Environmental Assessment for Lowering Base Altitude of Military Operations Areas

Vance Air Force Base

United States Air Force
Air Education and Training Command
71st Flying Training Wing
Vance Air Force Base, Oklahoma

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14. ABSTRACT

The 71 FTW at Vance AFB is considering lowering the base altitude of the Vance Military Operations Areas (MOAs) 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) to 8,000 feet MSL, in order to create the additional 2,000 feet of airspace needed for Introduction to Fighter Fundamentals (IFF) graduate level Air-to-Air training. The 2005 Base Realignment and Closure Commission mandated the establishment of IFF training at Vance AFB and this addition necessitated the need for additional airspace. Effective training is hampered with the existing 14,000 feet of vertical airspace. The additional 2,000 feet of airspace resulting from the Proposed Action would provide for a greater margin of safety when considering the aircraft performance envelope. Training effectiveness would increase because the aircrew can focus more on each individual event knowing they have the greater margin of safety provided by the additional airspace. There would be no new missions, personnel or aircraft assigned to Vance AFB as a result of the Proposed Action. Under the No-action Alternative, Vance AFB would continue to operate within the existing boundaries of MOAs 1A, 1C, and 1D, with base altitudes at 10,000 feet MSL and upper limits up to but not including Flight Level (FL), with Air Traffic Control Assigned airspace from FL180 to FL240. The following resources were identified for study in this Supplemental EA: Noise; Airspace Management and Air Traffic Control, Aircraft Safety, and Bird/Wildlife-Aircraft Strike Hazard Land Use, and Biological Resources.

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FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT
LOWERING BASE ALTITUDE OF MILITARY OPERATIONS AREAS

VANCE AIR FORCE BASE, OKLAHOMA

AGENCIES: Proponent - 71st Flying Training Wing, Vance Air Force Base (AFB), Oklahoma; Cooperating - Department of Transportation, Federal Aviation Administration (FAA), Air Traffic Organization

BACKGROUND: Additional vertical airspace is needed to support the Introduction to Fighter Fundamentals (IFF) training as part of Vance AFB's flying training mission. Pursuant to National Environmental Policy Act (NEPA), 32 Code of Federal Regulations (CFR) 989 (*Air Force Environmental Impact Analysis Process*), and other applicable regulations, Vance AFB completed an environmental assessment (EA) of the potential environmental consequences of lowering the base altitude of the Vance 1A, 1C, and 1D Military Operations Areas (MOAs) from 10,000 feet mean sea level (MSL) to 8,000 feet MSL. The attached EA, which is incorporated by reference and supports this Finding of No Significant Impact, evaluated the No-action Alternative and Proposed Action.

PROPOSED ACTION: The Air Force proposes to lower the base altitude of the Vance AFB MOAs 1A, 1C, and 1D from 10,000 feet MSL (8,700 feet above ground level [AGL]) to 8,000 feet MSL (6,700 feet AGL), to create the additional 2,000 feet of airspace needed for IFF graduate level Air-to-Air training. This expanded vertical airspace will be utilized by IFF T-38C aircraft, as well as by Joint Specialized Undergraduate Pilot Training (JSUPT) T-38C and T-1 aircraft. A total of 15,409 annual sorties will be flown in the MOAs, with 48 of the sorties occurring during nighttime (*i.e.*, 10:00 p.m. to 7:00 a.m.). There will be no change in the numbers of personnel at Vance AFB or the types of Vance AFB aircraft sorties within the MOAs as a result of the Proposed Action.

NO-ACTION ALTERNATIVE: Under the No-action Alternative, Vance AFB would continue to operate within the existing boundaries of the 1A, 1C, and 1D MOAs, with base altitudes at 10,000 feet MSL and upper limits up to but not including Flight Level (FL) 180, with Air Traffic Control assigned airspace from FL180 to FL240. A total of 15,356 annual sorties will be flown in the MOAs, with 60 of the sorties occurring during nighttime (*i.e.*, 10:00 p.m. to 7:00 a.m.).

SUMMARY OF FINDINGS FOR THE PROPOSED ACTION:

Noise. The general population will not be exposed to risk from the effects of aircraft noise, because the noise levels will be below the United States Environmental Protection Agency-identified level requisite to protect the public health and welfare with an adequate margin of safety. The maximum noise from a single T-38C overflight at 8,700 feet AGL (*i.e.*, the current base altitude of the MOAs) is 63 dBA, while the noise from the aircraft at 6,700 feet AGL (*i.e.*, the proposed base altitude of the MOAs) is 67 dBA, an increase of four dBA at the lower altitude. Similarly, the maximum noise from a single T-1 overflight

at 8,700 feet AGL is 58 dBA while the noise from the aircraft at 6,700 feet AGL is 62 dBA, an increase of four decibels at the lower altitude. Listeners in normal communication in a steady background noise of 56 decibels (dB) that increases to 66 dB due to aircraft noise and are at a distance of ten feet from each other will have to move to about three feet apart to maintain the same intelligibility or raise their voices. Their speech intelligibility will decrease considerably if they remain at ten feet of separation. These conditions will last only as long as noise from the overflying aircraft remains at 66 dB or greater. Hearing damage will not occur. No land will be exposed to Day-Night Average Sound Level 55 A-weighted sound pressure levels (dBA) and greater, the level "...requisite to protect the public health and welfare with an adequate margin of safety." Annoyance and non-auditory health effects will not occur.

Airspace Management and Air Traffic Control, Aircraft Safety, and Bird/Wildlife-Aircraft Strike Hazard. The expanded MOAs will provide the airspace necessary to safely accomplish all training events. Additionally, the MOAs will have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions. Vance AFB Radar Approach Control would provide separation service for the expanded MOAs. The FAA's Kansas City Air Route Traffic Control Center will continue to provide radar service for the MOA airspace when the MOAs are inactive. The MOAs have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions. The risk is low that an aircraft involved in an accident or bird-aircraft strike incident within the MOA will strike a person or structure on the ground.

Land Use. Noise from aircraft operations in the MOAs will be below the maximum level considered acceptable for unrestricted residential use. The noise from aircraft operating in the MOAs will not cause noncompliance with ordinances or conflict with land use plans and established uses of an area.

Biological Resources. The Proposed Action will not cause a potential decline or disruption of wildlife populations below the MOAs.

Most bird migration occurs below 3,000 feet AGL. Most bird strikes associated with Vance AFB operations have occurred below 5,000 feet AGL, which compares closely with overall Air Force bird-aircraft strike data. There will be no impact on the viability of any bird species population from the Proposed Action. The few bird-aircraft strikes for any species are too low to affect the viability of the species population.

SUMMARY OF FINDINGS FOR NO-ACTION ALTERNATIVE: The conditions and characteristics anticipated under the No-action Alternative for each resource area would continue at levels equal to those occurring under the existing, baseline conditions.

SUMMARY OF CUMULATIVE EFFECTS: No other past, present, and reasonably foreseeable future actions were identified for the area surrounding the project area. Therefore, there will be no cumulative impacts.

SUMMARY OF PUBLIC REVIEW AND INTERAGENCY COORDINATION: Several comment letters were received during the public comment period, resulting in six

unique comments, which are included in Appendix A of the attached EA. Four of the comments noted concurrence with the EA findings or noted that no comments would be submitted. One comment from the FAA requested use of a specific noise model for analysis, as well as other recommended text changes. This EA has incorporated those text edits, as well as use of the suggested noise model for determining noise impacts. One comment letter from the United States Fish and Wildlife Service (USFWS) requested a detailed analysis of impacts to biological resources, with emphasis on migratory bird impacts, as well as an expanded analysis of bird-aircraft strike hazards. An analysis of biological impacts has been included in the EA, and the analysis of bird-aircraft strike hazards was expanded. The USFWS also requested an analysis of cumulative effects resulting from wind energy projects constructed in the transition area between Vance AFB and the MOAs; however, after further discussion with the USFWS, it was determined that this analysis was not warranted in conjunction with this Proposed Action. On October 6, 2010, the USFWS issued a No Objection Finding for the attached Preliminary Final EA, which is included as Appendix C in the EA.

FINDING OF NO SIGNIFICANT IMPACT: Based upon my review of the EA, I conclude that the Proposed Action will not have a significant direct, indirect, or cumulative impact upon the environment. Accordingly, the requirements of the NEPA, regulations promulgated by the President's Council on Environmental Quality, and 32 CFR Part 989 are fulfilled, and an Environmental Impact Statement is not required at this time.

Russell L. Mack

RUSSELL L. MACK
Colonel, USAF
Commander

20 JAN 2011
Date

Cover Sheet

COVER SHEET

Responsible Agency: 71st Flying Training Wing (71 FTW), Vance Air Force Base (AFB), Oklahoma

Cooperating Agency: Department of Transportation, Federal Aviation Administration, Air Traffic Organization

Proposed Action: Lowering Base Altitude of Military Operations Areas, Garfield County, Oklahoma

Points of Contact: Vance AFB Environmental: Mr. Paul Heeren, AETC 71LRS/CE, 140 Channel Street, Ste 231, Vance AFB, Oklahoma 73705, (580) 213-7072

Report Designation: Final Environmental Assessment (FEA)

Abstract: The 71 FTW at Vance AFB is considering lowering the base altitude of the Vance Military Operations Areas (MOAs) 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) to 8,000 feet MSL, in order to create the additional 2,000 feet of airspace needed for Introduction to Fighter Fundamentals (IFF) graduate level Air-to-Air training. The 2005 Base Realignment and Closure Commission mandated the establishment of IFF training at Vance AFB and this addition necessitated the need for additional airspace. Effective training is hampered with the existing 14,000 feet of vertical airspace. The additional 2,000 feet of airspace resulting from the Proposed Action would provide for a greater margin of safety when considering the aircraft performance envelope. Training effectiveness would increase because the aircrew can focus more on each individual event knowing they have the greater margin of safety provided by the additional airspace. There would be no new missions, personnel or aircraft assigned to Vance AFB as a result of the Proposed Action. Under the No-action Alternative, Vance AFB would continue to operate within the existing boundaries of MOAs 1A, 1C, and 1D, with base altitudes at 10,000 feet MSL and upper limits up to but not including Flight Level (FL), with Air Traffic Control Assigned airspace from FL180 to FL240.

The following resources were identified for study in this Supplemental EA: Noise; Airspace Management and Air Traffic Control, Aircraft Safety, and Bird/Wildlife-Aircraft Strike Hazard; Land Use, and Biological Resources.

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Acronyms and Abbreviations

ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFI	Air Force Instruction
AGL	above ground level
AHAS	Aviation Hazard Advisory System
ARTCC	Air Route Traffic Control Center
ATCAA	Air Traffic Control Assigned Airspace
ATIS	Automated Terminal Information Service
BAM	Bird Avoidance Model
BASH	Bird/Wildlife-Aircraft Strike Hazard
BRACC	Base Realignment and Closure Commission
BWC	Bird Watch Conditions
CBC	Christmas Bird Count
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
dBA	"A-weighted" decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DOT	US Department of Transportation
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
FAA	Federal Aviation Administration
FICAN	Federal Interagency Committee on Aviation Noise
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
FL	Flight Level
FTW	Flying Training Wing
FY	fiscal year
GEIAP EA	Environmental Assessment Installation Development at Vance Air Force Base Oklahoma, April 2007
GIS	Geographic Information System
HUD	US Department of Housing and Urban Development
Hz	hertz
IICEP	Intergovernmental and Interagency Coordination for Environmental Planning
IFF	Introduction to Fighter Fundamentals
IFR	instrument flight rules
JSUPT	Joint Specialized Undergraduate Pilot Training
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
L_{eq}	Average Noise
L_{max}	Maximum Sound Level
M-F	Monday through Friday
MOA	Military Operations Area
msl	mean sea level
MTR	Military Training Routes

NEPA	National Environmental Policy Act
NM	nautical mile
NOTAM	Notice to Airmen
NWR	National Wildlife Refuge
RAPCON	Radar Approach Control
ROI	Region of Influence
SEL	Sound Exposure Level
SOF	Supervisor of Flying
SUA	Special Use Airspace
USEPA	United States Environmental Protection Agency
UTBNI	up to but not including
VFR	visual flight rules

Chapter 1

Purpose of and Need for Action

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

This chapter has six parts: a statement of the purpose of and need for action, a description of the location of the proposed and alternative actions, identification of the decision to be made, a description of the scope of the environmental review, identification of applicable regulatory requirements, and an introduction to the organization of the document.

1.1 PURPOSE OF AND NEED FOR ACTION

The 71st Flying Training Wing (FTW) at Vance Air Force Base (AFB), Oklahoma is proposing to lower the base altitude of the Vance Military Operations Areas (MOAs) 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) (approximately 8,700 feet above ground level [AGL]) to 8,000 feet MSL (approximately 6,700 feet AGL). The MOAs would extend up to but not include Flight Level (FL) 180, with Air Traffic Control Assigned Airspace (ATCAA) from FL180 to FL240. There would be no changes to the lateral boundaries of the MOAs. The additional 2,000 feet of vertical airspace is needed to support the Introduction to Fighter Fundamentals (IFF) training as part of Vance AFB's ongoing Joint Specialized Undergraduate Pilot Training (JSUPT) mission. Effective training is hampered with the existing 14,000 feet of vertical airspace. As the Air Force's only JSUPT Wing, Vance AFB is responsible for training Air Force, Navy, Marine Corps and allied student pilots for worldwide deployment and Aerospace Expeditionary Force support (USAF 2009). Prospective fighter pilots accomplish IFF training in the T-38C at Vance AFB, where they are introduced to maneuvers such as Advanced Aircraft Handling, Basic Fighter Maneuvers, Air Combat Maneuvering, Tactical Intercepts, Air Combat Tactics, and Dissimilar Air Combat Tactics.

Establishment of IFF training at Vance AFB was a 2005 Base Realignment and Closure Commission (BRACC)-mandated addition that necessitated additional airspace. The BRACC statute required all such actions be implemented by 15 September 2011. The proposed 16,000-foot MOAs would allow IFF aircraft the vertical airspace needed for fully effective training. The larger MOAs would allow a greater margin of safety when considering the aircraft performance envelope. The expanded airspace near Vance AFB would be utilized by IFF T-38C aircraft, as well as the T-38C and T-1 aircraft used in JSUPT. T-6 aircraft are utilized in JSUPT; however, they do not use the Vance 1A, 1C, or 1D MOAs. This Supplemental Environmental Assessment (EA) will analyze the impacts from IFF and JSUPT aircraft, as well as fighter pilot training operations associated with lowering the base altitudes of Vance MOAs 1A, 1C, and 1D.

1.2 LOCATION OF THE PROPOSED ACTION

Vance AFB is located four miles south of Enid, Oklahoma, in Garfield County. MOA 1A is located adjacent to Vance AFB to the west and north. MOA 1C is located just west of the boundary of MOA 1A. MOA 1D is located adjacent to MOA 1C to the northeast. Table 1-1 shows the size of each MOA and the distance of each MOA from Vance AFB. Figure 1-1 shows an overview of the MOAs in relationship to Vance AFB.

Table 1-1 MOA Size and Distance from Vance AFB

MOA	Size of MOA (acres)	Distance to Vance AFB (NM)
1A	1,730,034	18
1C	3,041,557	44
1D	422,928	44

Notes:
MOA – Military Operations Area
NM – nautical mile

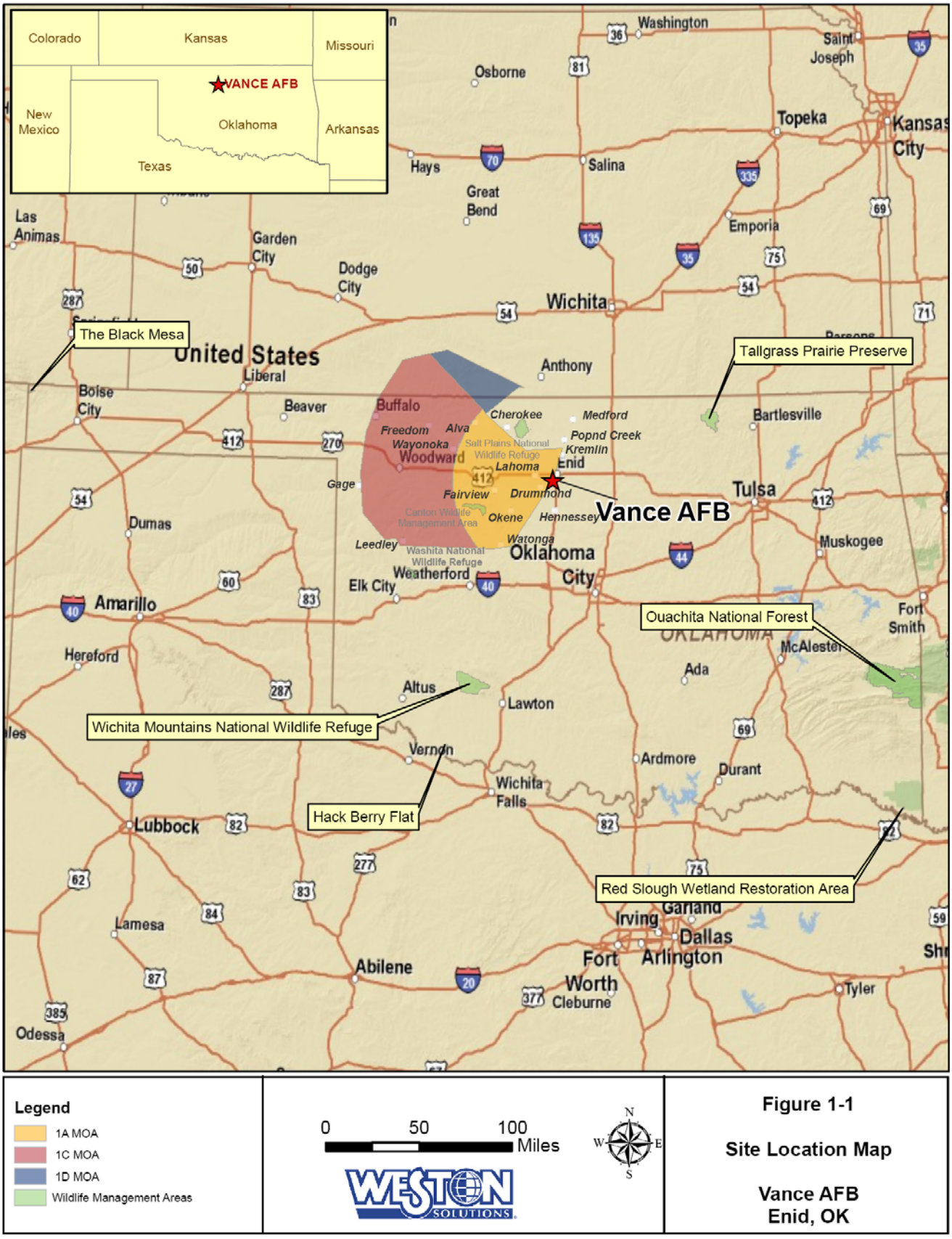

Figure 1-1

Site Location Map

Vance AFB
Enid, OK

1.3 DECISION TO BE MADE

This analysis evaluates the potential environmental consequences from IFF and JSUPT aircraft, as well as fighter pilot training operations associated with lowering the Vance MOAs 1A, 1C, and 1D base altitudes. Based on this analysis, Vance AFB will determine whether to allow implementation of the Proposed Action or take no action (No-action Alternative). As required by the National Environmental Policy Act (NEPA) and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project, and must be available to inform decision-makers of the potential environmental impacts of selecting the Proposed Action or No-action Alternative.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

The NEPA requires Federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The Air Force *Environmental Impact Analysis Process* (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] Sections 1500-1508), Department of Defense (DoD) Instruction 4715.9 *Environmental Planning and Analysis,* and 32 CFR 989 (EIAP), 15 July 1999, and amended 1 July 2005. These Federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

This Supplemental EA identifies, describes, and evaluates the potential environmental impacts that are associated with lowering the base altitudes of Vance MOAs 1A, 1C, and 1D, taking into consideration possible cumulative impacts from other actions. The potential environmental effects of taking no action are also described. As appropriate, the affected environment and environmental consequences of the action may be described in terms of a regional overview or a site-specific description. Fiscal year (FY) 2009 or the most current information is used as the baseline condition.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by the President on 11 February 1994. In the EO, the President instructed each Federal agency to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Adverse is defined by the Federal Interagency Working Group on Environmental Justice as "having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms." This Supplemental EA will determine if the proposed or alternative actions would result in adverse effects to low-income or minority populations.

Through Intergovernmental and Interagency Coordination for Environmental Planning (IICEP), requests have been made for information on planned actions in the surrounding community. If any concurrent actions are identified during the EA process, they will be examined only in the

context of potential cumulative impacts. A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

1.4.1 Resource Areas Addressed in Detail

Resource areas that could be affected by the Proposed Action or No-action Alternative have been selected to allow for a comprehensive analysis of potential impacts. The intent of this Supplemental EA is to meet the NEPA requirements established in 32 CFR 989 (EIAP) and the U.S. Department of Transportation, Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures* (FAA 2004). The FAA may adopt this Supplemental EA to fulfill its NEPA requirements established in Order 1050.1E. The following resource areas are discussed in detail in the Supplemental EA:

- Airspace Use and Management (to include aircraft safety and Bird/Wildlife Aircraft Strike Hazard [BASH]);
- Noise;
- Land Use; and,
- Biological Resources.

1.4.2 Resource Topics Eliminated from Detailed Analysis

Some resource areas would not be affected by the Proposed Action or No-action Alternative. Resource areas that have been eliminated from further detailed study in this document and the rationale for eliminating them are presented below:

- Air Quality: There would be no change in the number of aircraft, flying hours, or vehicles assigned to the installation and no new emission sources introduced as part of the Proposed Action. Therefore, air quality would not be affected by the Proposed Action.
- Coastal Resources: Because Oklahoma is a land-locked state, and the Vance 1A, 1C, and 1D MOAs do not overlie coastal resources, the Proposed Action would not affect coastal resources.
- Earth Resources: No activities associated with the Proposed Action would cause ground disturbance. Therefore, the Proposed Action would not impact any earth resources.
- Cultural Resources: Activities associated with the Proposed Action would not cause ground disturbance; therefore, cultural resources would not be affected. The maximum noise from a single T-38C or single T-1 overflight at 6,700 feet AGL would be 56 or 47 decibels, respectively. These noise levels are well below the level at and above which structural damage could occur (*i.e.*, 127 decibels).
- Water Resources: All activities associated with the Proposed Action would occur within airspace and would therefore not impact any water resources, including ground water, surface water, floodplains, and wetlands. The Vance 1A, 1C, and 1D MOAs do not

overlie any river segments designated to be eligible to be included in the Wild and Scenic Rivers System.

- Hazardous Materials and Wastes: Activities associated with the Proposed Action would not utilize additional hazardous materials or generate additional hazardous waste.
- Ground Safety: There would be no change in the number of personnel, aircraft, flying hours, or vehicles assigned to the installation under the Proposed Action. Therefore, there would be no impact to ground safety.
- Utilities and Infrastructure: There would be no change in the number of personnel, aircraft, flying hours, or vehicles assigned under the Proposed Action. Therefore, no impact to any utilities or infrastructure (*e.g.*, water, energy [natural gas and electricity]; wastewater treatment, solid waste management) would occur.
- Socioeconomic Resources: There would be no change in population or purchase of additional resources associated with the Proposed Action; therefore, there would be no impact to socioeconomic resources.
- Environmental Justice and Environmental Health and Safety of Children: All activities associated with the Proposed Action would occur within airspace over agricultural lands, and no low-income or minority populations are located under Vance MOAs 1A, 1C, or 1D. Therefore, there would be no impacts to Environmental Justice communities. Likewise, the Proposed Action would not cause environmental health risks and safety risks that may disproportionately affect children.
- Farmlands: None of the activities associated with the Proposed Action have the potential to convert farmland to non-agricultural uses.
- Department of Transportation Act: Section 4(f): Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o 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 purposes of section 303(c) of title 49, United States Code." Note that section 4(f) of the US Department of Transportation (DOT) Act was codified and renumbered in 1983 as section 303(c) of 49 United States Code.
- Secondary (Induced) Impacts: The Proposed Action would not cause shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity.
- Light Emissions and Visual Impacts: The Proposed Action would not produce lighting that would annoy people or situations where the visual sight of aircraft would be intrusive.

