraft operations would not change or exceed those currently authorized by the Realistic Bomber Training Initiative Record of Decision in 2000; the aircraft would just fly in an opposite direction. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed MTRs, regardless of the lower Federal Aviation Administration-charted floor altitude. The attached map depicts existing IR-178/180/128 and the proposed reciprocal IR-187. No new airspace and no changes in the total number of authorized aircraft operations are proposed. Also, there is no construction or personnel changes associated with this proposed action. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR-178 would remain unchanged.

2. By allowing flying in an opposite direction in existing low-altitude MTRs, this proposal would improve training by providing a new perspective for aircrew members on the mountainous terrain in West Texas. Additionally, the establishment of entry points closer to Dyess AFB would shorten flying time and thus reduce fuel consumption. The EA will analyze impacts resulting from implementing the proposed action while examining the potential for cumulative impacts when combined with past, present, and reasonably foreseeable projects.

3. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we solicit your comments concerning the proposal identified above and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that may create cumulative impacts in

association with the proposed action. Please provide any comments you may have within 30 days of receipt of this letter. If you have any questions regarding this proposal you may contact me at (325) 696-2121, or my action officer, Mr. Tommy Downing at (325) 696-2050.

DAVID M. BENSON, Colonel, USAF
Commander

Attachment
Map of Existing IR-178 and IR-180/128 and Proposed IR-187

DISTRIBUTION (listed on next page)

COMMENTS:

John R Eckt July 31, 2017
for NM State Historic Preservation Office

NM SHPO has no concerns!

From: Estes, Bob, DCA
To: DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL
Subject: [Non-DoD Source] IR 187 EA
Date: Thursday, January 4, 2018 1:36:09 PM

Dear Mr. Downing,

It is the New Mexico State Historic Preservation Officer's opinion that the proposed undertaking described for IR 187 has no potential to affect historic properties.

Dyess Air Force Base needs no additional consultation with the NM SHPO under Section 106 of the National Historic Preservation Act

If you have any questions or comments, please feel free to call me directly at 505-827-4225 or email me.

Sincerely,

Bob Estes Ph.D.
HPD Staff Archaeologist
New Mexico State Historic Preservation Division
407 Galisteo St., Suite 236
Santa Fe, New Mexico 87501

-----Original Message-----
From: DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL [mailto:tommy.downing@us.af.mil]
Sent: Thursday, January 04, 2018 12:12 PM
To: Estes, Bob, DCA
Subject: RE: Scanned from a Xerox Multifunction Device

Mr. Estes,

Thank you very much. Our legal counsel advised sending the November letter because we had not specifically requested a Section 106 review in the June memo, which was sent to fulfill our responsibilities under EO 12372, Intergovernmental Review of Federal Programs.

May I now assume that you have consulted per Section 106 of the NHPA?

I sincerely appreciate your patience on this issue.

Tommy Downing, AICP
Community Planner
7 CES/CENPP
710 3rd St.
Dyess AFB, TX 79607
(325) 696-2050

-----Original Message-----
From: Estes, Bob, DCA [mailto:Bob.Estes@state.nm.us]
Sent: Thursday, January 4, 2018 12:11 PM
To: DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL <tommy.downing@us.af.mil>
Subject: [Non-DoD Source] FW: Scanned from a Xerox Multifunction Device

Dear Mr. Downing,

Please find attached to this email the New Mexico State Historic Preservation Officer's response to the IR 187 EA.

If you have any questions or comments. please feel free to call me directly at 505-827-4225 or email me.

Sincerely,

Bob Estes Ph.D.
HPD Staff Archaeologist
New Mexico State Historic Preservation Division
407 Galisteo St., Suite 236
Santa Fe, New Mexico 87501

-----Original Message-----
From: HPDXerox@state.nm.us [mailto:HPDXerox@state.nm.us]
Sent: Thursday, January 04, 2018 10:53 AM
To: Estes, Bob, DCA
Subject: Scanned from a Xerox Multifunction Device

Please open the attached document. It was scanned and sent to you using a Xerox Multifunction Device.

Attachment File Type: pdf, Multi-Page

Multifunction Device Location: machine location not set
Device Name: HPD_Xerox_WorkCentre_5945

For more information on Xerox products and solutions, please visit http://www.xerox.com

Tommy Downing

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

JUN 29 2017

MEMORANDUM FOR DISTRIBUTION

FROM: 7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

SUBJECT: Environmental Assessment (EA) to Designate Instrument Route 187 (IR-187) for Dyess Air Force Base (AFB), Texas

1. The U.S. Air Force is preparing an Environmental Assessment to enhance training opportunities for B-1 aircrew members assigned to the 7th Bomb Wing. Under the proposed action, existing Military Training Routes (MTRs), IR-178 and a portion of IR-180/128, would be used but flown the opposite direction and be designated as IR-187 with alternate entry and exit points established. The proposed action would allow aircrew members to train in the opposite direction (east-to-west) compared to that currently flown on IR-178 (west-to-east). The total number of aircraft operations would not change or exceed those currently authorized by the Realistic Bomber Training Initiative Record of Decision in 2000; the aircraft would just fly in an opposite direction. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed MTRs, regardless of the lower Federal Aviation Administration-charted floor altitude. The attached map depicts existing IR-178/180/128 and the proposed reciprocal IR-187. No new airspace and no changes in the total number of authorized aircraft operations are proposed. Also, there is no construction or personnel changes associated with this proposed action. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR-178 would remain unchanged.

2. By allowing flying in an opposite direction in existing low-altitude MTRs, this proposal would improve training by providing a new perspective for aircrew members on the mountainous terrain in West Texas. Additionally, the establishment of entry points closer to Dyess AFB would shorten flying time and thus reduce fuel consumption. The EA will analyze impacts resulting from implementing the proposed action while examining the potential for cumulative impacts when combined with past, present, and reasonably foreseeable projects.

3. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we solicit your comments concerning the proposal identified above and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that may create cumulative impacts in

DEATH FROM ABOVE

NO HISTORIC PROPERTIES AFFECTED
PROJECT MAY PROCEED
by Justa Kalnitz
for Mark Wolfe
State Historic Preservation Officer
7/19/2017

association with the proposed action. Please provide any comments you may have within 30 days of receipt of this letter. If you have any questions regarding this proposal you may contact me at (325) 696-2121, or my action officer, Mr. Tommy Downing at (325) 696-2050.

DAVID M. BENSON, Colonel, USAF
Commander

Attachment
Map of Existing IR-178 and IR-180/128 and Proposed IR-187

DISTRIBUTION (listed on next page)

From: Cynthia Guillen
To: Bill Martin; DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL
Subject: [Non-DoD Source] RE: Follow-up Request for Sec 106 Consultation for Dyess AFB
Date: Friday, January 5, 2018 11:02:56 AM
Attachments: image006.png
image007.png
Importance: High

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

NOV 14 2017

MEMORANDUM FOR Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

FROM: 7th Civil Engineer Squadron
710 3rd Street
Dyess Air Force Base, TX 79607

SUBJECT: Request for Section 106 Informal Consultation Regarding the Designation of IR-187 for Dyess Air Force Base, Texas

1. DESCRIPTION OF THE UNDERTAKING: Under the proposed action, existing IR-178 and a portion of IR-180/128 would be used in an opposite direction and alternate entry and exit points designated. The proposed action allows aircrew members to train in the opposite direction (east-to-west) compared to that currently flown on IR-178/180 (west-to-east). The total number of aircraft operations would not change or exceed those currently authorized by the Realistic Bomber Training Initiative Record of Decision in 2000; the aircraft would just fly in an opposite direction. B-1 aircraft will continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitudes. Attachment 1 depicts existing IR-178/180/128 and proposed IR-187. No new airspace or changes in the total number of authorized aircraft operations are proposed nor would there be construction or personnel changes. Under the no-action alternative, aircraft will continue to fly in a west-to-east direction, the authorized number of aircraft operations in IR-178 and a portion of IR-180/128 will remain unchanged, and no additional entry or exit points will be designated.

2. AREA OF POTENTIAL EFFECT (APE): Pursuant to Section 106 of the National Historic Preservation Act (NHPA), the Air Force identified and evaluated the APE, which encompasses the area underlying existing IR-178/180/128 and proposed reciprocal IR-187 (see Attachment 1).

3. IDENTIFICATION OF HISTORIC PROPERTIES:

a. Six National Register properties in Texas (none in New Mexico) are located in the APE: Hudspeth County Courthouse, Old Reagan County Courthouse, as well as El Fortin del Cibolo Historic District, Shafter Historic Mining District, Fortin de la Cienega, and La Morita Historic District located near Shafter, Texas in Presidio County. No prehistoric National Register of Historic Properties-listed sites are located under existing IR-178/180/128 and proposed IR-187 airspace.

b. While traditional cultural properties have not been recognized to date, the Air Force has notified the Mescalero Apache, Apache Tribe of Oklahoma, Caddo Nation, Comanche Nation of Oklahoma, Kiowa Tribe of Oklahoma, Tonkawa Tribe of Oklahoma, Fort Sill Apache Tribe of Oklahoma, Wichita and Affiliated Tribes, Ysleta Del Sur Pueblo of Texas, and the Kickapoo Traditional Tribes of Texas about the proposed action.

4. DETERMINATION OF EFFECT: Pursuant to 36 CFR 800.4(d)(1), the Air Force has initially determined that the undertaking will have *no effect* (directly or indirectly) on historic architectural or archaeological resources. Under the proposed action, there would be no perceptible changes in the existing acoustic environment as no additional aircraft operations are proposed nor have the altitudes at which aircraft fly been altered. Over the last 17 years (since IR-178 was created under the Realistic Bomber Training Initiative), these historic properties have experienced overflights by military aircraft. To our knowledge neither the noise nor the visual presence of these overflights has affected the National Register-eligibility status of these properties. In accordance with Section 106, the Air Force respectfully requests your concurrence with the *no effect* determination for this undertaking within 30 days after receipt of this letter. If no response is received, the Air Force will presume that the SHPO concurs with its findings of effect.

5. Please send written comments in care of: Stephanie Martinez, Cultural Resources Manager, 325-696-1437, stephanie.martinez@us.af.mil.

SHAMEKIA N. TOLIVER, Lt Col, USAF
Commander, 7th Civil Engineer Squadron

Attachment:
1. Area of Potential Effect under Existing IR-178/180/128 and Proposed IR-187

CONCUR
by Justin Kockritz
for Mark Wolfe
Executive Director, THC
Date 12/6/2017
Track# 201904575

Cynthia Guillen
Project Coordinator
Archeology Division
Texas Historical Commission
P.O. Box 12276

Austin, TX 78711-2276
512.463.5394
www.thc.texas.gov

TEXAS HISTORICAL COMMISSION
real places telling real stories

From: Bill Martin
Sent: Thursday, January 04, 2018 1:35 PM
To: Cynthia Guillen
Subject: FW: Follow-up Request for Sec 106 Consultation for Dyess AFB

Can you please look into this and forward anything we have? Thanks.

From: Mark Wolfe
Sent: Thursday, January 4, 2018 1:18 PM
To: Bill Martin <Bill.Martin@thc.texas.gov>
Subject: Fwd: Follow-up Request for Sec 106 Consultation for Dyess AFB

Mark Wolfe
Executive Director
State Historic Preservation Officer
Texas Historical Commission

Sent from my iPhone

Begin forwarded message:

> **From:** "DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL" <tommy.downing@us.af.mil>
> **Date:** January 4, 2018 at 11:05:36 AM CST
> **To:** "mark.wolfe@thc.texas.gov" <mark.wolfe@thc.texas.gov>
> **Cc:** "MARTINEZ, STEPHANIE G CTR USAF AFGSC 7 CES/CEIE" <stephanie.martinez.18.ctr@us.af.mil>
> **Subject: Follow-up Request for Sec 106 Consultation for Dyess AFB**
>
> Mr. Wolfe,
>
> The purpose of this e-mail is to follow-up on the attached correspondence your office received from us in late November. (Our return receipt shows that the TX Comptroller Mall received the memo on 30 November.) To my chagrin I have just learned that the e-mail address we provided for Ms. Martinez, cc-ed above, was incorrect.
>
> I suspect you have already responded to our request. If so, would you please re-send to myself and Ms. Martinez. Should you have any questions or concerns please do not hesitate to contact us.
>
> Very Respectfully,
>
> Tommy Downing, AICP
> Community Planner
> 7 CES/CENPP
> 710 3rd St.
> Dyess AFB, TX 79607
> (325) 696-2050

Government-to-Government Consultation

Government to Government Consultation Status

Prefix	*First*	*Last*	*Title*	*Organization Name*	*Follow-up*
Mr.	Bobby	Komardly	Chairman	Apache Tribe of Oklahoma	5 Jan 18: left phone message for tribal administrator. To date, no further response received.
Ms.	Phil	Cross	Cultural Preservation Officer/Acting TPHO	Caddo Nation of Oklahoma	5 Jan 18: called Mr. Cross responded with a completed form and notice that there were no Caddo interests in the areas under consideration.
Mr.	William	Nelson	Chairman	Comanche Nation of Oklahoma	24 Aug 17: received response letter from Comanche Nation of Oklahoma indicating there are no concerns.
Ms.	Martina	Callahan	THPO	Comanche Nation of Oklahoma	
Mr.	Jeff	Haozous	Chairman	Fort Sill Apache Tribe of Oklahoma	5 Jan 18, 0913: left message for person that handles NHPA consultations. To date, no further response received.
Mr.	Estavio	Elizondo	Chairman	Kickapoo Traditional Tribes of Texas	28 Jul 17: received response letter from Kickapoo Traditional Tribes indicating there are no concerns.
Ms.	Bessie	Scott	Legal Dept.	Kickapoo Traditional Tribes of Texas	
Mr.	Matthew	Komalty	Chairman	Kiowa Tribe of Oklahoma	3 Aug 17: received email from Kiowa Tribe of Oklahoma indicating there are no concerns.
Ms.	Ivy	Smith	THPO	Kiowa Tribe of Oklahoma	
Ms.	Holly	Houghten	THPO	Mescalero Apache Tribe of the Mescalero Reservation	5 Jan 18: left voicemail for THPO. To date, no further response received.
Ms	Theresa	Mills	Environmental Coordinator	Tonkawa Tribe of Oklahoma	5 Jan 18: called Ms. Mills and exchanged e-mails. She is forwarding the letter to the Tribal Administrator for follow-up/action. To date, no further response received.
Ms.	Lauren	Brown	NAGPRA Coordinator	Tonkawa Tribe of Oklahoma	5 Jan 18: Ms. Brown e-mailed to state she would accomplish the consultation by 8 Jan 18. To date, no further response received.
Mr.	Terri	Parton	President	Wichita and Affiliated Tribes	4 Jan 18: called main number and left a message with the receptionist for the responsible person to call me. To date, no further response received.
Mr.	Evarispo	Cruz	Assistant Dir of Community Development	Ysleta Del Sur Pueblo	4 Jan 18: called the main number and was referred to Mr. Cruz who was not in. Called Mr. Cruz again 5 Jan 18 and left a message on his voicemail. To date, no further response received.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairman Bobby Komardly
Apache Tribe of Oklahoma
P.O. Box 1330
Anadrarko, OK 73005

Dear Chairman Komardly

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Apache Tribe of Oklahoma to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Apache Tribe of Oklahoma has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Apache Tribe of Oklahoma during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairperson/THPO Tammy Francis-Fourkiller
Caddo Nation
P.O. Box 487
Binger, OK 73009

Dear Chairperson/THPO Francis-Fourkiller

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Caddo Nation to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Caddo Nation has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Caddo Nation during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

From: pcross@caddonation.org
To: DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL
Subject: [Non-DoD Source] RE: Request for Section 106 Consultation and NEPA notification
Date: Friday, January 5, 2018 10:55:13 AM
Attachments: Dyes AFB response Jan 5 2017 c.pdf

Mr. Downing,
Attached is the signed Response Form of "We do not have concerns" for the project at Dyess AFB Tx. This location is far from our area of interest and we feel it is very unlikely that any discoveries will be that of Caddo but if so that we should be immediately notified.

