



DRAFT ENVIRONMENTAL ASSESSMENT FOR QATAR EMIRI AIR FORCE (QEAF) F-15QA TRAINING, MIDAMERICA ST. LOUIS AIRPORT, ILLINOIS



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PRIVACY ADVISORY

Any personal information provided throughout this process has been used only to identify individuals' desire to make a comment during the public review period or to fulfill requests for copies of the Final EA or associated documents. Private addresses were compiled to develop a mailing list for those requesting copies of the Final EA.

FINDING OF NO SIGNIFICANT IMPACT

BACKGROUND

Pursuant to provisions of the National Environmental Policy Act (NEPA), 42 United States Code (USC) §§ 4321–4270d, implementing Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) §§ 1500–1508, and 32 CFR 989, *Environmental Impact Analysis Process*, the U.S. Air Force (USAF) assessed the potential environmental consequences resulting from the temporary (approximately 1 year) beddown and operation of up to six F-15QA aircraft at MidAmerica St. Louis Airport (MidAmerica) for the initial qualification training for Qatar Emiri Air Force (QEAF) pilots. The F-15QA mission requires airfield flight operations and ground support, airspace flight operations in existing special use airspace, personnel, and facilities.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the proposed action and, where necessary provides environmental protection measures to avoid or reduce adverse environmental impacts.

The EA considers all potential impacts of the proposed action and the No Action Alternative. The EA also considers cumulative environmental impacts with other past, present, and reasonably foreseeable actions within the region that could interact with implementation of the proposed action near MidAmerica, Illinois. As part of the initial EA process, the Federal Aviation Administration (FAA) was contacted to serve as a Cooperating Agency (CA). Because the F-15QA mission will be temporary, the FAA did not serve as a CA.

PURPOSE AND NEED

The purpose of the proposed action is to facilitate F-15QA training to a small number of QEAF pilots before the aircraft are delivered to Qatar. The government of Qatar is purchasing up to 48 F-15QA aircraft through the foreign military sales (FMS) program and has requested that a small number of pilots be trained in the United States before the aircraft are delivered.

Implementation of the proposed action is needed to develop an initial group of trained QEAF pilots that are familiar with the aircraft and can support future training efforts in Qatar.

PROPOSED ACTION/ALTERNATIVES

Section 2.1 of the EA provides a detailed description of the proposed action. The proposed action is the temporary (approximately 1 year) beddown and operation of up to six F-15QA aircraft at MidAmerica for the initial qualification training for QEAF pilots. The F-15QA mission is a new mission at MidAmerica/Scott Air Force Base (AFB) and includes airfield flight operations and ground support, airspace flight operations in existing airspace, personnel, and facilities. Because this mission would be temporary, the beddown and operation of the F-15QA aircraft and all supporting elements of the mission (e.g., personnel, facilities) would end or be removed at the conclusion of the mission.

The proposed airfield flight operations would total approximately 1,027 sorties (13 percent increase) during the temporary timeframe and are expected to occur only on weekdays, during acoustic daytime hours. Typical mission profiles would include aircraft departing as either single-ship takeoffs or two-ship formation takeoffs, instrument patterns and approaches, flying overhead patterns, touch and go landings, formation landings, and full stop landings. An instructor pilot from the Boeing Company (Boeing) would be in the aircraft with the QEAF pilots at all times during every sortie.

Aerospace Ground Equipment (AGE) would be used to support the F-15QA mission. AGE could include F-15QA test and support equipment, Mobile Electric Power (MEP) generators, field deployable environmental control units, aircraft tugs, fuel trucks, compressors, etc. This equipment would be staged on the Golf Ramp and utilized as necessary during the temporary mission.

No new airspace would be created as part of this mission. F-15QA pilots would depart MidAmerica to nearby Military Operations Areas (MOAs) for tactical maneuvering, primarily at medium-to-high altitudes, under the current MOA parameters. The airspace proposed for use includes the Lindbergh, Salem, Howard, Pruitt, and Red Hills MOAs, including all of their respective subsectors (A, B, C, etc.) and altitude blocks as necessary to meet the training syllabus requirements. Other existing charted airspace throughout the Midwest region would be used on an occasional basis. No chaff, flares, or live weapons would be used, and supersonic flight would not be conducted. Low-Altitude Awareness Training (LOWAT) would only occur in the Salem and Pruitt MOAs within the altitude limits established and published by the Federal Aviation Administration (FAA) (FAA Order JO 7400.10A). Approximately 9 percent of sorties (approximately 93 sorties) over the 1-year training period would include LOWAT.

Approximately 16 QEAF student pilots would be trained by approximately the same number of Boeing instructor pilots. A variety of maintenance, scheduling, and other Boeing support personnel would be required for this mission. Approximately 50 Boeing employees would support the mission at MidAmerica. Approximately five USAF personnel would also support the mission for training and logistics, including personnel in the air traffic control (ATC) tower. It is anticipated that the Boeing employees are current residents of the greater St. Louis metropolitan area and would not be relocating to this area.

A variety of temporary facilities would be installed on or adjacent to the Golf Ramp at MidAmerica. These temporary facilities include three sunshades (with security fencing), metal aircraft tie downs, up to four conex storage containers, and a temporary guard facility. The USAF has identified the F-15QA aircraft as a Protection Level 3 (PL3) asset requiring security for the aircraft, flightline support equipment, uninstalled Captive Air Training Missile (CATM-9x) and container storage, and sensitive information processing and classified discussion areas.

NO ACTION ALTERNATIVE

Implementation of the No Action Alternative would not result in any F-15QA related construction at MidAmerica, and no training activities would occur. Analysis of the No Action Alternative provides a basis for comparing the environmental consequences of the proposed action to the existing (baseline) conditions, over time. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training required by the FMS contract.

SUMMARY OF FINDINGS

The USAF has concluded that, by implementing standing environmental protection measures and operational planning, no significant impacts to the following resources would result from implementation of the proposed action. Therefore, it has been determined that an Environmental Impact Statement (EIS) is not required. Table 1 includes a summary of findings by resource areas carried forward for detailed analysis in the EA. Pursuant with CEQ and USAF regulations (40 CFR §1501.7(a)(3), 32 CFR 989.18), environmental justice and the protection of children, infrastructure, socioeconomics and soil and water resources were eliminated from detailed study in the EA because they have no potential to be impacted by the implementation of the proposed actions.

Table 1. Summary Comparison of Environmental Consequences

Resource Area	Proposed Action	No Action
<i>Air Quality</i>	The net change in annual emissions resulting from implementation of the QEAF F-15QA mission at MidAmerica would remain below the applicable volatile organic compound (VOC) and nitrogen oxide (NO _x) conformity <i>de minimis</i> thresholds. As a result, the proposed QEAF F-15QA mission at MidAmerica would not require a conformity determination under the General Conformity Rule. The proposed aircraft operations in the special use airspace below 3,000 feet above ground level (AGL) would result in emissions that would not exceed any applicable air pollutant indicator threshold. Therefore, implementing the QEAF F-15QA mission would not result in significant air quality impacts.	Implementation of the No Action Alternative would result in no additional impacts to air quality beyond the scope of normal conditions and influences within the Region of Influence (ROI). Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.
<i>Airspace Resources</i>	Implementation of the proposed action is not anticipated to result in significant impacts to airspace use or management near MidAmerica or the MOAs associated with this action. No new airspace would be created. The F-15QA mission would result in increased sorties in the airspace proposed for use resulting in the need for additional coordination and scheduling. Activation of the MOAs for use by the F-15QA pilots would not prohibit the use of the MOAs by general aviation pilots. General aviation pilots have historically flown through these MOAs and could experience some inconvenience if military aircraft are actively using the MOA(s).	Under the No Action Alternative, no F-15QA aircraft would be operated from MidAmerica. Airspace use would not change and would continue to be used at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.
<i>Biological Resources</i>	No significant impacts to biological resources would result from implementation of the proposed action. Implementation of the proposed action would include minor construction and the installation of temporary facilities. Ground disturbing activities would occur entirely within the previously disturbed turf areas adjacent to existing pavement. There is no suitable habitat for federally listed species in the area of the Golf Ramp at MidAmerica where this action would occur. However, the federally-endangered Indiana bat and federally threatened northern long-eared bat are known to roost in the forested floodplains of Silver Creek, adjacent to MidAmerica, at Scott AFB. The USAF has determined that the proposed action <i>May Effect but is Not Likely to Adversely Affect</i> both the Indiana and northern long-eared bat. The U.S. Fish and Wildlife Service concurred with this determination (Appendix A). Increased annual airfield operations could result in an increased opportunity for bird-aircraft strikes to occur. Proactive management of bird/wildlife-aircraft strike hazard (BASH) issues and continued implementation of the BASH Plan would minimize and avoid direct adverse impacts. No state listed species and no bald or golden eagle nests are known to occur at MidAmerica or within the immediate vicinity of the proposed action area.	Under the No Action Alternative, there would be no F-15QA-related ground disturbance at MidAmerica and F-15QA aircraft would not be stationed or operated there. Airspace use would not change and would continue at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

Table 1. Summary Comparison of Environmental Consequences (Continued)

Resource Area	Proposed Action	No Action
<i>Cultural Resources</i>	<p>No impacts to known archaeological resources would result from implementation of the proposed action at MidAmerica. All areas proposed for construction are in areas that have already been disturbed by previous construction and were previously inventoried for archaeological resources during the development of MidAmerica. No National Register of Historic Places (NRHP)-eligible archaeological resources have been identified in the areas proposed for construction. The Illinois SHPO concurred with this finding (Appendix A).</p> <p>Scott AFB coordinated with interested tribes throughout the EA process (See Appendix A). No Section 106 impacts to tribal resources or traditional cultural properties are anticipated to result from implementation of the F-15QA mission at MidAmerica.</p> <p>No impacts to historic properties under the airspace proposed for use are expected. Scientific studies of the effects of noise and vibration on historic properties have considered potential impacts on historic buildings, prehistoric structures, water tanks, archaeological cave/shelter sites, and rock art.</p>	Under the No Action Alternative, there would be no F-15QA-related construction at MidAmerica and the F-15QA would not be stationed there. Airspace use would not change and would continue at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.
<i>Hazardous Materials and Hazardous Waste</i>	<p>Impacts to hazardous materials and waste management from implementation of the proposed action would be minimal.</p> <p>Implementation of the proposed action would not negatively affect the Boeing hazardous materials and waste program at MidAmerica.</p>	Implementation of the No Action Alternative would result in no impacts to the management, use, or generation of hazardous materials and waste at MidAmerica. The No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.
<i>Land Use</i>	<p>None of the temporary physical development associated with implementation of the F-15QA mission would impact land use, because the proposed construction and renovation would occur in land uses on the airport designated for the proposed use. Because no residences are affected by the 65 decibel (dB) day-night average sound level (DNL) contour and transportation corridors are not subject to noise-related incompatible land use, no impacts to land use are anticipated within the airfield environment as a result of the proposed action.</p> <p>No significant impacts to land use are anticipated to result from implementation of the proposed action. The highest modeled noise level would be 48.8 dB below the airspace proposed for use. This level of noise is well below noise levels that used in the USAF compatibility guidelines. The proposed noise levels would not impact or change land use under the special use airspace proposed for training.</p>	Under the No Action Alternative, no F-15QA related development would occur at MidAmerica and none of the associated F-15QA aircraft operations would be conducted. Airspace use would not change and would continue at current use rates. Noise levels at existing public, private, and U.S. Department of Defense (DoD) land uses would remain unchanged. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