1.5 COOPERATING AGENCY AND FAA ENVIRONMENTAL IMPACT ANALYSIS CATEGORIES

In conjunction with the EIAP associated with relocation of the IFF course from Moody AFB, Georgia to Vance AFB, the Air Force requested in June 2006 FAA participation as a cooperating agency in the preparation of the EA that assessed establishing and operating the IFF course at Vance AFB. Appendix B contains the request as well as the FAA's acceptance as a cooperating agency for the EA, which was entitled *Environmental Assessment Installation Development at Vance Air Force Base Oklahoma, April 2007* (GEIAP EA). The FAA reaffirmed its desire to be a cooperating agency for this Supplemental EA via a letter dated 4 February 2010 (see Appendix B).

Based on FAA Order 1050.1e, Section 518h, the FAA may adopt, in whole or in part, draft, or final environmental impact statements (or assessments) prepared by other agencies (see 40 CFR 1506.3). The FAA's action triggering NEPA is the change to the MOA but does not include any changes to the ATCAAs. When the FAA adopts another agency's NEPA document in whole or in part, the responsible FAA official must independently evaluate the information contained in the document, take full responsibility for scope and content that addresses FAA actions, and issue its own FONSI or ROD. Table 1-2 lists the FAA's environmental impact analysis categories and the section that contains the impact analysis for each category for the action evaluated in this Supplemental EA.

Table 1-2 Federal Aviation Administration Environmental Impact Analysis Categories

Impact Analysis Category	Section Containing Impact Analysis
Air Quality	Section 1.4.2
Coastal Resources	Section 1.4.2
Compatible Land Use	Sections 3.3 and 4.3
Construction Impacts	Section 1.4.2
Department of Transportation Act: Sec. 4(f)	Section 1.4.2
Farmlands	Section 1.4.2
Fish, Wildlife, and Plants	Section 1.4.2
Floodplains	Section 1.4.2
Hazardous Materials, Pollution Prevention, and Solid Waste	Section 1.4.2
Historical, Architectural, Archaeological, and Cultural Resources	Section 1.4.2
Light Emissions and Visual Impacts	Section 1.4.2
Natural Resources and Energy Supply	Section 1.4.2
Noise	Sections 3.1 and 4.1
Secondary (Induced) Impacts	Section 1.4.2
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	Section 1.4.2
Water Quality	Section 1.4.2
Wetlands	Section 1.4.2
Wild and Scenic Rivers	Section 1.4.2

Source: FAA 2004

1.6 APPLICABLE REGULATORY REQUIREMENTS

This Supplemental EA is part of the EIAP for the proposed project and was prepared in compliance with NEPA regulations. The following paragraphs describe the laws and regulations that apply or may apply to the proposed and alternative actions.

1.6.1 Interagency and Intergovernmental Coordination

Federal, state, and local agencies with jurisdiction that could be affected by the proposed or alternative actions have been notified and consulted. A complete listing of the agencies consulted may be found in Chapter 6 and IICEP correspondence and responses are included in Appendix A. This coordination fulfills the Interagency Coordination Act and EO 12372 *Intergovernmental Review of Federal Programs* (14 July 1982), which requires Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. EO 12372 is implemented by the Air Force in accordance with Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning.*

1.6.2 Permits

No permits would be required as a result of the Proposed Action.

1.6.3 Other Regulatory Requirements

The EA considers all applicable laws and regulations, including but not limited to FAA, Order JO 7400.2G, *Procedures for Handling Airspace Matters*, April 10, 2008 and FAA Order 1050.1E.

1.7 INTRODUCTION TO THE ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters.

Chapter 1 Contains a statement of the purpose of and need for action, the location of the proposed and alternative actions, identification of the decision to be made, a summary of the scope of the environmental review, identification of applicable regulatory requirements, and a description of the organization of the document.

Chapter 2 Describes the history of the formulation of alternatives, identifies alternatives eliminated from further consideration, provides a detailed description of the Proposed Action, describes the No-action Alternative, summarizes other actions announced for the project sites and the surrounding community, provides a comparison matrix of environmental effects for all alternatives, identifies the preferred alternative, and describes measures to minimize or reduce impacts.

Chapter 3 Contains a general description of the current conditions of the resources that could potentially be affected by the proposed or alternative actions.

Chapter 4 Provides an analysis of the environmental consequences of the proposed and alternative actions.

Chapter 5 List preparers of this document.

Chapter 6 Lists persons and agencies consulted in the preparation of this EA.

Chapter 7 Lists source documents relevant to the preparation of this EA.

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Chapter 2

Description of the Proposed Action and Alternatives

CHAPTER 2
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter has eight parts: a brief history of the formulation of alternatives, identification of alternatives eliminated from further consideration, a description of the Proposed Action, a description of the No-action Alternative, identification of other proposed actions planned for the communities surrounding the proposed training areas, a summary of environmental impacts of all alternatives, identification of the preferred alternative, and a description of measures to minimize impacts.

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

In April 2007, Vance AFB added IFF to its ongoing JSUPT mission. The IFF mission uses the T-38C aircraft to perform graduate level Air-to-Air training. This training involves high speeds (200-500 knots), high G-forces (-1.0 g to +7.0 g's), and a moderate Air Combat Training vertical maneuvering block of 16,000 feet. In order to accommodate the airspace required for IFF training, additional Vance AFB airspace is needed. Only three methods exist for providing the needed additional airspace: 1) create new MOAs; 2) raise the upper limit altitudes of existing MOAs; and 3) lower the base altitudes of existing MOAs. Evaluation of these methods resulted in the formulation of the Proposed Action to lower the base altitudes of the Vance MOAs 1A, 1C, and 1D, from 10,000 feet MSL (approximately 8,700 feet AGL) to 8,000 feet MSL (approximately 6,700 feet AGL).

2.2 SELECTION CRITERIA FOR ALTERNATIVES

To meet IFF training requirements, airspace must:

- Be near Vance AFB to reduce "transit" time between the Base and the MOA entry/exit points. Transit time is undesirable in flying training programs because training events are not accomplished during that time. Additionally, reduced transit time results in more fuel available for accomplishing the important training events. Flying training programs are developed to be efficient and effective by maximizing the number of training events accomplished in the shortest period possible and conserving valuable training funds. Provide 16,000 feet of unencumbered vertical airspace.
- Be available for IFF training by 15 September 2011 based upon the 2005 BRACC mandate.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Vance AFB considered possible alternatives in addition to the Proposed Action.

- Create a New MOA Alternative. The alternative would create a new MOA. As mentioned in Section 1.1, establishment of IFF training at Vance AFB was mandated by BRACC, which required that all actions be completed by 15 September 2011. The time required to identify, process, and establish a new MOA in accordance with FAA

regulations would preclude meeting the 2011 BRACC-mandated completion date; therefore, this alternative is not reasonable.

- Increase the Upper Limits of the Vance 1A, 1C, and 1D MOAs Alternative. This alternative would create the additionally required 2,000 feet of vertical airspace needed for IFF training by increasing the upper limits of the airspace from FL240 to FL260. This alternative is not reasonable because the FAA uses the 2,000 feet of vertical airspace for transcontinental air traffic as well as for aircraft arrivals and departures from airports at Oklahoma City, Oklahoma, Wichita, Kansas, and Kansas City, Missouri.

2.4 DETAILED DESCRIPTION OF THE PROPOSED ACTION

Under the Proposed Action, Vance AFB would lower the base altitudes of Vance MOAs 1A, 1C, and 1D from 10,000 feet MSL (approximately 8,700 feet AGL) to 8,000 feet MSL (approximately 6,700 feet AGL). This would provide the 16,000 feet of vertical airspace needed for IFF graduate level Air-to-Air training. The additional 2,000 feet of airspace would provide for a greater margin of safety when considering the aircraft performance envelope. Training effectiveness would increase because the aircrew can focus more on each individual event knowing they have the greater margin of safety provided by the additional airspace. This expanded vertical airspace would be utilized by IFF T-38C aircraft, as well as by JSUPT T-38C and T-1 aircraft.

The Vance MOAs 1A, 1C, and 1D would continue to be active and be available for pilot training operations one hour before sunrise to one hour after sunset, Monday through Friday, and at other times by announcement through the Notice to Airmen (NOTAM) system. However, the MOAs would be operated on a "real time" basis with airspace and operations outside the 47 nautical-mile arc from Vance AFB returned, as needed, to Kansas City Air Route Traffic Control Center (ARTCC). This is consistent with the current airspace air traffic control procedures between Vance AFB Radar Approach Control (RAPCON) and the Kansas City ARTCC.

The Vance AFB RAPCON currently uses the airspace from 8,000 feet MSL (approximately 6,700 feet AGL) to 10,000 feet MSL (approximately 8,700 feet AGL) to transition aircraft between the Vance 1A, 1C, and 1D MOAs and the Base airfield. Vance AFB RAPCON would transition aircraft between the Base airfield and the MOAs via radar vectors. Radar vectoring aircraft would ensure separation between aircraft operating in the proposed MOAs and aircraft transiting between the Base airfield and the MOAs.

The proposed MOAs would be used for a variety of IFF and JSUPT training. Missions would include: Advanced Aircraft Handling, Basic Fighter Maneuvers, Air Combat Maneuvering, Tactical Intercepts, Air Combat Tactics, Dissimilar Air Combat Tactics, Aerobatics, Advanced Handling Characteristics, Unusual Attitude Recoveries, Approach to Stall Recognition and Recovery, Formation (basic and tactical), Air Refueling, and Instrument Flight Maneuvering. The maximum altitudes associated with these maneuvers would be the respective ATCAA altitudes (*i.e.*, FL240). The expanded MOAs would still be utilized for joint use.

All participating aircraft would comply with local procedures to remain within the proposed areas. Vance AFB RAPCON would continue to monitor the airspace for military and civilian traffic and provide advisories. Vance AFB aircraft would navigate to stay within the boundaries

of the MOAs using a combination of ground references, Inertial Navigation Systems, Global Positioning Systems, and terrestrial navigation facilities.

Table 2-1 lists the number of annual and monthly sorties that would be flown under the Proposed Action. About 0.5 percent of the sorties would occur between 10:00 p.m. and 7:00 a.m. (*i.e.*, acoustic nighttime). There would be no changes to the operations at Vance AFB's Kegelman Auxiliary Airfield when comparing the Proposed Action to the existing condition (*i.e.*, the GEIAP EA).

Table 2-1 Proposed Action MOA Sorties

Aircraft	Number of Sorties					
	Annual			Monthly		
	Daytime	Acoustic Nighttime	Total	Daytime	Acoustic Nighttime	Total
T-38 (IFF)	2,045	0	2,045	170	0	170
T-38 (JSUPT)	8,163	36	8,199	679	3	682
T-1 (JSUPT)	5,153	12	5,165	429	1	430
Total	15,361	48	15,409	1,278	4	1,282

Under this Supplemental EA, there would also be no increase in personnel associated with the Proposed Action and no change in airspace to transition aircraft between the Vance 1A, 1C, and 1D MOAs and the Base airfield.

2.5 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

Under the No-action Alternative, Vance AFB would continue to operate within the existing boundaries of MOAs 1A, 1C, and 1D, with base altitudes at 10,000 feet MSL (approximately 8,700 feet AGL) and upper limits of FL240 (approximately 22,700 feet AGL). With only 14,000 feet of vertical airspace within the 1A, 1C, and 1D MOAs, Vance AFB aircraft would not be able to operate as safely as desired. The additional 2,000 feet of airspace (*i.e.*, a total of 16,000 feet of vertical airspace suggested in Air Education and Training Command directives) would create a greater margin of safety when considering the aircraft performance envelope. Overall, training effectiveness and efficiency increases when the aircrew can focus more on each individual event while in the MOA knowing they have the greater margin of safety provided by the additional airspace.

Table 2-2 lists the number of annual and monthly sorties that occur under the baseline condition. About 0.5 percent of the sorties occur between 10:00 p.m. and 7:00 a.m. (*i.e.*, acoustic nighttime).

Table 2-2 No-Action Alternative MOA Sorties

Aircraft	Number of Sorties					
	Annual			Monthly		
	Daytime	Acoustic Nighttime	Total	Daytime	Acoustic Nighttime	Total
T-38 (IFF)	1,747	0	1,747	146	0	146
T-38 (JSUPT)	8,142	36	8,178	679	3	682
T-1 (JSUPT)	5,407	24	5,431	452	2	454
Total	15,296	60	15,356	1,277	5	1,282

2.6 OTHER ACTIONS ANNOUNCED FOR THE PROJECT AREAS AND SURROUNDING COMMUNITY

This EA also considers the effects of cumulative impacts (40 CFR 1508.7) and concurrent actions (40 CFR 1508.25[1]). A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

No other concurrent actions were identified by Vance AFB for the project area. Additionally, no other activities were identified during the scoping period.

2.7 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2-3 summarizes the impacts of the Proposed Action and the No-action Alternative.

2.8 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The preferred alternative is the Proposed Action.

2.9 MEASURES TO MINIMIZE IMPACTS

No significant impacts were indentified. Therefore, no measures to minimize or reduce impacts or best management practices are identified.

Table 2-3 Summary of Environmental Impacts

Resource	Proposed Action Lowering Floor of MOAs 1A, 1C, and 1D to 8,000 feet MSL	No Action Alternative
Airspace Use and Management	Vance AFB RAPCON would provide separation service for the expanded MOAs. The Kansas City ARTCC would continue to provide radar service for the MOA airspace when the MOAs are inactive. The MOAs have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions. The risk is low that an aircraft involved in an accident or BASH incident within the MOAs would strike a person or structure on the ground.	Vance AFB RAPCON would continue to provide separation service for the MOAs. The Kansas City ARTCC would continue to provide radar service for the MOA airspace when the MOAs are inactive. The risk would continue to be low for an aircraft involved in an accident or BASH incident within the MOAs striking a person or structure on the ground.
Noise	The general population would not be exposed to risk from the effects of aircraft noise because the noise levels would be below the United States Environmental Protection Agency-identified level requisite to protect the public health and welfare with an adequate margin of safety. Public annoyance and speech interference would not occur because noise would not exceed the levels at which annoyance or speech interference would occur.	Same as Proposed Action.
Land Use	Noise from aircraft operations in the MOAs would be below the maximum level considered acceptable for unrestricted residential use. The noise from aircraft operating in the MOAs would not cause noncompliance with ordinances or conflict with land use plans and established uses of an area.	Same as Proposed Action.
Biological Resources	The maximum noise at ground level from a single T-38C overflight at 8,700 feet AGL (*i.e.*, the current base altitude of the MOAs) would be 63 dBA while the noise at ground level from the aircraft at 6,700 feet AGL (*i.e.*, the proposed base altitude of the MOAs) would be 67 dBA, an increase of four dBA at the lower altitude. Similarly, the maximum noise on the ground from a single T-1 overflight at 8,700 feet AGL would be 58 dBA while the noise on the ground from the aircraft at 6,700 feet AGL would be 62 dBA, an increase of four decibels at the lower altitude. The Proposed Action would not cause a potential decline or disruption of wildlife populations below the MOAs. There is a low potential for bird collisions for the Proposed action by lowering MOAs 1A, 1C and 1D from 8,700 feet to 6,700 feet. Most bird migration occurs below 3,000 feet. For Vance AFB flying activity, most bird strikes have occurred below 5,000	Maximum noise from a T-38C aircraft overflight would be 63 dBA while the T-1 overflight would be 58 dBA. There would be no change in biological impacts. There would be no change in the potential bird collision with aircraft. No bird strikes have occurred within the existing MOAs. There would no impact on bird species population viability.

Resource	Proposed Action Lowering Floor of MOAs 1A, 1C, and 1D to 8,000 feet MSL	No Action Alternative
	feet. This compares closely with overall Air Force bird strike data. There would be no impact on the viability of any bird species population from the proposed action. The few bird strikes expected for any species is too low to affect the viability of the species population.	

Note:
AFB – Air Force Base
AGL –above ground level
ARTCC – Air Route Traffic Control Center
BASH – Bird/Wildlife Aircraft Strike Hazard
dBA – "A-weighted" decibel
IFF – Introduction to Fighter Fundamentals
JSUPT – Joint Specialized Undergraduate Pilot Training
MOA – Military Operations Area
RAPCON – Radar Approach Control

Chapter 3

Affected Environment

CHAPTER 3
AFFECTED ENVIRONMENT

3.1 NOISE

3.1.1 Definition of Resource

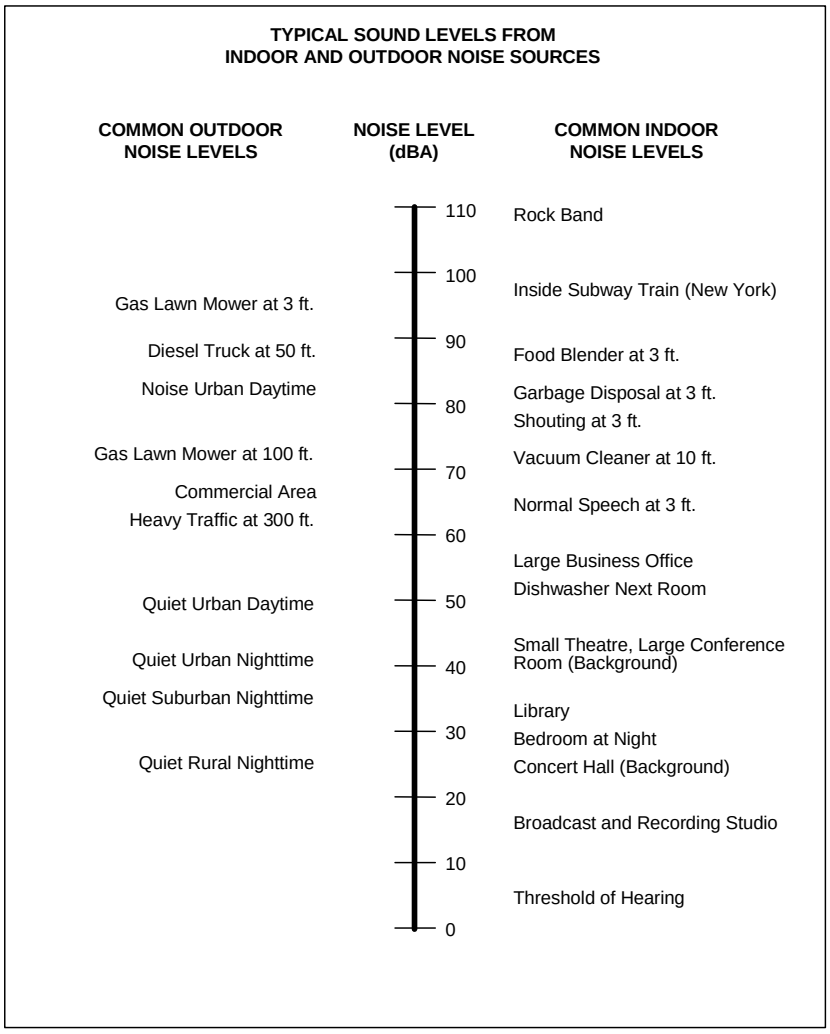
Noise is considered unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive. It may be stationary or transient. Stationary sources are normally related to specific land uses, e.g., housing tracts or industrial plants. Transient noise sources move through the environment, either along relatively established paths (e.g., highways, railroads, and aircraft flight tracks around airports), or randomly. There is wide diversity in responses to noise that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source (e.g., an aircraft) and the receptor (e.g., a person or animal).

The physical characteristics of noise or sound include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the eardrum. This may be likened to the ripples in water that would be produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of these pressure waves increase, and the ear senses louder noise. The unit used to measure the intensity of sound is the decibel (dB). Sound intensity varies widely (from a soft whisper to a jet engine) and is measured on a logarithmic scale to accommodate this wide range. The logarithm, and its use, is nothing more than a mathematical tool that simplifies dealing with very large and very small numbers. For example, the logarithm of the number 1,000,000 is 6, and the logarithm of the number 0.000001 is -6 (minus 6). Obviously, as more zeros are added before or after the decimal point, converting these numbers to their logarithms greatly simplifies calculations that use these numbers.

The frequency of sound is measured in cycles per second, or hertz (Hz). This measurement reflects the number of times per second the air vibrates from the acoustic energy. Low frequency sounds are heard as rumbles or roars, and high frequency sounds are heard as screeches. Sound measurement is further refined through the use of "A-weighting." The normal human ear can detect sounds that range in frequency from about 20 Hz to 15,000 Hz. However, not all sounds throughout this range are heard equally well. Because the human ear is most sensitive to frequencies in the 1,000 to 4,000 Hz range, some sound meters are calibrated to emphasize frequencies in this range. Sounds measured with these instruments are termed "A-weighted," and are indicated in terms of A-weighted decibels (dBA).

The duration of a noise event and the number of times noise events occur are also important considerations in assessing noise impacts. Figure 3-1 depicts typical A-weighted sound pressure levels for various sources. As indicated in Figure 3-2, 65 dBA is equivalent to normal speech at a distance of three feet.

Figure 3-1 Typical A-Weighted Noise Levels



Single Event Sound Metrics

Although the highest dBA level measured during an event (*i.e.*, maximum sound level, L_{max}) is the most easily understood descriptor for a noise event, alone it provides little information. Specifically, it provides no information concerning either the duration of the event or the amount of sound energy. Thus, sound exposure level (SEL), which is a measure of the physical energy of the noise event and accounts for both intensity and duration, is used for single event noise analysis. Subjective tests indicate that human response to noise is a function not only of the maximum level, but also of the duration of the event and its variation with respect to time. Evidence indicates that two noise events with equal sound energy will produce the same response. For example, a noise at a constant level of 85 dBA lasting for 10 seconds would be judged to be equally as annoying as a noise event at a constant level of 82 dBA and duration of 20 seconds (*i.e.*, 3 dBA decrease equals one half the sound energy but lasting for twice the time period). This is known as the "equal energy principle."

Sound exposure levels values should not be confused with either the average noise (L_{eq}) or L_{max} associated with a specific event. SEL accounts for both the maximum sound level and the length of time a sound lasts. SEL does not directly represent the sound level heard at any given time. Rather, it provides a measure of the total sound exposure for an entire event averaged over one second. Numerous studies that evaluated the impacts of noise on wildlife have used SEL as the metric. For this reason, SEL is used as the metric to evaluate noise on wildlife in this EA.

The L_{eq} is the constant level that has the same A-weighted sound energy as that contained in the time-varying sound. L_{max} is the highest sound level measured during a single, noise producing event. For an observer, the noise level starts at the ambient noise level, rises up to the maximum level as the aircraft flies closest to the observer, and returns to the ambient level when the aircraft recedes into the distance. When an event lasts longer than one second, the SEL value will be higher than the L_{max} from the event. The L_{max} would typically be 5 to 10 dBA below the SEL value for aircraft overflight. Figure 3-2 presents the relationship of SEL, L_{max}, and L_{eq} to the time history for a noise event from aircraft overflight.

Noise from low-flying aircraft operating at night may cause sleep disturbance. Day-Night Average Sound Level (DNL) incorporates consideration of sleep disturbance by assigning a 10 dBA penalty to the SELs of nighttime noise events (10:00 p.m. to 7:00 a.m.). However, single noise events, not average sound levels, correlate better with sleep disturbance.

Studies have estimated the percentage of awakenings that may be experienced by people exposed to different SELs. The Federal Interagency Committee on Aviation Noise (FICAN, formed in 1993 as recommended by the Federal Interagency Committee on Noise [FICON]), based on field studies, recommends a dose-response curve for predicting sleep awakening. Figure 3-3 compares the FICAN recommendation of 1997 to the 1992 FICON recommendation for predicting sleep awakening. FICAN takes the conservative position that, because the adopted curve represents the upper limit of the data presented, it should be interpreted as predicting the maximum percentage of the exposed population expected to be awakened. Based on this new position, it is estimated that outdoor SELs of 80 to 100 dBA could result in 4 to 10 percent awakenings in the exposed population. Noise must penetrate the residence to disturb sleep. Interior noise levels are lower than exterior levels due to the attenuation of the sound energy by the structure. The amount of attenuation provided by the building is dependent on the type of construction and whether the windows are open or closed. The approximate national average attenuation factors are 15 decibel (dBs) for open windows and 25 dBs for closed windows. Twenty dBA is conservatively used to estimate attenuation for a typical dwelling unit (USEPA 1974). Table 3-1 lists the SEL, L_{max}, and L_{eq} values for T-38 and T-1 at various slant range distances when the aircraft is at 8,700 feet AGL and 6,700 feet AGL, respectively. "0 feet" occurs when the aircraft is directly overhead.