Phil Cross
Culture Preservation Officer, Acting THPO
Caddo Nation of Oklahoma
P.O. Box 487
Binger, Ok 73009
Tel 405-656-2344 x2068

-----Original Message-----
From: DOWNING, TOMMY J GS-12 USAF AFGSC 7 CES/CENPL [mailto:tommy.downing@us.af.mil]
Sent: Friday, January 5, 2018 9:34 AM
To: pcross@caddonation.org
Subject: Request for Section 106 Consultation and NEPA notification

Mr. Cross,

I sincerely appreciate your consideration of our proposed action. Please reply to this mail so that I know you received it. Please feel free to e-mail me your response instead of using the reply form attached to the letter.

Should you have any questions, comments or wish to discuss other issues related to Dyess lands or airspace please do not hesitate to contact me.

Very Respectfully,

Tommy Downing, AICP
Community Planner
7 CES/CENPP
710 3rd St.
Dyess AFB, TX 79607
(325) 696-2050

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

✓ I/We do not have concerns.

_____ I/We do have concerns and would like to be contacted. You may contact us at the following: _____

_____

_____

_____ I/We do have concerns. They are outlined below.

_____

_____

_____

_____

_____

_____

_____ I/We would like to be included in the distribution of the Environmental Assessment related to this project.

_____ I/We would like to be included in a face-to-face meeting, and are available at the following times/dates.

LETTER SENT TO:
Tammy Francis-Fourkiller
Chairperson/THPO
Caddo Nation
P.O. Box 487
Binger, OK 73009

NAME AND ADDRESS (if different from addressee):

_____

_____

_____

_____

_____

Phillip R Thom — 1-5-18

Signature — Date

Acting THPO

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

JUN 2 8 2017

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

THPO Susan Nahwooksy
Comanche Nation of Oklahoma
P.O. Box 908
Lawton, OK 73502

Dear THPO Nahwooksy

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Comanche Nation of Oklahoma to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Comanche Nation of Oklahoma has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Comanche Nation of Oklahoma during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

COMANCHE NATION

Department of the Air Force, HQ'S 7th Bomb Wing (AFGSC)
Attn: Mr. Tommy Downing
710 Third Street, Building #8006
Texas 79607

August 24, 2017

Re: IR-187 Environmental Assessment
Dyess Air Force Base, Texas

Dear Mr.Downing :

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***"No Properties"*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 595-9960/9618 if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana ,Technician
#6 SW "D" Avenue , Suite C
Lawton, OK. 73502

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairman Wallace Coffey
Comanche Nation of Oklahoma
584 North West Bingto Road
Lawton, OK 73507

Dear Chairman Coffey

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

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We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairman Jeff Houser
Fort Sill Apache Tribe of Oklahoma
43187 U.S. Hwy 281
Apache, OK 73006

Dear Chairman Houser

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

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Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Fort Sill Apache Tribe of Oklahoma to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Fort Sill Apache Tribe of Oklahoma has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Fort Sill Apache Tribe of Oklahoma during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

RESPONSE FORM

IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

_______________ I/We do not have concerns.

_______________ I/We do have concerns and would like to be contacted. You may contact us at the following: ____

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_______________ I/We do have concerns. They are outlined below.

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_______________ I/We would like to be included in the distribution of the Environmental Assessment related to this project.

_______________ I/We would like to be included in a face-to-face meeting, and are available at the following times/dates.

- -

LETTER SENT TO:

Jeff Houser

Chairman

Fort Sill Apache Tribe of Oklahoma

43187 U.S. Hwy 281

Apache, OK 73006

NAME AND ADDRESS (if different from addressee):

____

____

____

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Signature Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairman Juan Garza
Kickapoo Traditional Tribes of Texas
HC 1, Box 9700
Eagle Pass, TX 78852

Dear Chairman Garza

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Kickapoo Traditional Tribes of Texas to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Kickapoo Traditional Tribes of Texas has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Kickapoo Traditional Tribes of Texas during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

TRADITIONAL
COUNCIL

CHAIRMAN
Estavio Elizondo, Menikapah

SECRETARY
David Valdez, Sr., Pietoetaka

TREASURER
David Treviño, Wepikaoda

MEMBER
Kendall R. Scott, Metaa

KICKAPOO
TRADITIONAL TRIBE OF TEXAS

2212 Rosita Valley Rd.
Eagle Pass, Texas 78852

TRIBAL COUNCIL

July 28, 2017

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

Re: Proposal for re-designating the existing IR-178 and a portion of IR-180 as IR-187

Dear Colonel Benson:

Our office is in receipt of your letter dated June 28, 2017, regarding the Environmental Assessment that the United States Air Force is preparing for the proposed action which would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187.

In response to your letter we advise you that the Kickapoo Traditional Tribe of Texas does not own land in the Area of Potential Effect (APE) for the proposed undertaking depicted on your Attachment 1, nor would the project affect any of the Tribe's historic or sacred sites that we are aware of. Nevertheless, the Tribe appreciates the opportunity it was granted to comment on the project described in your letter. Additionally, we have completed and are returning the response form attached to your letter.

Should you have any questions, please do not hesitate to contact this office at (830) 421-5987.

Respectfully,

Bessie R. Scott
Office Manager
KTTT Legal Department

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

✓ I/We do not have concerns.

____ I/We do have concerns and would like to be contacted. You may contact us at the following: _____

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____ I/We do have concerns. They are outlined below.

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____ I/We would like to be included in the distribution of the Environmental Assessment related to this project.

____ I/We would like to be included in a face-to-face meeting, and are available at the following times/dates.

LETTER SENT TO:

Juan Garza
Chairman
Kickapoo Traditional Tribes of Texas
HC 1, Box 9700
Eagle Pass, TX 78852

NAME AND ADDRESS (if different from addressee):

Estavio Elizondo
Chairman
Kickapoo Traditional Tribe of Texas
2212 Rosita Valley Rd.
Eagle Pass, TX 78852

Bonnie R. Scott
Signature Legal Dept.

7/28/2017
Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Chairman Matthew Komalty
Kiowa Tribe of Oklahoma
P.O. Box 369
Carnegie, OK 73015

Dear Chairman Komalty

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

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Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Kiowa Tribe of Oklahoma to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

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We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

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Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

From: Ivy Smith
To: DOWNING, TOMMY J GS-11 USAF AFGSC 7 CES/CENPL
Cc: Kellie J. Lewis
Subject: [Non-DoD Source] Kiowa Tribe Response: Dyess AFB
Date: Thursday, August 3, 2017 9:56:29 PM
Attachments: Dyess AFB signed.pdf

Good evening Tommy,

Our office is in receipt of correspondence dated June 28, 2017, from Dyess Air Force Base Texas, regarding changes to military training routes (IR-178, IR-180 & IR-187).

Attached you will find the signed response form from the correspondence. Please continue to keep the Kiowa Tribe updated on projects at Dyess AFB.

Have a great weekend,

Ivy Smith
Assistant Acting THPO
Kiowa Tribe Office of Historic Preservation

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

_____ I/We do not have concerns.

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X ds I/We would like to be included in the distribution of the Environmental Assessment related to this project.

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LETTER SENT TO:

Matthew Komalty
Chairman
Kiowa Tribe of Oklahoma
P.O. Box 369
Carnegie, OK 73015

NAME AND ADDRESS (if different from addressee):

Ivy Smith
Assist. Acting THPO
Kiowa Tribe of Oklahoma
PO Box 50
Carnegie, OK 73015

Ivy Smith
Signature

Aug 1 2017
Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

THPO Holly Houghten
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Dear THPO Houghten

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

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Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Mescalero Apache Tribe to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Mescalero Apache Tribe has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Mescalero Apache Tribe during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

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LETTER SENT TO:

Danny Breuinger

President

Mescalero Apache Tribe

P.O. Box 227

Mescalero, NM 88340

NAME AND ADDRESS (if different from addressee):

_____

_____

_____

_____

_____

Signature Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

JUN 2 8 2017

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

President Danny Breuinger
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Dear President Breuinger

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The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Mescalero Apache Tribe to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Mescalero Apache Tribe has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Mescalero Apache Tribe during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

_____ I/We do not have concerns.

_____ I/We do have concerns and would like to be contacted. You may contact us at the following: _____

_____

_____ I/We do have concerns. They are outlined below.

_____

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_____ I/We would like to be included in the distribution of the Environmental Assessment related to this project.

_____ I/We would like to be included in a face-to-face meeting, and are available at the following times/dates.

LETTER SENT TO:

Holly Houghten

THPO

Mescalero Apache Tribe

P.O. Box 227

Mescalero, NM 88340

NAME AND ADDRESS (if different from addressee):

_____

_____

_____

_____

_____

Signature Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

President Russell Martin
Tonkawa Tribe of Oklahoma
1 Rush Buffalo Rd.
Tonkawa, OK 74653

Dear President Martin

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

The proposed action would allow aircrew members to train using the existing IR-178 (west-to-east) or, alternatively, fly in the opposite direction (east-to-west) using IR-187. Overall, the total number of combined aircraft operations would not exceed the number of operations authorized in the current airspace. B-1 aircraft would continue to fly no lower than 500 feet above ground level within the existing and proposed military training routes (MTRs), regardless of the Federal Aviation Administration's charted floor altitude.

The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Tonkawa Tribe of Oklahoma to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

Based on reviewing previously completed cultural resource inventories, the Air Force is unaware of any archaeological resources, traditional cultural properties, and/or historic properties of religious and cultural significance within the APE. To ensure our consideration is complete, we request your assistance in helping us identify whether the Tonkawa Tribe of Oklahoma has historic properties of religious and cultural significance or other archaeological and/or traditional cultural properties in any of the depicted areas for the proposed IR-187. To facilitate meaningful consultation, we request that you review the attached materials and provide any additional information that you would like us to consider. For the Air Force to appropriately address any concerns of interest to the Tonkawa Tribe of Oklahoma during the preparation of the EA, it would be helpful to receive any comments within 30 days of your receipt of this letter.

We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

TONKAWA TRIBE OF OKLAHOMA
NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT (NAGPRA)
1 RUSH BUFFALO ROAD – PHONE (580) 628-2561 – FAX (580) 628-2279
TONKAWA, OKLAHOMA 74653
www.tonkawatribe.com

January 8, 2018

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
Attn: David Benson, Colonel, USAF Commander
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

Re: Section 106 Request for Consultation: Enhance Training on Military Routes, Proposed IR-187, 7th Bomb Wing (7BW), Headquartered - Abilene, Taylor County, Texas

Dear Colonel Benson:

On behalf of President Russell L. Martin and the Tonkawa Tribe of Oklahoma (TTO) in regards to the *Section 106 Request for Consultation reinitiating the proposal to enhance opportunities for B-1 aviators assigned to the new undertaking of the Air force proposing re-designating the existing IR (Instrument Route) 178 and a portion of IR-180 as "IR-187"for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route. Inconsideration that no additional airspace and no changes in the total number of authorized aircraft operations are proposed. Thorough review for enhanced training opportunities for aviators and re-designation of exist(s)/entry(s), TTO concurs with the Air Force Environmental Impact Analysis Process, compliance with National Environmental Policy Act (NEPA) and the regulations of the President's Council on Environmental Quality, in addition that there will be no construction of the Area of Potential Effect (APE) no adverse effects would arise to any historic sites; 7th Bomb Wing, Dyess Air force Base Texas;* TTO submits the following:

The Tonkawa Tribe has no specifically designated historical, religious and/or cultural significance in the Proposed Project Area: *however*, if any human remains, funerary objects, or other evidence of historical or cultural significance is inadvertently discovered then the Tonkawa Tribe would certainly be interested in proper disposition thereof.

We appreciate the notification received from your office. The Tonkawa Tribe is willing to work with you and your representatives in any manner to uphold the provisions of NAGPRA to the extent of our capabilities as well as yours. Great success on such a *wonderful project and to those it will serve*.

Respectfully,

Lauren J. Norman-Brown
NAGPRA Coordinator/Consultant (580) 628-7027

lbrown@tonkawatribe.com

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

President Terri Parton
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear President Parton

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

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The Air Force is preparing an Environmental Assessment (EA) for the proposed action, which matches the undertaking, in compliance with the National Environmental Policy Act (NEPA), the implementing regulations of the President's Council on Environmental Quality (40 CFR Part 1500) and the Air Force "The Environmental Impact Analysis Process" (32 CFR Part 989). No additional airspace and no changes in the total number of authorized aircraft operations are proposed, nor would there be any construction or establishment of impact areas. Under the no-action alternative, aircraft would continue to fly in a west-to-east direction, no additional entry or exit points would be designated, and the authorized number of aircraft operations in IR 178/180 would remain unchanged.

Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Wichita and Affiliated Tribes to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

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We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

Please take this opportunity to complete the response form (Attachment 2), which can be filled out to identify your tribe's interest in consulting about the undertaking/proposed action and to facilitate further communication on the matter. Upon completion, please return the form to us in the provided stamped and addressed envelope. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
1. IR-187 Proposed MTR
2. Response Form

RESPONSE FORM
IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

_____ I/We do not have concerns.

_____ I/We do have concerns and would like to be contacted. You may contact us at the following: _____

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_____ I/We would like to be included in a face-to-face meeting, and are available at the following times/dates.

LETTER SENT TO:

Terri Parton

President

Wichita and Affiliated Tribes

P.O. Box 729

Anadarko, OK 73005

NAME AND ADDRESS (if different from addressee):

_____

_____

_____

_____

_____

Signature Date

Atch 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH BOMB WING (AFGSC)
DYESS AIR FORCE BASE TEXAS

Colonel David Benson
7th Bomb Wing
7 Lancer Loop, Suite 107
Dyess AFB TX 79607

JUN 2 8 2017

Governor Carlos Hisa
Ysleta Del Sur Pueblo of Texas
P.O. Box 17579
El Paso, TX 79907

Dear Governor Hisa

The United States Air Force (Air Force) is reinitiating the proposal to enhance training opportunities for B-1 aviators assigned to the 7th Bomb Wing (7 BW) at Dyess Air Force Base (AFB), Texas. Currently, aircrew members conduct low-level flight training primarily on the military training route designated as Instrument Route-178 (IR-178). Under the new undertaking, the Air Force proposes re-designating the existing IR 178 and a portion of IR-180 as IR-187 for the purpose of flying in the opposite direction and establishing alternate entry and exit points for aircraft to enter and leave the route.

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Additionally, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, we would like to initiate government-to-government consultation with the Ysleta Del Sur Pueblo of Texas to provide an opportunity to exchange information, ask questions, and advise us of any concerns or suggestions you may have regarding the undertaking. Attachment 1, IR-187 Proposed MTR, depicts existing IR-178/180 and the proposed reciprocal IR-187, which is provided for your information and review. The document defines the Area of Potential Effect (APE) for the proposed undertaking.