Table 1. Summary Comparison of Environmental Consequences (Continued)

Resource Area	Proposed Action	No Action
Noise	<p>No significant noise impacts would occur in the vicinity of MidAmerica or the areas below the training airspace under the proposed action. Construction related to the temporary facilities would result in noise impacts similar to standard construction activities and would not increase noise levels above those that currently exist near MidAmerica. The operation of ground vehicles and AGE would also result in noise levels that are similar to existing conditions.</p> <p>The number of acres that are not owned by MidAmerica or Scott AFB that would be exposed to DNL greater than 65 dB would increase from zero to approximately 62 with the implementation of the proposed action. No residences would be exposed to DNL greater than 65 dB. The number of potential speech interference events per average hour would increase by 0.6 per hour or less at sensitive locations studied, and all schools would remain below criteria levels.</p> <p>The temporary F-15QA mission is scheduled to last for approximately 1 year and noise impacts while the mission is under way would be limited to an increased likelihood of annoyance among people living and working near MidAmerica.</p> <p>The time averaged noise levels beneath training airspace units proposed for regular use by MidAmerica-based F-15QA aircraft would remain well below 65 dB (monthly onset-rate adjusted day night average sound level (L_{dnmr}), and increases would be below impact thresholds identified in FAA Order 1050.1F.</p>	<p>Implementation of the No Action Alternative would result in no changes in noise levels surrounding Scott AFB/MidAmerica or below the airspace proposed for use.</p> <p>Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.</p>
Safety	<p>No aspects of the proposed action would create new or unique ground safety issues. None of the temporary construction on the Golf Ramp at MidAmerica would impact aircraft takeoff and landings or penetrate any primary approach and transitional surfaces. Construction activity would not result in any safety risk or obstructions to navigation.</p> <p>All safety actions currently in place for existing military aircraft would continue for F-15QA pilot training. Implementation of the proposed action is not anticipated to result in any net increase in safety risks associated with aircraft mishaps or result in any increase in the risks of occurrence of those mishaps.</p>	<p>Under the No Action Alternative, no F-15QA-related developments would occur at MidAmerica and no F-15QA pilot training would occur. Use of the airspace surrounding MidAmerica and the special use airspace proposed for training would continue at current rates. There would be no change to safety related to the proposed action.</p> <p>Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.</p>
Cumulative Effects	No significant cumulative impacts would result from implementation of the proposed action. The proposed action, combined with other past, present, and reasonably foreseeable projects near the MidAmerica, would not result in significant cumulative impacts.	No Impacts.

PUBLIC AND AGENCY OUTREACH

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by 32 CFR 989. A notice of availability (See Appendix A) announcing that the Draft EA

and Draft FONSI are available for a 30-day comment period has been published in the following Illinois newspapers: Belleville News-Democrat, O'Fallon Progress, the Quincy Herald-Whig, the Brown County Democrat Message, the Calhoun News-Herald, the Cass County Star Gazette, the Fulton Democrat, the Greene Prairie Press, the Mason County Democrat, the Jacksonville Journal-Courier, the Pike Press and the Rushville Times. In Missouri, the notice was published in the following newspapers: the Steelville Star, the Salem News, the Iron Mountain Echo, the Reynolds County Courier, the Shannon County Wave, the Farmington Press, the Wayne County Journal Banner and the Washington Independent Journal. For 30 days, from 28 February 2020 to 29 March 2020, the Draft EA has been made available to the public and others at the following website: www.scott.af.mil/ and the following libraries in Illinois: Belleville Public Library and the O'Fallon Public Library.

In addition, the USAF closely coordinated with the Illinois State Historic Preservation Officer (SHPO) and federally affiliated tribes with interest in the project area. In a letter dated 22 November 2019, the Illinois SHPO concurred that the undertaking would result in no adverse effects. Additional details on SHPO correspondence are included in the EA and incorporated here by reference. The USAF also coordinated with Native American Tribes (See Appendix A). Additional details on tribal correspondence are included in the EA and incorporated here by reference.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ regulations, and 32 CFR 989, I conclude that implementation of the projects identified in the EA would not have a significant environmental impact, either by themselves or cumulatively with other past, present, and reasonably foreseeable projects at MidAmerica. Accordingly, an EIS is not required. The signing of this FONSI completes the environmental impact analysis process for these actions.

Jeremiah Heathman, Colonel, USAF
375 Air Mobility Wing/Scott Air Force Base

DATE

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
126 ARW	126th Air Refueling Wing
375 AES	375th Aeromedical Evacuation Squadron
375 AMW	375th Air Mobility Wing
932 AW	932nd Airlift Wing
ACAM	Air Conformity Applicability Model
AEP	Airport Emergency Plan
AETC	Air Education Training Command
AFB	Air Force Base
AFI	Air Force Instruction
AFRC	Air Force Reserve Command
AFSAT	Air Force Security Assistance Training
AFGSC	Air Force Global Strike Command
AGE	Aerospace Ground Equipment
AGL	above ground level
AMC	Air Mobility Command
ANG	Air National Guard
ANSI	American National Standards Institute
APE	Area of Potential Effect
ARTCC	Air Route Traffic Control Center
ATC	air traffic control
ATCAA	Air Traffic Control Assigned Airspace
BASH	Bird/Wildlife-Aircraft Strike Hazard
BCC	Bird of Conservation Concern
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
Boeing	The Boeing Company
CAA	Clean Air Act
CATM-9x	Captive Air Training Missile
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
dB	decibel(s)
dBA	A-weighted decibel(s)
DNL	day-night average sound level
DNWG	Department of Defense Noise Working Group
DoD	U.S. Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order

ACRONYMS AND ABBREVIATIONS (Continued)

ESA	Endangered Species Act
FAA	Federal Aviation Administration
FL	Flight Level
FMS	Foreign Military Sales
FONSI	Finding of No Significant Impact
GCR	General Conformity Rule
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HQ	Headquarters
Hz	hertz
I	Interstate
IC	Incident Commander
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
IFR	Instrument Flight Rules
IL ANG	Illinois Air National Guard
ILS	Instrument Landing System
IN ANG	Indiana Air National Guard
IPaC	Information for Planning and Consultation
JLUS	Joint Land Use Study
JUA	Joint Use Agreement
L_{dnmr}	Monthly Onset-Rate Adjusted Day Night Average Sound Level
L_{eq-9hr}	daytime 9-hour equivalent noise level
L_{max}	maximum sound level
LOWAT	Low-Altitude Awareness Training
MBTA	Migratory Bird Treaty Act
MEP	Mobile Electric Power
MidAmerica	MidAmerica St. Louis Airport
MOA	Military Operations Area
MO ANG	Missouri Air National Guard
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NM	nautical mile(s)
NO_2	nitrogen dioxide
NOTAM	Notice to Airmen
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
PL3	Protection Level 3
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter

ACRONYMS AND ABBREVIATIONS (Continued)

PM ₁₀	particulate matter less than or equal to 10 micrometers in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
QEAF	Qatar Emiri Air Force
RCRA	Resource Conservation and Recovery Act
RFA	Radio Frequency Allocation
ROI	Region of Influence
RPZ	Runway Protection Zone
SEL	sound exposure level
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SO _x	sulfur oxides
STL	St. Louis Lambert International Airport
SULMA	Special Use Land Management Area
TACAN	tactical air navigation system
THPO	Tribal Historic Preservation Officer
TRACON	Terminal Radar Approach Control
USAF	U.S. Air Force
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
USTRANSCOM	U.S. Transportation Command
UTBNI	Up To But Not Including
VFR	Visual Flight Rules
VOC	volatile organic compound
WHMP	Wildlife Hazard Monitoring Plan
WST	Weapon System Training

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

In 1991, St. Clair County and the U.S. Air Force (USAF) signed the Scott Air Force Base (AFB) Joint Use Agreement (JUA), effective for 50 years (i.e., until 2041). The 1991 JUA, as updated in 2016, included a number of construction and facility relocation projects and some changes in military operations. Included with the original proposed action was the construction of a new 10,000-foot “East” runway (14L/32R) at MidAmerica St. Louis Airport (MidAmerica), parallel to the existing 8001-foot “West” runway (14R/32L) at Scott AFB, with 7,000-feet of separation between the runways. The runways were joined by a new connecting taxiway, Taxiway G, over Silver Creek, constructed in 1998. A new passenger terminal, freight handling facility, taxiways, and ancillary facilities were also constructed to support the new civil operations at MidAmerica.

Scott AFB and MidAmerica are located in St. Clair County, Illinois, approximately 20 miles east of St. Louis, Missouri (Figure 1-1). Scott AFB is home to the 375th Air Mobility Wing (375 AMW), which hosts Air Mobility Command (AMC), U.S. Transportation Command (USTRANSCOM), the 18th Air Force, and several other Headquarters (HQ) organizations. Examples of flying units at Scott AFB include the 126th Air Refueling Wing (126 ARW), the 932nd Airlift Wing (932 AW), and the 375th Aeromedical Evacuation Squadron (375 AES).

In 2018, airport operations at MidAmerica were divided into military (58 percent), transient general aviation (37 percent), and commercial (5 percent) (AirNav 2019).

The USAF Air Education Training Command (AETC) Air Force Security Assistance Training (AFSAT) squadron is preparing this Environmental Assessment (EA) to evaluate the proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The government of Qatar is purchasing up to 48 F-15QA aircraft through the U.S. Foreign Military Sales (FMS) program and has requested that a small number of pilots be trained in the United States before the aircraft are delivered to the Qatar Emiri Air Force (QEAF). The USAF proposes to support the Qatar request by temporarily training and operating the new F-15QA aircraft at MidAmerica for approximately 1 year. As part of the proposed action, AFSAT would lead this temporary mission under the operational control of AETC. Pilots would be trained at MidAmerica, but no changes to any of the USAF organizations at Scott AFB would occur.



This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] § 1500-1508), and 32 CFR 989, *et seq.*, *Environmental Impact Analysis Process*. NEPA is the basic national requirement for identifying environmental consequences of federal decisions. NEPA ensures that environmental information is available to the public, agencies, and the decision-maker before decisions are made and before actions are taken.