Table 3-1 Representative Sound Exposure Levels for T-38 and T-1 Aircraft at Various Slant Range Distances

Aircraft/Metric	Aircraft Altitude	Values (in dBA))						
		0 feet	1,000 feet	2,500 feet	5,000 feet	7,500 feet	10,000 feet	15,000 feet
T-38								
SEL								
	8,700 feet AGL	63.2	63.1	62.9	61.0	59.0	56.3	51.6
	6,700 feet AGL	66.8	66.6	66.1	63.7	60.7	57.8	52.4
L_{max}								
	8,700 feet AGL	51.6	51.4	51.3	49.1	46.8	43.7	38.2
	6,700 feet AGL	55.9	55.7	54.9	52.2	48.8	45.5	39.1
L_{eq}								
	8,700 feet AGL	13.8	13.7	13.5	11.6	9.6	6.9	2.2
	6,700 feet AGL	17.4	17.2	16.7	14.3	11.3	8.4	3.0
T-1								
SEL								
	8,700 feet AGL	57.8	57.7	57.1	55.2	52.9	49.8	44.5
	6,700 feet AGL	62.3	62.1	61.4	58.6	54.9	51.5	45.4
L_{max}								
	8,700 feet AGL	41.8	41.7	41.0	38.8	36.1	23.7	26.7
	6,700 feet AGL	47.0	46.7	45.9	42.6	38.5	34.7	27.7
L_{eq}								
	8,700 feet AGL	8.4	8.3	7.7	5.8	3.5	0.4	-4.9
	6,700 feet AGL	12.9	12.7	12.0	9.2	5.5	2.1	-4.0

Source: USAF 2002.

Notes: SEL – sound exposure level; L_{max} – maximum sound level; L_{eq} – average noise. Values reflect A-weighted decibel. "0 feet" occurs when the aircraft is directly overhead.

Averaged Noise Metrics

Single event analysis has a major shortcoming -- single event metrics do not describe the overall noise environment. DNL is the measure of the total noise environment. As previously mentioned, DNL averages the sum of all aircraft noise producing events over a 24-hour period, with a 10-dBA upward adjustment added to the nighttime events (between 10:00 p.m. and 7:00 a.m.) because people are more sensitive to noise during normal sleep hours when ambient noise levels are lower. DNL has been determined to be a reliable measure of community sensitivity to noise and has become the standard metric used in the United States to quantify noise in military noise studies.

Figure 3-4 depicts the relationship of the single event, the number of events, the time of day, and DNL. This adjustment is an effort to account for increased human sensitivity to nighttime noise events. The summing of sound during a 24-hour period does not ignore the louder single events, it actually tends to emphasize both the sound level and number of those events. The logarithmic

nature of the dB unit causes sound levels of the loudest events to control the 24-hour average. However, an individual does not "hear" DNL and its use is intended for land use planning and not to describe what someone hears when a single event occurs. The noise levels experienced inside a contour may be similar to that experienced outside a contour line at a given point in time depending on temperature, wind, and other factors.

DNL is the accepted unit for quantifying annoyance to humans from general environmental noise, including aircraft noise. The Federal Interagency Committee on Urban Noise (FICUN) developed land use compatibility guidelines for noise exposure areas (FICUN 1980). Based on these FICUN guidelines, the FAA and Air Force developed recommended land uses in aircraft noise exposure areas. The Air Force uses DNL as the method to estimate the amount of exposure to aircraft noise and to predict impacts. Land use compatibility and incompatibility are determined by comparing the predicted DNL level at a site with the recommended land uses.

Figure 3-2 Sound Exposure Level, Maximum Noise Level, and Average Noise Level Comparison to Aircraft Noise Time History

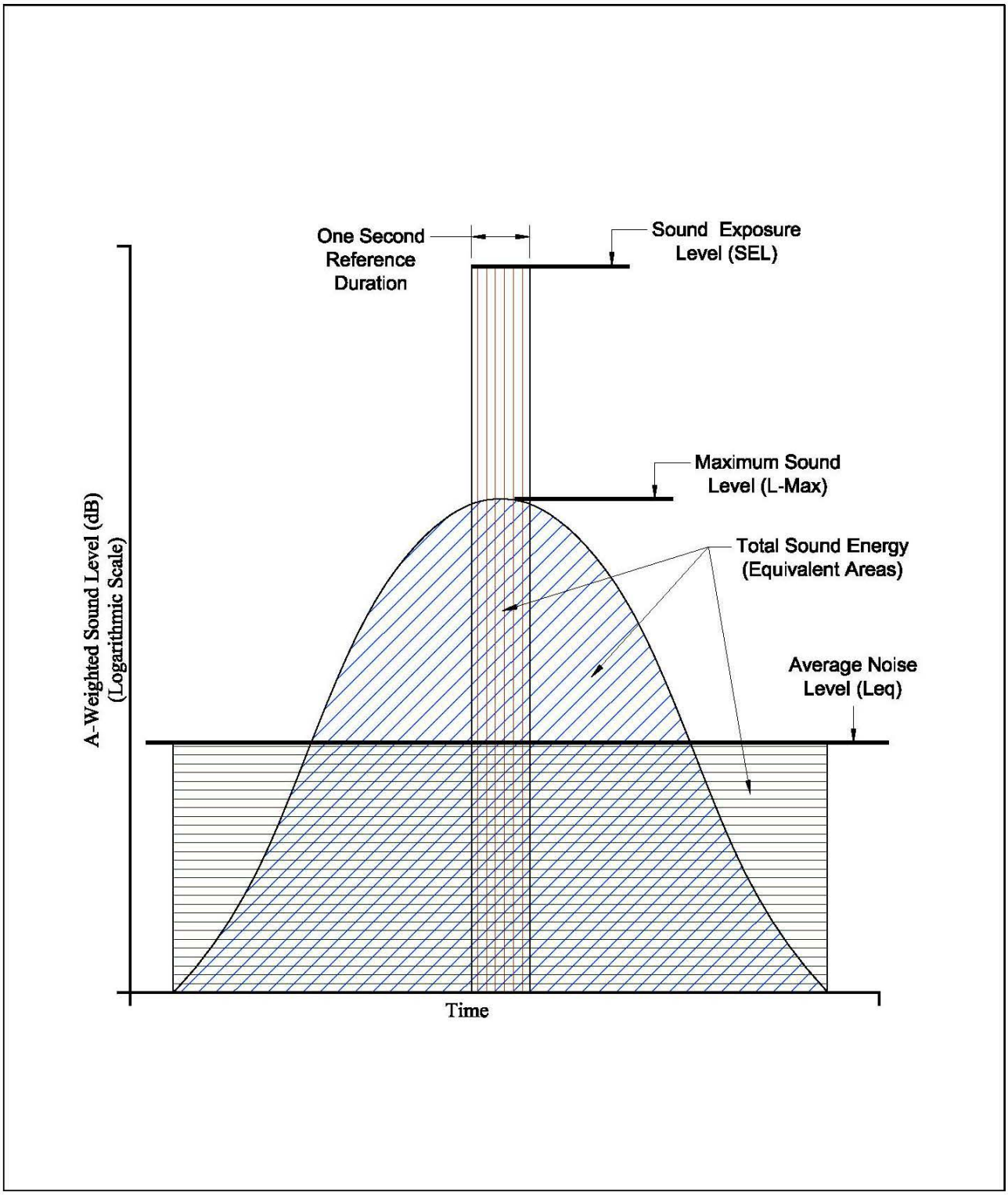


Figure 3-3 Recommended Sleep Disturbance Dose Response Relationship

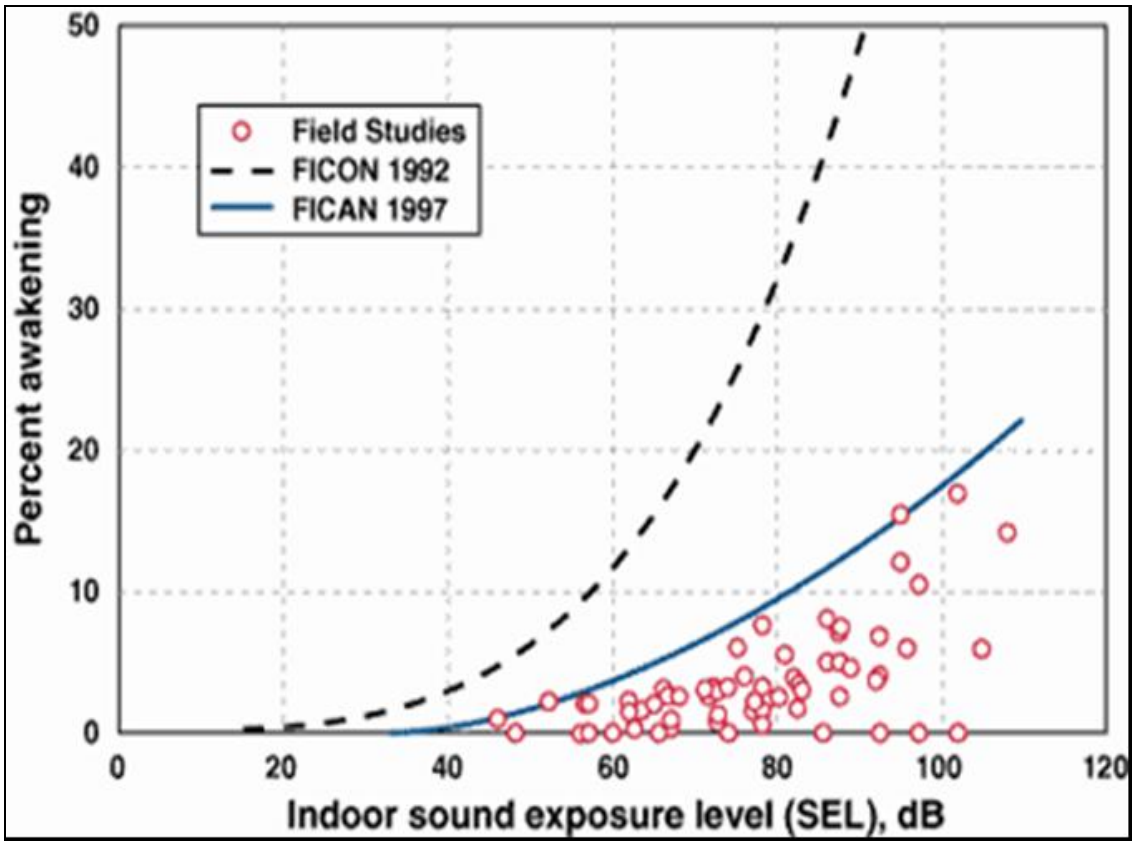
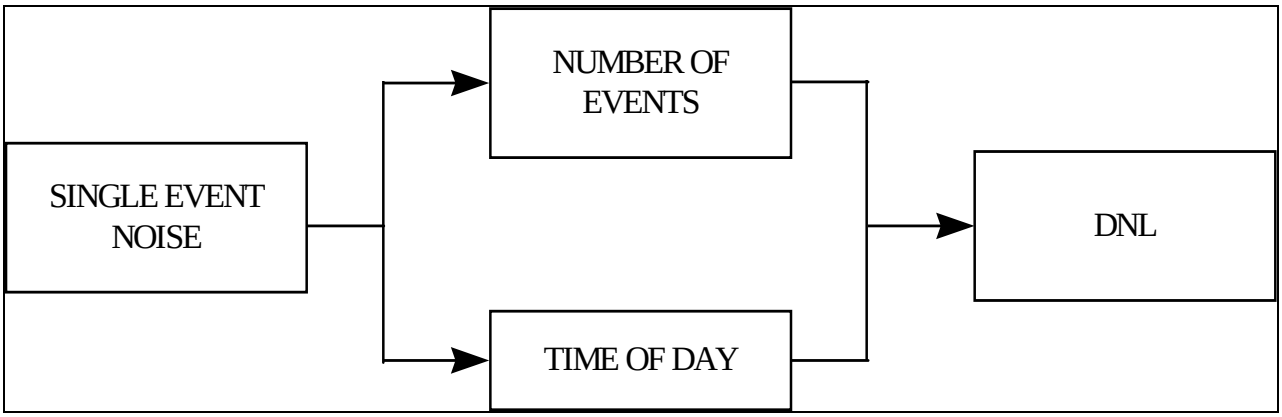


Figure 3-4 Day-Night Average A-Weighted Sound Level



3.1.1.1 Noise Analysis Methods

Military aircrews conduct combat training over land at low altitudes and high airspeeds. Additionally, these aircraft seem to come from nowhere with a great noise and, just as quickly, disappear again. Assessing noise from military aircraft during these operations requires the use of a modified noise metric to appropriately account for the "startle" effect of the onset-rate of aircraft noise on humans. The adjusted DNL is designated as the onset-rate adjusted day-night

average sound level. This metric is used to assess noise associated with Special Use Airspace (SUA). The noise modeling software used to assess the noise associated with SUA is MOA Range NOISEMAP (MR_NMAP).

Another unique characteristic of military operations is that they occur in sporadic fashion. For example, operations may occur as frequently as 1,282 times per month in a MOA (*i.e.*, the current condition for the Vance 1A, 1C, and 1D MOAs, see Table 2-2) or less than a couple of times per year in a temporary MOA designed for exercises. Because of the sporadic occurrences of operations, the number of average daily operations is determined by using the number of flying days in a calendar month. This metric is designated as onset-rate adjusted monthly day-night average sound level (L_{dnmr}), which incorporates the adjustment for noise events with an onset-rate equal to or greater than 15 dB per second. The Air Force recommends L_{dnmr} values be applied to the same interpretive criteria as DNL values (USAF 1987).

The methodology and suite of computer programs used to model noise exposure at the Vance 1A, 1C, and 1D MOAs is known as MR_NMAP. The program was developed for the DoD by the Air Force. The program considers airspace information, the horizontal distribution of operations, flight profiles (*i.e.*, airspeed, altitude, and power setting at various points), and the number of operations.

A limitation for computer modeling is encountered when calculating time-averaged sound levels for airspaces for lower levels (below 55 dB). The reliability of results varies due to the increased variability of effects of atmospheric conditions on individual aircraft sound levels at the longer distances and the presence of other noise sources. Additionally, when flight activity is infrequent, the time-averaged sound levels are generated by only a few individual aircraft noise events and may not be statistically representative of the aircraft being modeled.

While there is no technical reason why a lower level cannot be measured or calculated for comparison purposes, DNL 65 dBA:

- was adopted by the DoD, US Environmental Protection Agency (USEPA), FAA, and Department of Housing and Urban Development (HUD) as the threshold for comparing and assessing community noise effects; and
- represents a noise exposure level normally dominated by aircraft noise and not other community or nearby highway noise sources.

3.1.1.2 Noise Effects

Annoyance

Table 3-2 presents the results of over a dozen studies on the relationship between noise and annoyance levels. This relationship was suggested by Schultz (1978) and was reevaluated for use in describing the reaction of people to environmental noise (Fidell, *et al.* 1988). These data provide a perspective on the level of annoyance that might occur. For example, 12 to 22 percent of people exposed on a long-term basis to DNL of 65 to 70 dBA are expected to be potentially highly annoyed by noise events. The study results summarized in Table 3-2 are based on outdoor noise levels.

Table 3-2 Theoretical Percentage of Population Potentially Highly Annoyed by Outdoor Noise Exposure

DNL Intervals in dBA	Percentage of Persons Highly Annoyed
<65	<12
65-70	12-22
70-75	22-37
75-80	37-54
>80	61

Note: Noise impacts on individuals vary as do individual reaction to noise. This is a general prediction of the percent of the community potentially highly annoyed based on environmental noise surveys conducted around the world.

Source:Adapted from NAS 1977

Effect of Noise on Communication

The sound level of speech outdoors decreases with increased distance between the speaker and listener. Table 3-3 presents the distances between the speaker and listener for satisfactory outdoor speech intelligibility at two levels of vocal effort at steady background noise levels. The levels for normal and raised voice satisfactory conversation presented in the table permit sentence intelligibility of 95 percent at each distance. This level of intelligibility usually permits reliable communication. If the noise levels in Table 3-3 are exceeded, the speaker and listener must either move closer together or expect reduced intelligibility (USEPA 1974). Based on the data in the table, listeners in normal communication at a distance of 10 feet in a steady background noise of 56 dB and who experience an increase in a background noise to 66 dB would have to move to about 3 feet apart to maintain the same intelligibility or raise their voices. Their speech intelligibility would decrease considerably if they remain at 10 feet of separation.

Table 3-3 Steady A-Weighted Sound Levels that Allow Communication with 95 Percent Intelligibility over Distances Outdoors for Different Voice Levels

	Distance (feet)					
	1.5	**3**	**6.5**	**10**	**13**	**16**
Normal Voice	72	66	60	56	54	52
Raised Voice	78	72	66	62	60	58

Values represent dBA.

Source:USEPA 1974

Nonauditory Health Effects

Nonauditory health effects of long-term noise exposure, where noise may act as a risk factor, were never found to occur at levels below those protective against noise-induced hearing loss. Most studies attempting to clarify such health effects found that noise exposure levels established for hearing protection would also protect against any potential nonauditory health effects, at least in workplace conditions. The best scientific summary of these findings is contained in the lead paper at the National Institute of Health Conference on Noise and Hearing Loss, held on 22-24 January 1990 in Washington, D.C.

"The nonauditory effects of chronic noise exposure, when noise is suspected to act as one of the risk factors in the development of hypertension, cardiovascular disease, and other nervous disorders, have never been proven to occur as chronic manifestations at levels below these criteria (an average of 75 dBA for complete protection against hearing loss for an 8-hour day). At the 1988 International Congress on Noise as a Public Health Problem, most studies attempting to clarify such health effects did not find them at levels below the criteria protective of noise-induced hearing loss, and even above these criteria, results regarding such health effects were ambiguous. Consequently, one comes to the conclusion that establishing and enforcing exposure levels protecting against noise-induced hearing loss would not only solve the noise-induced hearing loss problem but also any potential nonauditory health effects in the work place." (Von Gierke 1990).

Although these findings were directed specifically at noise effects in the work place, they are equally applicable to aircraft noise effects in the community environment. Research studies regarding the nonauditory health effects of aircraft noise are ambiguous, at best, and often contradictory. Yet, even those studies, which purport to find such health effects, use time-average noise levels of 75 dBA and higher for their research.

Hearing Loss

Table 3-4 contains at-ear noise exposure levels that produce negligible hearing loss of no more than 5 dB for both an eight-hour and 24-hour exposure on a yearly and working day basis. The eight-hour data assume the remaining 16 hours of the day are spent in relative quiet (USEPA 1974). According to USEPA (1974), changes in hearing levels of 5 dB are generally not considered noticeable or significant. As shown in Figure 3-2 and presented in Table 3-1, the average noise (L_{eq}) from a noise producing event is less than the L_{max} or SEL from the event.

Table 3-4 At-Ear Exposure Levels that Produce No More than 5 dB Noise-Induced Hearing Damage over a 40-Year Period

Exposure	Steady (continuous) Noise	Intermittent Noise	With Margin of Safety
L_{eq} 8-Hour			
250 days per year	73.0	78.0	--
365 days per year	71.4	76.4	75.0
L_{eq} 24-Hour			
250 days per year	68.0	73.0	--70.0
365 days per year	66.4	71.4	--

Source: USEPA 1974

Noise Effects on Wildlife

Animal species differ greatly in their response to noise. Noise effects on domestic animals and wildlife are classified as primary, secondary, and tertiary.

- Primary effects consist of direct, physiological changes to the auditory system, and most likely include the masking of auditory signals. Masking would cause the inability to hear environmental signals from mates, predators, or pray.
- Secondary effects could include non-auditory issues such as stress, behavior modifications, interference with mating and reproduction, and impaired ability to obtain food, cover, or water.
- Tertiary effects would be the direct result of the primary and secondary effects and include population decline and habitat loss.

3.1.1 Existing Conditions

The primary source of noise in the vicinity of the Vance 1A, 1C, and 1D MOAs is aircraft operations. Baseline noise conditions are reflected in the sorties shown on Table 2-2 (No-action Alternative). About 1,282 average monthly sorties occur within the MOAs under the baseline condition. Five of the sorties in the MOAs occur during the acoustic nighttime (*i.e.*, 10:00 p.m. to 7:00 a.m.).

Noise modeling with MR_NMAP indicates that greatest uniformly distributed noise level below the MOAs from aircraft operations within the MOAs is L_{dnmr} 23.0 dBA.

3.2 AIRSPACE MANAGEMENT AND AIR TRAFFIC CONTROL, AIRCRAFT SAFETY, AND BIRD/WILDLIFE-AIRCRAFT STRIKE HAZARD

3.2.1 Definition of Resource

Airspace is a finite resource defined vertically, horizontally, and temporally. As such, it must be managed and used in a manner that best serves commercial, general, and military aviation needs. The FAA is responsible for overall management of airspace and has established different airspace designations to protect aircraft while operating to or from an airport, transiting en route between airports, or operating within "special use" areas identified for defense-related purposes. Rules of flight and air traffic control procedures were established to govern how aircraft must operate within each type of designated airspace. The Federal Aviation Regulations apply to both civil and military aircraft operations unless the FAA grants the military service an exemption or a regulation specifically excludes military operations. All aircraft operate under either instrument flight rules (IFR) or visual flight rules (VFR).

Airspace management involves the direction, control, and handling of flight operations in the volume of air that overlies the geopolitical borders of the US and its territories. Airspace is a resource managed by the FAA, with established policies, designations, and flight rules to protect aircraft in the airfield and en route; in Special Use Airspace (SUA) identified for military and other governmental activities; and in other military training airspace.

Management of this resource considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general

aviation. Because of these multiple and sometimes competing demands, the FAA considers all aviation airspace requirements in relation to airport operations, Federal Airways, Jet Routes, military flight training activities, and other special needs to determine how the National Airspace System can best be structured to satisfy all user requirements.

FAA Order JO 7400.2G, *Procedures for Handling Airspace Matters*, defines SUA as airspace of defined dimensions wherein activities must be confined because of their nature, or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. The types of SUA areas are Prohibited Areas, Restricted Areas, MOAs (such as the Vance 1A, 1C, and 1D MOAs), Warning Areas, Alert Areas, Controlled Firing Areas, and National Security Areas.

A MOA is airspace of defined vertical and lateral limits established to separate and segregate certain non-hazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. MOAs are considered "joint use" airspace. Non-participating aircraft operating under VFR are permitted to enter a MOA, even when the MOA is active for military use. Aircraft operating under IFR must remain clear of an active MOA unless approved by the responsible ARTCC. Flight by both participating and VFR non-participating aircraft is conducted under the "see-and-avoid" concept, which stipulates that "when weather conditions permit, pilots operating IFR or VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in CFR Part 91 (P/CG 2004). The responsible ARTCC provides separation service for aircraft operating under IFR and MOA participants. The "see-and-avoid" procedures mean that if an MOA were active during inclement weather, the general aviation pilot could not safely access the MOA airspace.

3.2.2 Existing Conditions

Airspace Management and Air Traffic Control

The Vance AFB RAPCON provides radar vectoring, sequencing, and separation service between participating VFR and all IFR aircraft operating within the airspace (to include MOAs) at and around the Base. Vance AFB RAPCON also provides radar service for aircraft departures from the Base to the Vance 1A, 1C, and 1D MOAs and for the return from the MOAs to the Base. The Kansas City ARTCC provides radar service for the MOA airspace when the MOAs are inactive.

There are three MOAs associated with the Proposed Action: the Vance 1A, 1C, and 1D MOAs. The MOAs are subdivided into smaller areas, which facilitates aircraft scheduling. The MOAs are described in Table 3-5 and depicted in Figure 1-1. Table 2-2 lists the number of annual and monthly sorties flown in the MOAs.

Table 3-5 Military Operations Area Identification and Description

MOA	Altitude (in feet)		Hours of Use[1]		Controlling ARTCC
	Minimum	Maximum[2]	From	To	
Vance 1A	10,000 MSL/ 8,700 AGL	UTBNI FL 180 ATCAA FL180 to FL240	1 Hour before Sunrise (M-F)	1 Hour after Sunset (M-F)	Kansas City
Vance 1C	10,000 MSL/ 8,700 AGL	UTBNI FL 180 ATCAA FL180 to FL240	1 Hour before Sunrise (M-F)	1 Hour after Sunset (M-F)	Kansas City
Vance 1D	10,000 MSL/ 8,700 AGL	UTBNI FL 180 ATCAA FL180 to FL240	1 Hour before Sunrise (M-F)	1 Hour after Sunset (M-F)	Kansas City

The term FL is used by air traffic controllers to simplify the vertical separation of aircraft and one exists every 1,000 feet relative to an agreed pressure level. Above a transitional altitude, which varies from country to country, the worldwide arbitrary pressure datum of 29.921 inches of mercury is entered into the altimeter and altitude is then referred to as a FL. The altimeter reading is converted to a flight level by removing the trailing two zeros: for example, 29,000 feet becomes FL290 and 25,500 feet is FL255. When the pressure at sea level is by chance the international standard then the flight level is also the altitude. To avoid confusion, below the transition altitude, height is referred to as altitude AGL.