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We look forward to consulting with you on any concerns that you may have with the proposed undertaking. My staff will be contacting your office by telephone to discuss this project and any potential impacts. For questions, comments, or input, please contact me directly at 325 696-2863, or my designated Tribal Liaison, Mr. Tommy Downing, 7 CES/CENPL, 710 Third Street, Building #8006, Dyess AFB, TX 79607, 325-696-2050, tommy.downing@us.af.mil.

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Sincerely

DAVID M. BENSON, Colonel, USAF
Commander

Attachments:
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2. Response Form

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IR-187 ENVIRONMENTAL ASSESSMENT, DYESS AIR FORCE BASE, TEXAS

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LETTER SENT TO:

Carlos Hisa

Governor

Ysleta Del Sur Pueblo of Texas

P.O. Box 17579

El Paso, TX 79907

NAME AND ADDRESS (if different from addressee):

_____

_____

_____

_____

_____

Signature Date

Atch 2

Appendix B:
Aircraft Operations

Annual Sorties for Proposed Action IR-178

IR-178 Segment	B-1B			B-52H			Other												Total IR-178		
							F-16			C-17			C-130[1]			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B (IR-180)																					
AG-AH	27	12	39	5	1	6	1	1	2	1	1	2	1	1	2	3	-	3	38	16	54
AF-AG																					
AE-AF																					
OA-AE1	20	10	30	5	1	6	1	1	2	1	1	2	1	1	2	3	-	3	31	14	45
O1-OA																					
AD-AE																					
AC-AD	10	5	15	3	1	4	2	1	3	2	1	3	2	1	3	2	1	3	21	10	31
AB-AC																					
AA-AB																					
Z-AA																					
Y-Z																					
X-Y	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
W-X																					
V-W																					
U-V																					
T-U	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
S-T																					
R-S																					
Q-R	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
P-Q																					
O-P	100	30	130	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	37	171
N-O	418	50	468	10	2	12	6	6	12	6	2	8	12	1	13	12	-	12	464	61	525
M-N																					
L-M																					
K-L																					
J-K																					
I-J																					
H-I	418	50	468	10	2	12	6	6	12	6	2	8	12	1	13	12	-	12	464	61	525
G-H																					
F-G																					
E-F																					
D-E																					
C-D																					

Annual Sorties for Proposed Action IR-187

IR-187 Segment	B-1B			B-52H			Other												Total IR-187		
							F-16			C-17			C-130[1]			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B	890	208	1,098	15	3	18	13	1	14	12	1	13	12	1	13	10	-	10	952	214	1,166
B-C																					
C-D																					
D-E																					
E-EA	700	162	862	15	3	18	13	1	14	12	1	13	12	1	13	10	-	10	762	168	930
(incl E1)																					
EA-U1																					
E-F	176	38	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176	38	214
F-G																					
G-H																					
H-I (incl J1)																					
I-J	1,059	264	1,323	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,098	266	1,364
J-K																					
K-L																					
L-M																					
M-N																					
N-O	1,103	275	1,378	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,142	277	1,419
O-P																					
P-Q																					
Q-R																					
R-S	1,059	264	1,323	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,098	266	1,364
S-T																					
T-U1	1,038	255	1,293	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,077	257	1,334
U1-V1	756	238	994	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	795	240	1,035
V1-W																					
W-W	756	238	994	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	795	240	1,035
X-Y																					
Y-Z																					
ZA-A																					
AA-AB																					
AB-AC																					
AC-AD																					
AD-AE																					
AE-AF																					
AF-AG																					

Appendix C:
Aircraft Noise Modeling

Revised Aircraft Noise Modeling for IR-187 Environmental Assessment

FINAL

Technical Note 14-18

Job No. A10160.0203.0006

October 2017

Prepared for:

USAF/AFCEC/TDX
Kelly Annex, Lackland AFB

Building 171, Suite 3-476
3515 South General McMullen Drive
San Antonio, TX 78226-2018

Prepared by:

Wyle Laboratories, Inc.
Environmental and Energy
Research & Consulting (EERC)

121 Maryland Street
Suite B
El Segundo, CA 90245

Project Team:

Joseph J. Czech
Patrick H. Kester

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Table of Contents

Section

Figures

Tables

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SECTION 1

Introduction

The purpose of this Technical Note (TN) is to present the results of a revised noise analysis supporting the Environmental Assessment (EA) for a proposed Military Training Route (MTR) designated Instrument Route (IR) 187 (IR-187). The original analysis was documented in Wyle Technical Note (TN) 12-06 (Czech et al. 2012). Figure 1 shows the existing and proposed MTR, located in west Texas and southeast New Mexico and extends approximately 544 nautical miles. IR-187 would be the reciprocal of existing IR-178.

Use of these routes would be scheduled and de-conflicted by personnel at Dyess Air Force Base (AFB), Abilene, Texas. The IRs would primarily support training of B-1B bomber aircraft aircrews operating out of Dyess AFB, in addition to various other aircraft types currently using IR-178.

Unless otherwise cited, the data presented herein was extracted from the Draft EA and validated by the USAF for the purposes of this analysis. One difference for two of the three scenarios herein is that C-130 sorties are modeled the Mountain Tactical (TAC) route vice IR-178/187. See Sections 4 and 5 for more detail.

Section 2 of this TN presents the noise modeling methodology. Sections 3 through 5 present the modeled sorties and noise exposure for the Baseline, Current, and Proposed scenarios, respectively.

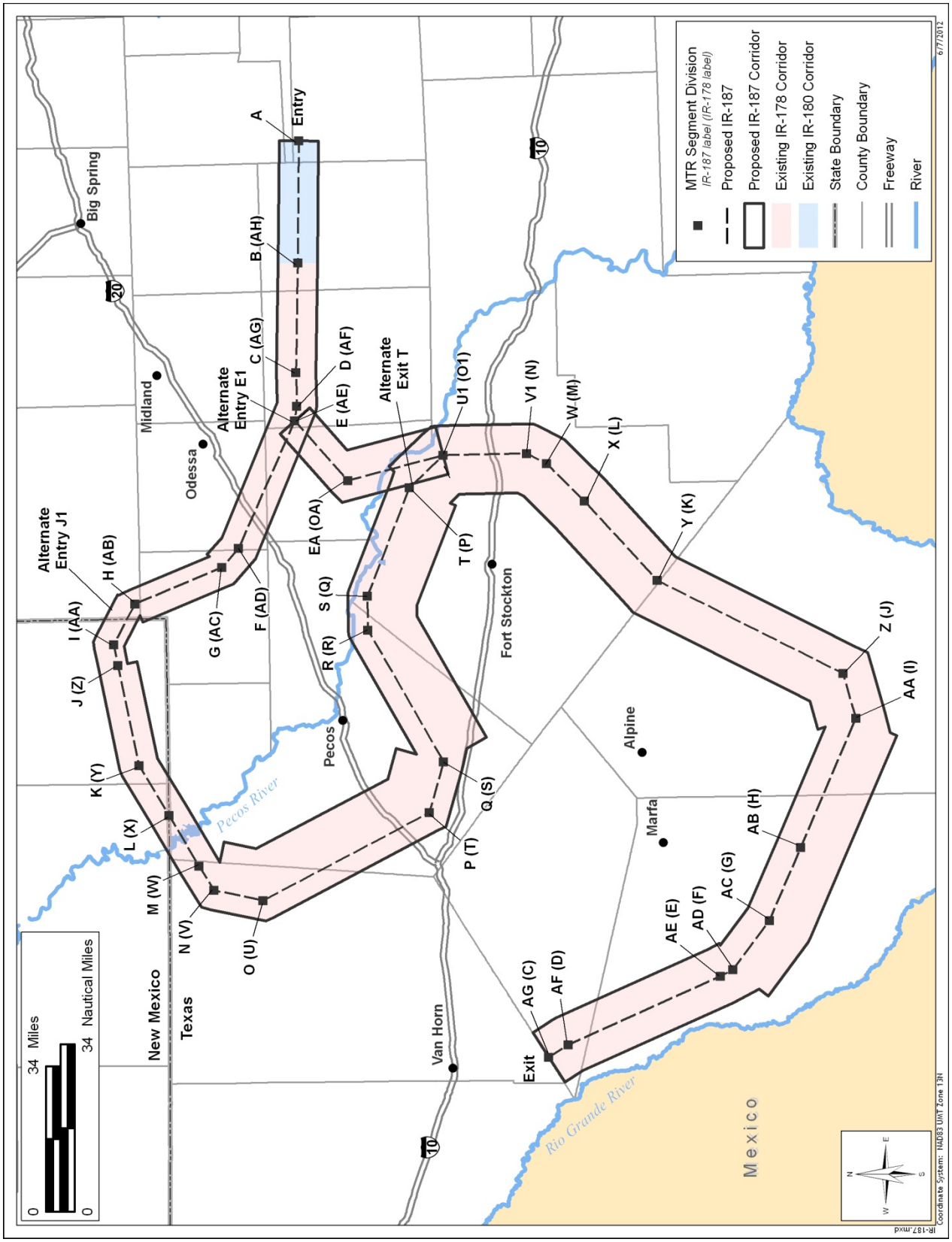

Figure 1 Map of Existing IR-178 and Proposed IR-187

SECTION 2

Noise Metrics and Modeling

Table 2-1 summarizes the noise model and its parameters relative to this work. This analysis utilizes the Department of Defense (DOD) MR_NMAP suite of computer programs (Lucas and Calamia 1997) containing the core computational program called "MR_NMAP", version 2.2, to compute Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}). L_{dnmr} was fully described in TN 12-06. All noise results are in A-weighted dB (dBA) in this study.

Lines of equal L_{dnmr} (contours) of 60 dBA through 85 dBA (if applicable), in 5 dBA increments, were plotted. For this analysis, the resultant grid spacing was 2,000 feet.

In calculating time-average sound levels for airspace, the reliability of the results varies at lower levels (i.e., less than 55 dB L_{dnmr}). In addition, when flight activity is infrequent, the time-averaged sound levels are generated by only a few individual aircraft noise events, which may not be statistically representative of the given aircraft modeled. Time-averaged outdoor sound levels less than 45 dB are well below any currently accepted guidelines for aircraft noise compatibility. Residential land use (and other noise-sensitive types) are not compatible if exposed to L_{dnmr} of 65 dB or greater, per DOD land use compatibility guidelines. In this study, time-average sound levels less than 45 dB are denoted as "<45" if applicable.

For this study, a list of the maximum centerline L_{dnmr} for each segment of the route(s) and contour plots of L_{dnmr} were output from MR_NMAP.

Daily average temperature and relative humidity (RH) for each month were provided for calendar year 2002 recorded at nearby Midland International Airport (Shapiro 2011). The modeled weather conditions derived from the CY2002 data using DoD methodology[1] are 64 degrees Fahrenheit and 52 percent relative humidity.

Table 2-1 Noise Modeling Parameters

Software	Version
MR_NMAP	2.2
Parameter	**Description**
Receiver Grid Spacing (NMAP only)	2000 ft in x and y
Metric	L_{dnmr} (dBA)
Basis	Average Daily Operations During Busiest Month
Modeled Weather	
Temperature	64°F
Relative Humidity	52%

[1] The median sound absorption coefficient (SAC) is computed from the sound absorption coefficients for each month. Each month's SAC is computed from each month's mean daily temperature and relative humidity. The month corresponding to the median SAC is the one chosen for modeling, unless the actual busiest month (e.g., August) is identified.

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SECTION 3

Baseline Sorties and Noise Exposure

3.1 Sorties

The MTR segments and data for IR-178 are displayed in Table 3-1. IR-178 has a published minimum altitude or floor of 300 feet Above Ground Level (AGL) and a maximum altitude or ceiling of 9,000 feet Mean Sea Level (MSL). Route widths vary from 2 to 10 nautical miles from the route centerline.

Table 3-1 IR-178 and IR-187 Segment List

Baseline Segment (IR-178)	Proposed Segment (IR-187)	Baseline (IR-178) Route Width (nm) (1)		Route Limits (2)		Segment Length (nm)	Entrance/Exit Points
		Left of centerline	Right of centerline	Floor (ft AGL)	Ceiling (ft MSL)		
C-D	AF-AG	6	6	400	9,000	4.75	Exit
D-E	AE-AF	6	6	400	9,000	33.85	
E-F	AD-AE	6	6	400	9,000	2.81	
F-G	AC-AD	5	9	300	9,000	12.46	
G-H	AB-AC	5	9	300	9,000	16.12	
H-I	AA-AB	5	9	300	8,000	28.49	
I-J	Z-AA	8	6	300	8,000	9.47	
J-K	Y-Z	8	6	300	7,600	42.17	
K-L	X-Y	8	6	300	7,200	21.87	
L-M	W-X	8	6	600	7,200	10.78	
M-N	V1-W	8	6	600	6,000	4.53	
N-O	U1-V1	8	6	400	6,000	16.96	
O-P	T-U1	8	6	600	5,000	9.50	
P-Q	S-T	10	4	600	5,000	23.62	Exit
Q-R	R-S	10	4	700	5,000	6.85	
R-S	Q-R	10	4	700	5,000	30.86	
S-T	P-Q	4	10	400	7,000	10.72	
T-U	O-P	4	10	500	7,000	38.16	
U-V	N-O	4	10	900	7,000	10.19	
V-W	M-N	4	4	900	7,000	5.77	
W-X	L-M	4	4	500	7,000	11.97	
X-Y	K-L	4	4	500	7,000	11.82	
Y-Z	J-K	4	4	500	7,000	20.75	
Z-AA	I-J	4	2	500	7,000	4.32	
AA-AB	H-I (incl J1)	4	2	1,200	7,000	9.37	Alternative entry
AB-AC	G-H	4	4	1,200	7,000	19.1	
AC-AD	F-G	4	4	800	7,000	5.18	
AD-AE	E-F	4	4	800	6,000	28.26	
O1-OA*	EA-U1*	4	6	600	6,000	20.01	
OA-AE1*	E-EA (incl E1)*	4	4	600	6,000	16.23	Entrance
AE-AF	D-E	4	4	800	6,000	3.03	
AF-AG	C-D	4	4	800	6,000	6.84	
AG-AH	B-C	4	4	2,000	6,000	22.24	

Notes:

(1) Switch left and right widths for Proposed IR-187

(2) published limits per AP1B handbook; see Table 3 for flown/modeled altitudes.

Source: DoD 2012.

Table 3-2 displays the baseline annual sorties on IR-178. Aircraft utilizing existing IR-178 includes the following types: B-1B, B-52H, B-2A[2] and other miscellaneous aircraft types. The most frequent "other" types are the F-16, C-17, C-130[3], and T-1. Because of the alternate entry and exit points, the total number of annual sorties varies by segment, with a maximum total number of 1,560 sorties on segments C-D through N-O. The B-1B and B-52H comprise 92 percent of the total annual sorties on all segments on IR-178. The remaining 8 percent of total sorties is split evenly among the four "other" types listed above. Overall, 18 percent of total sorties on each segment are conducted during the L_{dnmr} nighttime period (10:00 p.m. to 7:00 a.m. local). Temporal distribution by aircraft type is discussed below.