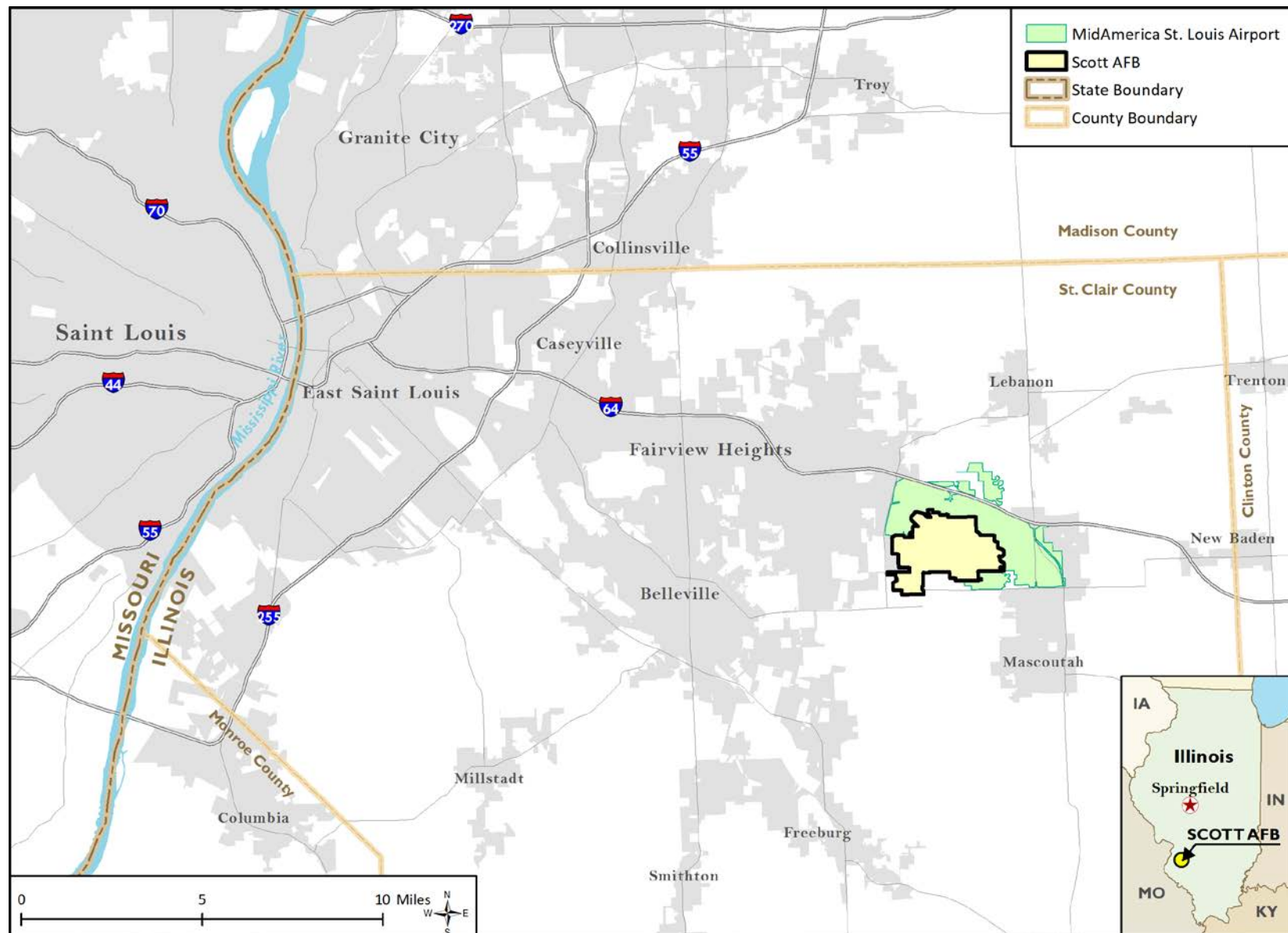


Figure 1-1. Regional Map of MidAmerica St. Louis Airport/Scott Air Force Base

1.2 PURPOSE OF THE PROPOSED ACTION

The purpose of the proposed action is to facilitate F-15QA training to a small number of QEAF pilots before the aircraft are delivered to Qatar. The government of Qatar is purchasing up to 48 F-15QA aircraft through the FMS program and has requested that a small number of pilots be trained in the United States before the aircraft are delivered.

1.3 NEED FOR THE PROPOSED ACTION

Implementation of the proposed action is needed to develop an initial group of trained QEAF pilots that are familiar with the aircraft and can support future training efforts in Qatar.

1.4 DECISION TO BE MADE

Selection of an alternative to support the temporary (approximately 1 year) beddown and operation of up to six F-15QA aircraft at MidAmerica for the initial qualification training for QEAF is the decision to be made. The decision options are:

- To continue with current operations (the No Action Alternative);
- To select the proposed action and prepare a Finding of No Significant Impact (FONSI); or
- To prepare an Environmental Impact Statement (EIS) if the alternatives would result in significant environmental impacts.

1.5 INTERGOVERNMENTAL COORDINATION/CONSULTATION

1.5.1 Interagency and Intergovernmental Coordination and Consultations

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental consequences. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental consequences of a proposed action. Comments from these agencies are subsequently incorporated into the environmental analysis. Appendix A contains the list of agencies consulted during this analysis and copies of correspondence.

1.5.2 Government-to-Government Consultations

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are historically affiliated with the Scott AFB geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or the Interagency and Intergovernmental Coordination processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The Scott AFB point-of-contact for Native American tribes is the Installation Commander. The Scott AFB point-of-contact for consultation with the Tribal Historic Preservation Officer (THPO) and the Advisory Council on Historic Preservation is the Cultural Resources Manager.

The Native American tribal governments that have been coordinated with regarding this action are listed in Appendix A.

1.6 PUBLIC AND AGENCY REVIEW OF ENVIRONMENTAL ASSESSMENT

The USAF encourages and invites public/agency and other participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, tribes, and members of the public with a potential interest in the proposed action are encouraged to participate in the decision-making process during the 30-day Draft EA public review period.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by 32 CFR 989.15(e)(2). A notice of availability (See Appendix A) announcing that the Draft EA and Draft FONSI are available for a 30-day comment period has been published in the following Illinois newspapers: Belleville News-Democrat, O’Fallon Progress, the Quincy Herald-Whig, the Brown County Democrat Message, the Calhoun News-Herald, the Cass County Star Gazette, the Fulton Democrat, the Greene Prairie Press, the Mason County Democrat, the Jacksonville Journal-Courier, the Pike Press and the Rushville Times. In Missouri, the notice was published in the following newspapers: the Steelville Star, the Salem News, the Iron Mountain Echo, the Reynolds County Courier, the Shannon County Wave, the Farmington Press, the Wayne County Journal Banner and the Washington Independent Journal. For 30 days, from 28 February 2020 to 29 March 2020, the Draft EA has been made available to the public and others at the following website: www.scott.af.mil and the following libraries in Illinois: Belleville Public Library and the O’Fallon Public Library.

1.7 SCOPE OF THE ENVIRONMENTAL ANALYSIS

This EA identifies, documents, and evaluates the potential human and natural environmental effects of implementation of the proposed action at MidAmerica. As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed action, and be available to inform decision-makers of the potential environmental impacts of selecting the proposed action or the No Action Alternative. If significant impacts are identified, the USAF would undertake mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the proposed action, or abandon the proposed action. An interdisciplinary team of airspace specialists, environmental scientists, biologists, planners, economists, engineers, archaeologists, and other subject matter experts analyzed the proposed action relative to existing conditions and identified the potential impacts associated with implementation of the proposed action. Chapter 2 describes the proposed action, the No Action Alternative, and alternatives considered but not carried forward. Conditions existing as of 2019, considered the “baseline” conditions, are described in Chapter 3, Affected Environment. The expected effects of the proposed action are presented in Chapter 4, Environmental Consequences. Chapter 5 addresses the potential for cumulative effects.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROPOSED ACTION

The proposed action involves the temporary (approximately 1 year) beddown and operation of up to six F-15QA aircraft at MidAmerica for the initial qualification training for QEAF pilots. The F-15QA mission requires airfield flight operations and ground support, airspace flight operations in existing airspace, personnel, and facilities. Because this mission would be temporary, the beddown and operation of the F-15QA aircraft and all supporting elements of the mission (e.g., personnel, facilities) would end or be removed at the conclusion of the mission.

The temporary mission at MidAmerica would include each of the following elements:

- Addition of up to six F-15QA aircraft and associated equipment beginning in the fall of 2020.
- Increased airfield operations at MidAmerica, and sortie operations in nearby airspace and Military Operations Areas (MOAs) (i.e., Lindbergh, Salem, Howard, Pruitt, and Red Hills MOAs).
- Use of the air traffic control (ATC) tower.
- Approximately five USAF flight training and logistics personnel, approximately 50 The Boeing Company (Boeing) employees conducting flight training/maintenance/security, and approximately 16 QEAF personnel.
- Temporary trailers and security facilities for the personnel along with temporary sunshades and metal tie downs for the aircraft.

The USAF prepared this EA to determine the potential environmental consequences that could result from implementation of this temporary mission. Specifically, the proposed action at MidAmerica would involve all of the components mentioned above, including constructing, modifying, equipping, and improving temporary facilities for operations, maintenance, and aircraft support. In addition to the proposed action, the NEPA requires the evaluation of the No Action Alternative. Under the No Action Alternative, the temporary F-15QA mission would not occur. No F-15QA aircraft would be located at MidAmerica and none of the temporary facilities would be located at MidAmerica.

2.1.1 Airfield Flight Operations

As part of the proposed action, Boeing instructor pilots and QEAF pilots would fly the F-15QA aircraft. Boeing instructor pilots have been contracted by the USAF to oversee and implement the training of QEAF pilots. A Boeing instructor pilot would be in the aircraft at all times during every sortie. Throughout this document the term F-15QA pilots refers to both QEAF and Boeing instructor pilots.

Flying operations are expected to occur Monday through Friday. Weekend flying operations are not anticipated but could occur to meet training syllabus requirements. During the approximately 1 year of this temporary mission, F-15QA pilots would fly approximately 1,027 sorties. No flights would occur between 10:00 P.M. and 7:00 A.M. Typical mission profiles would include aircraft departing as either single-ship takeoffs or two-ship formation takeoffs, using afterburner on 100 percent of departures. The aircraft would depart the MidAmerica area to fly in nearby MOAs. Table 2-1 identifies the baseline and proposed operations at MidAmerica/Scott AFB.