There are numerous small, public and private use airports in the area below the MOAs. No Federal Airways transit the MOAs. Numerous low-level navigation military training routes (MTRs) occur in the airspace below the MOAs. The maximum altitude for aircraft operating on any of the routes is 6,000 feet MSL (approximately 4,700 feet AGL). Aircraft operations on these MTRs are scheduled by Vance AFB. No flights are being altered as a result of implementation of the Proposed Action.

Aircraft Safety

The Air Force defines five categories of aircraft flight mishaps: Classes A, B, C, E, and High Accident Potential. Class A mishaps result in loss of life, permanent total disability, a total cost in excess of $1 million, destruction of an aircraft, or damage to an aircraft beyond economical repair. Class B mishaps result in total costs ranging between $200,000 and $1 million or result in permanent partial disability, but do not involve fatalities. Class C mishaps result in more than $100,000 (but less than $200,000) in total costs, or a loss of worker productivity exceeding eight hours. Class E mishaps represent minor incidents not meeting the criteria for Classes A through C. High Accident Potential events are significant occurrences with a high potential for causing injury, occupational illness, or damage if they occur and do not have a reportable mishap cost. Class C and E mishaps, the most common types of accidents, represent relatively unimportant incidents because they generally involve minor damages and injuries, and rarely affect property or the public.

Class A mishaps are the most serious of aircraft-related accidents and represent the category of mishap most likely to result in a crash. Table 3-6 lists the 5-year Class A mishap rates for the T-1, T-6, and T-38 aircraft. The table reflects the Air Force-wide data for all phases of flight of all missions and sorties for each aircraft type.

Table 3-6 - 5-Year Class A T-1, T-6, and T-38 Aircraft Mishap Information

Aircraft	Class A Mishap Rate
T-1	0.2
T-6	0.4
T-38	1.4

Source: Vance AFB 2009
Note: The mishap rate is an annual average based on the total number of Class A mishaps and 100,000 flying hours.

Bird/Wildlife-Aircraft Strike Hazard

Bird and wildlife strikes by aircraft constitute a safety concern because of the potential for damage to aircraft, injury to aircrews, or local populations if an aircraft strike and subsequent aircraft accident should occur in a populated area. Also, if the frequency of bird strikes were high, certain bird species populations might be reduced. Aircraft may encounter birds at altitudes of 30,000 feet MSL or higher; however, most birds fly close to the ground. Over 95 percent of reported bird strikes occur below 3,000 feet AGL. Approximately 49 percent of bird strikes occur in the airport environment, and 15 percent during low-level cruise (USAF 2003). Table 3-7 shows bird-aircraft strike data for each three-month period of the year. None of the bird-aircraft strikes for Vance AFB aircraft occurred in the MOAs (Vance AFB 2010b). Table 3-8 lists the Vance AFB bird-aircraft strike data by time of day and phase of flight. Table 3-9 lists the number of identified bird species that were struck by Vance AFB aircraft. Table 3-10 contains the distribution of Vance AFB by altitude and compares the Vance AFB data with Air Force-wide bird/wildlife-aircraft strikes. Historically, one-half of one percent of all reported bird/wildlife-aircraft strikes involving Air Force aircraft resulted in a serious mishap.

Table 3-7 Vance AFB Bird-Aircraft Strike Data by Time of Year, 2006-2010

3-Month Period	Calendar Year					Total
	2006	2007	2008	2009	2010	
January-March	9	7	3	11	8	38
April-June	13	23	11	9	10	66
July-September	21	19	15	13	--	68
October-December	14	14	7	10	--	45
Total	57	63	36	43	18	217

Note: Data available only for January-June 2010.
Source: derived from Vance AFB 2010a

Table 3-8 Vance AFB Bird-Aircraft Strike Data by Time of Day and Phase of Flight, 2007-2010

	Calendar Year									
	2007		2008		2009		2010		Total	
	number	percent	number	percent	number	percent	number	percent	number	percent
Time of Day										
Dawn	1	4.55%	1	1.37%	1	1.12%	1	2.56%	4	1.79%
Day	19	86.36%	60	82.19%	67	75.28%	27	69.23%	173	75.58%
Dusk	0	0.00%	1	1.37%	6	6.74%	2	5.13%	9	4.04%
Night	2	9.09%	8	10.96%	9	10.11%	5	12.82%	24	10.76%
Unknown	0	0.00%	3	4.11%	6	6.74%	4	10.26%	13	5.83%
Total	22	100.00%	73	100.00%	89	100.00%	39	100.00%	223	100.00%
Phase of Flight										
Takeoff Roll; Missed Approach; Touch and Go	2	9.09%	15	20.55%	14	15.73%	9	23.08%	40	17.94%
Takeoff; Initial Climb	1	4.55%	6	8.22%	11	12.36%	4	10.26%	22	9.87%
Cruise; Low-Level	3	13.64%	7	9.59%	11	12.36%	4	10.26%	25	11.21%
Cruise; Descent	0	0.00%	1	1.37%	2	2.25%	2	5.13%	5	2.24%
Landing Flare; Rollout; Landing Final Approach	8	36.36%	18	24.66%	18	20.22%	3	7.69%	47	21.08%
Traffic Pattern	1	4.55%	3	4.11%	4	4.49%	5	12.82%	13	5.83%
Taxiing	7	31.82%	23	31.51%	28	31.46%	11	28.21%	69	30.94%
Unknown	0	0.00%	0	0.00%	1	1.12%	1	2.56%	2	0.90%
Total	22	100.00%	73	100.00%	89	100.00%	39	100.00%	223	100.00%

Note: Data available only for January-June 2010.
Source: derived from Vance AFB 2010c

Table 3-9 Bird Species Struck by Vance AFB Aircraft, 2006-2009

	Calendar Year				
	2006	2007	2008	2009	Total
American Cliff Swallow	1	5	3	1	10
American Goldfinch	1	0	0	0	1
American Kestrel	0	2	1	0	3
American Robin	1	0	1	1	3
Barn Swallow	1	6	3	3	13
Black Tern	0	0	1	0	1
Canada Goose	0	0	0	1	1
Cedar Waxwing	0	1	0	0	1
Chestnut-collared Longspur	0	0	1	0	1
Chuck Wills Widow	0	0	1	0	1
Burrowing Owl	1	0	0	0	1
Chimney Swift	5	8	0	4	17
Common Nighthawk	0	2	1	1	4
Double-Crested Cormorant	0	0	0	1	1
Eastern Screech-Owl	1	0	0	0	1
Ferruginous Hawk	0	0	0	1	1
Gadwall	0	0	0	1	1
Great-Horned Owl	0	0	1	0	1
Green-Winged Teal	0	0	0	1	1
Meadowlark	7	4	7	13	31
Mourning Dove	3	6	2	2	13
Grasshopper Sparrow	0	1	0	0	1
Horned Lark	21	5	10	12	48
Hooded Warbler	0	1	0	0	1
Killdeer	0	3	0	3	6
Lapland Longspur	1	1	1	1	4
Lark Bunting	0	0	1	0	1
Lincoln Sparrow	1	0	3	0	4
Mississippi Kite	1	0	0	0	1
Nashville Warbler	0	0	0	1	1
Northern Mocking Bird	0	1	0	0	1
Purple Martin	0	1	1	0	2
Red-eyed Vireo	1	0	0	0	1
Red-Tailed Hawk	1	1	0	3	5
Rough-Legged Hawk	0	0	0	1	1
Savannah Sparrow	0	1	2	3	6
Scissor-Tailed Flycatcher	1	1	0	0	2
Smith Longspur	0	1	0	0	1

Table 3-9 Bird Species Struck by Vance AFB Aircraft, 2006-2009 (Continued)

	Calendar Year				Total
	2006	2007	2008	2009	
Snow Goose	0	0	1	0	1
Song Sparrow	1	0	0	0	1
Sora	0	0	1	0	1
Turkey Vulture	1	0	1	2	4
Black Vulture	1	0	0	1	2
Upland Sandpiper	0	1	1	0	2
Vesper Sparrow	1	0	0	0	1
Western Kingbird	1	0	0	0	1
White-Throated Sparrow	0	0	1	0	1
White-Throated Swift	1	0	0	0	1
Yellow-Rumped Warbler	0	1	0	1	2
Total	54	53	45	58	210

Source: Vance AFB 2010d

Table 3-10 Vance AFB and Air Force Bird/Wildlife-Aircraft Strikes by Altitude

Altitude (feet AGL)	Vance AFB		Air Force
	Number of Strikes	Percent of Total	Percent of Total
0-49	39	28.26%	28.90%
50-99	7	5.07%	10.88%
100-199	8	5.80%	6.71%
200-299	6	4.35%	6.81%
300-399	5	3.62%	5.40%
400-499	4	2.90%	2.48%
500-599	16	11.59%	5.85%
600-699	2	1.45%	1.46%
700-799	0	0.00%	1.34%
800-899	2	1.45%	1.76%
900-999	1	0.72%	0.64%
1,000-1,499	21	15.22%	7.21%
1,500-1,999	15	10.87%	6.78%
2,000-2,999	6	4.35%	7.01%
3,000-3,999	3	2.17%	4.58%
4,000-4,999	1	0.72%	0.98%
5,000 and greater	2	1.45%	1.22%
Total	138	100.00%	100.00

Note: The number of strikes for Vance AFB aircraft does not equal the total number of strikes for the period 2006-2010 in Table 3-7 because of the inability to determine the altitude at which the strike occurred. Data available only for January-June 2010.

Source: Vance AFB data – derived from Vance AFB 2010a; Air Force data - AFSC 2006

AFI 91-202 (*The U.S. Air Force Mishap Prevention Program*) requires that Air Force installations supporting a flying mission have a BASH plan for the base. The Vance AFB plan provides guidance for reducing the incidents of bird strikes in and around areas where flying operations are being conducted. The plan is reviewed annually and updated as needed. The Vance AFB BASH Plan contains the following guidance to reduce bird-aircraft strikes.

- In addition to other elements, the Vance AFB BASH Plan is designed to: (1) establish procedures to identify high hazard situations and to aid supervisors and aircrews in altering/discontinuing flying operations when required; (2) establish aircraft operating procedures to avoid high hazard situations; and (3) disseminate information to aircrews on bird hazards and procedures for bird avoidance.

- The Bird Hazard Working Group collects, compiles, and reviews data on bird-aircraft strikes. The Group identifies the hazards and uses operational risk management to reduce the risk of bird-aircraft strikes. The Group also reviews future Bird Avoidance Models (BAMs).

- In addition to other responsibilities, the Operations Group Commander: (1) ensures guidelines are in place for declaring, disseminating, and terminating bird watch conditions; (2) makes operational changes to avoid areas and times of known hazardous bird concentrations, mission permitting; and (3) considers the use of training areas (*e.g.*, MOAs) based on any reported bird hazard or from BAM analysis.

- Aircrew, Wing Safety, and aircraft maintenance are responsible for preserving non-fleshy bird remains when discovered on an aircraft. The aircraft is not released for another sortie until Wing Safety has obtained all relative information.

- The Supervisor of Flying (SOF) or the Airfield Manager declares bird watch conditions. Bird watch conditions are based on information relayed by aircrews and observations by base operations and air traffic control personnel.

- In addition to other responsibilities, Squadron Flying Safety Officers: (1) ensure aircrews are briefed to promptly report all bird-aircraft strikes and hazardous conditions; (2) ensure applicable bird hazard information and BAM graphs are readily available and used for briefing aircrews; (3) ensure aircrews are aware of proper flight operations during "bird watch alert" status and bird watch conditions (BWC) LOW, MODERATE, and SEVERE, and (4) brief aircrews on seasonal bird hazards.

- In addition to other responsibilities, air traffic control: (1) reports observed bird activity to the SOF and Airfield Manager; (2) issues bird watch advisories to aircrews; and (3) identifies radar targets as possible bird watch activity when appropriate to provide warning to pilots.

- Wing Safety periodically inspects the squadron's BASH programs to help identify the bird hazards.

- During periods of flight operations, bird watch conditions other than LOW are included in the Automated Terminal Information Service (ATIS). Base Operations personnel post the bird watch conditions in the dispatch office for aircrew personnel and notify the flying squadrons and air traffic control. (ATIS is a continuous broadcast of recorded noncontrol information for an airport. ATIS broadcasts contain essential information, such as weather information, which runways are active, available approaches, and any other information required by the pilots. Pilots usually listen to an available ATIS broadcast before contacting the local control unit, in order to reduce the controllers' workload and relieve frequency congestion. The recording is updated when there is a significant change in the information. It is given a letter designation (*e.g*. bravo). When contacting the local air traffic control unit, a pilot will indicate he/she has "information" and the ATIS identification letter to let the controller know that the pilot is up to date with all current information.)

- The primary method of transmitting bird watch conditions is via ATIS. Under BWC SEVERE, Vance AFB air traffic control agencies ensure pilots are advised of the conditions and are provided the option to delay, divert, or continue the proposed operation into the hazardous area.

- Phase I and Phase II periods of bird activity area based on historical bird activity information. Phase II represents heavy bird activity, normally associated with migratory seasons.

Migratory waterfowl (*e.g*., ducks, geese and swans) are the most hazardous birds to low-flying aircraft because of their size and their propensity for migrating in large flocks at a variety of elevations and times of day. Waterfowl vary considerably in size, from one to two pounds for ducks, five to eight pounds for geese, and up to 20 pounds for swans. There are two normal migratory seasons, fall and spring. Waterfowl are usually only a hazard during migratory seasons. These birds typically migrate at night and generally fly between 1,500 to 3,000 feet AGL during the fall migration and from 1,000 to 3,000 feet AGL during the spring migration.

There are three wildlife management areas below and near the Vance 1A, 1C, and 1D MOAs that are important for migratory birds, waterfowl, and species of conservation concern (see Figure 1-1). The areas are:

- Salt Plains National Wildlife Refuge (NWR) which is northeast of the Vance 1A MOA;

- Canton Wildlife Management Area, which is below the Vance 1A MOA; and

- Washita NWR, which is south of the Vance 1C MOA.

The potential for bird-aircraft strikes is greatest in areas used as migration corridors (flyways) or where birds congregate for foraging or resting (e.g., open water bodies, rivers, and wetlands). Although waterfowl are the greatest threat, raptors, shorebirds, gulls, herons, and songbirds also pose a hazard. Peak migration periods for raptors, especially eagles, are from October to mid-December and from mid-January to the beginning of March. In general, flights above 1,500 AGL would be above most migrating and wintering raptors.

The Air Force has developed a BAM using Geographic Information System (GIS) technology as a key tool for analysis and correlation of bird habitat, migration, and breeding characteristics, combined with key environmental, and man-made geospatial data. The model consists of GIS raster grids, which span the conterminous United States and Alaska (AHAS, 2010).

The Aviation Hazard Advisory System (AHAS) was constructed with the best available geospatial bird data to reduce the risk of bird collisions with aircraft. Its use for flight planning can reduce the likelihood of a bird collision but will not eliminate the risk. The risk levels describe three predicted risk classes - Low, Moderate, and Severe, which are based upon the bird mass in ounces per square kilometer. In other words, the risk levels represent the amount of birds (bird mass) in a kilometer squared spatial area. The "Moderate Zone" indicates a risk ratio that is 57-708 times the risk of the "Low Zone", while the "Severe Zone" indicates a risk ratio that is 2,503-38,647 times the risk of the "Low Zone". These risk values are derived using a logarithmic scale for the risk surfaces (AHAS, 2010).

Collisions between aircraft and birds are an inherent risk. However, aircrews operating within the MOAs would continue to consider data from the BAM to minimize the potential for bird-aircraft strikes. Table 3-11 lists the AHAS risk for the Vance 1A, 1C, and 1D MOAs. The AHAS risk levels reflected in the table are based on the BAM. As noted in Table 3-11, risk of bird-aircraft strikes ranges from essentially severe for November through March, with a mix of moderate and low for April through October.

Table 3-11 Aviation Hazard Advisory System Risk for the Vance 1A, 1C, and 1D MOAs

Month/MOA	AHAS Risk Time of Day			Month/MOA	AHAS Risk Time of Day		
	7:00 a.m.	12:00 p.m.	6:00 p.m.		7:00 a.m.	12:00 p.m.	6:00 p.m.
January				**July**			
Vance 1A	Severe	Severe	Severe	Vance 1A	Moderate	Moderate	Moderate
Vance 1C	Severe	Severe	Severe	Vance 1C	Low	Moderate	Low
Vance 1D	Moderate	Severe	Severe	Vance 1D	Moderate	Moderate	Moderate
February				**August**			
Vance 1A	Severe	Severe	Severe	Vance 1A	Moderate	Moderate	Moderate
Vance 1C	Severe	Severe	Severe	Vance 1C	Low	Moderate	Low
Vance 1D	Severe	Severe	Severe	Vance 1D	Moderate	Moderate	Moderate
March				**September**			
Vance 1A	Severe	Severe	Severe	Vance 1A	Moderate	Moderate	Moderate
Vance 1C	Severe	Severe	Severe	Vance 1C	Moderate	Moderate	Moderate
Vance 1D	Moderate	Moderate	Moderate	Vance 1D	Moderate	Moderate	Moderate
April				**October**			
Vance 1A	Moderate	Moderate	Moderate	Vance 1A	Moderate	Moderate	Moderate
Vance 1C	Moderate	Moderate	Moderate	Vance 1C	Moderate	Moderate	Moderate
Vance 1D	Moderate	Moderate	Moderate	Vance 1D	Moderate	Moderate	Moderate
May				**November**			
Vance 1A	Moderate	Moderate	Moderate	Vance 1A	Severe	Severe	Severe
Vance 1C	Low	Moderate	Low	Vance 1C	Severe	Severe	Severe
Vance 1D	Moderate	Moderate	Moderate	Vance 1D	Severe	Severe	Severe
June				**December**			
Vance 1A	Moderate	Moderate	Moderate	Vance 1A	Severe	Severe	Severe
Vance 1C	Low	Moderate	Low	Vance 1C	Severe	Severe	Severe
Vance 1D	Moderate	Moderate	Moderate	Vance 1D	Severe	Severe	Moderate

Source: AHAS 2010
Note: Monthly risk data are based on BAM data for the 15th day of each month.

3.3 LAND USE

3.3.1 Definition of the Resource

Land use comprises natural conditions or human-modified activities occurring at a particular location. Human-modified land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas. The attributes of land use considered in this analysis include general land use patterns, land ownership, land management plans, and special use areas. General land use patterns characterize the types of uses within a particular area including agricultural, residential, military, and recreational. Land ownership is a categorization of land according to type of owner. The major land ownership categories include private, federal, and state. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas.

3.3.2 Existing Conditions

The land use areas potentially affected by operations within the Vance 1A, 1C, and 1D MOAs consists of undeveloped farmland with scattered population centers that are primarily small towns. A review of existing land uses that underlie the MOAs identified the following generalized land uses: populated areas, industrial, recreational areas, agricultural, commercial, and transportation corridors. Land uses associated with populated centers underlying the MOAs include residential, commercial, industrial, and institutional (*e.g.*, schools, hospitals). Figure 1-1 presents representative municipalities in the area below the MOAs.

3.4 BIOLOGICAL RESOURCES

3.4.1 Definition of the Resource

Birds and Bird populations are usually the biotic environment most often considered in assessing the impact of military aircraft training flights on wildlife. Aircraft and birds at times occupy the same airspace or bird habitat depending on the aircraft flight profile and bird activity. Noise from aircraft may also disrupt important bird behavior such as nesting. Birds tend to concentrate in large numbers in wildlife refuges and other natural environments that provide food and shelter. Many birds move out from these areas of concentration to feed at other locations. The most massive movements are during the spring and fall migrations.

3.4.2 Existing Conditions

Bird Species and Populations

Oklahoma lies in the central flyway for bird migration. It is in the path of a principal North-South route of the North American avian migration flyway. The Arctic coast is where this great flyway has its beginning and the western boundary of the Central Flyway follows closely the eastern base of the Rocky Mountains. It may be called "the flyway of the Great Plains" as it encompasses that entire vast region lying between the valley of the Mississippi River and the Rocky Mountains. The Central Flyway is relatively simple, as the majority of the birds that use it make direct north and south journeys from breeding grounds in the North to winter quarters in

the South. Oklahoma bridges the eastern and western United States. The state has a diversity of habitats ranging from the moist pine and hardwood forest of the Ouachita and Ozark mountains of the southeast to arid shortgrass prairies and pinon pine-juniper mesas of the Panhandle, encompassing numerous additional habitats within the state's borders. The diversity of weather and vegetation attracts a wide variety of birds. Over 215 bird species have been recorded as nesting in Oklahoma with more than 455 species catalogued as occurring in the state. About one-fourth of Oklahoma's regularly occurring species are resident year around. Another one-fourth are transients in the spring and/or fall, just over one-fourth are summer residents, one-fifth are winter residents, and the remainder are occasional visits to the state (Reinking 2010).

Oklahoma is within the center of abundance for the breeding ranges of a number of bird species, including northern bobwhite (*Colinus virginanus*), dickcissel (*Spiza americana*), and eastern meadowlark (*Sturnella magna*). The state supports populations of species spotlighted nationally as significant conservation of concern, including the lesser prairie chicken (*Tympanuchus cupido and Tympanuchus pallidicincyus*), black-capped vireo (*Vireo agtricapillus*), and Henslows's sparrow (*Ammodramus henslowii*). The state is also an important wintering area for a number of birds, including the red-tailed hawk (*Buteo jamaicensis*) and Harris's sparrow (*Zonotrichia querula*). Oklahoma, with its remaining large expanses of native grassland provides critical habitat for these and other grassland birds (Reinking 2010).

Wildlife management areas are important in supporting the large and diversified bird populations in Oklahoma. Wildlife management areas below and near the Vance 1A, 1C, and 1D MOAs are shown in Figure 1-1. The nearest refuges or Wildlife Management Areas are: Salt Plains National Wildlife Refuge, Canton Wildlife Management Area and the Washita National Wildlife Refuge. The kinds of birds and population levels at these management areas will provide useful information regarding baseline conditions and potential bird populations at risk due to the proposed action.

Salt Plains National Wildlife Refuge: This 32,000 acre refuge is located in north-central Oklahoma. It was created as a rest stop for migrating birds. Peak water fowl populations at the refuge during migration are 100,000 geese and 70,000 ducks. American white pelicans migrate in mid-September with numbers reaching 35,000. The refuge is also a stop-over point for sandhill cranes, the endangered whooping cranes and bald eagles. The peak population of eagles during migration is 25 to 30. A current bird census during summer provides additional information on species population levels. This information is presented in Table 3-12.