Table 3-2 Annual Sorties on IR-178 for Baseline Scenario

IR-178 Segment	B-1B			B-52H			Other															Total		
							B-2A (1)			F-16			C-17			C-130			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B (IR-180)																								
AG-AH	543	136	679	382	68	450	54	14	68	6	-	6	6	-	6	6	-	6	5	-	5	1,002	218	1,220
AF-AG																								
AE-AF																								
OA-AE1*	434	109	543	305	54	359	44	11	55	5	-	5	5	-	5	4	-	4	4	-	4	801	174	975
O1-OA*																								
AD-AE																								
AC-AD	109	27	136	76	14	90	11	3	14	2	-	2	1	-	1	1	-	1	1	-	1	201	44	245
AB-AC																								
AA-AB																								
Z-AA																								
Y-Z																								
X-Y	670	167	837	472	83	555	68	17	85	7	1	8	7	-	7	7	-	7	6	-	6	1,237	268	1,505
W-X																								
V-W																								
U-V																								
T-U	694	174	868	489	86	575	70	18	88	7	1	8	7	-	7	7	-	7	7	-	7	1,281	279	1,560
S-T																								
R-S																								
Q-R																								
P-Q	670	167	837	472	83	555	68	17	85	7	1	8	7	-	7	7	-	7	6	-	6	1,237	268	1,505
O-P																								
N-O																								
M-N																								
L-M																								
K-L																								
J-K																								
I-J	694	174	868	489	86	575	70	18	88	7	1	8	7	-	7	7	-	7	7	-	7	1,281	279	1,560
H-I																								
G-H																								
F-G																								
E-F																								
D-E																								
C-D																								

Notes:
(1) Not currently utilizing IR-178 but modeled for consistency with RBTI EIS.
(2) Evenly include F-16, C-17, C-130 and T-1 but modeled entirely by F-16C (with GE-100 engine).
Source: Germanos 2012

The typical/average flight profiles (i.e., airspeed, power setting, and altitude distribution) and temporal distributions are contained in Table 3-3. Most aircraft flying on IR-178 are reported to use Military Power (MIL). The T-1 aircraft use a power setting of 75% NF (Shugart 2012). The MR_NMAP database includes noise data for MTR settings and noise data for airfield-like settings. When available, the MTR noise data was used even though the reported power/airspeed conditions could not be exactly matched.

Altitude distributions shown in Table 3-3 provide the relative ratio of time each aircraft type would typically spend in each altitude band. For example, the B-52 typically flies 70 percent of the time in the lower altitude band from

[2] The B-2A does not currently utilize IR-178 but is modeled on IR-178 for consistency with the Realistic Bomber Training Initiative (RBTI) Environmental Impact Statement (USAF 2000a; USAF 2000b; USAF 2006).

[3] The C-130 actually flies on the Mountain Terminal Air Chart route (described in Chapter 4) but was modeled in the RBTI EIS on IR-178.

1,000 to 1,999 feet AGL. The remaining 30 percent of the time for the B-52 is spent in band 2,000 to 2,999 feet AGL. Temporal distribution describes the spread of operations occurring throughout the average day during the busiest month. For example, the B-1B conducts 80 and 20 percent of its sorties during the L_{dnmr} daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods, respectively.

Table 3-3 Aircraft Flight Profiles and Temporal Distributions for Baseline Scenario

Aircraft Type	Modeled Aircraft Type (if different)	Average Airspeed (KIAS)		Average Power Setting		Typical Altitude Distribution (ft AGL)					Temporal Distribution		Ratio of Busiest Month to Average Month
		Reported	Modeled	Reported	Modeled	300-999	500-999	600-999	1000-1999	2000-2999	Daytime (0700-2200)	Nighttime (2200-0700	
B-1B [2]	B-1 (with F101-GE-100 engines)	540	550	Mil	101% RPM (training route)		85% [3]		10%	5%	80%	20%	1.2
B-52H [2]		360	350	Mil	4500 lbs/hr (training route)				70%	30%	85%	15%	
B-2A		360	360	Mil	88 PLA (takeoff power)	90%			7%	3%	80%	20%	
F-16 [2]	F-16C (with GE100 engine)	500	500	Mil	95.4 %NC (midspeed training route)	90%			7%	3%	98%	2%	
C-17		240	240	Mil	92 %NC (intermediate power)	90%			7%	3%	98%	2%	
C-130	C-130H&N&P	240	240	Mil	970 C TIT (takeoff power)	90%			7%	3%	98%	2%	
T-1		220		75% NF			90%		10%		100%	0%	1.0

Notes:
(1) Modeled weather condition of 63.7 °F and 52 % Relative Humidity based on data from Midland International Airport (CY 2002) and USAF methodology
(2) Speed and power settings cannot be adjusted to the 'reported' values
(3) 500-999 ft AGL for segments Z-X and T-U of IR-178 and corresponding segments of IR-187; 600-999 ft AGL for all other segments.
RPM = revolutions per minute
NC = compressor rpm
C TIT = degrees Celsius Turbine Inlet Temperature
Source: Germanos 2012; Shugart 2012

As stated in Section 2, the annual sorties for all modeled aircraft except the T-1 were multiplied by 1.2 prior to being entered into the noise model to account for the busiest month. T-1 sorties were not modified as their busiest month would be the same as their average month.

3.2 Noise Exposure

Using the data described above and the methodology described in Section 2, MR_NMAP was used to compute busy month L_{dnmr} and average day DNL. Table 3-4 contains the values of maximum centerline L_{dnmr} and DNL for each segment of IR-178 (rounded to the nearest dB). The greatest of the maximum centerline L_{dnmr} is 61 dB for segment Z-AA and the least L_{dnmr} is 48 dB on segments AA-AC. The greatest of the maximum centerline DNL is 60 dB for segment Z-AA and the least L_{dnmr} is 47 dB on segments AB-AC.

Table 3-4 Noise Exposure from IR-178 for Baseline Scenario

IR-178 Segment Name	Maximum Centerline (dBA)	
	Ldnmr	DNL
A-B (IR-180)	52	51
AG-AH	52	51
AF-AG	57	56
AE-AF	57	56
OA-AE1	57	55
Entry E1-EA		
O1-OA	57	55
AD-AE	50	49
AC-AD	50	49
AB-AC	48	47
AA-AB	48	48
ZA-A	61	60
Alternate Entry J1-I		
Y-Z	60	58
X-Y	60	58
W-X	60	58
V-W	57	57
U-V	55	54
T-U	58	56
S-T	58	56
R-S	56	55
Q-R	56	55
P-Q	57	56
S-Alternative Exit T		
O-P	57	56
N-O	58	56
M-N	57	56
L-M	57	56
K-L	58	56
J-K	58	56
I-J	58	56
H-I	58	56
G-H	58	56
F-G	58	56
E-F	59	57
D-E	59	57
C-D	59	57

Figure 2 maps the L_{dnmr} contours and Figure 3 the DNL contours. Noise exposure is no greater than or equal to 65 dB L_{dnmr} or DNL. As the greatest centerline L_{dnmr} or DNL among all segments is less than 65 dB, Figure 2 and 3 only show the 60 dB L_{dnmr} contour. Relatively small areas of 60 dB L_{dnmr} are in the southeastern corner of New Mexico and south of Odessa, Texas.

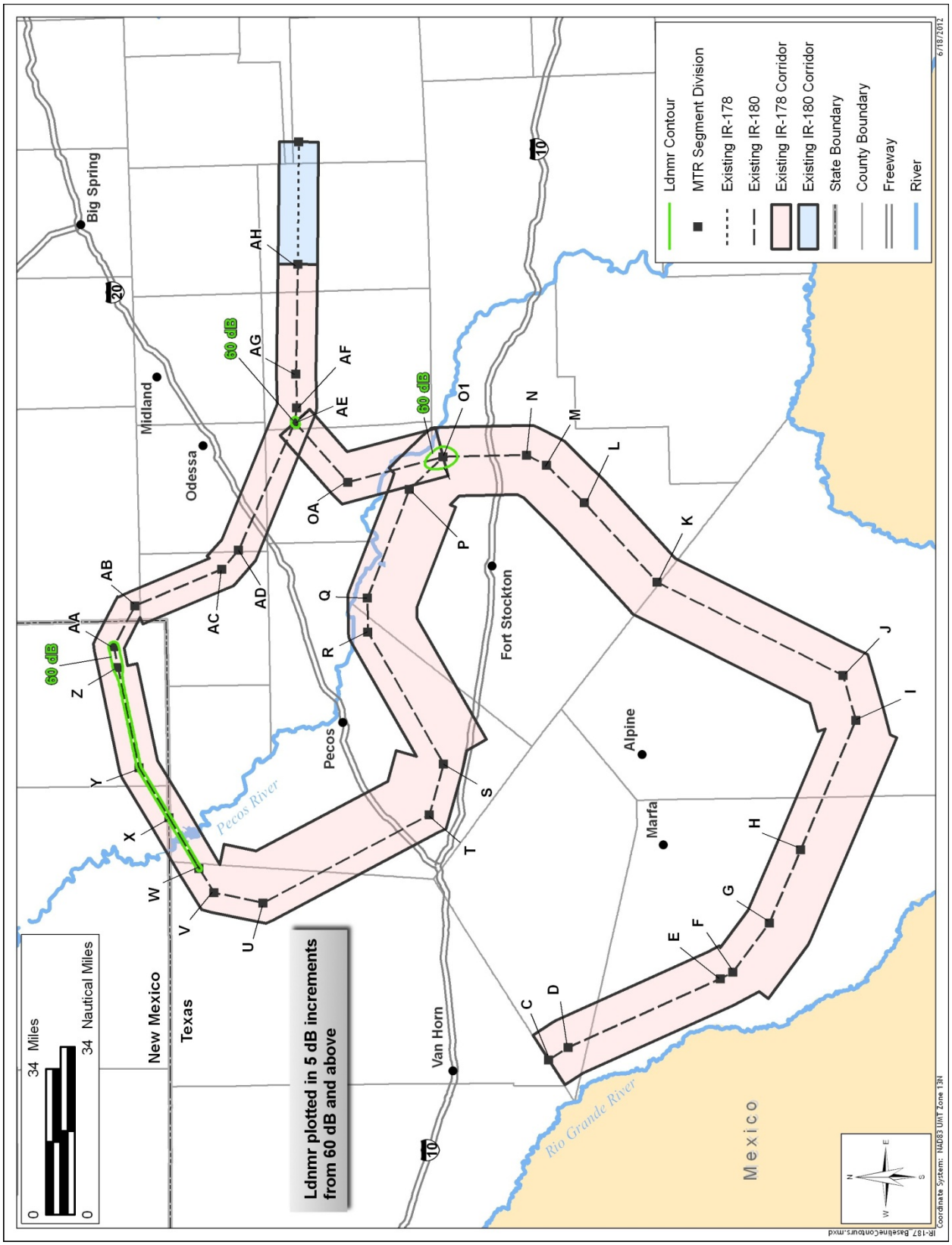

Figure 2 Busy Month L_{dnmr} Contours for Baseline Sorties on IR-178

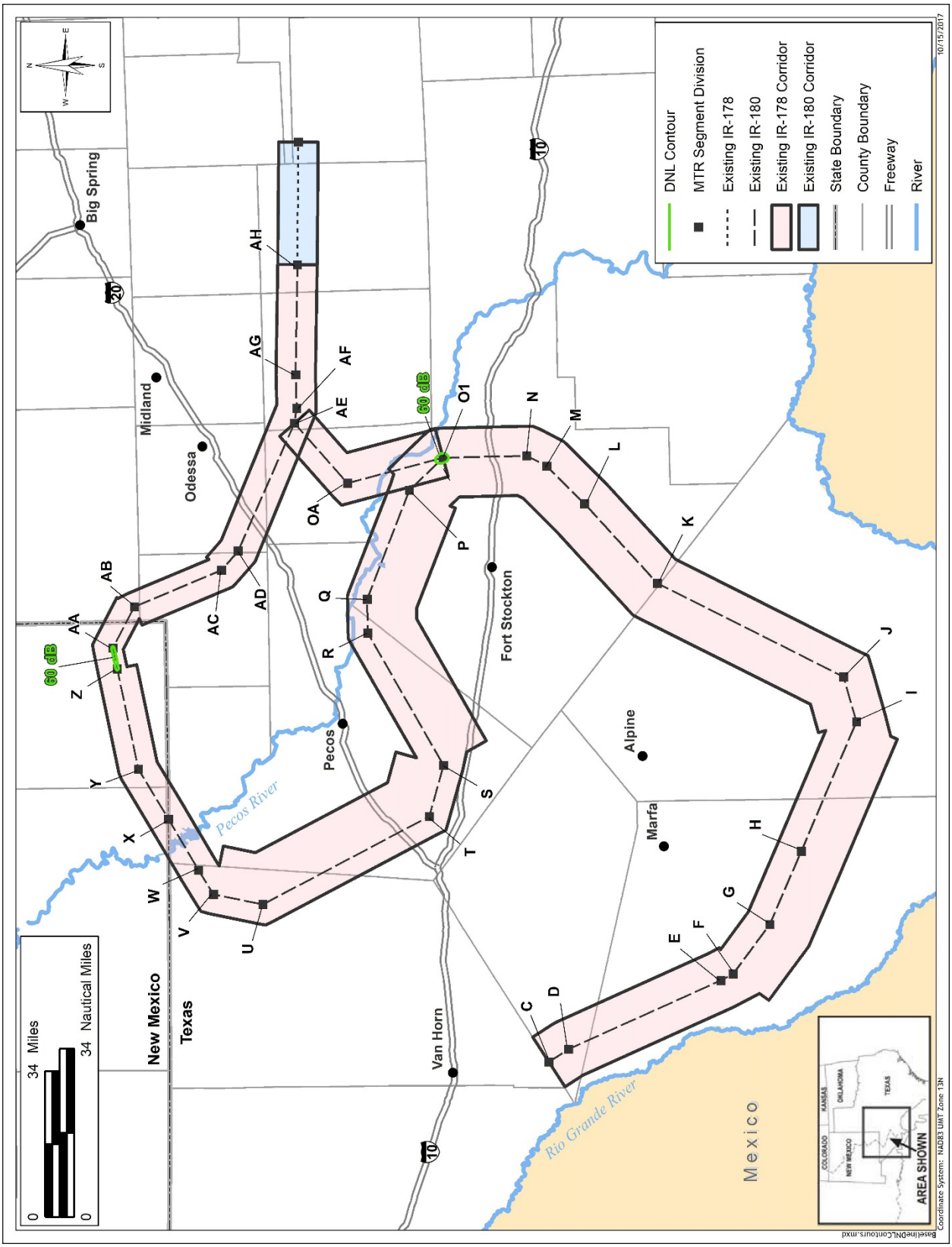

Figure 3 Average Day DNL Contours for Baseline Sorties on IR-178

SECTION 4

Current Sorties and Noise Exposure

4.1 Sorties

The Baseline noise environment described in Section 3 was primarily based on the proposed action of an Environmental Impact Statement. For the purposes of responding to a request by the Federal Aviation Administration (FAA), the USAF examined 'current' conditions on IR-178. From an analysis of their records from January 2013 to July 2014 (7 BW OSS 2014a), it was determined that February 2013 was the busiest month for IR-178 in terms of numbers of flights. This was reconfirmed with the 7 BW OSS in April 2017.

Table 4-1 displays the sorties on IR-178 during its current busiest month, i.e., February 2013 (7 BW OSS 2014b). Aircraft utilizing existing IR-178 during this busiest month are B-1B, B-52H, C-130 and C-17. Although the C-130 is listed in Table 4-1, it actually flies the Mountain TAC route instead of IR-178. Figure 4 shows the Mountain TAC route. The two routes are nearly coincident.