Table 2-1. Baseline and Proposed Annual Airfield Operations at MidAmerica/Scott AFB

Aircraft Category	Aircraft	Total Annual Sorties at Home Station	Total Annual Second Approach Airfield Operations	Total Annual Airfield Operations
Civilian Aircraft at MidAmerica	Commercial carrier (e.g., A-319)	628	0	1,256
	Learjet	2,522	0	5,044
	1-engine propeller	2,522	0	5,044
Military Aircraft at MidAmerica	C-21	20	104	145
	KC-135	392	1,588	2,372
Military Aircraft at Scott AFB	C-21	993	5,109	7,095
	C-40	285	5,490	6,060
	KC-135	98	397	593
Transient Aircraft at Scott AFB	B-747	25	0	50
	C-12	91	0	182
	C-130	142	0	284
	C-17	54	0	108
	C-21	163	0	326
	F-15	34	0	68
	F-18	23	46	92
	F-35	7	14	28
	KC-135	20	0	40
	UH-60	8	0	16
Total Baseline		8,027	12,748	28,803
Proposed F-15QA		1,027	6,337	7,364
Total		9,054	19,085	36,167

Upon returning to MidAmerica, the F-15QA pilots would fly multiple (up to four) instrument patterns and approach procedures under Regional Approach Control and/or multiple (up to six) overhead patterns under Scott Tower control. The F-15QA pilots would use the standard fighter pattern altitude of 2,500 feet above Mean Sea Level (MSL), and pilots would perform multiple touch and go landings before making a full-stop landing. Later in the training period, the F-15QA pilots would perform single-ship or formation landings to a full stop. Occasionally, up to four aircraft could depart and return as a flight.

2.1.2 Airfield Ground Support

Aerospace Ground Equipment (AGE) would be used to support the F-15QA mission. AGE could include F-15QA test and support equipment, Mobile Electric Power (MEP) generators, field deployable environmental control units, aircraft tugs, fuel trucks, compressors, etc. This equipment would be staged on the Golf Ramp and utilized as necessary during the temporary mission.

2.1.3 Special Use Airspace Flight Operations

No new special use airspace would be created as part of this mission. F-15QA pilots would depart MidAmerica to nearby MOAs for tactical maneuvering, primarily at medium-to-high altitudes, under the current MOA parameters (see Table 2-2). The special use airspace proposed for use includes the Lindbergh, Salem, Howard, Pruitt, and Red Hills MOAs, including all of their respective subsectors (A, B, C, etc.) and altitude blocks as necessary to meet the training syllabus requirements (Table 2-2, Figure 2-1). Training would also include the use of Air Traffic Control Assigned Airspaces (ATCAAs). Other existing charted airspace throughout the Midwest region would be used on an occasional basis.

Table 2-2. Existing Designated Special Use Airspace in the Vicinity of MidAmerica

Airspace Unit ^a	Floor ^b	Ceiling ^b	Time of Use	Controlling Agency	Using Agency
Howard East MOA	9,000	UTBNI 18,000	7:00 A.M. to 10:00 P.M. Sun-Sat	FAA, Kansas City ARTCC	Illinois Air National Guard (IL ANG), Scott AFB, IL
Howard West MOA	10,000	UTBNI 18,000		FAA, Kansas City ARTCC	IL ANG, Scott AFB, IL
Lindbergh A MOA ^c	7,000	UTBNI 18,000	See Below ^d	FAA, Kansas City ARTCC	Missouri Air National Guard (MO ANG), Whiteman AFB, MO
Lindbergh B and C MOAs ^c	8,000	UTBNI 18,000		FAA, Kansas City ARTCC	MO ANG, Whiteman AFB, MO
Lindbergh D and West ATCAA ^{c,e}	39,000	UTBNI 43,000		FAA, Kansas City ARTCC	MO ANG, Whiteman AFB, MO
Pruitt A MOA	500 AGL	6,000	9:00 A.M. - 12:00 P.M. & 1:00 P.M. - 4:00 P.M. Sun-Sat Other times by NOTAM	FAA, Kansas City ARTCC	IL ANG, Scott AFB, IL
Pruitt B MOA	500 AGL	3,000		FAA, Kansas City ARTCC	IL ANG, Scott AFB, IL
Red Hills MOA	6,000	UTBNI 18,000	8:00 A.M. - 10:00 P.M. Mon-Sun	FAA, Indianapolis ARTCC	Indiana Air National Guard (IN ANG), Fort Wayne International Airport, IN
Salem MOA ^c	Surface	UTBNI 7,000	Intermittent by NOTAM	FAA, Kansas City ARTCC	MO ANG, Whiteman AFB, MO

^a The frequency of use for the special use airspace units will be approximately equal across all units. Airspace used by F-15QA pilots would include ATCAAs that occur over the MOAs included in the table. The ATCAAs would accommodate training above 18,000 feet MSL.

^b Floor altitudes could exclude certain areas. See Federal Aviation Administration (FAA) Sectional Charts for exclusions.

^c Scheduling authority for the Lindbergh and Salem MOAs is the 509th Bomber Wing, Whiteman AFB.

^d Lindbergh A, B, and C – 9:00 A.M. – 10:30 A.M. and 1:00 P.M. – 2:30 P.M. Mon-Fri by NOTAM; 9:00 A.M. – 10:30 A.M. and 1:00 P.M. – 2:30 P.M. one Sat-Sun per month by NOTAM; 6:00 P.M. – 9:00 P.M. Mon - Fri, 2 months per year.

^e Lindbergh ATCAAs are identified in the table and on figures for reference because no MOAs are located beneath these areas.

Note: MSL is the elevation (on the ground) or altitude (in the air) of an object, relative to the average sea level.

Key: AGL = above ground level; ARTCC = Air Route Traffic Control Center; NOTAM = Notice to Airmen; UTBNI = Up To But Not Including

While flying in the MOAs, F-15QA pilots would perform tactical maneuvering commensurate with air-to-air training. The training program would attempt to schedule dissimilar aircraft to serve as adversaries. Adversary aircraft could include T-38s from Whiteman AFB, Missouri, or F-16s from Air National Guard (ANG) bases in Tulsa, Oklahoma, or Sioux Falls, South Dakota. No more than four F-15QA aircraft would be operated in a MOA at any given time, and pilots would typically operate within the boundaries of the MOA for less than 1 hour. Pilots would typically operate in two aircraft units either conducting basic fighter maneuvers or conducting intercept training. Intercept training occurs when two separate units (two aircraft each) conduct training with one unit practicing to locate and intercept the other unit. Pilots would fly a maximum of eight sorties a day on Monday/Wednesday/Friday and four sorties a day on Tuesday and Thursday. No chaff, flares, or live weapons would be used, and supersonic flight would not be conducted.

As described above, no aircraft operations would occur in the airspace proposed for use between 10:00 P.M. and 7:00 A.M.

Pilot training would also include Low-Altitude Awareness Training (LOWAT). This training would only occur in the Salem and Pruitt MOAs within the altitude limits established and published by the Federal Aviation Administration (FAA) (FAA Order JO 7400.10A). Approximately 9 percent of sorties (approximately 93 sorties) over the 1-year training period would include LOWAT.

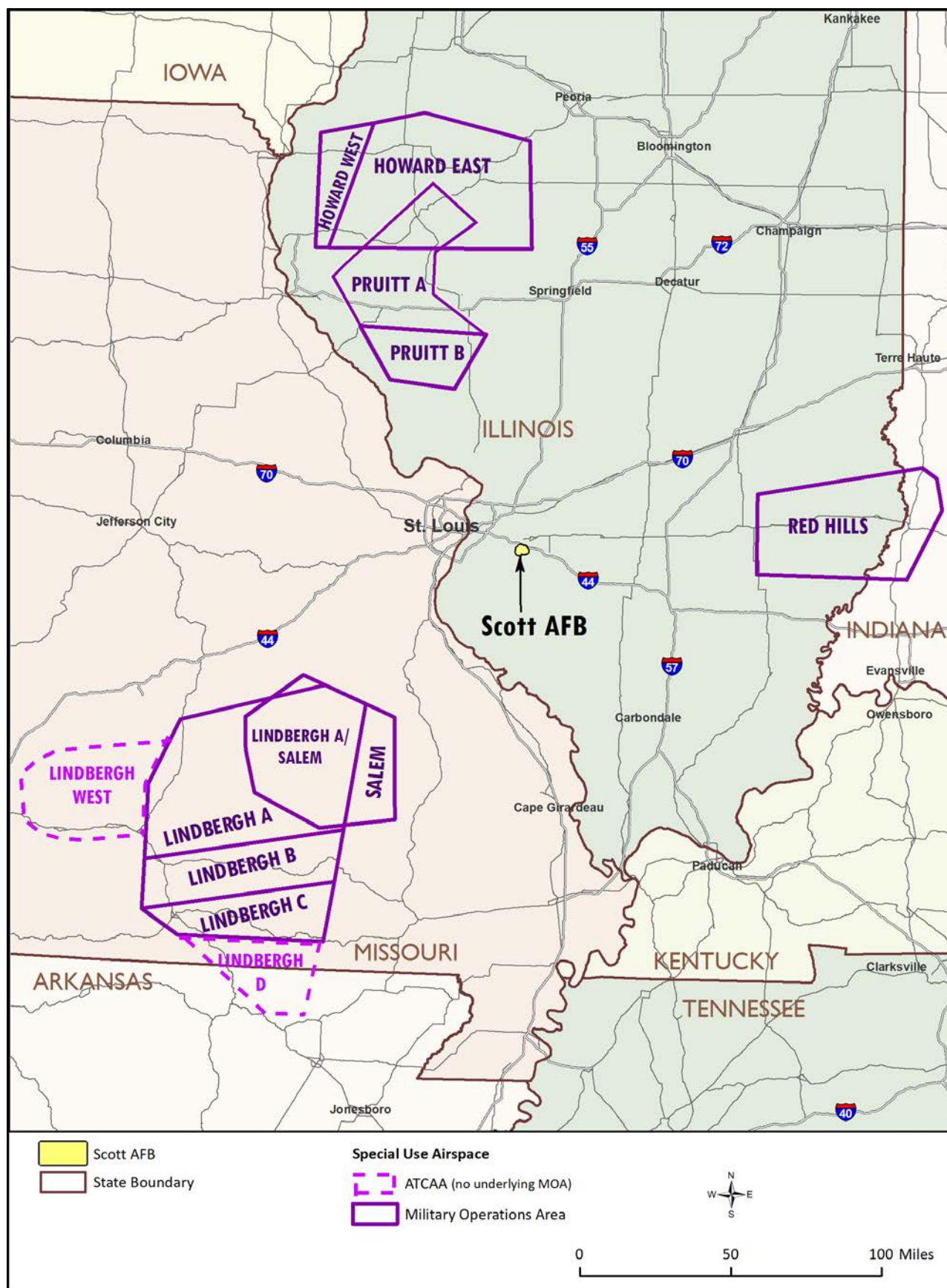


Figure 2-1. Special Use Airspace Proposed for Training

2.1.4 Temporary Personnel Changes

A variety of personnel would be required to support the temporary mission. As previously described, approximately 16 QEAF student pilots would be trained by approximately the same number of Boeing instructor pilots. A variety of maintenance, scheduling, and other Boeing support personnel would be required for this mission. Approximately 50 Boeing employees would support the mission at MidAmerica. In addition to the Boeing employees, approximately five USAF personnel would support the mission for training and logistics, including personnel in the ATC tower. For the purposes of the analysis in this EA, it is anticipated that the Boeing employees are current residents of the greater St. Louis metropolitan area and would not be relocating to this area.