Table 3-12 Current Bird Census for Salt Plains National Wildlife Refuge: May 6, 2010

Name	Count
Ducks	
Gadwall	28
Mallard	450
Merganser, Hooded	24
Pintail	5
Ring-necked	15
Ruddy	700
Scaup, Lesser	3
Shoveler, Northern	1200
Teal, Blue-winged	400
Teal, Green-winged	60
American Wigeon	7
Wood	16
	Total: 2,908
Geese	
Canada Goose (large)	500
	Total: **500**
Shorebirds	
American Avocet	800
Long-billed Dowitcher	580
Godwit, Hudsonian	5
Killdeer	45
Plover, Black-bellied	58
Plover, Semipalmated	23
Plover, Snowy	600
Sandpiper, Baird's	300
Sandpiper, Dunlin	3
Sandpiper, Least	180
Sandpiper, Sanderling	32
Sandpiper, Semipalmated	3000
Sandpiper, Spotted	4
Sandpiper, Stilt	18
Sandpiper, Unidentified Small	4000
Sandpiper, Upland	35
Sandpiper, Western	600
Sandpiper, White-rumped	3400
Stilt, Black-necked	6
Turnstone, Ruddy	1
Willet	2
Yellowlegs, Greater	18
Yellowlegs, Lesser	7
	Total: **19,256**
Other Birds	
Blackbird, Red-winged	10,000
Coot, American	650
Crow, Common	100
Kingfisher, Belted	4
	Total: 10,754

Table 3 - 12 Current Bird Census for Salt Plains National Wildlife Refuge: May 6, 2010 (continued)

Name	Count
Marsh & Waterbirds	
Bittern, American	1
Cormorant, Double-Crested	230
Cormorant, Neotropic	6
Egret, Cattle	14000
Egret, Great	420
Egret, Snowy	3800
Grebe, Eared	6
Grebe, Pied-billed	6
Heron, Black-crowned Night	120
Heron, Great Blue	300
Heron, Little Blue	700
Ibis, Glossy	50
Ibis, White-faced	450
Ibis, White-faced/Glossy hybrid	19
Pelican, American White	340
	Total: 20,448
Upland Game Birds	
Dove, Eurasian Collared	2
Dove, Mourning	49
Pheasant, Ring-necked	19
Quail, Bobwhite	15
Turkey, Rio Grande	125
	Total: 210
Tern & Gulls	
Gull, Franklin	1000
Gull, Herring	8
Gull, Ring-billed	100
Tern, Forster's	7
	Total: **1,115**
Raptors	
Eagle, Bald (Adult)	4
Falcon, Peregrine	1
Hawk, Red-shouldered	6
Hawk, Red-tailed	8
Kestral, American	5
Northern Harrier	4
Owl, Barn	2
Owl, Barred	1
Owl, Great-horned	3
Vulture, Turkey	100
	Total: **138**

Source: USFWS 2010

Washita National Wildlife Refuge: This is an 8,075-acre refuge. Within the refuge, the slow moving Washita River winds through prairie and farmlands to merge with the Foss Reservoir providing a home for geese and other waterfowl. The table below shows the species and estimated numbers from a 2008 Christmas bird count (CBC).

Table 3-13 Washita Wildlife Refuge 2008 Christmas Bird Count

Species	Total	Species	Total
Common Loon	2	Downy Woodpecker	30
Pied-billed Grebe	19	Hairy Woodpecker	6
Horned Grebe	24	Northern Flicker-red shafted	18
Double-crested Cormorant	138	Northern Flicker-yellow shafted	27
Great Blue Heron	19	Flicker sp.	3
Greater White-fronted Goose	24	Eastern Phoebe	5
Snow Goose	5,321	Loggerhead Shrike	23
Ross's Goose	1,968	Blue Jay	4
Canada Goose	46,841	American Crow	64
Wood Duck	2	Horned Lark	20
Gadwall	37	Carolina Chickadee	61
American Wigeon	622	Tufted Titmouse	8
Mallard	222	Carolina Wren	15
Blue-winged Teal	8	Bewick's Wren	6
Northern Shoveler	46	Winter Wren	6
Northern Pintail	17	Golden-crowned Kinglet	1
Green-winged Teal	11	Ruby-crowned Kinglet	10
Canvasback	23	Eastern Bluebird	118
Redhead	27	Mountain Bluebird	55
Ring-necked Duck	52	American Robin	298
Greater Scaup	1	Northern Mockingbird	16
Lesser Scaup	6	Brown Thrasher	2
Bufflehead	79	European Starling	1,513
Common Goldeneye	10	Cedar Waxwing	25
Hooded Merganser	44	Yellow-rumped Warbler	41
Common Merganser	67	Spotted Towhee	8
Red-breasted Merganser	16	American Tree Sparrow	52
Bald Eagle	14	Chipping Sparrow	3
Northern Harrier	52	Field Sparrow	34
Sharp-shinned Hawk	3	Savannah Sparrow	35
Cooper's Hawk	3	Fox Sparrow	5
Red-shouldered Hawk	1	Song Sparrow	95
Red-tailed Hawk	108	Lincoln's Sparrow	3
Harlan's Hawk	4	Harris's Sparrow	113
Ferruginous Hawk	6	White-crowned Sparrow	408
Rough-legged Hawk	3	Sparrow sp.	4
American Kestrel	39	Dark-eyed Junco	333
Peregrine Falcon	1	Northern Cardinal	166
Prairie Falcon	2	Red-winged Blackbird	496
Wild Turkey	60	Eastern Meadowlark	2
Northern Bobwhite	60	Western Meadowlark	12
American Coot	1,142	Meadowlark sp.	502
Sandhill Crane	166	Brewer's Blackbird	861

Table 3-13 Washita Wildlife Refuge 2008 Christmas Bird Count (continued)

Species	Total	Species	Total
Killdeer	1	Common Grackle	13
Bonaparte's Gull	22	Great-tailed Grackle	3
Ring-billed Gull	203	Brown-headed Cowbird	328
Rock Pigeon	14	Blackbird sp.	5,670
Eurasian Collared-Dove	26	Purple Finch	5
Mourning Dove	249	House Finch	25
Greater Roadrunner	1	Pine Siskin	5
Great Horned Owl	1	American Goldfinch	261
Barred Owl	2	House Sparrow	142
Belted Kingfisher	8		
Red-bellied Woodpecker	42	**Total Species**	**100**

Source: USFWS 2009

The federally-listed whooping crane(*Grus Americana*), interior least turn(*Sterna antillarum*), and piping plover (*Charadrius melodus*) were not noted in the census (Table 3-12) and the Christmas count (Table 3-13).

Canton Wildlife Management Area: The Canton WMA covers 14,877 acres. It is predominantly floodplain type habitat with some upland sites occurring toward the western end of the area. The refuge host a large number of waterfowl and song birds. No Christmas counts or species census information are available (Conrady 2010).

Migratory Flight Altitude

Estimates of bird heights based on direct observations are quite unreliable. There have been some observations mostly from the Himalyas of geese at 27,000 feet, storks and cranes over 14,000 feet, and large vultures at 25,000 feet. A mallard duct was reported to have been hit by a commercial airline at 21,000 feet over the Nevada desert. Radar studies have demonstrated more accurately than human vision that 95 percent of the migratory movements occur at less than 10,000 feet with the bulk of the movements occurring under 3,000 feet (Zimmermann 1998).

Noise Response for Birds and Wildlife

Numerous studies that evaluated the impacts of noise on wildlife have used SEL as the metric. For this reason, SEL is used as the metric to evaluate noise on wildlife in this EA. The SEL from a single T-38C overflight at 8,700 feet AGL (*i.e.*, the current base altitude of the MOAs) would be 52 dBA. There have been no noted effects on birds and wildlife for the MOAs. Numerous studies showing little or no effect on wildlife from aircraft-related noise and visual disturbances are reported by the US Fish and Wildlife Service (Gladwin, *et al*. 1988).

Bird Collisions with Aircraft

A high rate of bird collisions with certain species in a geographic area could affect the status or population well being of the species (i.e., the species would be in decline or possibly a threatened or endangered species). Bird strike data (2006-2009, table 3-7) for Vance AFB does show over 50 species collided with aircraft for 217 collisions. All but two of these strikes occurred below 5,000 feet. There were no bird strikes or collisions for the MOAs.

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Chapter 4

Environmental Consequences

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4.1 NOISE

Several items were examined to determine the significance of potential noise impacts, including whether or not the noise levels generated by aircraft operations in the Vance 1A, 1C, and 1D MOAs would: (1) exceed the level "...requisite to protect the public health and welfare with an adequate margin of safety" (USEPA 1974), *i.e.*, DNL of 55 dBA; (2) annoy people; (3) cause communication interference, (4) cause nonauditory health effects; (5) cause hearing damage; or (6) interfere with wildlife activity.

4.1.1 Proposed Action

Under the Proposed Action, the base altitudes of the Vance 1A, 1C, and 1D MOAs would be lowered to 8,000 feet MSL (approximately 6,700 feet AGL) and the number of aircraft sorties in the MOAs would be at the levels identified in Table 2-1.

Single Event Noise Analysis

The SEL, L_{max}, and L_{eq} values listed in Table 3-1 would continue under the Proposed Action.Listeners in normal communication in a steady background noise of 56 dB that increases to 66 dB due to aircraft noise and are at a distance of 10 feet from each other would have to move to about 3 feet apart to maintain the same intelligibility or raise their voices (see Table 3-3). Their speech intelligibility would decrease considerably if they remain at 10 feet of separation. As shown in Table 3-1, SEL noise would exceed 66 dB only for the T-38 aircraft at an altitude of 6,700 feet AGL and when the receptors are directly below the aircraft and outward to where the receptors are 2,500 feet laterally from being directly below the aircraft. These conditions would last only as long as noise from the overflying aircraft remains at 66 dB or greater.

The L_{eq} values for the T-38 and T-1 at 6,700 feet AGL (*i.e.*, 17.4 dB and 12.9 dB, respectively, in Table 3-1) would not exceed the L_{eq} for the most conservative at-ear exposure level and condition (*e.g.*, 78.0 dB for intermittent, 8-hour noise exposure 250 days per year in Table 3-4) that could produce hearing damage. Thus, hearing damage would not occur due to the Proposed Action.

Averaged Noise Analysis

Noise in the Vance 1A, 1C, and 1D MOAs would continue to be generated by T-38 and T-1 aircraft operations. Table 2-1 lists the number of sorties that would be flown in the MOAs under the Proposed Action. As indicated in the table, a combined total of 1,282 sorties would be accomplished monthly in the Vance 1A, 1C, and 1D MOAs. Four of the sorties would occur during acoustic nighttime (*i.e.*, 10:00 p.m. to 7:00 a.m.).

Noise modeling with MR_NMAP indicates that greatest uniformly distributed noise levels below the MOAs from aircraft operations within the MOAs under the Proposed Action would be L_{dnmr} 23.7 dBA. As indicated in Section 3.1, the noise levels for the existing condition are L_{dnmr} 23.0

dBA. Noise modeling with MR_NMAP considers loudness, pitch, duration, flight track profiles, and distance for the various aircraft operations generated during a 24-hour day. These noises are calculated in terms of L_{dnmr} as dBA for averaged noise analysis.

No land would be exposed to DNL 55 dBA and greater, the level "...requisite to protect the public health and welfare with an adequate margin of safety" (USEPA 1974), *i.e.*, DNL of 55 dBA.

The area below the Vance 1A, 1C, and 1D MOAs is primarily farmland with communities scattered within the area. Less than 12 percent of the persons within the area would be annoyed by noise because it would not exceed DNL 65 dBA (see Table 3-2).

Individuals would not be exposed to aircraft noise at time-averaged noise levels of 75 dBA and higher for an 8-hour day. Thus, nonauditory health effects from chronic noise exposure would not occur due to the Proposed Action.

Section 4.4 contains a detailed description of the effects of aircraft noise on wildlife, especially for the species of concern.

4.1.1 No-action Alternative

Under the No-action Alternative, the base altitudes of the Vance 1A, 1C, and 1D MOAs would remain at 10,000 feet MSL (approximately 8,700 feet AGL) and the number of aircraft sorties in the MOAs would continue at the levels identified in Table 2-2 and noise would continue as described for the existing condition in Section 3.1.

Single Event Noise Analysis

The SEL, L_{max}, and L_{eq} values listed in Table 3-1 would continue under the No-action Alternative.

Listeners in normal communication in a steady background noise of 56 dB that increases to 66 dB due to aircraft noise and are at a distance of 10 feet from each other would have to move to about 3 feet apart to maintain the same intelligibility or raise their voices (see Table 3-3). As noted in Table 3-1, noise from neither the T-38C nor T-1 would exceed 66 dB. Therefore, speech intelligibility impacts should not occur.

The L_{eq} values for the T-38 and T-1 at 8,700 feet AGL (*i.e.*, 13.8 dB and 8.4 dB, respectively, in Table 3-1) would not exceed the L_{eq} for the most conservative at-ear exposure level and condition (*e.g.*, 78.0 dB for intermittent, 8-hour noise exposure 250 days per year in Table 3-4) that could produce hearing damage. Thus, hearing damage would not occur in the No Action Alternative.

Averaged Noise Analysis

Noise levels below the MOAs would continue to be L_{dnmr} 23.0 dBA.

No land would be exposed to DNL 55 dBA and greater, the level "...requisite to protect the public health and welfare with an adequate margin of safety" (USEPA 1974), *i.e.*, DNL of 55 dBA.

The area below the Vance 1A, 1C, and 1D MOAs is primarily farmland with communities scattered within the area. Less than 12 percent of the persons within the area would be annoyed by noise because it would not exceed DNL 65 dBA (see Table 3-2).

Individuals would not be exposed to aircraft noise at time-averaged noise levels of 75 dBA and higher for an 8-hour day. Thus, nonauditory health effects from chronic noise exposure would not occur in the No Action Alternative.

Section 4.4 contains a detailed description of the effects of aircraft noise on wildlife, especially for the species of concern.

4.1.2 Cumulative Impacts

As described in Section 2.5, no other past, present, and reasonably foreseeable future actions were identified for the area surrounding the project area. Therefore, there would be no cumulative impacts.

4.1.3 Mitigation

There would be no significant impacts. No mitigation is recommended.

4.2 AIRSPACE MANAGEMENT AND AIR TRAFFIC CONTROL, AIRCRAFT SAFETY, AND BIRD/WILDLIFE-AIRCRAFT STRIKE HAZARD

Aircraft operations impacts would be considered significant if: (1) the airspace does not have the capacity to accommodate the changes with the action; or (2) the changes associated with the action would conflict with the baseline operations condition. An aircraft safety impact would be significant if there would be a change in the number or type of aircraft operations that could potentially change the aircraft mishap rate. A bird/wildlife-aircraft strike would be significant if it would likely result in an aircraft accident, involve injury either to aircrews or to the public, or damage to property (other than the aircraft).

4.2.1 Proposed Action

Under the Proposed Action, the base altitudes of the Vance 1A, 1C, and 1D MOAs would be lowered to at 8,000 feet MSL (approximately 6,700 feet AGL) and the number of aircraft sorties in the MOAs would be at the levels identified in Table 2-1.

Airspace Management and Air Traffic Control

The expanded MOAs would provide the airspace necessary to safely accomplish all training events. Additionally, the MOAs have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions.

The Vance MOAs 1A, 1C, and 1D would continue to be active and be available for pilot training operations one hour before sunrise to one hour after sunset, Monday through Friday, and at other times by announcement through the NOTAM system. Vance AFB RAPCON would provide separation service for the expanded MOAs between participating VFR and all IFR aircraft operating within the MOA airspace, a service the RAPCON provides under the existing condition. Additionally, the RAPCON would continue to transition aircraft between the Vance AFB airfield and the MOAs via radar vectors to ensure separation between aircraft operating in the MOAs and aircraft transiting between the Base airfield and the MOAs. The Kansas City ARTCC would continue to provide radar service for the MOA airspace when the MOAs are inactive.

No impacts would be anticipated because: (1) the MOAs would accommodate the changes associated with the Proposed Action, and (2) the resulting aircraft operations within the MOAs would not conflict with the baseline operations conditions in the airspace below the MOAs (*i.e.*, MTRs and aircraft operating at the small public and private use airports). There would be no change in current departure and recovery operations.

Aircraft Safety

It is impossible to predict the precise location where an aircraft involved in an in-flight accident would impact the ground. However, aircraft operations are accomplished to avoid overflying residences and built-up areas to the maximum extent practicable. The levels and types of operations the Vance AFB aircraft would accomplish in the Vance 1A, 1C, and 1D MOAs would be consistent with those currently flown in the MOAs, and the T-1 and T-38 Class A mishap rates listed in Table 3-4 would continue to apply. For these reasons, the risk is low that an aircraft involved in an accident in the MOAs would strike a person or structure on the ground. No aircraft safety impacts would be anticipated.

Bird/Wildlife-Aircraft Strike Hazard

Bird/wildlife-aircraft strike hazards can be assessed using a combination of bird distribution and behavior factors and aircraft operational factors. Some of these factors include:

- The size and behavior of the predominant bird species;
- The presence of specialized habitat or location that favors migration patterns or large concentrations of birds;
- The frequency and location of takeoffs and landings;
- The altitude of flight operations; and
- The flight characteristics of the aircraft, including size, airspeed, and number of engines.

Collisions between aircraft and birds would continue to be an inherent risk. However, aircrews operating in the MOAs would continue to have access to the data in the AHAS and BAM. Use of the data allows aircrews to avoid severe BASH risk areas. Bird-aircraft strikes would be reported and processed in accordance with the Vance AFB BASH Plan.

Historically, only 1.45 percent of all Vance AFB bird-aircraft strikes occur over 5,000 feet AGL (see Table 3-10). As noted in Section 3.2.2, none of the bird-aircraft strikes for Vance AFB aircraft occurred in the MOAs. For these reasons, lowering of the floor of current MOA operations from 8,700 AGL to 6,700 AGL would not be expected to increase the potential for a bird-aircraft strikes over current conditions or reduce bird populations due to bird strikes. MOA operations above 6,700 AGL would be above the altitude where most bird activity, including seasonal migration (1,000 to 3,000 AGL), occurs.

The numbers and types of Vance AFB aircraft sorties and operations within the MOAs would remain at the level and types for the GEIAP EA Proposed Action. Thus, the number of bird-aircraft strikes would remain at approximately the same levels. It is anticipated the altitude distribution of the strikes would follow the data in Table 3-5 because the types of operations by aircraft operating within the MOAs would be consistent with the types of operations associated with data in the table.

The potential for bird/wildlife-aircraft strikes could fluctuate as a result of the cyclical patterns of bird populations. Historically, one-half of one percent of all reported bird/wildlife-aircraft strikes involving Air Force aircraft resulted in a serious mishap. Therefore, it is unlikely that any of these bird/wildlife-aircraft strike incidents would involve injury either to aircrews or to the public, or damage to property (other than the aircraft). For this reason, no impacts would be anticipated.

Section 4.4 contains a detailed description of the effects of aircraft operations on wildlife, especially for the species of concern.

4.2.2 No-action Alternative

Under the No-action Alternative, the base altitudes of the Vance 1A, 1C, and 1D MOAs would remain at 10,000 feet MSL (approximately 8,700 feet AGL) and the number and type of aircraft sorties in the MOAs would remain at the levels identified in Table 2-2.

The MOAs would continue to have the capacity to accommodate the number of sorties required for the IFF and JSUPT missions. However, as described in Section 2.5, Vance AFB aircraft would not be able to operate as safely as desired with only 14,000 feet of vertical airspace within the 1A, 1C, and 1D MOAs.

Vance AFB RAPCON would continue to provide separation service for the expanded MOAs between participating VFR and all IFR aircraft operating within the MOA airspace, a service the RAPCON provides under the existing condition. Additionally, the RAPCON would continue to transition aircraft between the Vance AFB airfield and the MOAs via radar vectors to ensure separation between aircraft operating in the MOAs and aircraft transiting between the Base

airfield and the MOAs. The Kansas City ARTCC would continue to provide radar service for the MOA airspace when the MOAs are inactive.

4.2.3 Cumulative Impacts

As described in Section 2.5, no other past, present, and reasonably foreseeable future actions were identified for the area surrounding the project area. Therefore, there would be no cumulative impacts.

4.2.4 Mitigation

There would be no significant impacts. No mitigation is recommended.

4.3 LAND USE

An impact to land use would be considered significant if one or more of the following occur as a result of the Proposed Action: (1) conflict with applicable ordinances and/or permit requirements; (2) nonconformance with applicable land use plans; (3) preclusion of adjacent or nearby properties being used for existing activities; or (4) conflict with established uses of an area.

4.3.1 Proposed Action

Land below the Vance 1A, 1C, and 1D MOAs would be exposed to noise levels of approximately L_{dnmr} 23.7 dBA. This level of noise would be below DNL 65 dBA, the maximum level considered acceptable for unrestricted residential use. The noise from aircraft operating in the MOAs would not cause noncompliance with ordinances or conflict with land use plans and established uses of an area. Additionally, there would be no change to existing land uses as a result of the Proposed Action. No land use impacts would be anticipated.

4.3.2 No-action Alternative

Under the No action Alternative, the base altitudes of the Vance 1A, 1C, and 1D MOAs would remain at 10,000 feet MSL (approximately 8,700 feet AGL). Land below the Vance 1A, 1C, and 1D MOAs would continue to be exposed to noise levels of approximately L_{dnmr} 23.0 dBA and there would be no change to land use. Therefore, no land use impacts would be anticipated.

4.3.3 Cumulative Impacts

As described in Section 2.5, no other past, present, and reasonably foreseeable future actions were identified for the area surrounding the project area. Therefore, there would be no cumulative impacts.

4.3.4 Mitigation

There would be no significant impacts. No mitigation is recommended.

4.4 BIOLOGICAL RESOURCES

Biological impacts would be considered significant if: (a) high noise levels would cause direct, physiological changes to the animal auditory system, or stress and behavior modifications (interference with mating and reproduction, and impaired ability to obtain food, cover, or water) resulting in potential species population decline or habitat loss and (b) bird/aircraft collisions were high enough for a given bird species to reduce the regional viability of the species population.

4.4.1 Proposed Action

Noise Response for Birds and Wildlife

The SEL on the ground from a single T-38C overflight at 8,700 feet AGL (*i.e.*, the current base altitude of the MOAs) would be 63 dBA while the noise on the ground from the aircraft at 6,700 feet AGL (*i.e.*, the proposed base altitude of the MOAs) would be 67 dBA, an increase of 4 dBA at the lower altitude. Similarly, the SEL on the ground from a single T-1 overflight at 8,700 feet AGL would be 58 dBA while the noise on the ground from the aircraft at 6,700 feet AGL would be 62 dBA, an increase of 4 decibels at the lower altitude (see Table 3-1). Negative impacts would likely be measurable or long-lasting only when animals have little freedom of movement (*i.e.*, for escape) and/or are subjected to intense sound volume and frequency (Janis and Busnel 1978). An increasing number of studies involving low-level, fixed-wing military overflights of varying intensity of sonic or sub-sonic noise elicit little response from most free-roaming species, particularly birds and mammals (Platt 1977; Ellis 1981; Utah State University Foundation 1992; Grubb and Bowerman 1997; Johnson and Reynolds 2002). Numerous studies showing little or no effect on wildlife from aircraft-related noise and visual disturbances are reported by the US Fish and Wildlife Service (Gladwin, *et al*. 1988). Additionally, activities occurring within the MOAs would remain in the same lateral boundaries. For these reasons, the Proposed Action would not cause a potential decline or disruption of wildlife populations below the MOAs.

Bird Collision with Aircraft

Under the Proposed Action 1A, 1C and 1D MOAs would be lowered from 8,700 feet AGL to 6,700 ft AGL. The concern of this lowering is whether there is a possibility of increasing the potential for more aircraft bird collisions and the impact on species and populations in the flying area around Vance AFB. This potential can be evaluated by considering the historical altitude for bird flight, species in the area, as well as bird strike data.

Most massive movement of birds would occur during migration. Higher altitudes are expected during this time period as well. There have been some observations mostly from the Himalyas of geese at 27,000 feet, storks and cranes over 14,000 feet, and large vultures at 25,000 feet. A mallard duck was reported to have been hit by a commercial airliner at 21,000 feet over the Nevada desert. Radar studies have demonstrated more accurately than human vision that 95 percent of the migratory movements occur at less than 10,000 feet with the bulk of the movements occurring under 3,000 feet.

In comparing Vance Bird strike data by species (Table 3-9) with species from bird census and CBCs from the Washita NWR and the Salt Plains NWR respectively (Tables 3-12 and 3-13),

there are some matches. Out of the 49 species recorded as bird strikes, only six were recorded from the census and Christmas count. These were meadow lark, horned lark, killdeer, rough-legged hawk, savannah sparrow and upland sandpiper. However, there are fewer than five total collisions for most species over the three year recording period. There are few exceptions as with the horned lark up to 48 individuals. These few collisions would not have an impact on the viability of any species population. There were no recorded bird collisions with the federally-listed whooping crane (*Grus americana*), interior least turn (*Sternula(Sterna)antillarum*), and piping plover(*Charadrius melodus*).

A review of Vance AFB bird strike data by altitude (Table 3-10) indicates most strikes occurred below 5,000 feet. Only two strikes (1.45 percent) occurred at 5,000 feet or above. No strikes have been recorded in the existing MOAs at 8,700 AGL.

There is a low potential for bird collisions under the Proposed Action from lowering MOAs 1A, 1C, and 1D from 8,700 feet to 6,700 feet. Most bird migration occurs below 3,000 feet. For Vance AFB flying activity, most bird strikes have occurred below 5,000 feet. This compares closely with overall Air Force bird strike data (Table 3-10). There would be no impact on the viability of any bird species population from the proposed action. The few bird strikes for any species is too low to affect the viability of the species population.