Unlike the Baseline scenario, B-2A, F-16, and T-1 aircraft did not fly the route during that month. Total sorties sum to 117. The B-1B and B-52H comprise 98 percent of the month's sorties on IR-178/Mountain TAC. The remaining 2 percent of total sorties are mostly C-130 aircraft (flying the TAC route only). Overall, 8 percent of total sorties on each segment are conducted during the L_{dnmr} nighttime period (10:00 p.m. to 7:00 a.m. local) with most by the B-1B.

Table 4-1 IR-178 Sorties for February 2013[1, 2]

Aircraft Type	Note	Day (0700-2200)	Night (2200-0700)	Total
B-1B	1	100	8	108
B-52H	1	1	-	1
C-17	1	2	1	3
C-130J	1, 2	5	-	5
Total		**108**	**9**	**117**

Source: 7 BW OSS 2014b.

Note:

[1]One pass per sortie is assumed.

[2]C-130J sorties on Mountain TAC route are counted as if they are on IR-178.

From 7 BW OSS records for Calendar Year 2013, annual sorties of 1,012 on IR-178 equals an average monthly sortie count of 84, making February's total approximately 40 percent more than the average month. This means the average-to-busy month conversion factor is 1.4 (vice 1.2 modeled for the Baseline scenario).

For the purposes of comparison to Table 3-2, Table 4-2 displays the estimated *annual* current sorties on IR-178. The sorties in Table 4-2 were computed by dividing the sorties from Table 4-1 by 1.4 (to compute the average month) and multiplying them by 12 (to make annual). In Table 4-2, the distribution of sorties by aircraft type and L_{dnmr} time period is from Table 4-1 but the distribution by segment is from Table 3-2. Because of the alternate entry and exit points, the total number of annual sorties varies by segment, with a maximum total number of sorties of 1,049 on segments C-O from Table 4-2.

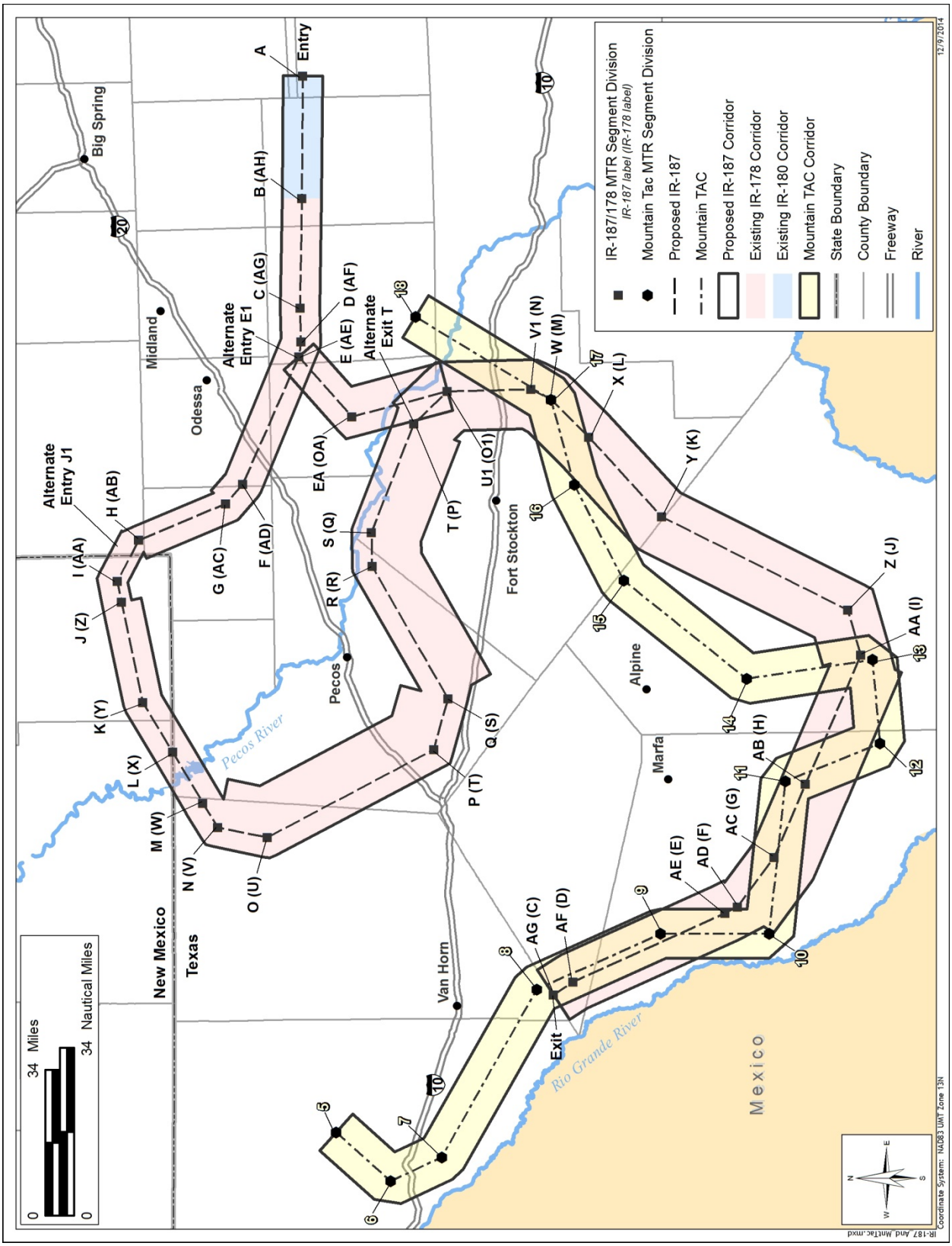

Figure 4 Map of Existing IR-178, Mountain TAC Route and Proposed IR-187

Table 4-2 Annual Sorties on IR-178 for Current Scenario

IR-178 Segment	B-1B			B-52H			Other															Total		
							B-2A			F-16			C-17			C-130 (1)			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B (IR-180)																								
AG-AH	43	4	47	2	-	2			-		-	-	4	2	6	9	-	9		-	-	58	6	64
AF-AG																								
AE-AF																								
OA-AE1*	34	3	37	1	-	1			-		-	-	2	1	3	6	-	6		-	-	43	4	47
O1-OA*																								
AD-AE																								
AC-AD	9	1	10	-	-	-			-		-	-	1	-	1	2	-	2		-	-	12	1	13
AB-AC																								
AA-AB																								
Z-AA																								
Y-Z																								
X-Y	53	4	57	2	-	2			-			-	4	2	6	11	-	11		-	-	70	6	76
W-X																								
V-W																								
U-V																								
T-U																								
S-T	55	5	60	2	-	2			-			-	4	2	6	11	-	11		-	-	72	7	79
R-S																								
Q-R																								
P-Q	53	4	57	2	-	2			-			-	4	2	6	11	-	11		-	-	70	6	76
O-P																								
N-O																								
M-N																								
L-M																								
K-L																								
J-K																								
I-J	953	77	1,030	2	-	2			-			-	4	2	6	11	-	11		-	-	970	79	1,049
H-I																								
G-H																								
F-G																								
E-F																								
D-E																								
C-D																								

Notes:
(1) C-130 utilizes Mountain Terminal Air Chart Route that follows much of IR-178 but deviates.

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The flight profiles (airspeed, power setting, and altitude distribution) for the Current Scenario are shown in Table 4-3. The B-1B and B-52H profiles are identical to those in Table 3-3, but the C-130 is modeled differently as it is on the Mountain TAC route.

Table 4-3 Aircraft Flight Profiles for Current Scenario

Aircraft Type	Modeled Aircraft Type (if different)	Average Airspeed (KIAS)		Average Power Setting		Typical Altitude Distribution (ft AGL)				
		Reported	Modeled	Reported	Modeled	300-999	500-999	600-999	1000-1999	2000-2999
B-1B (2)	B-1 (with F101-GE-100 engines)	540	550	Mil	101% RPM (training route)		85% (3)		10%	5%
B-52H (2)		360	350	Mil	4500 lbs/hr (training route)				70%	30%
C-17		240	240	Mil	92 %NC (intermediate power)	90%			7%	3%
C-130	C-130H&N&P	240	240	Mil	970 C TIT (takeoff power)	100% @ 500 ft AGL				

Notes:
(1) Modeled weather condition of 63.7 °F and 52 % Relative Humidity based on data from Midland International Airport (CY 2002) and US
(2) Speed and power settings cannot be adjusted to the 'reported' values
(3) 500-999 ft AGL for segments Z-X and T-U of IR-178 and corresponding segments of IR-187; 600-999 ft AGL for all other segments.
RPM = revolutions per minute
NC = compressor rpm
C TIT = degrees Celsius Turbine Inlet Temperature

4.2 Noise Exposure

Using the data described above and the methodology described in Section 2, MR_NMAP was used to compute busy month L_{dnmr} and average day DNL for the Current Scenario. Table 4-4 contains the values of maximum centerline L_{dnmr} and DNL for each segment of IR-178/Mountain TAC (rounded to the nearest dB). The greatest of the maximum centerline L_{dnmr} is 57 dB for segments C-D through K-L and at N-O. Many segments have L_{dnmr} less than 45 dB, including those segments where the Mountain TAC route is not coincident with IR-178. The greatest maximum centerline DNL is 55 dB for segment C-D through E-F.

Table 4-4 Noise Exposure from IR-178 for Current Scenario

IR-178 Segment Name	Maximum Centerline (dBA)	
	L_{dnmr}	DNL
A-B (IR-180)	<45	<45
AG-AH	<45	<45
AF-AG	<45	<45
AE-AF	<45	<45
OA-AE1	<45	<45
Entry E1-EA		
O1-OA	<45	<45
AD-AE	<45	<45
AC-AD	<45	<45
AB-AC	<45	<45
AA-AB	<45	<45
Z-AA	48	<45
Alternate Entry J1-I		
Y-Z	47	<45
X-Y	47	<45
W-X	47	<45
V-W	<45	<45
U-V	<45	<45
T-U	45	<45
S-T	45	<45
R-S	<45	<45
Q-R	<45	<45
P-Q	<45	<45
S-Alternative Exit T		
O-P	<45	<45
N-O	57	54
M-N	56	54
L-M	56	54
K-L	57	54
J-K	57	54
I-J	57	54
H-I	57	54
G-H	57	54
F-G	57	54
E-F	57	55
D-E	57	55
C-D	57	55

SECTION 5

Proposed Sorties and Noise Exposure

5.1 Sorties

Table 5-1 shows the corresponding segments of IR-187 and IR-178. As described in the Proposed Action, IR-187 would be the reverse of IR-178, so the modeled 33 segments of existing IR-178 were applied to IR-187 but in the opposite direction as they do on IR-178. Route IR-178 is flown in the direction of segment C-D towards AG-AH going down the segment list table, while the proposed IR-187 is flown in the direction of B-C toward AF-AG going up the segment list table from the bottom to the top. Additionally, the route widths shown in the table are for IR-178. For route IR-187, while the total MTR width would be the same as IR-178, the left and right widths must be switched since the aircraft are flying on IR-187 in reverse of IR-178.

Table 5-1 (in three parts) presents the proposed annual sorties for IR-178 and IR-187. Modeled aircraft types on IR-178 in the proposed scenario would be the B-1B, B-52H, and other aircraft types (Table 5-1a). The most frequent 'other' types are equally represented by and modeled as F-16, C-17, C-130, and T-1. The B-1B and B-52H would comprise 95 to 98 percent of the total annual sorties on all segments of IR-187 (Table 5-1b) except segments E-I in which the B-1B would comprise all of the sorties. Segments AA-AE on IR-178 would be flown infrequently under the Proposed Action.

The maximum total number of sorties would be 1,560 on segments N-R and U1-AG (Table 5-1c). Overall, 19 to 20 percent of total sorties on each segment would be during the L_{dnmr} nighttime period (10:00 p.m. to 7:00 a.m. local). Total sorties would not change on IR-187's segments relative to the corresponding segments of IR-178 under the Baseline Scenario.

Flight profiles on IR-178 (Table 4-3 for C-130J on Mountain TAC; Table 3-3 for other aircraft) would apply to IR-187. The busiest month conversion factor would be same as the Current Scenario—1.4.

Table 5-1 Annual Sorties for Proposed Action

(a) IR-178

IR-178 Segment	B-1B			B-52H			Other												Total IR-178		
							F-16			C-17			C-130 [1]			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B (IR-180)																					
AG-AH	27	12	39	5	1	6	1	1	2	1	1	2	1	1	2	3	-	3	38	16	54
AF-AG																					
AE-AF																					
OA-AE1	20	10	30	5	1	6	1	1	2	1	1	2	1	1	2	3	-	3	31	14	45
O1-OA																					
AD-AE																					
AC-AD	10	5	15	3	1	4	2	1	3	2	1	3	2	1	3	2	1	3	21	10	31
AB-AC																					
AA-AB																					
Z-AA																					
Y-Z																					
X-Y	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
W-X																					
V-W																					
U-V																					
T-U																					
S-T	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
R-S																					
Q-R	80	20	100	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	114	27	141
P-Q																					
O-P	100	30	130	10	2	12	6	2	8	6	2	8	6	1	7	6	-	6	134	37	171
N-O	418	50	468	10	2	12	6	6	12	6	2	8	12	1	13	12	-	12	464	61	525
M-N																					
L-M																					
K-L																					
J-K																					
I-J																					
H-I	418	50	468	10	2	12	6	6	12	6	2	8	12	1	13	12	-	12	464	61	525
G-H																					
F-G																					
E-F																					
D-E																					
C-D																					

Source: Germanos 2012, Robinson 2014.
(1) C-130 utilizes Mountain TAC Route which follows much of IR-178 but deviates

(b) Annual Sorties for Proposed Action, (a) IR-187

IR-187 Segment	B-1B			B-52H			Other												Total IR-187		
							F-16			C-17			C-130 [1]			T-1					
	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B																					
B-C																					
C-D	890	208	1,098	15	3	18	13	1	14	12	1	13	12	1	13	10	-	10	952	214	1,166
D-E																					
E-EA (incl E1)	700	162	862	15	3	18	13	1	14	12	1	13	12	1	13	10	-	10	762	168	930
EA-U1																					
E-F																					
F-G																					
G-H	176	38	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176	38	214
H-I (incl J1)																					
I-J																					
J-K																					
K-L	1,059	264	1,323	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,098	266	1,364
L-M																					
M-N																					
N-O																					
O-P	1,103	275	1,378	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,142	277	1,419
P-Q																					
Q-R																					
R-S	1,059	264	1,323	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,098	266	1,364
S-T																					
T-U1	1,038	255	1,293	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	1,077	257	1,334
U1-V1	756	238	994	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	795	240	1,035
V1-W																					
W-X																					
X-Y																					
Y-Z																					
ZA-A																					
AA-AB																					
AB-AC	756	238	994	10	2	12	8	-	8	7	-	7	7	-	7	7	-	7	795	240	1,035
AC-AD																					
AD-AE																					
AE-AF																					
AF-AG																					

Source: Germanos 2012, Robinson 2014.
(1) C-130 utilizes Mountain TAC Route which follows much of IR-178 but deviates