2.1.5 Temporary Facility Requirements

In support of the F-15QA beddown, a variety of temporary facilities would be installed on or adjacent to the Golf Ramp at MidAmerica. These temporary facilities include sunshades, metal aircraft tie downs, conex storage containers, and a temporary guard facility.

The six F-15QA aircraft would be parked along the western edge of the Golf Ramp with tails directed at an approximate 45-degree angle to the taxiway (Figure 2-2).



Figure 2-2. Proposed F-15QA Parking Plan at MidAmerica

Three temporary sunshades (106 feet long by 90 feet wide by 45 feet high) and associated metal aircraft tie downs would be installed on the Golf Ramp. Each sunshade would shade two aircraft. The metal aircraft tie downs would be installed into the concrete on either side of each F-15QA

aircraft at their proposed parking locations. The concrete ramp would be cut, broken, and re-poured to install flush steel anchor points for the aircraft tie downs. These metal tie downs would be used to secure the aircraft to the ramp while the aircraft are not being used at night and on weekends. Security fencing would also be installed around the three temporary sunshades.

As additional support for this temporary action, up to four temporary storage facilities (conex containers) would be located on or adjacent to the Golf Ramp. These containers would be used to secure tools, flight equipment, and other materials and equipment necessary to support the F-15QA mission.

The USAF has identified the F-15QA aircraft as a Protection Level 3 (PL3) asset, which requires specific security procedures beyond standard airport physical security. PL3 assets require security for the aircraft, flightline support equipment, uninstalled Captive Air Training Missile (CATM-9x) and container storage, and sensitive information processing and classified discussion areas. To accommodate the PL3 security requirements, a temporary guard facility would also be located on or adjacent to the Golf Ramp during the approximately 1 year temporary mission timeframe.

Upon completion of the mission, the sunshades, metal aircraft tie downs, conex containers, and temporary guard facility would be removed and the Golf Ramp and the adjacent site would be returned to pre-beddown conditions.

2.2 SELECTION STANDARDS

To identify alternatives for the proposed action, the USAF implemented a multistep evaluation process. This process was used to evaluate both USAF installations and civilian airports capable of hosting this mission. The process started with the development of an initial set of criteria that would be required to implement the F-15QA mission. The initial set of criteria identified to implement the mission are listed below:

- The location must have an active runway that is at least 8,000 feet long and 150 feet wide;
- The location must have suitable ramp space (approximately 8,300 square feet) available to park up to six F-15QA aircraft and provide space for security and storage facilities to support the mission;
- The location must have operational flying window availability for up to eight F-15QA sorties per day;
- The location must host flying missions that are compatible with the proposed F-15QA mission such that the proposed F-15QA mission would not interfere with current and ongoing aircraft operations;
- The location must have a Radio Frequency Allocation (RFA) available for use by F-15QA pilots; and,
- The location must be within 150 nautical miles (NM) of existing charted MOAs.

2.3 SCREENING OF ALTERNATIVES

The first step in screening alternatives was to evaluate existing USAF and ANG F-15 bases across the United States. The USAF considered Mountain Home AFB, Idaho; Seymour Johnson AFB, North Carolina; and other ANG F-15 bases. These alternatives were eliminated because the F-15QA is not similar or compatible with the USAF F-15C or E models, and F-15QA pilots would not be able to utilize the existing F-15 Weapon System Training (WST) devices located at those bases. After this initial step, the USAF determined that one additional criterion would need to be

included in the alternative evaluation process. This criterion specified that the location must be within 200 miles of St. Louis, Missouri. This criterion facilitates implementation of the proposed mission because it allows closer access to Boeing support equipment/personnel, provides better access to the F-15QA WST proposed to be located at the Boeing St. Louis Facility, adjacent to St. Louis Lambert International Airport (STL), and includes access to the RFA being developed in STL. Additionally, the F-15QA aircraft are being assembled at the STL Boeing Plant.

Using this criterion, in conjunction with the criteria listed in Section 2.2, the USAF identified the following locations for further evaluation, each of which are described below.

- Boeing St. Louis Facility at STL
- Whiteman AFB, Missouri
- Scott AFB, Illinois
- MidAmerica, Mascoutah, Illinois
- Former Missouri Air National Guard (MO ANG) facilities at STL

The Boeing St. Louis Facility at STL meets or exceeds many of the criteria listed above, but the proposed F-15QA mission would interfere with other aircraft operations at Boeing STL. This alternative was eliminated due to the conflicting and overloading of tasking with current and planned Boeing and U.S. Department of Defense (DoD) developmental test and evaluation efforts. Such efforts include, but are not limited to, programs for the F-15, F/A-18E/F, T-X, and MQ-25, as well as Boeing's commercial aircraft production work. Scheduling conflicts at the Boeing St. Louis Facility at STL would limit the number of F-15QA sorties to two per week. The training syllabus for the F-15QA requires up to eight F-15QA sorties per day.

Whiteman AFB in central Missouri is home to the B-2 Stealth Bomber and is managed by Air Force Global Strike Command (AFGSC). In addition to the B-2 Stealth Bomber, the Air Force Reserve Command (AFRC) maintains a tenant wing of A-10 aircraft. Although Whiteman AFB meets the airfield and proximity requirements, AFGSC denied further consideration of the base due to the risk of potential compromise of sensitive national security information. Therefore, Whiteman AFB did not meet the selection criteria for mission compatibility and was eliminated from further consideration for the F-15QA mission.

As previously described, Scott AFB is home to the 375 AMW, HQ AMC, HQ USTRANSCOM and other HQ and tenant units. During the evaluation process, the 375 AMW reported that re-construction of the runway would occur during the same timeframe proposed for the F-15QA mission. Because the runway at Scott AFB would be closed during construction, Scott AFB would not be a feasible alternative and was therefore eliminated from further consideration due to mission incompatibility.

The USAF also considered the former MO ANG facilities at STL, which formerly hosted a squadron of F-15C aircraft. Many aspects of this alternative met or exceeded the requirements outlined above. However, subsequent to the MO ANG stand down, its former facilities sustained storm damage and would require substantial repairs in order to return the facilities to a mission-capable status. Due to time, lack of funds, and effort that would have been required to accomplish those repairs, the former MO ANG facilities were not considered a viable option to host this mission. This location would not meet the criterion to provide space for security and storage facilities.

Table 2-3 provides a comparison of possible alternatives against the screening criteria to determine which alternatives are considered reasonable and should be carried forward in the EA for analysis and evaluation. MidAmerica was identified as the only alternative that met or exceeded all of the criteria described above and was therefore carried forward as the proposed action for implementation of the F-15QA mission.

Table 2-3. Alternative Screening Analysis

Installation/Airport	Airspace Requirement	Airfield Requirement					Location Requirement		
	Nearby charted MOAs	Runway	Parking	Facilities	Flying Window	Existing Mission Compatibility	Radio Frequency	Boeing support	Weapon System Training
Boeing St. Louis Facility STL	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Seymour Johnson AFB, NC	Yes	Yes	Yes	Yes (with constraints)	No	Yes	No	No	No
Mountain Home AFB, ID	Yes	Yes	No	No	No	Yes	No	No	No
ANG F-15C Bases	Yes	Yes	No	No	No	Yes	No	No	No
Whiteman AFB, MO	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No
Scott AFB, IL	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes
Former MO ANG facilities at STL	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
MidAmerica, IL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As none of the other alternatives that were considered would meet the purpose and need, the following alternatives have been eliminated from further consideration:

- Boeing St. Louis Facility at STL
- Whiteman AFB, Missouri
- Scott AFB, Illinois
- Former MO ANG Facilities at STL

2.5 NO ACTION ALTERNATIVE

Implementation of the No Action Alternative would not result in any F-15QA related construction at MidAmerica, and no training activities would occur. Analysis of the No Action Alternative provides a basis for comparing the environmental consequences of the proposed action to the existing (baseline) conditions, over time. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the required training as required by the FMS contract.

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3.0 AFFECTED ENVIRONMENT

This section describes the environmental resource areas and existing conditions that could be affected by the proposed action at MidAmerica (i.e., airfield) and in the special use airspace proposed for training. The baseline or existing conditions for each environmental resource area, as described in this chapter, constitute conditions under the No Action Alternative for the proposed actions. For most of the resource areas, the Region of Influence (ROI) is defined as the area(s) of MidAmerica affected by the proposed development and aircraft operations. For some environmental resource areas (e.g., noise), the ROI extends into surrounding communities and under the airspace proposed for use.

Determining which environmental resource areas will be analyzed versus those not carried forward for detailed analysis is part of the EA scoping process. CEQ and USAF regulations (40 CFR §1501.7(a)(3), 32 CFR 989.18) encourage project proponents to identify and eliminate from detailed study the environmental resource areas that have no potential to be impacted through implementation of their respective proposed actions. The following paragraphs describe why environmental justice and the protection of children, infrastructure, socioeconomics, and soil and water resources were not carried forward for detailed analysis in this EA.

Environmental Justice and the Protection of Children. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to identify and assess health risks and safety risks that may disproportionately affect children. EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, requires federal agencies to consider any potentially disproportionate human health or environmental risks their activities, policies, or programs may pose to minority or low-income populations.

Implementation of the F-15QA mission at MidAmerica would not cause disproportionately high or adverse human health or environmental risks on any minority or low-income populations, or result in any health and safety risks that would disproportionately affect children. The minor construction of the temporary infrastructure would occur entirely on the Golf Ramp at MidAmerica. No environmental justice or sensitive receptor populations are located near this area. Aircraft operations in the special use airspace proposed for training would result in slight, temporary noise increases under the Salem and Pruitt B MOAs. As described in Section 4.7, these noise levels would not be considered significant and there would be no adverse impact to populations living under the special use airspace proposed for training. Because populations in the ROI would not be adversely impacted, there would be no disproportionate impacts to any of the sensitive populations evaluated under environmental justice and the protection of children. Therefore, further analysis of environmental justice and the protection of children is not warranted.