4.4.2 No-action Alternative

Noise Response for Birds and Wildlife

Under the No action Alternative, the base altitudes of the Vance 1A, 1C, and 1D MOAs would remain at 10,000 feet MSL (approximately 8,700 feet AGL) and the maximum noise on the ground from a T-38C aircraft overflight would be 63 dBA, while the noise on the ground from a T-1 overflight would be 58 dBA. There would be no change in biological impacts.

Bird Collision with Aircraft

Under the No action Alternative, the base altitudes of the Vance 1A, 1C, and 1D MOAs would remain at 10,000 feet MSL (approximately 8,700 feet AGL). There would be no change in the potential bird collision with aircraft. No bird strikes have occurred within the existing MOAs. There would no impact on bird species population viability.

4.4.3 Cumulative Impacts

As described in Section 2.5, no other past, present, and reasonably foreseeable future actions were identified for the area surrounding the project area. Therefore, there would be no cumulative impacts.

4.4.4 Mitigation

There would be no significant impacts. No mitigation is recommended.

Chapter 5

List of Preparers

CHAPTER 5
LIST OF PREPARERS

Name/Organization	Degree	Resource Area	Years of Experience
Aimee Kambhu, P.G./WESTON	B.S., Geology	Project Manager	16
Tamara Carroll/WESTON	B.S., Bioenvironmental Science	Deputy Project Manager, Document Compilation	8
Marsha Prior/Geo-Marine, Inc.	B.A., Sociology; M.A., Anthropology; Ph.D., Anthropology	Resource Advisor, Cultural Resources	18
John Wallin/WWB Consultants	B.A., Biology M.A., Management	Resource Lead, Airspace and Airfield Operations, BASH, and Aircraft Safety; Noise; Land Use	39
R.C. Wooten/WWB Consultants	B.S., Biology M.S., Zoology Ph.D., Ecology and Biology	Technical Manager, Biological Resources	41
Don Koehler/WWB Consultants	Ph.D., Biology	Resource Specialist, Biological Resources	28
Doug Botts/WWB Consultants	B.S., Government M.A., Computer Data Automation	Resource Specialist, Noise Modeling	3

(no document text this page)

Chapter 6

List of Persons and Agencies Consulted

CHAPTER 6
PERSONS AND AGENCIES CONSULTED

The following individuals were consulted during the preparation of this supplemental EA:

Federal Agencies

Federal Aviation Administration

Terry, Nan, Environmental Specialist

United States Air Force

Vance Air Force Base

Buthman, Mark (PD/CEV)
Heeren, Paul (71LRS/CE)
Loader, Major Gary (71OSS/OSOP)
Maloy, Major Dan (71FTW/BRAC)
Pitts, Captain Carl (71 FTW/SEF)
Tobyne, Bryce (PD/CEV)

Headquarters Air Education and Training Command

Holley, Jim (HQ AETC/A7CVI)

United States Army Corps of Engineers, Tulsa District

Planning, Environmental, and Regulatory Division

United States Bureau of Indian Affairs

Southern Plains Regional Office

Hanna, Jeanette, Regional Director

United States Environmental Protection Agency, Region VI

Federal Assistance Section

Jansky, Michael

United States Fish and Wildlife Service

Barstow, Anita, Oklahoma Ecological Services Field Office

State Agencies

Oklahoma Archaeological Survey

Brooks, Robert, State Archaeologist

Oklahoma Department of Environmental Quality

Customer Assistance Program

Graham, Margaret

Oklahoma Department of Wildlife Conservation

Natural Resources Section

Oklahoma Natural Heritage Inventory

Oklahoma Biological Survey

State Historic Preservation Office

Oklahoma Historical Society

Heisch, Melvina, Deputy State Historic Preservation Officer

The State of Oklahoma

Henry, Brad, Governor of Oklahoma

City of Enid Agencies

City of Enid

Bauer, Chris, Planning Administrator

Tribal Agencies

Apache Tribe of Oklahoma

Cheltah, Elonzo, Chairperson

Comanche Nation, Oklahoma

Burgess, Michael, Chairperson

Indians of the Kickapoo Reservation in Kansas

Thomas, Fred, NAGPRA Contact

Iowa Tribe of Kansas and Nebraska

Campbell, Leon, Chairperson

Kiowa Indian Tribe of Oklahoma

Eskew, Jamie, Tribal Chairman

Sac and Fox Nation of Missouri in Kansas and Nebraska

Barton, Twen, Chairperson

Sac and Fox Nation Oklahoma

Massey, Sandra, NAGPRA Contact

Rhoads, Kay, Principal Chief

Sac and Fox Nation of the Mississippi in Iowa

Buffalo, Johnathan, Director of Historic Preservation

Pushetonequa, Adrian, Chairperson

Pawnee Nation of Oklahoma

Howell, George, Chairperson

Robedeaux, Muriel, THPO

Other Agencies

Garfield County Commissioners

Garfield County Courthouse

County Commissioners

Chapter 7

References

CHAPTER 7
REFERENCES

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Vance AFB. 2010b. Data regarding bird-aircraft strikes in Vance MOAs contained in email from Mr. Aaron Betts, 71 FTW/SEF, July 30, 2010.

Vance AFB. 2010c. Data regarding bird-aircraft strike data contained in file *usfws altitude data.xlsx*, provided in an email from Mr. Mark Buthman, Vance AFB, August 20, 2010.

Vance AFB. 2010d. Data regarding bird-aircraft strike data contained in file *USFWSbirdnumbers.xlsx*, provided in an email from Mr. Mark Buthman, Vance AFB, August 20, 2010.

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Appendix A

Interagency/Intergovernmental Coordination and Public Participation

General Scoping Letter Example

DEPARTMENT OF THE AIR FORCE

71ST FLYING TRAINING WING
VANCE AIR FORCE BASE OKLAHOMA

JAN 2 5 20[illegible]

Colonel Thomas L. Gibson
Commander, 71st Mission Support Group
246 Brown Parkway, Suite 230
Vance AFB OK 73705-5036

Mr. Elonzo Chletah
Chairperson
Apache Tribe of Oklahoma
P.O. Box 1220
Anadarko OK 73005

Dear Mr. Chletah

The 71st Flying Training Wing at Vance Air Force Base (AFB), Oklahoma, is preparing an Environmental Assessment (EA) under the National Environmental Policy Act. We propose to lower the floor of the Vance Military Operating Areas (MOAs) 1A, 1C, and 1D, from 10,000 feet mean sea level (MSL) to 8,000 feet MSL. These proposed changes to the MOAs are needed to support the Introduction to Fighter Fundamental (IFF) squadron in its ongoing Joint Specialized Undergraduate Pilot Training (JSUPT) mission. IFF training at Vance AFB was a 2005 Base Realignment and Closure Commission-mandated addition that brought the need for additional airspace. Currently, IFF training is confined to airspace that limits its effectiveness. Lowering the floor of the Vance 1A, 1C, and 1D MOAs, while keeping the upper limit at 23,000 feet MSL, would provide 15,000 feet of needed airspace. The new, expanded airspace, located in close proximity to Vance AFB, would be utilized by IFF T-38C aircraft and the T-38C and T-1 aircraft used in JSUPT. Two alternatives will be considered including the Proposed Action and the alternative to take no action.

We solicit comments and concerns regarding the proposal so that we might address them in our analysis. When completed, the Draft EA will be forwarded for your review. A list of agencies contacted is attached. Please let us know if you feel additional agencies should review the proposal. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effects. Any questions regarding this proposal should be directed to Mr. Mark Buthman at 580-213-7344. Please forward your written comments within 30 days of the date of this letter to Mr. Buthman at the following address: Mr. Mark Buthman, PD/CEV, 140 Channel Street, Suite 231, Vance AFB OK 73705-5621.

Sincerely

Thomas L Gibson

THOMAS L. GIBSON, Colonel, USAF

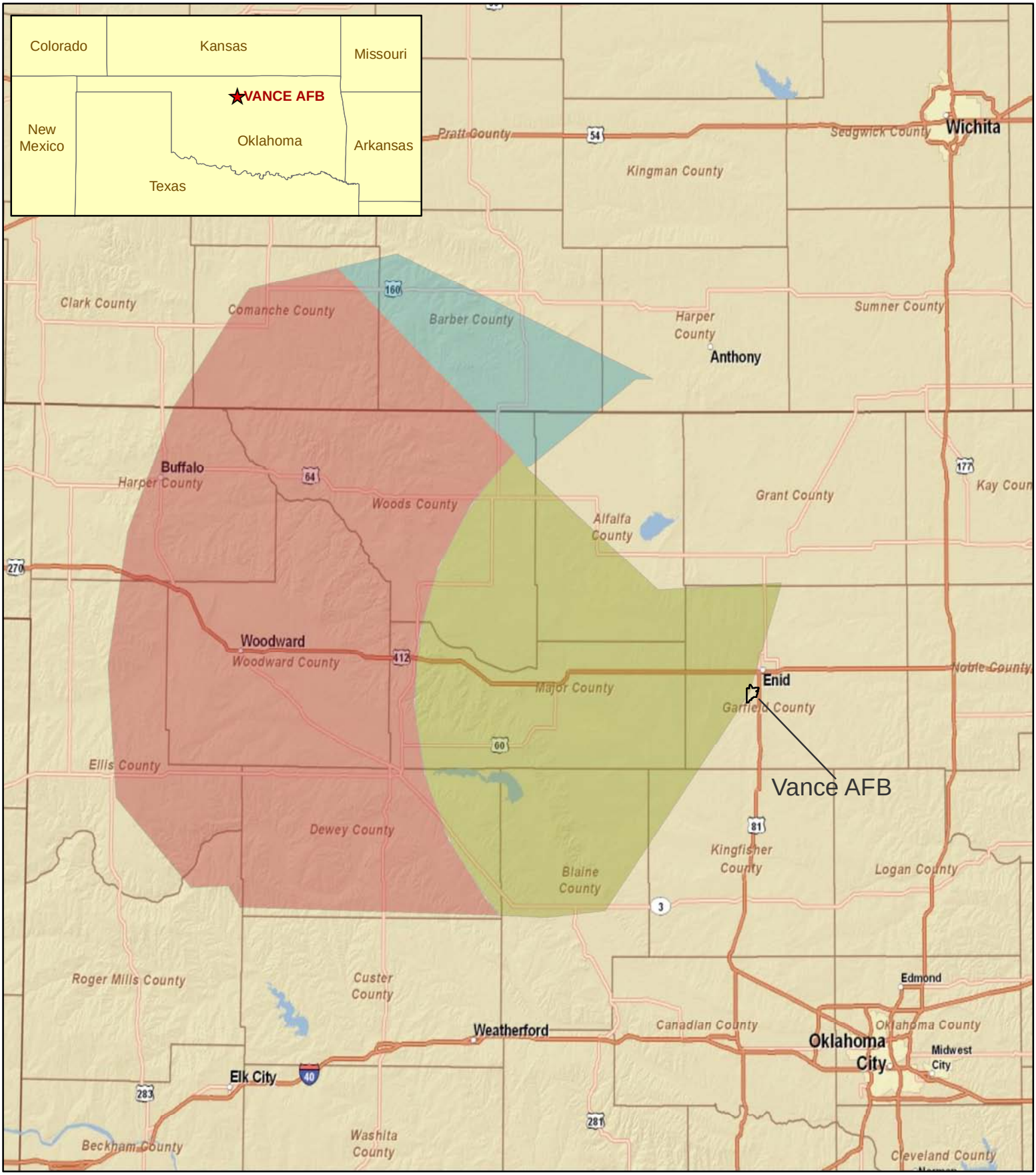
2 Attachments:
1. List of Agencies Contacted
2. Figure of Proposed Action Projects

Preparing Tomorrow's Joint Air Warriors to Fly...Fight...and Win!

Enclosures for Scoping Letter

Scoping Mailing List
Environmental Assessment to Lower Vance MOAs 1A, 1C, and 1D
Vance Air Force Base, Oklahoma
16 December 2009

Agency	Department	Title	Title-1	Name	Last Name	Address	City	State	Zip Code
US Bureau of Indian Affairs	Southern Plains Regional Office	Regional Director	Ms.	Jeanette	Hanna	P.O. Box 638	Anadarko	OK	73005-0368
State Historic Preservation Office	Oklahoma Historical Society	Deputy State Historic Preservation Officer	Ms.	Melvina	Heisch	2401 N. Laird Ave	Oklahoma City	OK	73105-5015
United States Army Corps of Engineers, Tulsa District	Planning, Environmental, and Regulatory Division					1645 S. 101 E Ave	Tulsa	OK	74128-4609
United States Fish and Wildlife Service	Oklahoma Ecological Services Field Office					9014 E. 21st Street South	Tulsa	OK	74129-1428
Oklahoma Department of Environmental Quality	Customer Assistance Program		Ms.	Margaret	Graham	P.O. Box 1677	Oklahoma City	OK	73101
Oklahoma Department of Wildlife Conservation	Natural Resources Section				Agency Representative	1801 North Lincoln	Oklahoma City	OK	73105
USEPA, Region VI	Federal Assistance Section		Mr.	Michael	Jansky	1445 Ross Avenue	Dallas	TX	75202-2733
Oklahoma Natural Heritage Inventory	Oklahoma Biological Survey				Agency Representative	111 E. Chesapeake Street	Norman	OK	73019-0575
Oklahoma Archaeological Survey		State Archaeologist	Mr.	Robert	Brooks	111 E. Chesapeake Street	Norman	OK	73019-5111
City of Enid		Planning Administrator	Mr.	Chris	Bauer	P.O. Box 1768	Enid	OK	73701
Garfield County Commissioners	Garfield County Courthouse	County Commissioners				114 W Broadway	Enid	OK	73701
Governor of Oklahoma			The Honorable	Brad	Henry	State Capitol Building 2300 N. Lincoln Blvd, Rm. 212	Oklahoma City	OK	73105
Federal Aviation Administration		Environmental Specialist	Ms.	Nan	Terry	2601 Meacham Blvd	Fort Worth	TX	76137



Legend

- Installation Boundary
- 1A MOA
- 1C MOA
- 1D MOA

0 125,000 250,000 Feet

N W E S

WESTON SOLUTIONS

Site Location Map

Vance AFB
Enid, OK

File: \\Fsfed01\TIG\AETC\Vance\mxd\MOA.mxd, 20-Nov-09 08:52, lathamj

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Scoping Responses

Carroll, Tamara

From: Buthman, Mark H CTR USAF AETC PD/CEV [mark.buthman.ctr@vance.af.mil]
Sent: Wednesday, January 27, 2010 4:17 PM
To: Carroll, Tamara
Cc: Heeren, Paul E Civ USAF AETC 71 LRS/CE; Tobyne, Bryce L CTR USAF AETC PD/EV
Subject: FW: OBS Information Request: proposal to lower the floor of the Vance MOAs

-----Original Message-----
From: Sasha Kirk [mailto:sashagkirk@gmail.com]
Sent: Wednesday, January 27, 2010 4:09 PM
To: Buthman, Mark H CTR USAF AETC PD/CEV
Subject: OBS Information Request: proposal to lower the floor of the Vance MOAs

OBS Ref. 2010-032-FED-DOD

Dear Mr. Buthman,

We have reviewed occurrence information on listed threatened and endangered species currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Van Air Force Base, Section 36 T22N R07W, Garfield County, Oklahoma No database records found within the project location as described.

You can find an explanation of the codes used to rank endangered and threatened species at:
http://pincel.ou.edu/heritage/ranking_guide.html
If you have any questions about this response, please send me an email, or telephone the number given below.

Sincerely,

Sasha Kirk
(For) Ian Butler
Oklahoma Biological Survey
111 East Chesapeake St.
Norman, OK 73019
405.325.1985

Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

FEB 05 2010

February 3, 2010

Mark Buthman
Department of the Air Force
140 Channel Street, Ste. 231
Vance Air Force Base, Oklahoma 73705-5621

RE: Proposed project to lower the floor of the Vance Military Operating Areas 1A,1C, and 1D; Garfield County, Oklahoma.

Dear Mr. Buthman:

Our office has no objections to the referenced project. The nature of the project is such that it should have no impact on the prehistoric cultural or archaeological resources of Oklahoma. This review is conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society.

Sincerely,

Travis M. Williams
Staff Archaeologist

Robert L. Brooks
State Archaeologist

Cc: SHPO

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

FEB 0 8 2010

February 4, 2010

Regulatory Office

PROJECT NAME: Lower Airspace Garfield County

CORPS CASE NO.: SWT-2010-00098-kmr

CORPS POC: Karla Roberts, 918-669-7400

Mr. Mark Buthman
71st Flying Training Wing, PD/CEV
140 Channel Street, Suite 231
Vance Air Force Base, OK 73705

Dear Mr. Buthman:

Please reference your correspondence of February 2, 2009, regarding the above listed project.

The provided information does not indicate that a placement of dredged or fill material will be required, permanently or temporarily, into any "waters of the United States," including jurisdictional wetlands. Therefore, your proposal is not subject to regulation pursuant to Section 404 of the Clean Water Act, and a Department of the Army (DA) permit will not be required. Should your method of construction necessitate such a discharge into an aquatic area or tributary stream, we suggest that you resubmit that portion of your project so that we may determine whether an individual DA permit will be required.

Although DA authorization is not required, this does not preclude the possibility that other Federal, State, or local permits may be required.

If you have any questions or if further assistance is desired, contact the Corps POC listed above. Please refer to the case number listed above during any future correspondence.

Sincerely,

Karla Roberts

FOR David A. Manning
Chief, Regulatory Office

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

Air Traffic Organization
Central Service Center

2601 Meacham Blvd.
Fort Worth, TX 76137

FEB 0 4 2010

Colonel Thomas L. Gibson
Commander, 71st Mission Support Group
236 Brown Parkway, Suite 230
Vance AFB, OK 73705-5036

Dear Colonel Gibson:

This letter responds to your letter dated January 25, 2010. After a request from the United States Air Force, the Federal Aviation Administration agreed to be a cooperating agency for airspace changes at Vance Air Force Base in 2006. We remain committed to assist you in your endeavor to modify existing airspace.

We will comply with the guidelines described in the previous correspondence enclosed. We look forward to reviewing and commenting on the Preliminary Draft Environmental Assessment to ensure that Federal Aviation Administration requirements are met.

If you have any questions, please contact Ms. Nan L. Terry, Environmental Specialist, Operations Support Group, ATO Central Service Center, at 817-321-7736.

Sincerely,

Ronnie L. Uhlenhaker
Manager, Tactical Operations Team
Operations Support Group
ATO Central Service Center

Enclosures

cc:
Director of En Route and Oceanic Operations
Central Service Area

Don Smith

U.S. Department
of Transportation
Federal Aviation Administration

System Operations Airspace and
Aeronautical Information Management
800 Independence Ave., SW.
Washington, DC 20591

JUN 29 2006

Colonel Irvin B. Lee
Deputy Civil Engineer
Air Education and Training Command
United States Air Force
266 F Street West
Randolph AFB, TX 78150-4319

Dear Col. Lee:

Thank you for your letter of June 2, requesting Federal Aviation Administration (FAA) participation in the environmental process associated with moving the Introduction to Fighter Fundamentals (IFF) course to Laughlin, Randolph, and Vance Air Force Bases.

We are pleased to participate as a cooperating agency, in accordance with the National Environmental Policy Act of 1969, as Amended, and its' implementing regulations. Since the proposal contemplates activities associated with Special Use Airspace (SUA), 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.

The FAA Central Service Center will be the primary environmental focal point for matters related to this proposal. I have forwarded a copy of this letter and your letter to the Service Center System Support Manager, Mr. Don Smith. You may contact him directly at 817-222-5530.

We look forward to working with the Air Force on the environmental process for the proposed airspace changes associated with the IFF course.

Sincerely,

ORIGINAL SIGNED BY
Nancy B. Kalinowski
Director, System Operations Airspace & AIM

cc: Central Service Center System Support Manager
Nan Terry/Joe Yadouga, Central Service Center

AJR-34(Wishy):DWarren:dgw:X79183:6/27/06

Saved as: P:\ATA-300\Military SUA\Coop Agcy USAF IFF Course

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

JUN 0 2 2006

Colonel Irvin B. Lee, USAF
Deputy Civil Engineer
Air Education and Training Command
266 F Street West
Randolph AFB TX 78150-4319

Ms. Nancy B. Kalinowski, Director
System Operations
Airspace and Aeronautical Information Management
800 Independence Avenue, S.W.
Washington DC 20591

Dear Ms. Kalinowski

Pursuant to the 2005 Base Realignment and Closure, the Introduction to Fighter Fundamentals (IFF) course is moving from Moody AFB to Columbus, Laughlin, Randolph, Sheppard and Vance AFBs. Airspace changes are required at Laughlin, Randolph and Vance AFBs to fully implement the IFF training syllabus at those locations. Airspace changes are not currently required at Columbus and Sheppard AFBs.

The Air Force requests your formal participation in the preparation of three environmental assessments, one each for implementing the IFF course at Laughlin, Randolph, and Vance AFBs. This request is made as prescribed in the President's Council on Environmental Quality National Environmental Policy Act (NEPA) Regulations, 40 Code of Federal Regulations 1501.6, *Cooperating Agencies.*

As a cooperating agency, the Air Force requests you participate in various portions of the environmental assessment development as may be required. Specifically, the Air Force asks for your support as a cooperating agency by:

- Participating in the scoping process;
- Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which you have special expertise;
- Making staff support available to enhance interdisciplinary review capability; and
- Responding, in writing, to this request.

The Air Force requires the support of cooperating agencies be timely to avoid unnecessary delays in the NEPA process. Should you or your staff have further questions regarding this memo, our points of contact are detailed in the attached table.

IRVIN B. LEE, Colonel, USAF
Deputy Civil Engineer

Attachment:
Points of Contact Table

cc:
SAF/IEE
12 MSG/CC
14 MSG/CC
47 MSG/CC
71 MSG/CC
82 MSG/CC

BASE	BASE POINT OF CONTACT	COMMAND POINT OF CONTACT
Laughlin AFB		
Name	Mr. Ramon Flores	Ms. Patricia Salas
Mailing Address	47 CEV/CEV 251 4th Street Laughlin AFB TX 78843	HQ AETC A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(830) 298-5694	(210) 652-1962
Electronic Mail	ramon.flores@laughlin.af.mil	patricia.salas@randolph.af.mil
Randolph AFB		
Name	Mr. Mathew Kramm	Ms. Patricia Salas
Mailing Address	12 MSG/CEV 1651 5th Street West Randolph AFB TX 78150	HQ AETC/A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(210) 652-4688	(210) 652-1962
Electronic Mail	mathew.kramm@randolph.af.mil	patricia.salas@randolph.af.mil
Vance AFB		
Name	Mr. Mark Buthman	Ms. Marion Erwin
Mailing Address	CSC/CEV 1601 Fox Drive Vance AFB OK 73705	HQ AETC/A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(580) 213-7344	(210) 652-1960
Electronic Mail	mark.buthman@vance.af.mil	marion.erwin@randolph.af.mil

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 2401 North Laird Ave. • Oklahoma City, OK 73105-7914
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

February 11, 2010

Colonel Thomas Gibson
Dept. of the Air Force
PD/CEV
140 Channel Road, Suite 231
Vance AFB, OK 73705-5621

RE: File #1063-10; Vance AFB Proposed Lowering of Floors in Military Operating Areas 1A, 1C & 1D

Dear Col. Gibson:

The referenced project does not include construction or earth-moving activities. Comments or opinions by this office are inappropriate for this project.

Should further projects include construction or earth-moving activities, an opinion should be requested from this office.

If you have any questions, please contact Timothy G. Baugh, Ph.D., Historical Archaeologist, at 405/521-6381.

Further correspondence pertaining to this project must reference the above underlined file number. Thank you.

Sincerely,

Melvena Heisch

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:pm

MAR 2 3 2010

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
9014 East 21st Street
Tulsa, Oklahoma 74129
918/581-7458 / (FAX) 918/581-7467

In Reply Refer To:
FWS/R2/OKES/
2010-CPA-0059

March 16, 2010

Mr. Mark Buthman, PD/CEV
140 Channel Street, Suite 231
Vance Air Force Base, Oklahoma 73705-5621

Dear Mr. Buthman,

The Fish and Wildlife Service (Service) received a letter dated January 25, 2010 from Colonel Thomas L. Gibson requesting comments and concerns from the proposed lowering of the Vance Air Force Base (Vance AFB) Military Operating Areas (MOAs) 1A, 1C, and 1D, from 10,000 feet mean sea level (MSL) to 8,000 feet MSL. These MOAs encompass all of Major, Woods, and Woodward Counties and parts of Alfalfa, Blaine, Dewey, Ellis, Garfield, Harper, and Roger Mills Counties in Oklahoma. Additionally, Barber, Comanche, and Harper Counties in Kansas are also delineated on the map of the MOAs provided by Vance AFB. We understand that Vance AFB was a part of the 2005 Base Realignment and Closure Commission that mandated addition of Introduction to Fighter Fundamental squadron to the ongoing Joint Specialized Undergraduate Pilot Training that is conducted within these regions of airspace. Our comments are submitted pursuant to National Environment Policy Act (NEPA), Endangered Species Act (ESA), Bald and Golden Eagle Act and Migratory Bird Treaty Act.