(c) Combined

Segment ID		Combined Routes																				
		B-1B			B-52H			Other												Grand Total		
								F-16			C-17			C-130 (1)			T-1					
IR-178	IR-187	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
A-B (IR-180)	A-B	917	220	1,137	20	4	24	14	2	16	13	2	15	13	2	15	13	-	13	990	230	1,220
AG-AH	B-C																					
AF-AG	C-D																					
AE-AF	D-E																					
OA-AE1	E-EA (incl E1)	720	172	892	20	4	24	14	2	16	13	2	15	13	2	15	13	-	13	793	182	975
O1-OA	EA-U1																					
AD-AE	E-F	186	43	229	3	1	4	2	1	3	2	1	3	2	1	3	2	1	3	197	48	245
AC-AD	F-G																					
AB-AC	G-H																					
AA-AB	H-I (incl J1)																					
Z-AA	I-J	1,139	284	1,423	20	4	24	14	2	16	13	2	15	13	1	14	13	-	13	1,212	293	1,505
Y-Z	J-K																					
X-Y	K-L																					
W-X	L-M																					
V-W	M-N																					
U-V	N-O	1,183	295	1,478	20	4	24	14	2	16	13	2	15	13	1	14	13	-	13	1,256	304	1,560
T-U	O-P																					
S-T	P-Q																					
R-S	Q-R																					
Q-R	R-S	1,139	284	1,423	20	4	24	14	2	16	13	2	15	13	1	14	13	-	13	1,212	293	1,505
P-Q	S-T																					
O-P	T-U1	1,138	285	1,423	20	4	24	14	2	16	13	2	15	13	1	14	13	-	13	1,211	294	1,505
N-O	U1-V1	1,174	288	1,462	20	4	24	14	6	20	13	2	15	19	1	20	19	-	19	1,259	301	1,560
M-N	V1-W																					
L-M	W-X	1,174	288	1,462	20	4	24	14	6	20	13	2	15	19	1	20	19	-	19	1,259	301	1,560
K-L	X-Y																					
J-K	Y-Z																					
I-J	ZA-A																					
H-I	AA-AB																					
G-H	AB-AC																					
F-G	AC-AD																					
E-F	AD-AE																					
D-E	AE-AF																					
C-D	AF-AG																					

(1) C-130 utilizes Mountain TAC Route which follows much of IR-178 but deviates

5.2 Noise Exposure

Using the data described above and the methodology described in Section 2, MR_NMAP was used to compute busy month L_{dnmr} and average day DNL. Table 5-2 contains the values of maximum centerline L_{dnmr} and DNL for each segment of IR-178/IR-187/Mountain TAC (rounded to the nearest dB). Considering total L_{dnmr}, the greatest of the maximum centerline L_{dnmr} would be 64 dB for segment Z-AA on IR-178 and I-J on IR-187 and the least L_{dnmr} would be 50 dB on segments AB-AC of IR-178 and G-H of IR-187. Aircraft sorties on IR-187 would be the dominant contributor to the total L_{dnmr}. The greatest maximum centerline DNL would be 61 dB for segment Z-AA on IR-178 and I-J on IR-187. The least DNL would be 49 dB on segments AA-AB and AB-AC of IR-187 and G-H and H-I on IR-187.

Table 5-2 also shows the change in centerline L_{dnmr} and DNL for the Proposed Action relative to the Baseline. Most segments would experience a 2 to 3 dB of increase in L_{dnmr} and a 1 to 2 dB increase in DNL although no segments would have a total exposure greater than or equal to 65 dB in either L_{dnmr} or DNL. The increase in centerline L_{dnmr} and DNL would be mostly due to increased B-1B sorties.

Table 5-2 Maximum Centerline L_{dnmr} and DNL from IR-187 for Proposed Scenario

Baseline		Proposed						
			L_{dnmr} (dBA)				DNL (dBA)	
		IR-178	IR-187 Segment Name	IR-187	Total*	Change re Baseline (dB)	Total*	Change re Baseline (dB)
A-B (IR-180)	52	41	A-B	54	55	+3	53	+2
AG-AH	52	41	B-C	54	55	+3	53	+2
AF-AG	57	46	C-D	59	59	+2	58	+2
AE-AF	57	46	D-E	59	59	+2	58	+2
OA-AE1	57	46	E-EA (incl E1)	59	59	+2	57	+2
Entry E1-EA								
O1-OA	57	46	EA-U1	59	59	+2	57	+2
AD-AE	50	42	E-F	52	52	+2	51	+2
AC-AD	50	42	F-G	52	52	+2	51	+2
AB-AC	48	40	G-H	50	50	+2	49	+2
AA-AB	48	41	H-I (incl J1)	50	51	+3	49	+1
Z-AA	61	53	I-J	64	64	+3	61	+1
Alternate Entry J1-I								
Y-Z	60	51	J-K	63	63	+3	60	+2
X-Y	60	51	K-L	63	63	+3	60	+2
W-X	60	51	L-M	63	63	+3	60	+2
V-W	57	48	M-N	60	60	+3	58	+1
U-V	55	46	N-O	57	58	+3	56	+2
T-U	58	49	O-P	60	61	0	58	0
S-T	58	49	P-Q	60	61	0	58	0
R-S	56	47	Q-R	59	59	+3	57	+2
Q-R	56	47	R-S	58	59	0	57	0
P-Q	57	48	S-T	59	60	+3	57	+1
S-Alternative Exit T								
O-P	57	50	T-U1	59	60	+3	57	+1
N-O	58	54	U1-V1	59	61	+3	58	+2
M-N	57	53	V1-W	59	60	+3	57	+1
L-M	57	53	W-X	59	60	+3	57	+1
K-L	58	54	X-Y	59	61	+3	58	+2
J-K	58	54	Y-Z	59	61	+3	58	+2
I-J	58	54	Z-AA	59	61	+3	58	+2
H-I	58	54	AA-AB	59	61	+3	58	+2
G-H	58	54	AB-AC	59	61	+3	58	+2
F-G	58	54	AC-AD	59	61	+3	58	+2
E-F	59	55	AD-AE	60	61	+2	59	+2
D-E	59	55	AE-AF	60	61	+2	59	+2
C-D	59	55	AF-AG	60	61	+2	59	+2

* derived from non-rounded values for both routes

Figure 5 maps the busy month L_{dnmr} contours and Figure 6 maps the average day DNL. Noise exposure would not be greater than or equal to 65 dB L_{dnmr} or DNL. The 60 dB L_{dnmr} contours would stretch over most of the IRs in a band approximately 3 miles wide. The increased area of the 60 dB L_{dnmr} contours, relative to the Baseline scenario, would be due to increased B-1B sorties.

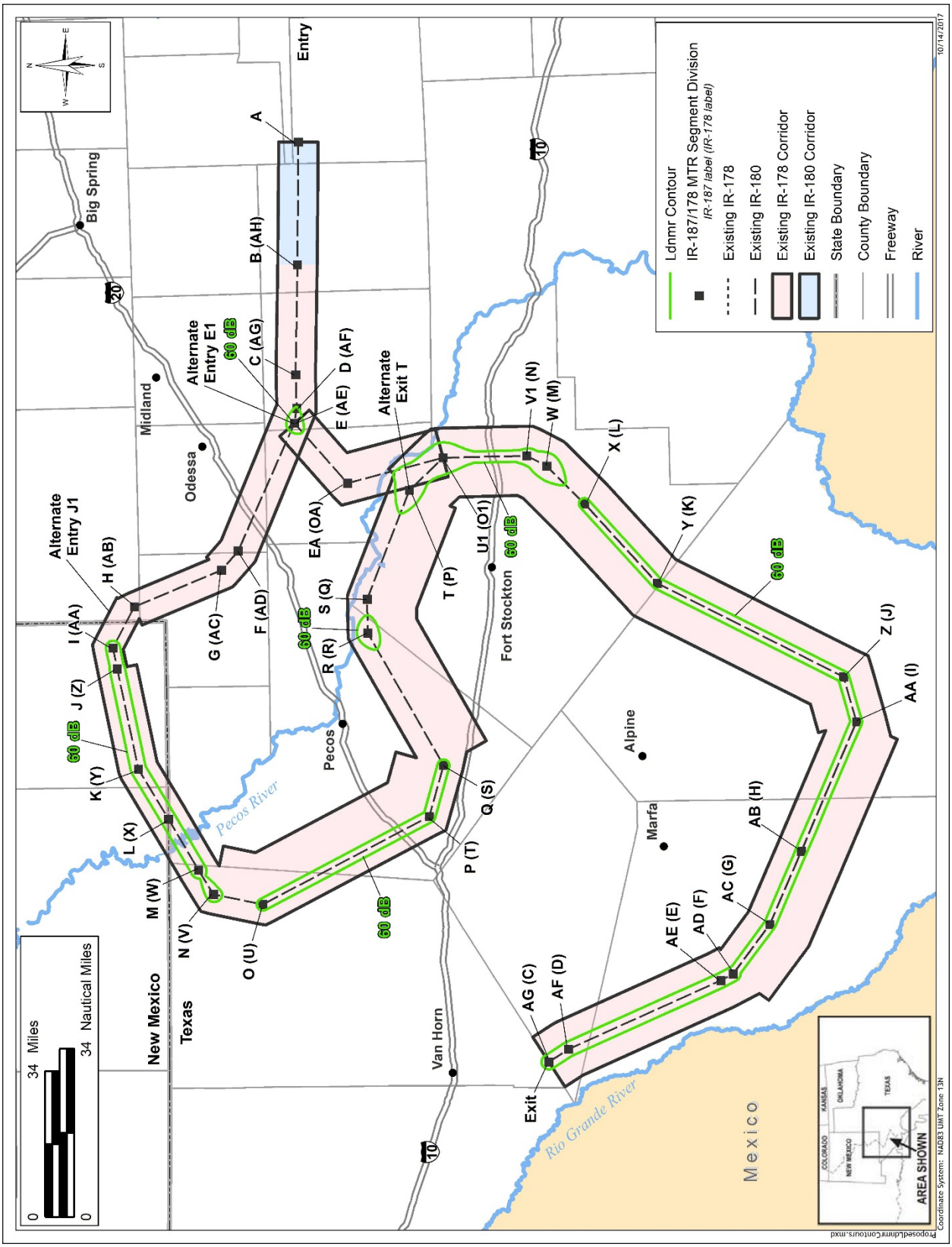

Figure 5 Busy Month L_{dnmr} Contours for Proposed Sorties on IR-178 and IR-187

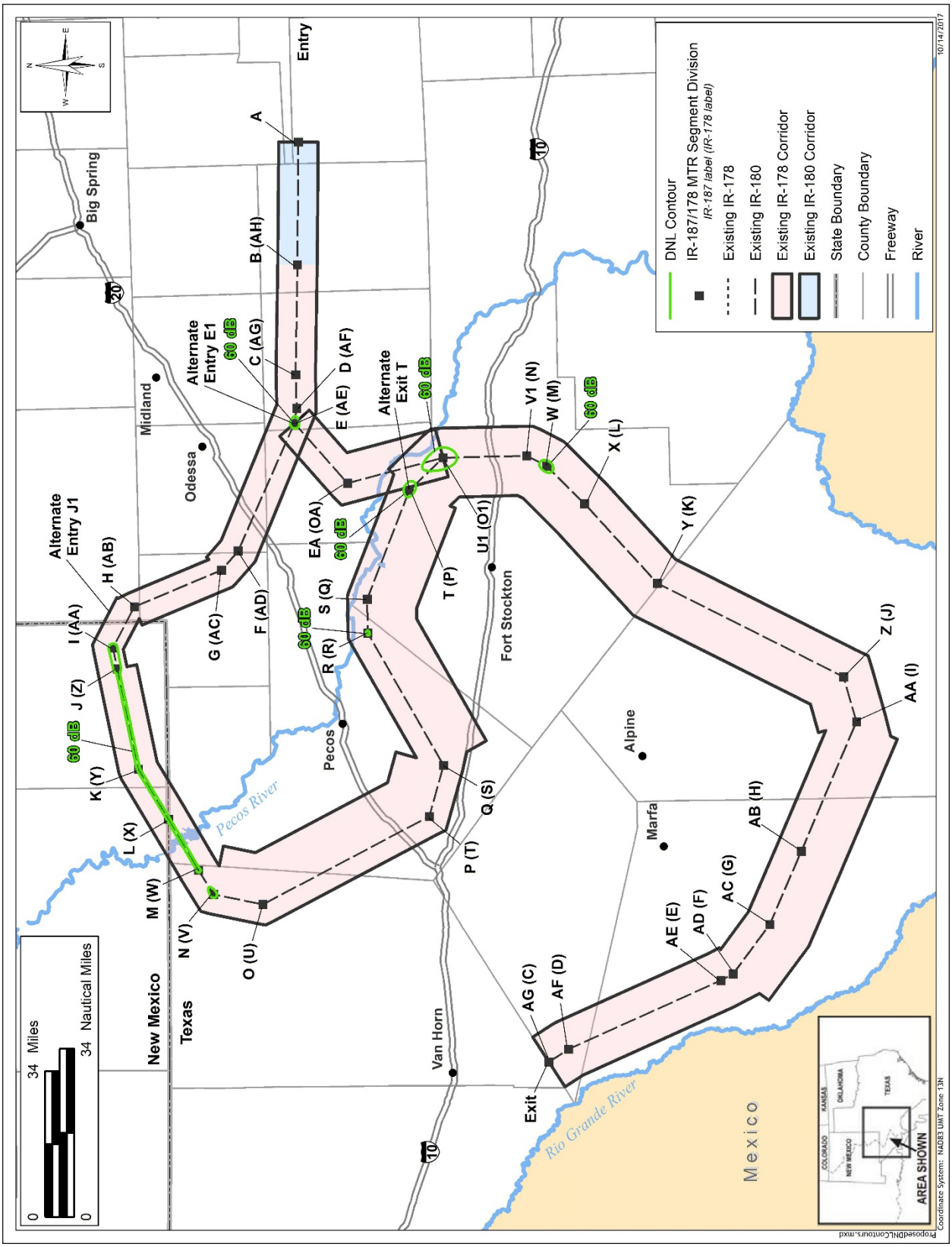

Figure 6 Average Day DNL Contours for Proposed Sorties on IR-178 and IR-187

SECTION 6

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Appendix D:
Air Emissions Calculations

Tab F-1. Calculation Summary

Table 1. Baseline Emissions Calculations

	Baseline (IR-178/IR-180) Emissions based on Number of Sorties/Operations						
Aircraft	**NOx**	**CO**	**VOCs**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**[1]CO_2e**
B-1B	30.18	21.16	0.87	4.25	3.19	2.34	8,324
B-52H	38.83	0.00	1.77	11.80	10.61	3.41	11,403
B-2	77.89	1.53	0.07	3.86	3.48	2.49	8,513
T-38 Talon	2.43	28.68	1.98	7.71	0.08	0.58	3,001
Totals Tons	**149.32**	**51.37**	**4.69**	**27.61**	**17.36**	**8.82**	**31,242**
Total Metric Tons							**28,342**

Table 2. Proposed Action Emission Calculations

	Proposed Action (IR-187) Emissions based on Number of Sorties/Operations						
Aircraft	**NOx**	**CO**	**VOCs**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**[1]CO_2e**
B-1B	38.95	33.87	1.33	5.58	4.25	2.97	10921.14
B-52H	0.60	0.00	0.03	0.18	0.16	0.05	173.42
B-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 Talon	0.09	1.04	0.07	0.26	0.00	0.02	108.85
Totals Tons	**39.63**	**34.91**	**1.42**	**6.03**	**4.41**	**3.04**	**11,203**
Total Metric Tons							**10,164**

Table 3. Net Change in Emissions

	Emissions based on Number of Sorties/Operations						
Aircraft	**NOx**	**CO**	**VOCs**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**[1]CO_2e**
B-1B	8.77	12.72	0.46	1.34	1.05	0.63	2,598
B-52H	-38.23	0.00	-1.74	-11.61	-10.44	-3.35	-11,230
B-2	-77.89	-1.53	-0.07	-3.86	-3.48	-2.49	-8513.41
T-38 Talon	-2.34	-27.64	-1.91	-7.45	-0.08	-0.56	-2892.62
Totals Tons	**-109.69**	**-16.45**	**-3.27**	**-21.58**	**-12.95**	**-5.78**	**-20,038**
Total Metric Tons							**-18,178**

[1]CO2e from GHGs on tabs F-2 and F-3.