Infrastructure. Implementation of the F-15QA mission at MidAmerica would not impact existing infrastructure. The proposed action does not include permanent changes to any infrastructure. The temporary nature of the project and the small number of personnel involved in the proposed action would have no measurable impact upon infrastructure resources at MidAmerica/Scott AFB or the surrounding area. Therefore, further analysis of infrastructure is not warranted.

Socioeconomics. Implementation of the F-15QA mission at MidAmerica would have insignificant impacts on socioeconomics. Due to the temporary nature of this mission, no permanent changes to local populations or demand for public/social services would occur. In addition, no changes in housing demand would occur. Implementation of the F-15QA mission would result in temporary, beneficial impacts to the local economy due to the short-term employment of contractors and local construction workers. Therefore, further analysis of socioeconomics is not warranted.

Soil and Water Resources. Implementation of the F-15QA mission at MidAmerica would not impact soil or water resources. All of the temporary infrastructure would be constructed on existing concrete or mowed turf areas and would not result in extensive excavation. Water resources near the Golf Ramp at MidAmerica are managed in accordance with the provisions of aircraft utilizing the Golf Ramp on a regular basis and parking the F-15QA aircraft on the Golf Ramp would not result in any changes to water resources. Therefore, further analysis of soil and water resources is not warranted.

3.1 AIR QUALITY

3.1.1 Definition of the Resource

Air quality in a given location is defined by the size and topography of an air basin, the air emissions that occur within and outside of the air basin, local and regional meteorological influences, and the resulting types and concentrations of pollutants in the atmosphere. The significance of a pollutant concentration is often determined by comparing its concentration to an appropriate national or state ambient air quality standard. These standards represent the allowable atmospheric concentrations at which the public health and welfare are protected and include a reasonable margin of safety to protect the more sensitive individuals in the population. The U.S. Environmental Protection Agency (USEPA) established the National Ambient Air Quality Standards (NAAQS) to regulate the following criteria pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than or equal to 10 micrometers in diameter (PM₁₀), particulate matter less than or equal to 2.5 micrometers in diameter (PM_{2.5}), and lead. Units of concentration for the NAAQS are generally expressed in parts per million (ppm) or micrograms per cubic meter (µg/m³). The Illinois Environmental Protection Agency (IEPA) has adopted the NAAQS for purposes of regulating criteria air pollutant levels within Illinois. Table 3-1 presents the NAAQS.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards ^a	
		Primary ^b	Secondary ^c
O ₃	8-hour	0.070 ppm (137 µg/m ³)	Same as primary
CO	8-hour	9 ppm (10 mg/m ³)	NA
	1-hour	35 ppm (40 mg/m ³)	NA
NO ₂	Annual	0.053 ppm (100 µg/m ³)	Same as primary
	1-hour	0.10 ppm (188 µg/m ³)	NA
SO ₂	3-hour	NA	0.5 ppm (1,300 µg/m ³)
	1-hour	0.075 ppm (196 µg/m ³)	NA
PM ₁₀	24-hour	150 µg/m ³	Same as primary
PM _{2.5}	Annual	12 µg/m ³	15 µg/m ³
	24-hour	35 µg/m ³	Same as primary
Lead	Rolling 3-month period	0.15 µg/m ³	Same as primary

^a Concentrations are expressed first in units in which they were promulgated. Equivalent units are included in parentheses.

^b Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

^c Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Key: NA = not applicable

The NAAQS 8-hour O₃ standard is attained when the 3-year average of the fourth-highest daily maximum 8-hour concentration measured each year is less than or equal to 0.070 ppm. For CO and PM₁₀, the NAAQS are not to be exceeded more than once per year. The NAAQS annual NO₂ standard is attained when the annual arithmetic mean concentration in a calendar year is less than

or equal to 0.053 ppm. The 1-hour NO₂ standard is attained when the 3-year average of the 98th percentile of the daily maximum 1-hour average concentration does not exceed 0.10 ppm. For SO₂, the primary NAAQS is attained when the 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years, is less than or equal to 0.075 µg/m³. The NAAQS PM_{2.5} standards are attained when the annual arithmetic mean concentration is less than or equal to 12 µg/m³ and when the 98th percentile of the 24-hour concentration is less than or equal to 35 µg/m³, both averaged over 3 years.

Ozone is formed in the atmosphere by photochemical reactions of previously emitted pollutants called precursors. Ozone precursors are mainly nitrogen oxides (NO_x) and photochemically reactive volatile organic compounds (VOCs). Ozone concentrations are typically highest during the warmer months of the year and coincide with periods of high insolation. Maximum O₃ concentrations tend to be homogeneously spread throughout a region, as it often takes several hours to convert precursor emissions to O₃ in the atmosphere. Inert pollutants, such as CO, tend to have the highest concentrations during the colder months of the year, when light winds and nighttime/early morning surface-based temperature inversions inhibit atmospheric dispersion.

3.1.1.1 Greenhouse Gases

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. Both natural processes and human activities generate GHG emissions. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Climate change refers to any significant change in the measures of climate lasting for an extended period of time (USEPA 2016). The U.S. Global Change Research Program (USGCRP)¹ report, *Climate Science Special Report: Fourth National Climate Assessment* (USGCRP 2017), states the following:

- Global annually averaged surface air temperature has increased by about 1.8 degrees Fahrenheit (°F) (1.0 degrees Celsius [°C]) over the last 115 years (1901–2016). This period is now the warmest in the history of modern civilization.
- Over the next few decades (2021–2050), annual average temperatures in the United States are expected to rise by approximately 2.5°F, relative to the recent past (average from 1976–2005), under all plausible future climate scenarios.
- Many other aspects of global climate are changing, including rising oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor.
- Data shows global average sea level has risen by approximately 7 to 8 inches since 1900, a rate that is greater than during any preceding century in at least 2,800 years. Global average sea levels are expected to continue to rise by at least several inches in the next 15 years and by 1 to 4 feet by 2100. A rise of as much as 8 feet by 2100 cannot be ruled out.
- The magnitude of climate change beyond the next few decades will depend primarily on the amount of GHGs (especially carbon dioxide [CO₂]) emitted globally. Without major reductions in emissions, the increase in annual average global temperature relative to preindustrial times could reach 9°F (5°C) or more by the end of this century. With significant reductions in emissions, the increase in annual average global temperature could be limited to 3.6°F (2°C) or less.

¹ https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf, site accessed on November 18, 2019.

GHGs include water vapor, CO₂, methane (CH₄), nitrous oxide, O₃, and several hydrocarbons and chlorofluorocarbons. Each GHG has an estimated global warming potential (GWP), which is a function of its lifetime and ability to trap heat in the atmosphere. The GWP rating system is standardized to CO₂, which has a value of one. For example, CH₄ has a GWP of 28, which means that it has a global warming effect 28 times greater than CO₂ on an equal-mass basis (USGCRP 2017). To simplify GHG analyses, total GHG emissions from a source are often expressed as a carbon dioxide equivalent (CO₂e). The CO₂e is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH₄ and nitrous oxide have much higher GWPs than CO₂, CO₂ is emitted in such greater quantities that it is the overwhelming contributor to global CO₂e emissions from both natural processes and human activities.

The potential effects of any GHG emissions, including those of the proposed QEAF F-15QA mission, are global, by nature. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, GHG emissions from the proposed mission have been quantified in this EA for use as indicators of their potential contributions to climate change effects.

3.1.2 Existing Conditions

3.1.2.1 Region of Influence and Existing Air Quality

Identifying the ROI for air quality requires knowledge of the pollutant type, source emission rates, the proximity of project emission sources to other emission sources, and local and regional meteorology. For inert pollutants (such as CO and particulates in the form of dust), the ROI is generally limited to a few miles downwind from a source. The ROI for reactive pollutants such as O₃ may extend much farther downwind than for inert pollutants. In the presence of solar radiation, the maximum effect of precursor emissions on O₃ levels usually occurs several hours after they are emitted and many miles from their source.

The USEPA designates all areas of the United States in terms of having air quality better (attainment) or worse (nonattainment) than the NAAQS. An area is in attainment of a NAAQS if its pollutant concentration remains below the standard value, as defined by the annual to tri-annual metrics described in Section 3.1.1. Former nonattainment areas that have attained a NAAQS are designated as maintenance areas.

Currently, St. Clair County is in attainment of all NAAQS, except that it is in marginal nonattainment of the 8-hour O₃ 2015 standard (USEPA 2019). St. Clair County is part of the St. Louis, MO-IL Marginal Nonattainment Area, which includes Madison and St. Clair Counties in Illinois.

3.1.2.2 Regional Air Emissions

Table 3-2 summarizes annual emissions generated by activities within St. Clair County for year 2014. Emissions for St. Clair County were obtained from the National Emissions Inventory (NEI) process (USEPA 2018). The majority of emissions in this region occur from (1) on-road and nonroad mobile sources (CO, NO_x, and CO₂e), (2) chemical manufacturing and waste disposal (sulfur oxides [SO_x]), (3) consumer and commercial solvent use (VOCs), and (4) fugitive dust from unpaved roads, and crops and livestock (PM₁₀ and PM_{2.5}).

Table 3-2. Annual Emissions for St. Clair County, Illinois, 2014

Source Type	Air Pollutant Emissions (tons per year) ^a						
	VOCs	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO _{2e} (mt)
Stationary Sources	7,687	4,024	1,429	255	12,832	2,247	NA
Mobile Sources	2,731	29,641	6,529	51	438	281	1,644,526
Total Emissions	10,418	33,664	7,958	306	13,270	2,528	1,644,526

^a Calculated values and totals have been rounded; therefore, sum totals may not match the totals row.

Key: CO_{2e} (mt) = carbon dioxide equivalent in metric tons; NA = not available

Source: USEPA 2018

3.1.2.3 Regulatory Setting

The Clean Air Act (CAA) and its subsequent amendments establish air quality regulations and the NAAQS, and delegate the enforcement of these standards to the states. The CAA establishes air quality planning processes and requires states to develop a State Implementation Plan (SIP) that details how they will maintain the NAAQS or attain a standard in nonattainment within mandated timeframes. The requirements and compliance dates for attainment are based on the severity of the nonattainment classification of the area. The following summarizes the air quality rules and regulations that apply to the proposed QEAF F-15QA mission.

3.1.2.4 Federal Regulations

CAA Section 176(c) and USEPA's General Conformity Rule (GCR) generally prohibit federal agencies from engaging in, supporting, permitting, or approving any activity that does not conform to the most recent USEPA-approved SIP. This means that federal projects in such areas or other activities using federal funds or requiring federal approval (1) will not cause or contribute to any new violation of a NAAQS; (2) will not increase the frequency or severity of any existing violation; or (3) will not delay the timely attainment of any standard, interim emission reduction, or other milestone. The USEPA's GCR regulations implementing the prohibitions of CAA Section 176(c) are promulgated at 40 CFR Part 93, Subpart B.