Introduction

The airspace encompassed by the Vance AFB MOAs surrounds, on three sides, the Salt Plains National Wildlife Refuge (NWR). Additionally, there is a State Wildlife Management Area (Canton WMA) adjacent on the western and eastern side of Canton Lake that is within MOA 1A. Moreover, Washita NWR is located just south of MOA 1C; all of these areas are very important for migratory birds, waterfowl, and species of conservation concern. We strongly recommend Vance AFB coordinate with our Division of Migratory Birds and Division of Refuges located within our Regional Office at P.O. Box 1306, Albuquerque, New Mexico 87103-1306.

Federally-listed species list

The federally-listed species found within the Vance AFB MOAs are the endangered whooping crane *Grus americana* , and interior least tern *Sternula (Sterna) antillarum;* threatened piping plover *Charadrius melodus*; and the recently delisted bald eagle *Haliaeetus leucocephalus.* These species will be discussed further below.

Salt Plains National Wildlife Refuge

There are very few places within the Central Migratory Flyway of the United States with the unique features of the salt plains and their primary focus is to provide quality habitat for migratory waterfowl. As a major migration rest area for hundreds of thousands of birds during spring, summer, and fall, the Salt Plains NWR protects and manages a diversity of habitats. The Salt Plains NWR is designated as the largest such saline flat in the central lowlands of North America. The salt flats occupy about 10,000 acres of the NWR. The salt flats are a very important stopover site for many migratory birds. Many species of migrants feed on the salt brine flies that hatch when water is available. Peak fall and spring migration of ducks, geese, whooping cranes, and sandhill cranes on the Salt Plains NWR can number nearly 100,000 birds. Additionally, the salt flats are home to one of the most significant populations of snowy plovers in interior of North America (Neal 2010 pers. comm.). The Refuge has also been designated as an Important Bird Area and a member of the Western Hemisphere Shorebird Reserved Network (USFWS, 2009). We therefore strongly recommend a focused evaluation during the NEPA process on the needs of the resident and migratory birds found there. Also, Salt Plains NWR attracts tens of thousands of white pelicans *Pelecanus erythrorhynchos*, thousands of geese and many other migratory bird species. Satellite telemetry has shown that white pelicans regularly fly at 8,000 to 10,000 feet above ground level and higher just during their daily movements between feeding areas (Howe 2010 pers. comm.). As Vance AFB has been utilizing the airspace for many years, there is ample evidence from the publicly available records on bird-strikes to suggest that white pelicans have probably been encountered during previous training missions. Lowering the floor of the airspace within the delineated range could further increase the risk of an avian air-strike. Vance AFB also maintains Kegelman Auxiliary Air Field (KAAF) located adjacent to the eastern perimeter of the salt plains. We strongly recommend addressing how, or if, KAAF will be altering flights in this area within the scope of your NEPA assessment as we have documented occurrences of whooping cranes using a field for foraging just south of KAAF.

The Washita National Wildlife Refuge

The Washita NWR is located in Custer County, Oklahoma and was established primarily to provide a resting and feeding area for migrating and wintering waterfowl. The 8,075 acre refuge on the mixed grass plains of west-central Oklahoma is superimposed on the upper reaches of Foss Reservoir. The reservoir was developed by the Bureau of Reclamation. The lower portion above the dam is administered as a State Park. The reservoir and waterfowl refuge are ideally located since they are in the Central Flyway. Washita's open waters, shallow marshes, and 2,100 acres of planted crops are heavily used by migrating waterfowl and sandhill cranes. Other water and marsh birds enjoy the refuge in lesser numbers. Diversity of habitats attracts and provides for many other species of migratory and resident birds including bald eagles. Washita NWR lies within the transition zone between the tall grass and short grass prairies. Both eastern and western species of birds occur on the NWR with 229 species being identified on the Refuge since its establishment in 1961 (USFWS 2004). Custer County is located one county south of MOA

1C, and therefore impacts to birds utilizing this NWR should also be addressed within the NEPA process.

Federally-listed species

Whooping Crane *Grus americana*

Critical habitat is defined in the ESA as habitat that contains those physical or biological features, essential to the conservation of the species, which may require special management considerations or protection. Critical habitat for the whooping crane in the United States was designated in 1978 (43 FR 20938–942) and occurs at 5 sites in 4 states. Most significant of these areas for Vance AFB's NEPA purposes are Salt Plains NWR, Oklahoma; Quivira NWR, and Cheyenne Bottoms State Waterfowl Management Area, Kansas as they are critical to the conservation of the species (Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2005; p31). The Washita NWR has documented records of whooping cranes using lands surrounding KAAF, as well as the salt plains. Documented occurrences have also been recorded in various and numerous locations within the project area.

Interior least tern *Sternula (Sterna) antillarum*

The historic distribution of the interior least tern was the major river systems of the Midwestern United States. Currently, they occur as small remnant colonies throughout their former range. In Oklahoma, interior least terns nest along most of the larger rivers, as well as at the Salt Plains NWR. Interior least terns arrive at breeding sites from late April to early June where they typically spend 4 to 5 months.

Piping plover *Charadrius melodus*

Although drastically reduced in number, remnant populations occur throughout their historic range. Piping plovers migrate through Oklahoma each spring and fall. Counties within your project area are situated within the probable migratory pathway between breeding and winter habitats, and contain sites that could provide stopover habitat during migration. Piping plovers arrive on their breeding grounds along the Atlantic Coast in late March and on their prairie breeding grounds in early May.

Bald eagle *Haliaeetus leucocephalus*

Bald eagles require large trees or cliffs near water with abundant fish for nesting. They winter along oceans, rivers, lakes, or in areas where carrion is present. The bald eagle is found throughout North America. In Oklahoma, the bald eagle is primarily a winter resident and wintering eagles are most common between December and March. During that time, bald eagles congregate around reservoirs and larger rivers. Bald eagles also nest in Oklahoma and nesting pairs have increased in recent years. Most nesting bald eagles are in eastern portions of the state,

but new nesting pairs are discovered every year and their range in Oklahoma is expanding. Suitable nesting habitat is provided by reservoirs and rivers with large trees nearby for nesting and perching.

Conclusion

The Federal Register (50 CFR Part 21, 2007; p8942) provides Vance AFB the tools to evaluate the potential impacts on all of the species with in the project area. NEXRAD via the U. S. Avian Hazard Advisory System "is ideal for studies of bird movements in the atmosphere" which can provide "information on the quantity, general direction, and altitudinal distribution of birds aloft...NEXRAD information is critically important for the protection of habitats used by migratory birds during stopover periods. This information is vital to Department of Defense land managers who protect stopover areas on military land. *The data is also particularly important to land managers of military air stations where bird/aircraft collisions threaten lives and cost millions of dollars in damages every year.*" [Emphasis added] Also, the information can be found, analyzed, at the Department of Biological Sciences at Clemson University. Moreover, 50 CFR Part 21, p8942 states U.S. Air Force Bird Avoidance Model (BAM) "places breeding bird and Christmas count data into a Geographic Information Systems model to assist range planners in selecting training times when bird activity is low." The Service strongly supports the use of these tools in your NEPA evaluation.

We appreciate the opportunity to provide comments on the proposed action. In any further correspondence on this project please refer to the number located at the top left of the first page. If you have any questions or need further assistance, please contact Anita L. Barstow of this office at 918-581-7458, extension 238.

Sincerely,

Kenneth D. Frazier

Kenneth D. Frazier
Assistant Field Supervisor

cc:

Colonel Thomas L. Gibson, Commander, 71st Mission Support Group, 246 Brown Parkway, suite 230, Vance Air Force Base, OK 73705–5036
Robert Murphy, U. S. Fish and Wildlife Service, Division of Migratory Birds, P. O. Box 1306, Albuquerque, NM 87103–1306
Jim Neal. U. S. Fish and Wildlife Service, Division of Migratory Birds, Migratory Bird Management Specialist, P.O. Box 4655 SFA Station, Nacogdoches, TX 75962
Howe, Bill. U. S. Fish and Wildlife Service, Division of Migratory Birds, non-game coordinator, P.O. Box 1306 Albuquerque, NM 87103
Oklahoma Department of Wildlife Conservation, P.O. Box 53465, Oklahoma City, OK 73152
Eastern Regional Office, Bureau of Indian Affairs, P.O. Box 8002, Muskogee, OK 74402–8002
Salt Plains NWR, Route 1, Box 76, Jet, OK 73749
Washita NWR, Route 1, Box 68, Butler, OK 73625
Aransas NWR, P.O. Box 100, Austewell, TX 77950, Attn: Whooping Crane Coordinator

Reference Cited

50 CFR Part 21. 2007. Migratory bird permits; take of migratory birds by the armed forces. Final Rule. Vol.72, No.39 February 28, 2007 / Rules and Regulations page 8942–3.

Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2005. International recovery plan for the whooping crane. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 162 pp.

Howe, Bill. 2010. Personal communication, February 17, 2010. U. S. Fish and Wildlife Service, Division of Migratory Birds, non-game coordinator, P.O. Box 1306 Albuquerque, New Mexico 87103.

Neal, Jim. 2010. Personal communication, February 17, 2010. U. S. Fish and Wildlife Service, Division of Migratory Birds, Migratory Bird Management Specialist, P.O. Box 4655 SFA Station, Nacogdoches, Texas 75962.

U. S. Fish and Wildlife Service. 2009. Salt Plains National Wildlife Refuge, viewed online February 2010 at <http://www.fws.gov/southwest/refuges/oklahoma/SaltPlains/index.html>

U.S. Fish and Wildlife Service. 2004. Birds of Southwest Region. Pamphlet and species checklist, Washita National Wildlife Refuge, Route 1, Box 68, Butler, Oklahoma 73625.

(no document text this page)

Draft EA Letter Example

DEPARTMENT OF THE AIR FORCE

71ST FLYING TRAINING WING
VANCE AIR FORCE BASE OKLAHOMA

30 APR 2010

Lieutenant Colonel David R. Stewart
Deputy Commander, 71st Mission Support Group
246 Brown Parkway, Suite 230
Vance AFB OK 73705-5036

Mr. Chris Bauer
Planning Administrator
City of Enid
P.O. Box 1768
Enid OK 73701

Dear Mr. Bauer

Please review the attached Supplemental Draft Environmental Assessment (DEA) for Military Operations Areas (MOAs) for Vance Air Force Base (AFB), Oklahoma. The Air Force is proposing to lower the base altitude of Vance MOAs 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) to 8,000 feet MSL, in order to create the additional 2,000 feet of airspace needed for Introduction to Fighter Fundamentals (IFF) graduate level air-to-air training. The 2005 Base Realignment and Closure (BRAC) Commission established IFF training at Vance AFB and mandated the expansion of airspace to accommodate the new mission requirements. The BRAC Commission statute required all such action to be implemented by 15 September 2011. The proposed 16,000 foot MOAs would allow IFF aircraft the vertical airspace needed for fully effective training.

The supplemental DEA describes and analyzes alternative plans for lowering Vance MOAs, and includes the No-Action Alternative, under which Vance AFB would continue to operate within the existing boundaries of MOAs 1A, 1C, and 1D, with base altitude at 10,000 feet MSL and upper limits of Flight Level 240. Copies of the DEA are maintained at the Public Library of Enid, (120 West Main, Enid OK, 73701, 580-234-6313 and the Vance AFB Library (446 McAffrey Avenue, Suite 24, Vance AFB OK 73705-5710, 580-213-7368).

We request your participation in this process and solicit any comments or concerns you may have on the supplemental DEA. Comments may be submitted within 30 days of the date of this letter and should be provided to Mr. Mark Buthman at the following address: Mr. Mark Buthman, PD/CEV, 140 Channel Street, Suite 231, Vance AFB OK 73705-5621.

Sincerely

DAVID R. STEWART, Lieutenant Colonel, USAF

Attachment:
Supplemental Draft Environmental Assessment

Draft EA Responses

KIKAAPOA - He who moves about
KICKAPOO TRIBE IN KANSAS

MAY 1 4 2010

Kickapoo Tribe in Kansas
1107 Goldfinch Road • Horton, Kansas 66439
phone 785.486.2110 • fax 785.486.2801

SUBJECT: SECTION 106 RESPONSE

REGARDING: (SITE) 30 April 10
LOCATION: Vance Air Force Base, OKLA.
PROJECT #: Supplemental Draft Environmental Assessment
TO: Mark Buthman

☑ No further Section 106 consultation is required Concurrence of "no effect" or "no adverse effect" to historic structures or culturally significant sites (as defined in 36 CFR 800) is granted.

☐ You may proceed with construction, but if there any burial sites or other cultural properties discovered in the area, please notify this office immediately.

☐ Additional information required, including:

_____

_____

FROM:

Kickapoo Tribe in Kansas (Consulting Party)
Mark Kahbeah (Designated Contact)
Mark Kahbeah (Signature)
12 May 2010 (Date)

Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

MAY 1 4 2010

May 12, 2010

Mr. Mark Buthman
PD/CEV
140 Channel Street, Ste. 231
Vance Air Force Base, Oklahoma 73705-5621

RE: Supplemental Draft Environmental Assessment for Lowering Base Altitude of Military Operations Areas, Vance Air Force Base; Woodward, Harper, Ellis, Dewey, Blain, Major, Garfield, Woods, and Alfalfa Counties, Oklahoma.

Dear Mr. Buthman:

Our office has no objections to the referenced project. The nature of the project is such that it should have no impact on the prehistoric cultural or archaeological resources of Oklahoma. This review is conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society.

Sincerely,

Robert L. Brooks
State Archaeologist

:ls

Cc: SHPO

111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
A UNIT OF ARTS AND SCIENCES SERVING THE PEOPLE OF OKLAHOMA

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

May 24, 2010

Colonel Thomas Gibson
Department of the Air Force
PD/CEV
140 Channel Road, Suite 231
Vance AFB, OK 73705-5621

RE: File #1063-10; Vance AFB Proposed Lowering of Floors in Military Operating Areas 1A, 1C, & 1D; Additional Airspace in Alfalfa, Blaine, Dewey, Ellis, Garfield, Harper, Major, Woods, and Woodward Counties

Dear Colonel Gibson:

The Oklahoma State Historic Preservation Office has no objection to the referenced project. The nature of the project should have no impact on the historic cultural or archaeological resources of Oklahoma.

Thank you for the opportunity to comment on this project. We look forward to working with you in the future.

If you have any questions, please contact Timothy G. Baugh, Ph.D., Historical Archaeologist, at 405/521-6381.

Should further correspondence pertaining to this project be necessary, the above underlined file number must be referenced. Thank you.

Sincerely,

Melvena Heisch

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:pm

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
9014 East 21st Street
Tulsa, Oklahoma 74129
918/581-7458 / (FAX) 918/581-7467

JUN 18 2010

In Reply Refer To:
FWS/R2/OKES/
21440-2010-CPA-0104

June 16, 2010

Mark Buthman, PD/CEV
140 Channel Street, Suite 231
Vance Air Force Base, Oklahoma 73705-5621

Dear Mr. Buthman,

The U.S. Fish and Wildlife Service (Service) has reviewed a Supplemental Draft Environmental Assessment (SDEA) dated April 30, 2010, regarding the proposed increase in total airspace of Military Operations Areas (MOAs) for Vance Air Force Base (Vance AFB). The MOAs extend over Alfalfa, Blaine, Dewey, Garfield, Harper, Major, Woods, and Woodward Counties in Oklahoma and Barber and Comanche Counties in Kansas. Vance AFB is proposing to lower the floor of MOAs 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) ≈ 8,700 feet above ground level (AGL), to 8,000 feet MSL ≈ 6,700 AGL. Additional airspace is requested to accommodate new mission requirements as mandated in the 2005 Base and Realignment and Closure Commission by increasing vertical airspace for fully effective training. The Service previously provided comments related to the proposed action by letter dated March 16, 2010 (provided in Appendix A, page A-16 of the SDEA). Our comments are submitted in accordance with section 7 of the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), Migratory Bird Treaty Act (MBTA), and Sikes Act.

GENERAL COMMENTS

The Service provided Vance AFB with relevant information regarding wildlife, and migratory birds to consider during the NEPA process. The Service is entrusted with protecting wildlife and natural resources as important assets of the American people. While the Service recognizes and agrees that pilot safety is important, the protection of threatened, endangered, candidate species, species of conservation concern, and migratory birds is also important. The Service is concerned that few impacts, other than aircraft noise on wildlife, were considered in the SDEA. Adequate focus and value regarding wildlife populations from the reduction of available airspace (biosphere) is lacking. For example, biological/natural resources (e.g., migratory birds) were eliminated from detailed analysis in the SDEA apparently because it was determined that impacts noise has on wildlife is insignificant. No sources in the SDEA addressed impacts to wildlife from aircraft maneuvers other than those of noise, and none were addressed within the text of the SDEA. We recommend that biological/natural resources include other aspects of military maneuvers other than noise. The biosphere (i.e., airspace) within your action area is utilized by many migratory birds in flight. Therefore, the Service does not concur that wildlife should be eliminated from detailed analysis.

Additionally, the cumulative impacts from past, present and reasonably foreseeable future actions on the environment (resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of which agency…undertakes such actions — NEPA, 40 CFR 1508.7), could adversely impact useable airspace for migratory birds from the proposed action.

For example, the President's mandate for more clean energy may result in additional stressors for migratory birds. There are many wind-energy projects currently under planning and construction; others are operational, while even more are anticipated in the foreseeable future. These wind farms decrease the available airspace utilized by migratory birds, forcing the birds to increase flight altitude or alter flight paths (Desholm and Kalhert 2005). Today's land-based turbines are mounted on towers 200-260 feet in height with rotors 150-260 feet in diameter, resulting in blade tips that can reach over 425 feet AGL (NWCC 2010). Although this is a small vertical space when compared to the scope of the action, it is nevertheless, a cumulative incremental increase of adverse impacts.

SPECIFIC COMMENTS
1. PURPOSE OF AND NEED FOR ACTION
1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

Page 1-4 —1-5: discussion of Federal agencies as they pertain to NEPA, Executive Orders, and cumulative impacts.

Service comment: NEPA requires Federal agencies to consider wildlife resources when evaluating a proposed project for impacts. Additionally, Executive Order 13186 directs Federal agencies to minimize their negative impacts on migratory birds…[and] incorporate migratory bird conservation in the planning process…". The measure directs the Armed Forces to assess the effects of military readiness activities on migratory birds, in accordance with the NEPA. In addition, NEPA also requires the Armed Forces to develop and implement appropriate conservation measures if a proposed action may have a significant adverse effect on a migratory bird population. The Migratory Bird Rule (50 CFR 21) provides for incidental take during military readiness activities, however, development and implementation of conservation measures are needed to ensure military readiness training does not adversely impact migratory bird populations in the central migratory corridor. Congress clearly expressed its intention that the Armed Forces give appropriate consideration to the protection of migratory birds when planning and executing military readiness activities, but not at the expense of diminishing the effectiveness of such activities. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of a migratory bird species, then they must confer and cooperate with the Service to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects (50 CFR 21—DoD PIF 2006). The Service will work cooperatively with Vance AFB to develop any conservation plans and recommendations for the benefit of migratory birds. This could be accomplished though the Integrated Natural Resource Management Plan.

1.4.2 Resource Topics Eliminated from Detailed Analysis
Biological/Natural Resources

Page 1-5: noise and visual disturbances from aircraft are addressed.

Service comment: Biological resources include threatened, endangered and candidate federally-listed species, species of conservation concern, and migratory birds and their habitats. Efforts to avoid or minimize and mitigate any adverse impacts from the proposed action to migratory birds, including federally-listed species, should evaluate all aspects of migratory bird behavior, not just impacts from noise but also from removal of available airspace (biosphere) to these birds. Vance AFB MOAs span a significant cross-section of the central migratory bird corridor, therefore the

Service suggests airspace should be considered as a biological resource and not eliminated from detailed analysis.

Vance AFB sent a NEPA scoping letter dated January 25, 2010, to which we provided several comments in a letter dated March 16, 2010, for consideration in the NEPA analysis. Salt Plains National Wildlife Refuge (SPNWR) reports 100,000 birds regularly use the area, especially during Spring/Fall migration periods and is home to one of the most significant populations of snowy plovers in interior North America (Neal 2010 pers. Comm.). The SPNWR is also designated as an Important Bird Area and member of Western Hemisphere Shorebird Reserved Network (USFWS 2009). The SDEA describes various database (AHAS, BAM) tools for pilots in avoiding severe BASH risk areas if scheduling and weather permit. These conservation measures are admirable although they provide little assurance of avoidance if 'scheduling and weather' do not 'permit' utilization of these tools during periods of migration when there are significantly more migratory birds in the central corridor.

Additionally, the fact that there have been no 'aircraft mishaps' due to bird-strikes does not address the quantity of actual bird-strikes that do not result in aviation mishaps. The actual number of birds struck by aircraft would be a metric that the Service would look at to evaluate the impacts to migratory birds. Without this information, we cannot support your conclusion to eliminate migratory birds from a detailed analysis. The federally-listed whooping crane *Grus americana*, interior least tern *Sternula (Sterna) antillarum,* and piping plover *Charadrius melodus* are found within the action area. Therefore section 7 consultation pursuant to the ESA is appropriate. Vance AFB can choose to determine that the proposed action will have "no effect" on these species and therefore need not consult with the Service, but Vance AFB will retain the liability for any "take" of federally-listed species that may occur. Therefore impacts to these species should be considered within your SDEA and we strongly recommend an impacts analysis be performed.

2.4 DETAILED DESCRIPTION OF THE PROPOSED ACTION

Page 2-2, Line 26-28: "...currently uses the airspace from 8,000 feet MSL...to 10,000 feet MSL...to transition aircraft between the Vance 1A, 1C, and 1D MOAs and the Base airfield.

Service comment: If the airspace between 10,000 - 8,000 feet MSL is currently being used for transition of aircraft, and the proposed action plans to utilize this airspace for maneuvers, how would these flights change as a result of the proposed action?

2.6 OTHER ACTIONS ANNOUNCED FOR THE PROJECT AREAS AND SURROUNDING COMMUNITY

Page 2-3, Line 34-35: "No other concurrent actions were identified by Vance AFB for the project area. Additionally, no other activities were identified during the scoping period."

Service comment: Many wind-energy projects are currently under planning and construction; others are operational while even more are anticipated in the foreseeable future. According to the FAA, there are 172 approved turbines with a built date, 811 turbines approved with no known built date, 137 turbines applied for FAA permit with no decision, and many more have been denied (USFWS 2010). There are a total of 1,120 turbines within or near your project area and many more over western Oklahoma. We are concerned exponential increases of proposed, under

construction, and active wind turbines within the action area could adversely impact migrating birds. The incremental increase in loss of usable airspace by migratory birds from wind-turbines when combined with the proposed action will likely have an adverse impact on migratory birds. Just as wind turbines causes birds to alter flight path or increase altitude, at the same time lowering of the floor of the MOAs might cause them to decrease their altitude, in effect squeezing their habitat from above and below; we consider this to be a cumulative impact. Ultimately, the birds are losing habitat incrementally. The Service suggests evaluating the loss of habitat for migratory birds, especially federally-listed species, in the SDEA cumulative impacts. We encourage a reevaluation of eliminating migratory bird biosphere (airspace) from a detailed analysis.

2.9 MEASURES TO MINIMIZE IMPACTS

Page 2-4, Line 4: "No significant impacts were identified."

Service comment: Radar monitoring above and near operational wind farms can help evaluate cumulative impacts on flight patterns of migrating birds compared to their current migratory flight patterns. Because there are turbines planned for much of Oklahoma, the use of radar to monitor and report migratory bird behavior below and in tandem with the MOAs would add valuable scientific data and help offset any adverse impacts from the proposed action and help with any future projects you may have that may impact migratory birds. We will work cooperatively and respectfully with Vance AFB in adding this metric to your Integrated Natural Resource Management Plan.