TAB F-2. EMISSION CALCULATIONS FOR BASELINE OPERATIONS

Selection of AB Mode for applicable aircraft based on indicated points of exit (Figure 2.1-1 of EA)
Note that segment designations are based on IR-187 nomenclature
Aircraft assume to spend 98% of time below 3000 feet except upon departure of route (S-T and AF-AG)
Only GHGs are calculated above 3000 ft

Aircraft:		B-1B	4 F101-GE-102 engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	679	Military	0.58	6.6	7,828	51,784	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**2,604.40**	**168.48**	**24.36**	**341.03**	**243.59**	**215.17**	**673,702**
E-EA, EA-U1	543	Military	0.38	3.5	7,828	27,132	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**1,364.56**	**88.28**	**12.76**	**178.68**	**127.63**	**112.74**	**352,983**
E-F, F-G, G-H, H-I	136	Military	0.65	1.5	7,828	11,445	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**575.61**	**37.24**	**5.38**	**75.37**	**53.84**	**47.56**	**148,898**
I-J, J-K, K-L, L-M, M-N, T-U1	837	Military	1.64	22.9	7,828	179,395	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	9,022.43	583.68	84.39	1,181.43	843.88	745.42	2,333,904
R-S	837	AB	0.42	5.9	15,314	90,430	16.92	43.49	1.46	2.87	2.4	1.06	3,252.46	5,997.87	15,416.51	517.55	1,017.37	850.76	375.75	1,176,474
S-T	837	AB	0.10	1.4	15,314	21,531							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	280,113
													Subtotal (lbs)	**15,020.30**	**16,000.19**	**601.93**	**2,198.79**	**1,694.64**	**1,121.18**	**3,790,491**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y,Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE,	868	Military	5.52	79.9	7,828	625,458	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	31,456.54	2,034.99	294.22	4,119.02	2,942.15	2,598.90	8,137,110
AE-AF	868	AB	0.63	9.2	15,314	140,668	16.92	43.49	1.46	2.87	2.4	1.06	3,252.46	9,330.02	23,981.23	805.07	1,582.57	1,323.41	584.50	1,830,071
AF-AG	868	AB	0.59	8.6	15,314	131,737							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	1,713,876
													Subtotal (lbs)	**40,786.56**	**26,016.22**	**1,099.29**	**5,701.59**	**4,265.56**	**3,183.41**	**11,681,057**
													Total in Tons per Year	**30.2**	**21.2**	**0.9**	**4.2**	**3.2**	**2.3**	**8,324**

Aircraft:		B-52H	8 TF33-P-103 engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	679	Military	0.58	6.62	7,440	49,217	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**4,661.23**	**0.00**	**212.23**	**1,416.12**	**1,273.35**	**409.02**	**1,255,006**
E-EA, EA-U1	543	Military	0.38	3.47	7,440	25,787	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**2,442.23**	**0.00**	**111.19**	**741.97**	**667.17**	**214.30**	**657,554**
E-F, F-G, G-H, H-I	136	Military	0.65	1.46	7,440	10,878	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**1,030.20**	**0.00**	**46.90**	**312.98**	**281.43**	**90.40**	**277,375**
I-J, J-K, K-L, L-M, M-N, R-S, T-U1	837	Military	2.07	28.82	7,440	214,437	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	20,308.71	0.00	924.65	6,169.95	5,547.91	1,782.06	5,467,986
S-T	837	Military	0.10	1.41	7,440	10,460							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	266,731
													Subtotal (lbs)	**20,308.71**	**0.00**	**924.65**	**6,169.95**	**5,547.91**	**1,782.06**	**5,734,717**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y,Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE, AE-AF	868	Military	4.83	69.84	7,440	519,607	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	49,210.56	0.00	2,240.55	14,950.56	13,443.28	4,318.14	13,249,617
AF-AG	868	Military	0.59	8.60	7,440	64,002							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	1,631,999
													Subtotal (lbs)	**49,210.56**	**0.00**	**2,240.55**	**14,950.56**	**13,443.28**	**4,318.14**	**14,881,615**
													Total in Tons per Year	**38.8**	**0.0**	**1.8**	**11.8**	**10.6**	**3.4**	**11403**

Aircraft:		B-2	4 F118-GE-100 engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	679	Military	0.58	6.62	10,887	72,020	33.12	0.65	0.03	1.64	1.48	1.06	3,252.46	**9,350.39**	**183.51**	**8.47**	**463.00**	**417.83**	**299.26**	**936,969**
E-EA, EA-U1	543	Military	0.38	3.47	10,887	37,735	33.12	0.65	0.03	1.64	1.48	1.06	3,252.46	**4,899.09**	**96.15**	**4.44**	**242.59**	**218.92**	**156.79**	**490,920**
E-F, F-G, G-H, H-I	136	Military	0.65	1.46	10,887	15,917	33.12	0.65	0.03	1.64	1.48	1.06	3,252.46	**2,066.57**	**40.56**	**1.87**	**102.33**	**92.35**	**66.14**	**207,084**
I-J, J-K, K-L, L-M, M-N, R-S, T-U1	837	Military	2.07	28.82	10,887	313,787	33.12	0.65	0.03	1.64	1.48	1.06	3,252.46	40,739.06	799.53	36.90	2,017.27	1,820.47	1,303.85	4,082,316
S-T	837	Military	0.10	1.41	10,887	15,307							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	199,137
													Subtotal (lbs)	**40,739.06**	**799.53**	**36.90**	**2,017.27**	**1,820.47**	**1,303.85**	**4,281,453**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y, Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE, AE-AF	868	Military	4.83	69.84	10,887	760,345	33.12	0.65	0.03	1.64	1.48	1.06	3,252.46	98,715.87	1,937.36	89.42	4,888.10	4,411.22	3,159.38	9,891,964
AF-AG	868	Military	0.59	8.60	10,887	93,654							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	1,218,426
													Subtotal (lbs)	**98,715.87**	**1,937.36**	**89.42**	**4,888.10**	**4,411.22**	**3,159.38**	**11,110,390**
													Total in Tons per Year	**77.9**	**1.5**	**0.1**	**3.9**	**3.5**	**2.5**	**8513.4**

Aircraft:		T-38 Talon	2 J85-GE-5R engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	679	Military	0.58	6.62	2,778	18,377	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**138.31**	**2,232.47**	**54.03**	**81.40**	**2.88**	**76.36**	**239,083**
E-EA, EA-U1	543	Military	0.38	3.47	2,778	9,629	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**72.47**	**1,169.69**	**28.31**	**42.65**	**1.51**	**40.01**	**125,266**
E-F, F-G, G-H, H-I	136	Military	0.65	1.46	2,778	4,062	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**30.57**	**493.41**	**11.94**	**17.99**	**0.64**	**16.88**	**52,841**
I-J, J-K, K-L, L-M, M-N, T-U1	837	Military	1.64	22.92	2,778	63,664	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	479.16	7,733.93	187.17	282.01	9.98	264.54	828,256
R-S	837	AB	0.42	5.91	7,695	45,439	6.23	54.43	6.97	31.26	0.25	0.09	3252.46	1,109.70	9,695.16	1,241.51	5,568.08	44.53	16.03	591,156
S-T	837	AB	0.10	1.41	7,695	10,819							3252.46	0.00	0.00	0.00	0.00	0.00	0.00	140,752
													Subtotal (lbs)	**1,588.86**	**17,429.08**	**1,428.68**	**5,850.09**	**54.51**	**280.57**	**1,560,164**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y, Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE	868	Military	4.29	62.11	2,778	172,548	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	1,298.66	20,961.21	507.29	764.32	27.06	716.97	2,244,815
AE-AF	868	AB	0.63	9.19	7,695	70,683	6.23	54.43	6.97	31.26	0.25	0.09	3252.46	1,726.20	15,081.36	1,931.23	8,661.46	69.27	24.94	919,577
AF-AG	868	AB	0.59	8.60	7,695	66,195							3252.46	0.00	0.00	0.00	0.00	0.00	0.00	861,191
													Subtotal (lbs)	**3,024.86**	**36,042.57**	**2,438.52**	**9,425.78**	**96.32**	**741.91**	**4,025,583**
													Total in Tons per Year	**2.4**	**28.7**	**2.0**	**7.7**	**0.1**	**0.6**	**3,001**

Notes:
Emission factors and engine data from *Air Emissions Guide for Air Force Mobile sources,* AFCEE, August 2013.

TAB F-3. EMISSION CALCULATIONS FOR PROPOSED ACTION OPERATIONS

Selection of AB Mode for applicable aircraft based on indicated points of exit (Figure 2.1-1 of EA)
Note that segment designations are based on IR-187 nomenclature
Aircraft assume to spend 98% of time below 3000 feet except upon departure of route (S-T and AF-AG)
Only GHGs are calculated above 3000 ft

Aircraft:		B-1B	4 F101-GE-102 engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	1,098	Military	0.58	10.70	7,828	83,739	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**4,211.54**	**272.45**	**39.39**	**551.47**	**393.91**	**347.95**	**1,089,432**
E-EA, EA-U1	930	Military	0.38	5.94	7,828	46,469	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**2,337.10**	**151.19**	**21.86**	**306.03**	**218.59**	**193.09**	**604,556**
E-F, F-G, G-H, H-I	214	Military	0.65	2.30	7,828	18,009	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	**905.74**	**58.59**	**8.47**	**118.60**	**84.71**	**74.83**	**234,295**
I-J, J-K, K-L, L-M, M-N, T-U1	1,364	Military	1.64	37.35	7,828	292,348	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	14,703.23	951.18	137.52	1,925.29	1,375.20	1,214.76	3,803,399
R-S	1,364	AB	0.42	9.62	15,314	147,367	16.92	43.49	1.46	2.87	2.4	1.06	3,252.46	9,774.30	25,123.20	843.41	1,657.93	1,386.43	612.34	1,917,217
S-T	1,364	AB	0.10	2.29	15,314	35,087							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	456,480
													Subtotal (lbs)	**24,477.53**	**26,074.38**	**980.93**	**3,583.22**	**2,761.63**	**1,827.10**	**6,177,097**
N-O, O-P, P-Q, Q-R	1,419	Military	0.61	14.54	7,828	113,818	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	5,724.31	370.32	53.54	749.56	535.40	472.94	1,480,751
U1-V1, V1-W, W-X, X-Y,Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE	1,035	Military	3.68	63.46	7,828	496,742	12.83	0.83	0.12	1.68	1.2	1.06	3,252.46	24,982.96	1,616.20	233.67	3,271.35	2,336.68	2,064.06	6,462,538
AE-AF	1,419	AB	0.63	15.02	15,314	229,963	16.92	43.49	1.46	2.87	2.4	1.06	3,252.46	15,252.64	39,204.34	1,316.13	2,587.18	2,163.50	955.54	2,991,787
AF-AG	1,419	AB	0.59	14.06	15,314	215,363							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	2,801,832
													Subtotal (lbs)	**45,959.91**	**41,190.86**	**1,603.33**	**6,608.08**	**5,035.57**	**3,492.54**	**13,736,908**
													Total in Tons per Year	**38.9**	**33.9**	**1.3**	**5.6**	**4.2**	**3.0**	**10,921**

Aircraft:		B-52H	8 TF33-P-103 engines			Emission Factors													
						lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	18	Military	0.58	0.18	7,440	1,305	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**123.57**	**0.00**	**5.63**	**37.54**	**33.76**	**10.84**	**33,270**
E-EA, EA-U1	18	Military	0.38	0.11	7,440	855	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**80.96**	**0.00**	**3.69**	**24.60**	**22.12**	**7.10**	**21,797**
E-F, F-G, G-H, H-I	0	Military	0.65	0.00	7,440	0	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**
I-J, J-K, K-L, L-M, M-N, R-S, T-U1	12	Military	2.17	0.43	7,440	3,224	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	305.37	0.00	13.90	92.77	83.42	26.80	82,218
S-T	12	Military	0.10	0.02	7,440	150							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	3,824
													Subtotal (lbs)	**305.37**	**0.00**	**13.90**	**92.77**	**83.42**	**26.80**	**86,042.27**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y,Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE, AE-AF	12	Military	4.83	0.97	7,440	7,184	12.08	0.00	0.55	3.67	3.3	1.06	3,252.46	680.33	0.00	30.98	206.69	185.85	59.70	183,174
AF-AG	12	Military	0.59	0.12	7,440	885							3,252.46	0.00	0.00	0.00	0.00	0.00	0.00	22,562
													Subtotal (lbs)	**680.33**	**0.00**	**30.98**	**206.69**	**185.85**	**59.70**	**205,737**
													Total in Tons per Year	**0.6**	**0.0**	**0.0**	**0.2**	**0.2**	**0.1**	**173**

Aircraft:		T-38 Talon			2 J85-GE-5R engines		Emission Factors													
							lb/1000 lbs fuel burned							Emissions (lbs) per plane below 3000 ft AGL						
Segments	# Ops	Mode	Time (min)	Total Time (hr)	FFR (lb/hr) per Engine	Fuel Use (lbs) per Engine	EINOX	EICO	EIVOC	EIPM10	EIPM2.5	EISO2	EIGHG	NOX	CO	VOC	PM10	PM2.5	SO2	GHG
A-B, B-C, C-D, D-E	50	Military	0.58	0.49	2,778	1,353	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**10.19**	**164.39**	**3.98**	**5.99**	**0.21**	**5.62**	**17,606**
E-EA, EA-U1	50	Military	0.38	0.32	2,778	887	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**6.67**	**107.71**	**2.61**	**3.93**	**0.14**	**3.68**	**11,535**
E-F, F-G, G-H, H-I	0	Military	0.65	0.00	2,778	0	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**
I-J, J-K, K-L, L-M, M-N, T-U1	29	Military	1.64	0.79	2,778	2,206	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	16.60	267.96	6.49	9.77	0.35	9.17	28,697
R-S	29	AB	0.42	0.20	7,695	1,574	6.23	54.43	6.97	31.26	0.25	0.09	3252.46	38.45	335.91	43.02	192.92	1.54	0.56	20,482
S-T	29	AB	0.10	0.05	7,695	375							3252.46	0.00	0.00	0.00	0.00	0.00	0.00	4,877
													Subtotal (lbs)	**55.05**	**603.88**	**49.50**	**202.69**	**1.89**	**9.72**	**54,056**
N-O, O-P, P-Q, Q-R, U1-V1, V1-W, W-X, X-Y, Y-Z, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE	29	Military	4.29	2.08	2,778	5,765	1.92	30.99	0.75	1.13	0.04	1.06	3252.46	43.39	700.32	16.95	25.54	0.90	23.95	75,000
AE-AF	29	AB	0.63	0.31	7,695	2,362	6.23	54.43	6.97	31.26	0.25	0.09	3252.46	57.67	503.87	64.52	289.38	2.31	0.83	30,723
AF-AG	29	AB	0.59	0.29	7,695	2,212							3252.46	0.00	0.00	0.00	0.00	0.00	0.00	28,773
													Subtotal (lbs)	**101.06**	**1,204.19**	**81.47**	**314.92**	**3.22**	**24.79**	**134,495**
													Total in Tons per Year	**0.1**	**1.0**	**0.1**	**0.3**	**0.0**	**0.0**	**109**

Notes:
Emission factors and engine data from *Air Emissions Guide for Air Force Mobile sources,* AFCEE, August 2013.