The GCR applies to federal actions affecting areas that are in nonattainment of a NAAQS, and to designated maintenance areas (attainment areas that have been reclassified from a previous nonattainment status and are required to prepare an air quality maintenance plan). Conformity requirements only apply to nonattainment and maintenance pollutants and their precursor emissions. Conformity determinations are required when the annual direct and indirect emissions that would result from a proposed federal action equal or exceed an applicable de minimis threshold. These thresholds vary by pollutant and the severity of nonattainment conditions in the region that would be affected by the proposed action.

The GCR would apply to the proposed QEAF F-15QA mission at MidAmerica, because the base is located in an area that is in marginal nonattainment of the 8-hour O₃ 2015 NAAQS. If the GCR applicability analysis shows the net annual direct and indirect emissions generated by the proposed QEAF F-15QA mission in these areas would be below the applicable de minimis threshold of 100 tons per year of VOCs and NO_x, then the action would be exempt from any further requirements under the GCR (40 CFR § 93.153(c)(1)).

Hazardous air pollutants (HAPs) are air pollutants known or suspected to cause serious health effects or adverse environmental effects. HAPs are compounds that generally have no established ambient standards. The CAA identifies 187 substances as HAPs (e.g., benzene, formaldehyde, mercury, and toluene). HAPs are emitted from a range of industrial facilities and vehicles. The USEPA sets federal regulations to reduce HAP emissions from stationary sources. A "major"

source of HAPs is defined as any stationary facility or source that directly emits or has the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of combined HAPs. The USEPA also sets ambient levels of concern for HAPs.

The USEPA has promulgated several final regulations involving GHGs, either under the authority of the CAA, or as directed by Congress, but none of them apply directly to the proposed QEAF F-15QA mission. At this time, climate change presents a global problem caused by increasing global atmospheric concentrations of GHG emissions, and the current state of the science surrounding it does not support determining the global significance of local or regional emissions of GHGs from a particular action. Therefore, the quantitative analysis of CO₂e emissions in this EA is for disclosing the local net effects of the proposed action for its potential usefulness in making reasoned choices among alternatives.

3.1.2.5 State Regulations

The Bureau of Air within the IEPA is responsible for enforcing air pollution regulations in Illinois. The Bureau of Air enforces the NAAQS by monitoring air quality, developing rules to regulate and to permit stationary sources of air emissions, and contributing to the air quality attainment planning processes in Illinois. The Illinois regulations for air pollution are contained in Title 35, Subpart BI of the Illinois Administrative Code (Illinois Pollution Control Board 2019).

3.2 AIRSPACE MANAGEMENT AND USE

3.2.1 Definition of the Resource

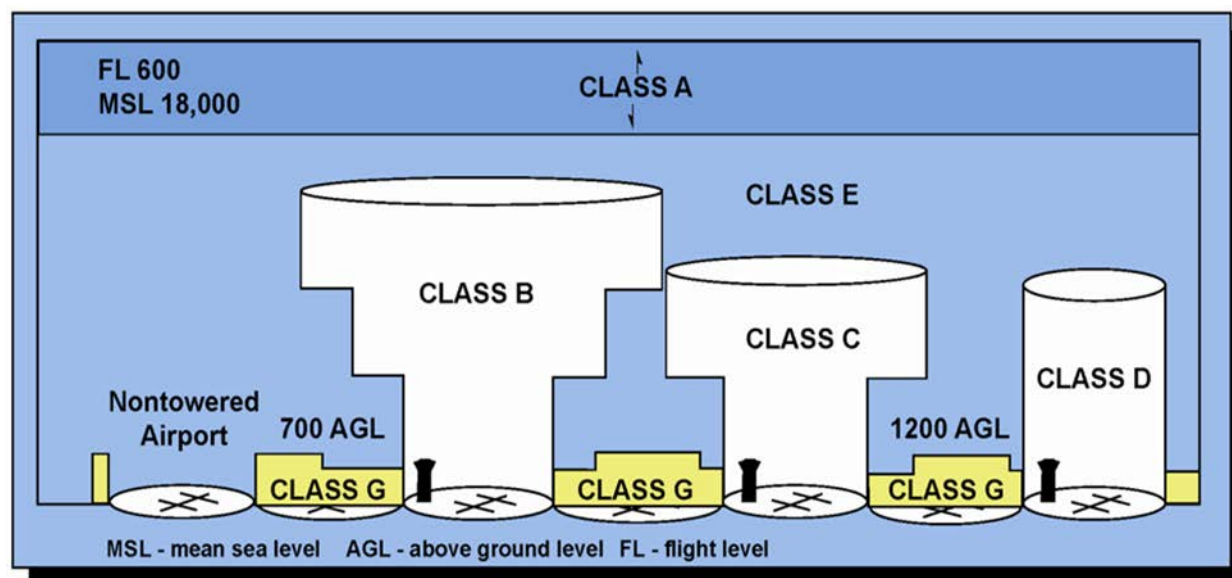
Airspace management and use consists of the direction, control, and coordination of flight operations in the “navigable airspace” that overlies the geopolitical borders of the United States and its territories. Airspace management considers how navigable airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation. Navigable airspace consists of airspace above the minimum altitudes of flight prescribed by USC Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the takeoff and landing of aircraft (49 USC § 40102). The U.S. government has exclusive sovereignty over all U.S. airspace extending from the ground surface to above 60,000 feet MSL (49 USC 40103(a)(1)). The FAA is not serving as a Cooperating Agency and therefore the FAA Noise Impact Assessment Significance Criteria was not applicable.

For the purposes of this airspace analysis, the ROI for the proposed action and No Action Alternative includes the airfield environment around MidAmerica/Scott AFB and the special use airspace proposed for training.

3.2.1.1 Airspace Categories

The FAA defines two categories of airspace: regulatory and non-regulatory. Within these two categories are four types of airspace: controlled, special use airspace, other, and uncontrolled. Controlled airspace is airspace of defined dimensions within which Air Traffic Control (ATC) service is provided to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) flights in accordance with the airspace classification (FAA 2019a).

Controlled airspace is categorized into five separate classes, designated as Classes A through E. The airspace classes are graphically shown on Figure 3-1. Classes A through E identify airspace that is controlled, airspace supporting airport operations, and designated airways affording en-route transit from place to place. The classes also dictate pilot qualification requirements, rules of flight that must be followed, and the type of equipment necessary to operate within that airspace. Figure 3-1 also shows Class G airspace, which is categorized as uncontrolled.



Source: U.S. Department of Transportation/FAA 2003

Figure 3-1. Controlled/Uncontrolled Airspace Schematic

Class A airspace generally extends from 18,000 feet MSL up to and including Flight Level (FL) 600. FL 600 is equal to approximately 60,000 feet MSL. FLs are MSL altitudes based on the use of a directed barometric altimeter setting and are expressed in hundreds of feet.

Class B airspace generally extends from the surface to 10,000 feet MSL and is located around the nation's busiest airports. The actual configuration of Class B airspace is individually tailored, and consists of a surface area and two or more layers. Class B airspace is designed to contain all published instrument procedures (FAA 2019a).

Class C airspace generally extends from the surface up to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the actual configuration of Class C airspace is individually tailored, it typically consists of a surface area with a 5-NM radius, and an outer circle with a 10-NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation (FAA 2019a).

Class D airspace generally extends from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored, and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be designated as Class D or E airspace (FAA 2019a).

Class E airspace is controlled airspace that is not Class A, B, C, or D. Areas in which Class E airspace begins at either the surface or 700 feet above ground level (AGL) are used to transition to/from the terminal or en route environment (around non-towered airports). These areas are designated by VFR sectional charts. In most areas of the United States, Class E airspace extends from 1,200 feet AGL up to but not including 18,000 feet MSL, the lower limit of Class A airspace. No ATC clearance or radio communication is required for VFR flight in Class E airspace. VFR visibility requirements below 10,000 feet MSL are 3 statute miles visibility and cloud clearance of 500 feet below, 1,000 feet above, and 2,000 feet laterally. VFR visibility requirements above 10,000 feet MSL are 5 statute miles visibility and cloud clearance of 1,000 feet below, 1,000 feet above, and 1 mile laterally (FAA 2003).

3.2.1.2 Special Activity Airspace

Special Activity Airspace, a term that includes special use airspace and others (e.g., Temporary Flight Restrictions), is any airspace with defined dimensions within the National Airspace System wherein limitations can be imposed upon aircraft operations. This airspace could include Prohibited Areas, MOAs, Military Training Routes (Instrument Routes/Visual Routes), aerial refueling track/anchors, slow routes, low-altitude tactical navigation areas, ATCAA, and any other charted airspace.

Special use airspace is defined airspace in which activities must be confined because of their nature, or in which limitations may be imposed upon aircraft operations that are not a part of those activities. The types of special use airspace are Prohibited Areas, Restricted Areas, MOAs, Warning Areas, Alert Areas, Controlled Firing Areas, and National Security Areas.

MOAs are special use airspace of defined vertical and lateral limits established outside Class A airspace to separate and segregate certain non-hazardous military activities from IFR traffic and to identify to VFR traffic where these activities are conducted (FAA 2019a). MOAs are considered “joint use” airspace. Non-participating pilots operating by VFR are permitted to enter a MOA, even when the MOA is active for military use. Pilots operating by IFR must remain clear of an active MOA unless approved by the responsible ATC. If a pilot operating by IFR is approved to transit a MOA, that part of the MOA is effectively deactivated for military training during the IFR aircraft transit.

Within an active MOA, flight by both participating and non-participating pilots operating by VFR is conducted under the “see-and-avoid” concept, which stipulates, “When weather conditions permit, pilots operating [by] VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in Code of Federal Regulations 14 CFR Part 91” (FAA 2019a). The responsible ATC provides separation service for pilots operating by IFR and for air traffic in MOAs. The see-and-avoid procedures mean that if a MOA were active during weather with restricted visibility, the general aviation pilot operating by VFR could not safely access the MOA airspace and a pilot requesting IFR clearance would not be permitted to access the active MOA. If a pilot operating by VFR encountered weather or other conditions requiring IFR flight, that pilot would need to declare an in-flight emergency and communicate with the ATC, which would communicate with the FAA to establish a temporary floor in the MOA.

ATCAA is another type of special activity airspace located within Class A airspace that is assigned by ATC for the purpose of providing air traffic segregation between military training activities and other IFR air traffic.