3. AFFECTED ENVIRONMENT
3.2 AIRSPACE MANAGEMENT AND AIR TRAFFIC CONTROL, AIRCRAFT SAFETY, AND BIRD/WILDLIFE-AIRCRAFT STRIKE HAZARD

3.2.1 Definition of Resource

Page 3-5; Line 11-12: "Airspace is a finite resource defined vertically, horizontally, and temporally. As such, it must be managed and used in a manner that best serves commercial, general, and military aviation needs."

Service comment: "Airspace is a finite resource" and must be managed and used in a manner that best serves everyone's needs. The Service purports that migratory birds have a place in these needs and as such, their needs should be provided for in SDEA.

3.2.2 Existing Conditions
Airspace Management and Air Traffic Control

Page 3-7 Line 11-12: "Numerous low-level navigation military training routes (MTRs) occur in the airspace below the MOAs."

Service comment: Would the proposed action affect these flights in altitude, airspeed, or flight path? If so, we request addition of evaluation of direct and indirect impacts to federally-listed species and migratory birds from the proposed action.

Line 12-13: "The maximum altitude for aircraft operating on any of the routes is 6,000 feet MSL (approximately 4,700 feet AGL)."

Service comment: How would the minimum altitude for these flights be altered after implementation of the proposed action? On page 3-7 you mention small, public and private airports in the area below the MOAs; we suggest your proposed action might reduce the amount of available airspace for these aircraft, resulting in impacts to migratory birds. Knowing this airspace is being utilized by other aircraft, the cumulative impacts of the action with other past, present and future actions should be evaluated.

Bird/Wildlife-Aircraft Strike Hazard

Page 3-8, Line 12-15: "...constitute a safety concern...potential damage to aircraft, injury to aircrews, or local populations if an aircraft strike and subsequent aircraft accident should occur...Also, if the frequency of bird strikes were high, certain bird species populations might be reduced."

Service comment: Vance AFB recognized if risk is high and bird-strike frequency is also high, "certain bird species populations might be reduced." Vance AFB, via email on May 18, 2010, provided the following website to review the BAM model at http://www.usahas.com/bam/. The data/graphic revealed that during Spring/Fall migration the risk of bird-hazard is high (completely red) across Vance AFB's entire MOAs as well as most of western Oklahoma. We infer this information to suggest there is potential for adverse impacts to occur.

Line 17: "Over 95 percent of reported bird strikes occur below 3,000 feet AGL."

Service Comment: During 2004 - 2008, there was an average of 20 reported wildlife strikes per day (FAA 2010). Department of Interior, Interagency Avian Accident Prevention Bulletin 2009, reports: "only about 15% of all bird strikes result in damage to the aircraft...Although the number of reported bird strikes is increasing each year, about 80% still go unreported. More bird strikes occur during the day (63%), than at night (27%) and twilight (10%). The vast majority of bird-strikes occur during takeoff/climb (35%) and approach/landing (50%). Bird strike risk is greatest during the bird migration seasons in spring and fall. More strikes occur during fall migrations because large flocks move to wintering areas over a short period of time, whereas spring migrations are slower and more irregular. In non-migratory periods, more than 90% of reported bird strikes occur below 3000 feet AGL and 61% below 100 feet AGL."

Even a small percentage of air-strikes with a federally-listed species could have significant impacts to its population. Total "aviation mishaps" from bird-aircraft strikes do not equal total bird-strikes and does not provide an accurate metric to analyze impacts to migratory birds from in-flight collision with aircraft.

Page 3-9, Line 3-4: "The Vance AFB plan provides guidance for reducing the incidents of bird strikes..."

Service Comment: Plan guidance was not included within the SDEA. We recommend adding or pointing to where the information can be easily located and accessed by the Service.

Line 6: "...waterfowl... are the most hazardous birds to low-flying aircraft because of their size and their propensity...large flocks...variety of elevations and times of day."

Service comment: The Service supports flight safety and all measures described to avoid migratory birds. Large-bodied birds can inflict damage to aircraft and put aircrews at risk; small bodied birds, such as piping plovers, may not be as great of a safety risk to aircraft. It is possible small bodied birds may not be perceived by aircrews if they are deeply focused on training maneuvers, yet these bird-strike events still have a cumulative impact on the overall populations of species. This is particularly relevant with federally-listed species. During times when severe bird hazard zones exist within and around the MOAs, we suggest evaluating even small migratory birds' needs during flight planning. We suggest a larger emphasis should be placed on migratory birds.

Page 3-9, Line 13-21; Page 3-10 Line 1-8: "...wildlife management areas below and near [action area] that are important for migratory birds...potential for bird-aircraft strikes is greatest in areas used as migration corridors...congregate for foraging or resting...pose a hazard."

Service comment: We suggest including a more robust plan of avoidance, minimization and mitigation for any unavoidable and cumulative impacts that the proposed action might have on migratory birds.

Page 3-10, Line 9-13: "...(AHAS)...bird data to reduce the risk of bird collisions with aircraft...will not eliminate the risk...risk levels describe three predicted risk classes...based upon the bird mass in ounces per square kilometer."

Service comment: While we acknowledge and support the importance of safety relating to military aircraft and aircrews, we believe the metric of bird mass per square kilometer of aircraft is not an appropriate metric to evaluate impacts to bird populations.

Line 18-23: "Collisions between aircraft and birds are an inherent risk...BAM to minimize the potential for bird-aircraft strikes...AHAS risk levels...aircraft strikes ranges from essentially severe for November through March..."

Service comment: We understand the risk of bird-strike is temporally variable and flight planning is used in tandem with AHAS/BAM/BASH to reduce the likelihood of bird collision. We request Vance AFB differentiate how flight planning activities compensate for differences within Low, Moderate, and Severe Zones to reduce the likelihood of a bird collisions.

4. ENVIRONMENTAL CONSEQUENCES
4.2.1 <u>Proposed Action</u>
Airspace Management and Air Traffic Control

Page 4-2, Line 22-24: "The expanded MOAs...safely accomplish...all training events...MOAs have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions."

Service comment: Congress clearly expressed its intention that the Armed Forces give appropriate consideration to the protection of migratory birds when planning and executing military readiness activities, but not at the expense of diminishing the effectiveness of such

activities…(50 CFR 21"—DoD PIF 2006). It is unclear if Line 23 refers to the existing MOAs or the expanded MOAs (proposed action) when stating they have the capacity to continue to accommodate the number of sorties required for the IFF and JSUPT missions. If the current conditions have the capacity to accommodate the mission successfully, but not optimally, we suggest a cooperative effort to produce effective avoidance or minimization and mitigation measures for impacts to migratory birds.

Line 34-36: "No impacts would be anticipated…MOAs would not conflict with the baseline operations condition."

Service comment: The SDEA fails to provide the "baseline operations condition," or its definition. Please couch this "baseline" in terms of wildlife/migratory birds. If Vance AFB does not have baseline data for migratory birds and wildlife, we request this to be added as a metric to the Integrated Natural Resource Management Plan. We will gladly work cooperatively and respectfully with Vance AFB on this endeavor.

Bird/Wildlife-Aircraft Strike Hazard

Page 4-3, Line 22-23: "…could allow aircrews to avoid severe BASH risk areas if factors such as scheduling and weather permit."

Service comment: If scheduling or weather does not permit the aircrews to avoid severe BASH risk areas, we request a contingency plan to avoid or minimize the impacts to migratory birds in these situations. This is also a metric that could be added to your Integrated Natural Resource Management Plan.

Line 23-24: "There have been no aircraft mishaps due bird strikes under the current MOA operations."

Service comment: The SDEA is lacking the basic components of how and where the birds are being struck by aircraft. While not all bird-strikes adversely impact aircraft, most bird-strikes are fatal to the bird. Vance AFB retains liability should "take" of a migratory or federally-listed species occur.

Line 25-26: "…the proposed action is not expected to increase risk over current conditions…or reduce bird populations from bird strikes."

Service comment: Current conditions were not provided in the SDEA. According to the BAM model, during Spring/Fall migrations the increased risk in the severe zone category was admittedly higher risk and covers a larger area than at other times. Strict liability remains with Vance AFB should "take" of a federally-listed species occur. Please provide conservation measures for avoidance or minimization and mitigation of federally-listed and migratory birds during these severe events if scheduling and weather does not permit alteration of flight plans.

4.3.4 Mitigation
Page 4-5, Line 6: "No mitigation is recommended."

Service comment: Complete avoidance of migratory birds within the central migratory corridor is not realistic; while understanding that Vance AFB retains strict liability for "take" of federally-

listed species, and to a lesser extent, migratory birds, Vance AFB should provide conservation measures to mitigate impacts to federally-listed and migratory birds. We recommend a mitigation

plan for these cumulative adverse impacts that can not be avoided. In an effort to mitigate for loss of airspace (biosphere) through the lowering of the MOAs floor (proposed action), we suggest the possibility of using radar to monitor and report to the Service, bird flight paths above and near operational wind farms located under, and in close proximity to the MOAs if practicable. This will enable us to better evaluate the cumulative impacts of wind-farms on flight patterns of migrating birds, and other bird and bat species. This metric will provide much needed data for the conservation of migratory birds, and help off-set the adverse impacts that may result from the proposed action. This metric could easily be added to your Integrated Natural Resource Management Plan.

Please provide the Service with a copy of all final decision documents associated with this project. Final decision documents include the issued permit or license, final environmental impact statement, record of decision, integrated natural resource management plan, or similar document. These decision documents advise the Service of the final specifications of the proposed project and indicate which of the measures recommended for the conservation of fish and wildlife resources were implemented. We also request that if any of the Service's recommended measures cannot be implemented, you provide us with a written narrative explaining why these measures were not implemented or were not feasible.

We appreciate the opportunity to provide comments on the proposed action. If you have any questions or need further assistance, please contact Anita L. Barstow of this office at 918-382-4518.

Sincerely,

Dixie Birch

Dixie Birch, Ph.D.
Field Supervisor

cc:
FAA, Attn: Nan Terry, DC
Col. Thomas Gibson, CDR,71st Mission, 246 Brown Pkwy, # 230, Vance AFB, OK
USFWS, Attn: Tim Breen, DoD Liaison, R2, Albuquerque, NM
USFWS, Attn: Bill Howe, Division of Migratory Birds, R2, Albuquerque, NM
ODWC, Oklahoma City, OK
Salt Plains NWR, Route 1, Box 76, Jet, Oklahoma 73749
Aransas NWR, Attn: Whooping Crane Coord, P.O. Box 100, Austwell, Texas 77950

References

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Neal, Jim. 2010. Personal communication, February 17, 2010. U. S. Fish and Wildlife Service, Division of Migratory Birds, Non-game Migratory Management Specialist, P.O. Box 1306 Albuquerque, NM, 87103

U. S. Fish and Wildlife Service. 2009. Salt Plains National Wildlife Refuge, viewed online February 2010 at <http://www.fws.gov/southwest/refuges/oklahoma/ SaltPlains/index.html>

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF INDIAN AFFAIRS
SOUTHERN PLAINS REGION
P.O. BOX 368
ANADARKO, OKLAHOMA 73005

IN REPLY REFER TO:
NATURAL RESOURCES (405) 247-6673

AUG 0 6 2010

Lieutenant Colonel David R. Stewart
Deputy Commander, 71st Mission Support Group
246 Brown Parkway, Suite 230
Vance AFB, OK 73705-5036

Dear Lieutenant Colonel Stewart:

Thank you for the opportunity to comment on the Supplemental Draft Environmental Assessment for Military Operations Areas for Vance Air Force Base, Oklahoma.

Since the proposed action only involves an operational ceiling change and does not change either the type or number of aircraft currently operated by the base, we have no comments that need to be considered in your environmental analysis.

If you need additional information please feel free to contact Michael Reed, Regional Environmental Scientist, at 405-247-1549.

Sincerely,

Acting Regional Director

Final Public Notice

PUBLIC NOTICE

NOTICE OF AVAILABILITY
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT FOR LOWERING MILITARY OPERATIONS AREAS AT VANCE AIR FORCE BASE (AFB), OKLAHOMA

An Environmental Assessment (EA) has been prepared to analyze the proposed lowering of the base altitude of the Vance Military Operations Areas 1A, 1C, and 1D from 10,000 feet mean sea level (MSL) to 8,000 feet MSL, in order to create the additional 2,000 feet of airspace needed for Introduction to Fighter Fundamentals graduate level Air-to-Air training. The EA, prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Air Force instructions implementing NEPA; evaluates potential impacts of the proposed and alternative actions on the environment including the No-action Alternative.

Copies of the EA are available at the Enid Public Library (120 West Maine, Enid, OK 73701, 580-234-6313) and the Vance AFB Library, (446 McAffrey Ave, Vance AFB, OK 73705, 580-213-7368).

Comments may be submitted within 30 days of this publication and should be provided to Mr. Mark Buthman, PD/CEV, 140 Channel Street, Ste. 231, Vance AFB, OK 73705, (580)-213-7344.

PRIVACY ADVISORY NOTICE

Public comments on this Draft EA are requested pursuant to NEPA, 42 United States Code 4321, et seq. All written comments received during the comment period will be made available to the public and considered during the final EA preparation. Providing private address information with your comment is voluntary and such personal information will be kept confidential unless release is required by law. However, address information will be used to compile the project mailing list and failure to provide it will result in your name not being included on the mailing list.

Appendix B

Cooperating Agency Correspondence

Cooperating Agency Correspondence

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

Air Traffic Organization
Central Service Center

2601 Meacham Blvd.
Fort Worth, TX 76137

FEB 0 4 2010

Colonel Thomas L. Gibson
Commander, 71st Mission Support Group
236 Brown Parkway, Suite 230
Vance AFB, OK 73705-5036

Dear Colonel Gibson:

This letter responds to your letter dated January 25, 2010. After a request from the United States Air Force, the Federal Aviation Administration agreed to be a cooperating agency for airspace changes at Vance Air Force Base in 2006. We remain committed to assist you in your endeavor to modify existing airspace.

We will comply with the guidelines described in the previous correspondence enclosed. We look forward to reviewing and commenting on the Preliminary Draft Environmental Assessment to ensure that Federal Aviation Administration requirements are met.

If you have any questions, please contact Ms. Nan L. Terry, Environmental Specialist, Operations Support Group, ATO Central Service Center, at 817-321-7736.

Sincerely,

Ronnie L. Uhlenhaker
Manager, Tactical Operations Team
Operations Support Group
ATO Central Service Center

Enclosures

cc:
Director of En Route and Oceanic Operations
Central Service Area

Don Smith

U.S. Department
of Transportation
Federal Aviation Administration

System Operations Airspace and
Aeronautical Information Management
800 Independence Ave., SW.
Washington, DC 20591

JUN 29 2006

Colonel Irvin B. Lee
Deputy Civil Engineer
Air Education and Training Command
United States Air Force
266 F Street West
Randolph AFB, TX 78150-4319

Dear Col. Lee:

Thank you for your letter of June 2, requesting Federal Aviation Administration (FAA) participation in the environmental process associated with moving the Introduction to Fighter Fundamentals (IFF) course to Laughlin, Randolph, and Vance Air Force Bases.

We are pleased to participate as a cooperating agency, in accordance with the National Environmental Policy Act of 1969, as Amended, and its' implementing regulations. Since the proposal contemplates activities associated with Special Use Airspace (SUA), 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.

The FAA Central Service Center will be the primary environmental focal point for matters related to this proposal. I have forwarded a copy of this letter and your letter to the Service Center System Support Manager, Mr. Don Smith. You may contact him directly at 817-222-5530.

We look forward to working with the Air Force on the environmental process for the proposed airspace changes associated with the IFF course.

Sincerely,

ORIGINAL SIGNED BY
Nancy B. Kalinowski
Director, System Operations Airspace & AIM

cc: Central Service Center System Support Manager
Nan Terry/Joe Yadouga, Central Service Center

AJR-34(Wishy):DWarren:dgw:X79183:6/27/06

Saved as: P:\ATA-300\Military SUA\Coop Agcy USAF IFF Course

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

JUN 0 2 2006

Colonel Irvin B. Lee, USAF
Deputy Civil Engineer
Air Education and Training Command
266 F Street West
Randolph AFB TX 78150-4319

Ms. Nancy B. Kalinowski, Director
System Operations
Airspace and Aeronautical Information Management
800 Independence Avenue, S.W.
Washington DC 20591

Dear Ms. Kalinowski

Pursuant to the 2005 Base Realignment and Closure, the Introduction to Fighter Fundamentals (IFF) course is moving from Moody AFB to Columbus, Laughlin, Randolph, Sheppard and Vance AFBs. Airspace changes are required at Laughlin, Randolph and Vance AFBs to fully implement the IFF training syllabus at those locations. Airspace changes are not currently required at Columbus and Sheppard AFBs.

The Air Force requests your formal participation in the preparation of three environmental assessments, one each for implementing the IFF course at Laughlin, Randolph, and Vance AFBs. This request is made as prescribed in the President's Council on Environmental Quality National Environmental Policy Act (NEPA) Regulations, 40 Code of Federal Regulations 1501.6, *Cooperating Agencies.*

As a cooperating agency, the Air Force requests you participate in various portions of the environmental assessment development as may be required. Specifically, the Air Force asks for your support as a cooperating agency by:

- Participating in the scoping process;
- Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which you have special expertise;
- Making staff support available to enhance interdisciplinary review capability; and
- Responding, in writing, to this request.

The Air Force requires the support of cooperating agencies be timely to avoid unnecessary delays in the NEPA process. Should you or your staff have further questions regarding this memo, our points of contact are detailed in the attached table.

IRVIN B. LEE, Colonel, USAF
Deputy Civil Engineer

Attachment:
Points of Contact Table

cc:
SAF/IEE
12 MSG/CC
14 MSG/CC
47 MSG/CC
71 MSG/CC
82 MSG/CC

BASE	BASE POINT OF CONTACT	COMMAND POINT OF CONTACT
Laughlin AFB		
Name	Mr. Ramon Flores	Ms. Patricia Salas
Mailing Address	47 CEV/CEV 251 4th Street Laughlin AFB TX 78843	HQ AETC A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(830) 298-5694	(210) 652-1962
Electronic Mail	ramon.flores@laughlin.af.mil	patricia.salas@randolph.af.mil
Randolph AFB		
Name	Mr. Mathew Kramm	Ms. Patricia Salas
Mailing Address	12 MSG/CEV 1651 5th Street West Randolph AFB TX 78150	HQ AETC/A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(210) 652-4688	(210) 652-1962
Electronic Mail	mathew.kramm@randolph.af.mil	patricia.salas@randolph.af.mil
Vance AFB		
Name	Mr. Mark Buthman	Ms. Marion Erwin
Mailing Address	CSC/CEV 1601 Fox Drive Vance AFB OK 73705	HQ AETC/A7CVI 266 F Street West Randolph AFB TX 78150-4319
Telephone Number	(580) 213-7344	(210) 652-1960
Electronic Mail	mark.buthman@vance.af.mil	marion.erwin@randolph.af.mil

Carroll, Tamara

From: Buthman, Mark H CTR USAF AETC PD/CEV [mark.buthman.ctr@vance.af.mil]
Sent: Friday, June 04, 2010 2:52 PM
To: Carroll, Tamara
Subject: FW: FAA Noise Models and Sec 4(f) Information

-----Original Message-----
From: Nan.L.Terry@faa.gov [mailto:Nan.L.Terry@faa.gov]
Sent: Friday, June 04, 2010 2:36 PM
To: Buthman, Mark H CTR USAF AETC PD/CEV
Subject: FAA Noise Models and Sec 4(f) Information

Mark

This information may be helpful.

"14.2b.(From FAA Order 1050.1E) All detailed noise analyses must be performed using the most current version of the FAA's Integrated Noise Model (INM), Heliport Noise Model (HNM), or Noise Integrated Routing System (NIRS). Use of an equivalent methodology and computer model must receive prior written approval from the FAA's Office of Environment and Energy (AEE). Preceedence evaluation with FAA screening methodologies, e.g., Area Equivalent Method (AEM) and Air Traffic Noise Screening (ATNS), may be appropriate. Use of equivalent screening methodologies must receive prior written approval from AEE. AEE has approved the DOD computer models MR_NMAP and MR_BOOMMAP for use and analysis of Special Use Airspace.

* * * * *Designation of airspace for military flight operations is exempt from section 4(f). The Department of Defense reauthorization in 1997 provided that "[n]o 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 purposes of section 303(c) of title 49, United States Code"(PL 105-85, Nov. 18, 1997).
* * * * *Section 4(f) of the DOT Act has been codified and renumbered as section 303(c) of 49 U.S.C.

Nan L. Terry
Environmental Specialist

FAA ATO Central Service Center
Operations Support Group, Tactical Team, AJV-C23

817-321-7736

Link to Central Service Center Website <http://servicearea.ato.faa.gov/>

Feedback to Central Service Center: 9-ATO-CSC/ASW/FAA
<mailto:9-ATO-CSC/ASW/FAA@faa.gov>

Carroll, Tamara

From: Nan.L.Terry@faa.gov
Sent: Wednesday, June 23, 2010 9:06 AM
To: brad.marcum2@randolph.af.mil; mark.buthman.ctr@vance.af.mil; Carroll, Tamara
Cc: Joe.Yadouga@faa.gov
Subject: Review of SELCAL

Greetings

The initial draft response from my headquarters appears that SELCAL may not be acceptable for the following reasons.

1) FAA needs a DNL.
2_ LMAX is considered by FAA to be a supplemental metric and cannot be used as the primary metric.
3) SELCAL only looks at single events.

Have you heard from Wright Patterson?

If you have any questions, please contact me.

Nan L. Terry
Environmental Specialist

FAA ATO Central Service Center
Operations Support Group, South Team, AJV-C22

817-321-7736

Link to Central Service Center Website

Feedback to Central Service Center: 9-ATO-CSC/ASW/FAA

Please consider the environment before printing this e-mail

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

Air Traffic Organization
Central Service Center

2601 Meacham Blvd.
Fort Worth, TX 76137

JUL 09 2010

Lieutenant Colonel Davis R. Stewart
Deputy Commander, 71st Mission Support Group
246 Brown Parkway, Suite 230
Vance AFB, OK 73705-5036

Dear Colonel Stewart:

This letter responds to your letter dated April 30, 2010. Thank you for the opportunity to review the Draft Environmental Assessment.

Noise Model:
Based on Brad Marcum's email dated June 29, 2010, we appreciate the use of a model approved by the Federal Aviation Administration (FAA) for your analysis of the proposed change.

Wildlife Issues:
We are in receipt of the letter from United States Fish and Wildlife (USFW) regarding their concerns about the proposed change. Generally, FAA relies on the USFW's expertise in addressing wildlife issues. As such, USFW's concerns must be addressed in a satisfactory manner.

Section 4(f):
Designation of airspace for military flight operations is exempt from section 4(f). The Department of Defense reauthorization in 1997 provided that "[n]o 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 purposes of section 303(c) of title 49, United States Code"(PL 105-85, Nov. 18, 1997). Please note that Section 4(f) of the DOT Act has been codified and renumbered as section 303(c) of 49 U.S.C.

Adoption:
Please delete the section dealing with adoption on page 1-7 and insert the following:
Based on FAA Order 1050.1e, Section 518h, the FAA may adopt, in whole or in part, draft or final environmental impact statements (or assessment) prepared by other agencies (see 40 CFR 1506.3). The FAA's action triggering NEPA is the change to the Military Operating Area (MOA). When the FAA adopts another agency's NEPA document in whole or in part, the responsible FAA official must independently evaluate the information contained in the document, take full responsibility for scope and content that addresses FAA actions, and issue its own FONSI or ROD. Unless the General Plan-Based Environmental Impact Analysis Process EA clearly covers the area underneath the MOA, inclusion in Table 1-2 is not appropriate.

We would like to review the revised document prior to publication.

If you have any questions, please contact Ms. Nan L. Terry, Environmental Specialist, Operations Support Group, ATO Central Service Center, at 817-321-7736.

Sincerely,

Roger M. Trevino
Manager, South Team, AJV-C22
Operations Support Group
ATO Central Service Center

cc:
Director of En Route and Oceanic Operations
Central Service Area

Appendix C

US Fish and Wildlife Service No Objection Finding for Preliminary Final EA

1

US Fish and Wildlife Service No Objection Finding for Preliminary Final EA

Preliminary Final Environmental Assessment for Lowering Base Altitude of Military Operations Areas

Vance Air Force Base

United States Air Force
Air Education and Training Command
71st Flying Training Wing
Vance Air Force Base, Oklahoma

October 2010