TAB F-4. DIFFERENCE IN NUMBER OF SORTIE-OPERATIONS BETWEEN BASELINE AND PROPOSED ACTION (FROM TABLE 2.1-3 OF EA).

1 NM = 6076 ft
1 Mi = 5280 ft

	Distance (nm)	Distance (mi)	B1-B Baseline	B1-B New	Delta	B-52 Baseline	B-52 New	Delta	B-2 Baseline	B-2 New	Delta	Other Baseline	Other New	Delta
IR-180	25	28.8	679	1,098	419	450	18	-432	69	0	-69	23	50	27
AG-AH	23	26.5	679	1,098	419	450	18	-432	69	0	-69	23	50	27
AF-AG	7	8.1	679	1,098	419	450	18	-432	69	0	-69	23	50	27
AE-AF	3	3.5	679	1,098	419	450	18	-432	69	0	-69	23	50	27
OA-AE1	17	19.6	543	862	319	359	18	-341	55	0	-55	18	50	32
O1-OA	21	24.2	543	862	319	359	18	-341	55	0	-55	18	50	32
AD-AE	10	11.5	136	214	78	90	0	-90	14	0	-14	5	0	-5
AC-AD	6	6.9	136	214	78	90	0	-90	14	0	-14	5	0	-5
AB-AC	38	43.7	136	214	78	90	0	-90	14	0	-14	5	0	-5
AA-AB	10	11.5	136	214	78	90	0	-90	14	0	-14	5	0	-5
Z-AA	17	19.6	837	1,323	486	555	12	-543	85	0	-85	28	29	1
Y-Z	25	28.8	837	1,323	486	555	12	-543	85	0	-85	28	29	1
X-Y	32	36.8	837	1,323	486	555	12	-543	85	0	-85	28	29	1
W-X	36	41.4	837	1,323	486	555	12	-543	85	0	-85	28	29	1
V-W	31	35.7	837	1,323	486	555	12	-543	85	0	-85	28	29	1
U-V	16	18.4	868	1,378	510	575	12	-563	88	0	-88	29	29	0
T-U	25	28.8	868	1,378	510	575	12	-563	88	0	-88	29	29	0
S-T	24	27.6	868	1,378	510	575	12	-563	88	0	-88	29	29	0
R-S	10	11.5	868	1,378	510	575	12	-563	88	0	-88	29	29	0
Q-R	42	48.3	837	1,323	486	555	12	-543	85	0	-85	28	29	1
P-Q	10	11.5	837	1,323	486	555	12	-543	85	0	-85	28	29	1
O-P	22	25.3	837	1,293	456	555	12	-543	85	0	-85	28	29	1
N-O	30	34.5	868	994	126	575	12	-563	88	0	-88	29	29	0
M-N	20	23.0	868	994	126	575	12	-563	88	0	-88	29	29	0
L-M	6	6.9	868	994	126	575	12	-563	88	0	-88	29	29	0
K-L	37	42.6	868	994	126	575	12	-563	88	0	-88	29	29	0
J-K	48	55.2	868	994	126	575	12	-563	88	0	-88	29	29	0
I-J	45	51.8	868	994	126	575	12	-563	88	0	-88	29	29	0
H-I	26	29.9	868	994	126	575	12	-563	88	0	-88	29	29	0
G-H	26	29.9	868	994	126	575	12	-563	88	0	-88	29	29	0
F-G	30	34.5	868	994	126	575	12	-563	88	0	-88	29	29	0
E-F	97	111.6	868	994	126	575	12	-563	88	0	-88	29	29	0
D-E	63	72.5	868	994	126	575	12	-563	88	0	-88	29	29	0
C-D	59	67.9	868	994	126	575	12	-563	88	0	-88	29	29	0

TAB F-5. CALCULATED FLIGHT TIME BASED ON SEGMENT LENGTH

Segment length based on Table S2-4 of RBTI SEIS and Figure 2.1-1 of EA.

1 Mach = 0.2114464 miles/second
9 Mach = 1.9030176 miles/second

		Distance (mi)	Time in min		
IR-180	A-B	29	0.25		MIL
AG-AH	B-C	26	0.23		AB
AF-AG	C-D	8	0.07	not below 3K	AB
AE-AF	D-E	3	0.03		MIL
OA-AE1	E-EA (Alternate entry E1)	20	0.17		MIL
O1-OA	EA-U1	24	0.21		MIL
AD-AE	E-F	12	0.10		MIL
AC-AD	F-G	7	0.06		MIL
AB-AC	G-H	44	0.38		MIL
AA-AB	H-I (Alternate entry J1)	12	0.10		MIL
Z-AA	I-J	20	0.17		MIL
Y-Z	J-K	29	0.25		MIL
X-Y	K-L	37	0.32		MIL
W-X	L-M	41	0.36		MIL
V-W	M-N	36	0.31		MIL
U-V	N-O	18	0.16		MIL
T-U	O-P	29	0.25		AB
S-T	P-Q	28	0.24	not below 3K	AB
R-S	Q-R	12	0.10		MIL
Q-R	R-S	48	0.42		MIL
P-Q	S-T (Alternate exit T)	12	0.10		MIL
O-P	T-U1	25	0.22		MIL
N-O	U1-V1	35	0.30		MIL
M-N	V1-W	23	0.20		MIL
L-M	W-X	7	0.06		MIL
K-L	X-Y	43	0.37		MIL
J-K	Y-Z	55	0.48		MIL
I-J	Z-AA	52	0.45		MIL
H-I	AA-AB	30	0.26		MIL
G-H	AB-AC	30	0.26		MIL
F-G	AC-AD	35	0.30		MIL
E-F	AD-AE	112	0.98		MIL
D-E	AE-AF	72	0.63		MIL
C-D	AF-AG	68	0.59		MIL

Appendix E:
2012 USFWS Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

June 7, 2012

Cons. # 02ENNM00-2012-I-0065
#2-22-96-F-334

Patricia M. Ogorzaly, Chief
Environmental Branch
Department of the Air Force
Headquarters Air Combat Command/CEVP
129 Andrews St., Suite 102
Langley AFB, Virginia 23665-2769

Dear Ms. Ogorzaly:

This responds to your May 1, 2012, cover letter and biological assessment (BA) requesting reinitiation of consultation for the German Air Force Beddown (Consultation #2-22-96-F-334, May 8, 1998) and the Realistic Bombing Training Initiative (Consultation #2-22-98-I-124, April 12, 2000) in the Southwest (NM,TX, AZ). As documented in your BA, which is hereby incorporated by reference, we find that your proposed action (and corresponding mitigation measures) will have insignificant and discountable effects to the Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*) (SWWF), and Northern aplomado falcon (*Falco femoralis septentrionalis*) (NAF). Therefore, the Service concurs with your determinations of "may affect, is not likely to adversely affect" for these species. Our rationale for the MSO is detailed below, whereas your BA provides sufficient rationale for the SWWF. Finally, we also provide clarification on consultation requirements for the NAF.

Mexican spotted owl

As background, Term and Condition 1.2.1 of the biological opinion for the German Air Force Beddown (Consultation #2-22-96-F-334, May 8, 1998) required the Air Force to conduct a study to determine the effects of low-altitude military jet aircraft overflights on the occupancy and nesting success of the MSO under VR-176. The Air Force conducted a six-year study on the MSO to investigate whether low-flying F-16, T-38, and Tornado military jet aircraft affect the species. Most were Tornado aircraft, accounting for 76 percent of the tracked flights; F-16 aircraft accounted for another 22 percent. Other aircraft were also occasionally used in the study (e.g., transiting aircraft from Holloman and other U.S. Air Force bases, included C-130 transports and A-10, F-14, F-18, and F-117A jets), but all were at altitudes greater than 500 ft.

Overall, the study did not find any effects of military jet aircraft on MSO nesting success, habitat use, or activity center occupancy. Females were never observed flushing from nests in response to military jets or other low-flying aircraft. No effects of military jet aircraft activity were found on owl nesting success. Instead, natural habitat characteristics, particularly topography, forest cover and characteristics distance to water sources, and precipitation explained occupancy and nest success. Based on this information, the Air Force concluded that the results did not support the hypotheses that military jet overflights affect occupancy or use of the habitat at night.

Behavior observations and experiments demonstrated that MSO flight responses were stimulated by close approach and not military aircraft. Significant increases in flight responses were observed after exposure to noise at very close range, within 66 ft (20 m) in the case of roosting and guarding adults and 132 ft (40 m) in the case of brooding females and owlets. Still, flushing was never observed in response to acoustic disturbances other than playback experiments at very close range. The results were consistent with those of studies with other noise sources (Delaney et al. 1999; Swarthout and Steidl 2001; Tempel and Gutiérrez 2003). The available research supports the conclusion that MSO do not respond with flight or indications of stress unless approached closely. In this study, MSO flight responses were not elevated in response to military aircraft. Flushing or other high intensity responses (e.g., calling, freezing, or movement from branch to branch) were only likely to be elicited at ranges so close that aircraft could not be expected to approach them except under unusual conditions. Based on controlled experiments with artificial sound sources, the Air Force concluded that it is likely owls did not fly because military jet aircraft could not approach within the range at which flight was likely to be observed.

The Air Force concluded that based on the combined results of military jet aircraft overflight and playback experiments during the study, results of Johnson and Reynolds (2002), and results of a previous study using helicopters (Delaney et al. 1999), flight is only stimulated in MSO by approach at close range, particularly within 132 ft (40 m). The results are also consistent with studies on recreationists (Swarthout and Steidl 2001, 2003), which showed that MSO were unlikely to fly until approached within 25 m. Females were never observed flushing from nests in response to military jets or other low-flying aircraft, including U.S. Forest Service (USFS) fixed-wing aircraft and helicopters. The only flushing responses observed during the study were to study crews climbing trees within 50 ft (15 m) at the level of the nest and to unexpected playback of overflight noise at 26 ft to 33 ft (8 m to 10 m).

The Air Force reported that MSO flights in response to military jet aircraft overflights were so rare that the rate could not be distinguished from normal rates of flights. They suggest that this study and previous research demonstrate that flight and flushing are close-range defensive responses of MSOs. The Air Force believes it was not surprising that owls did not fly during military jet overflights because military jet aircraft came within 500 ft (152 m) of owls during only 40 of the 282 overflight experiments (14 percent). The closest approach was to 253 ft (77 m). Nearly all the close approaches (within 500 ft) were made in 2004, when the captain of the German Air Force squadron initiated a focused effort to bring aircraft close to nests. The pilot reported that aircraft could not safely approach within 328 ft (100 m) in heavily forested habitat, and the minimum flight distance was increased in the following year. Thus, there would be little

likelihood of approach by military aircraft within the range expected to produce flight responses, because this range would be unsafe for pilots flying over heavily forested MSO habitat.

Data were collected on 340 adult and 164 owlet responses. Adult responses to military jet aircraft differed from those of owlets. A total of 81 percent of adult responses involved either no movement or brief orienting. Alerting, a behavior that observers associated with perception of unexpected stimuli, was uncommon (15 percent of responses), as were stronger responses, such as short movements and vocalizations (<5 percent of responses). Owlets exhibited stronger responses. Of the total, 50 percent alerted and 8 percent moved from branch to branch or vocalized.

The results of noise monitoring indicated that aircraft contributed little to the overall noise environment. The responses of MSO to military jet aircraft were primarily of low intensity (no response, orienting, alerting), accounting for 96 percent of adult and 92 percent of owlet responses to military jet overflights. Brooding females and owlets never flew in response to aircraft. Moreover, no abrupt flushing responses by adults or owlets were ever observed in response to any aircraft, including military jet aircraft and low-flying USFS firefighting helicopters (Aerospatiale Lama, Bell 206, and Bell 407). Although several hundred overflights were attributed to USFS helicopters per season, these, along with military transports and civilian light aircraft, were not large contributors to the noise environment. Combined, these were only detectable during 390 hours out of the 334,581 hours of usable data. Typically, these aircraft flew at altitudes from 500 ft to 3000 ft (152 m to 914 m).

Because vocalization was the only other behavior elicited by aircraft disturbance that could be conceived to pose a direct risk to adults or young, the Air Force investigated the possibility that vocalizations stimulated by overflights could expose MSO to predation. No relationship was found between the rates of adult vocal behavior and measures of aircraft exposure. In anecdotal observations, adult MSO waited until noise from aircraft fell below background levels before calling, suggesting that they listened for potential danger. In contrast to the adults, owlet call rates increased five-fold after overflights, comparable to rates detected after other disturbances, such as the start of thunderstorms. Still, no instances of approach by known MSO predators (red-tailed hawk, Northern goshawk, or great horned owl) were seen after exposures to either military jet aircraft or playback stimuli. In other words, no evidence was found that predators were attracted due to vocalizations of adults or owlets following aircraft disturbance.

Based on the noise effects study and monitoring efforts presented in your biological assessment, you concluded that your proposed action "may affect, is not likely to adversely affect" the MSO. We concur with your determination.

Northern aplomado falcon

In our May 24, 2011, response letter to you, we suggested two conservation measures for the NAF. The current BA indicates that you intend to cease the survey and monitoring requirements for the NAF from the 1998 BO. You are proposing to use monitoring data that reports nesting

locations under IR-178/Lancer MOA to establish avoidance areas. One of our recommended conservation measures from the May 2011 letter was an attempt to provide consultation efficiency to the Air Force by establishing aircraft avoidance criteria prior to any discovery of future nesting NAFs. Because you are not proposing to either establish aircraft avoidance areas or criteria, if NAF nesting pair or pairs are discovered under IR-178/Lancer MOA, consultation must be reinitiated. During the NAF nesting season contact Patricia Zenone, Ph.D., 2105 Osuna NE, Albuquerque, New Mexico, (505) 761-4718 or Patricia_Zenone@fws.gov for up-to-date location(s) of NAF nesting pair or pairs. Because there are no known nesting NAF in this area currently, we concur with your determination of "may affect, is not likely to adversely affect".

This concludes section 7 consultation regarding the proposed action. The consultation supersedes the previous consultations (#2-22-96-F-334 and #2-22-98-I-124). If monitoring or other information results in modification or the inability to complete all aspects of the proposed action, consultation should be reinitiated. Please contact the Service if: 1) future surveys detect listed, proposed or candidate species in habitats where they have not been previously observed (e.g., NAF nesting under the IR-178/Lancer MOA); 2) the proposed action changes or new information reveals effects of the proposal to listed species that have not been considered in this analysis; or 3) a new species is listed or critical habitat designated that may be affected by the action.

Thank you for your concern for endangered species and New Mexico's wildlife habitats. If you have any questions, please contact Eric Hein of my staff at the letterhead address or at (505) 761-4735.

Sincerely,

for Wally Murphy
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division, Santa Fe, New Mexico

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