3.2.2 Existing Conditions

3.2.2.1 Airfield

Military and civil pilots conduct 8,027 baseline airfield sorties annually at MidAmerica/Scott AFB. The existing runway configuration at MidAmerica/Scott AFB consists of two parallel runways: 14L/32R and 14R/32L (Figure 3-2). Runway 14L/32R is the more frequently used runway. Both runways are oriented northwest-southeast. The primary runway at MidAmerica, Runway 14L/32R, is 10,000 feet long and 150 feet wide. Runway 32 (takeoffs/landings to the southeast) is more frequently used for daily operations as noise abatement, wind directions, air traffic flows, and other such factors dictate the real-time “active” runway.

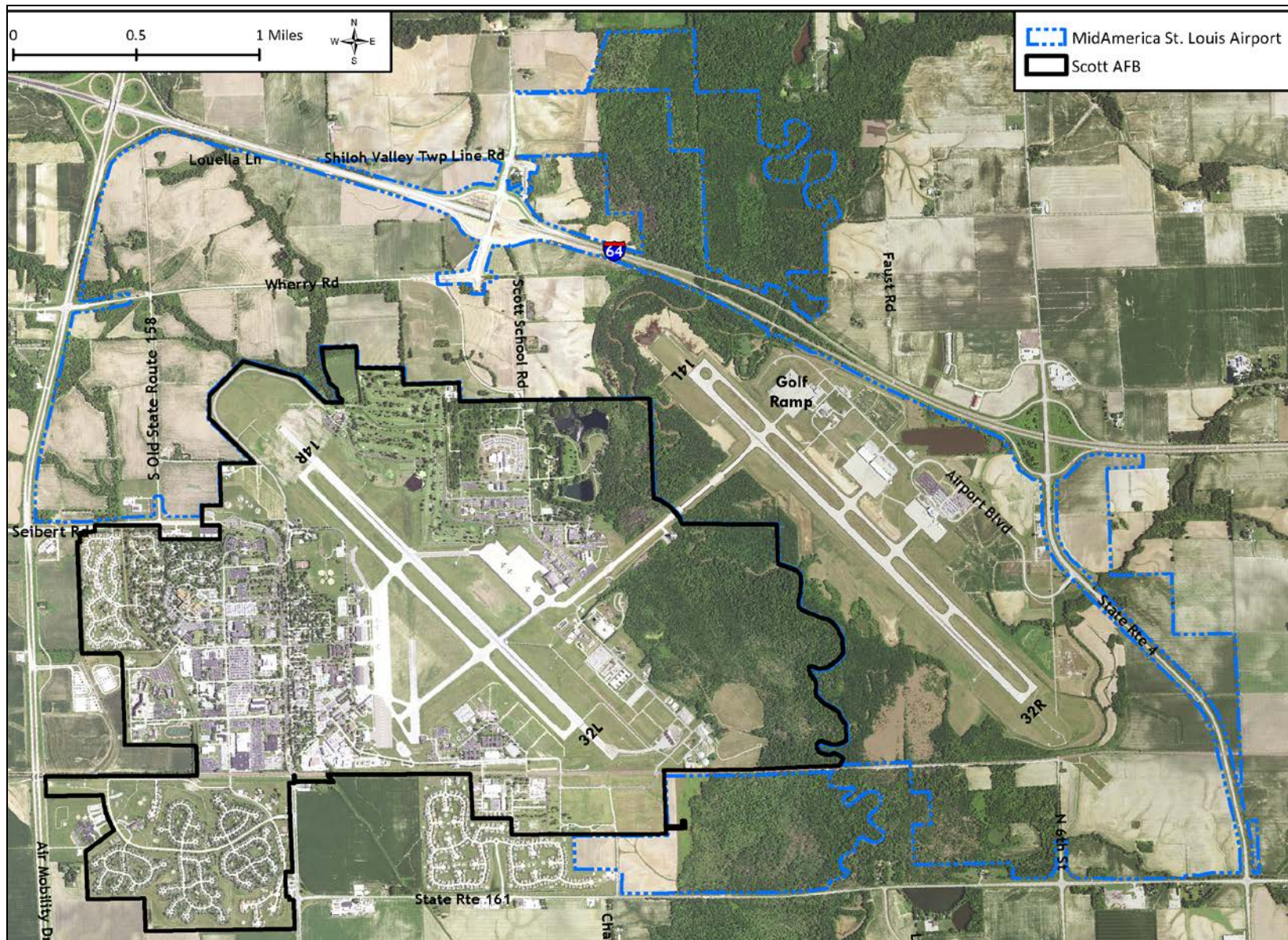


Figure 3-2. MidAmerica St. Louis Airport and Scott Air Force Base Runways

The FAA Kansas City Air Route Traffic Control Center (ARTCC) has overall responsibility for managing airspace throughout this region. The St. Louis Terminal Radar Approach Control (TRACON) provides guidance to aircraft approaching and departing airports in the St. Louis regional area as well as aircraft that may be flying over the region. The MidAmerica/Scott AFB ATC tower is responsible for controlling and managing all airfield arriving and departing aircraft within the Class D airspace area surrounding the airfield.

The navigational aids serving the MidAmerica/Scott AFB airfields include an Instrument Landing System (ILS) and a Tactical Air Navigation (TACAN), which provide instrument direction for military aircraft to navigate to/from the active runway during marginal weather conditions or as needed for training and managing/sequencing air traffic. Navigation aids transmit signals that provide directional bearing and distance information that guide the course and descent directions described on an instrument approach or departure procedure. Sixteen instrument approach and four departure procedures are published for MidAmerica/Scott AFB aircraft.

3.2.2.2 Special Use Airspace

The special use airspace proposed for training consists of existing MOAs and ATCAAs, primarily located in Illinois and Missouri with smaller areas in northern Arkansas and southwestern Indiana. The special use airspace units proposed for training are described in Table 2-2 and shown on Figure 2-1. All of the MOAs proposed for use are authorized for military training and have been used for training in the past. Two of the MOAs (Howard and Pruitt) are currently not being utilized for training. The published floor and ceiling altitudes that pilots must adhere to while operating within each special use airspace area are also shown in Table 2-2. Pilots must follow local operating procedures/practices for flights to/from the different training areas which helps standardize the manner in which ATC separates military aircraft from other IFR nonmilitary air traffic.

3.3 BIOLOGICAL RESOURCES

3.3.1 Definition of the Resource

Biological resources include the plant and animal species, habitats, and ecological relationships of the land and water areas within the ROI, which is defined as the area directly or indirectly affected by the proposed action described in Chapter 2. Particular consideration is given to sensitive species, which are those species protected under federal or state law, including threatened and endangered species and migratory birds.

For the purposes of this EA, sensitive and protected biological resources include plant and animal species that are federally (U.S. Fish and Wildlife Service [USFWS]) or state (Illinois Department of Natural Resources [IDNR]) listed for protection. Identifying which species occur in an area affected by an action may be accomplished through literature reviews and coordination with appropriate federal and state regulatory agency representatives, resource managers, and other knowledgeable experts.

The ROI for biological resources at the airfield includes the Golf Ramp and adjacent areas proposed for the temporary construction that are located in the northern portion of MidAmerica. Because no

ground disturbance would occur below the special use airspace proposed for use, the ROI for biological resources in the special use airspace only applies to various species of birds and bats.

3.3.2 Existing Conditions

3.3.2.1 Airfield

3.3.2.1.1 Vegetation and Wildlife

MidAmerica includes mostly improved and semi-improved areas that consist of turf and landscaped vegetation. These areas are comprised of short maintained grasses and landscape plants. Unimproved grounds, or natural areas, include the bottomland forest associated with Silver Creek, adjacent to Scott AFB (to the north and west).

The woodland areas are comprised of second-growth bottomland forest. Common tree species include cottonwood (*Populus deltoides*), pin oak (*Quercus palustris*), green ash (*Fraxinus pennsylvanica*), and box elder (*Acer negundo*). Areas of wet bottomland forest are typically dominated by black willow (*Salix nigra*) and silver maple (*A. saccharinum*). Bottomland forest in this area is generally less than 70 years old and is in various stages of secondary succession after having been clear cut or selectively logged for timber. This has resulted in relatively low habitat diversity due to the lack of structure and low patchiness of the forested habitat (MidAmerica 2009a).

Due to the developed/disturbed nature of the vegetation communities on MidAmerica, limited quality wildlife habitat is present. Wildlife species that occur in the turf areas are those generally tolerant of human presence and activity. Vegetation within the improved and semi-improved areas is intensely managed to discourage birds and other wildlife from congregating near the runway. The forested woodland areas between MidAmerica and Scott AFB likely support most of the terrestrial wildlife habitat available.

The MidAmerica *Wildlife Hazard Monitoring Plan* (WHMP), describes small populations of mammalian species on MidAmerica including, deer mice (*Peromyscus maniculatus*), thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*), Eastern cottontail rabbits (*Sylvilagus floridanus*), groundhogs (*Marmota monax*), coyotes (*Canis latrans*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), short-tailed shrew (*Blarina brevicauda*), prairie voles (*Microtus ochrogaster*) and white-tailed deer (*Odocoileus virginianus*) (MidAmerica 2017).

Other wildlife observed include a variety of birds including waterfowl (geese and ducks), gulls, raptors, jays, songbirds, swifts, swallows, crows, and blackbirds (MidAmerica 2017).

3.3.2.1.2 Special Status Species

Special status plant and wildlife species are subject to regulations under the authority of federal and state agencies. Applicable laws include the Endangered Species Act (ESA) (16 USC 1532 et seq.), the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668c).

The ESA of 1973, as amended, was enacted to protect and recover imperiled species and the ecosystems upon which they depend. The USFWS maintains a list of special status species considered endangered, threatened, or candidate. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. Candidate species include plants and animals that have been studied and proposed for addition by the USFWS to the federal endangered

and threatened species list. All federal agencies are required to implement protection programs for endangered and threatened species and to use their authority to further the purposes of the ESA.

The MBTA prohibits actions that result in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof.

The BGEPA (16 USC 668-668c) enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs.

The USFWS Information for Planning and Consultation (IPaC) system was accessed online to request an Official Species List to identify species protected under Section 7(c) of the ESA that could occur within the proposed action area. On 19 November 2019, an Official Species List with the names of seven (7) federally listed species that could occur near this area (Table 3-3) was generated (via online letters) by the USFWS Illinois-Iowa Ecological Services Field Office and the Southern Illinois Sub-Office (Consultation Codes: 03E18000-2020-SLI-0023, 03E18100-2020-SLI-0028). In addition, on 24 October 2019, the USAF submitted a letter to the Marion, Illinois, USFWS Field Office with a map of the special use airspace proposed for use and a request for information on listed species and eagles. See Appendix A for copies of these letters.

There are no documented occurrences of the federally listed threatened and endangered species presented in Table 3-3 on MidAmerica (Trapp 2019). However, roosting habitat for the Indiana and northern long-eared bats occurs in the woodland areas adjacent to MidAmerica. Additionally, no critical habitat for USFWS federally listed species was identified on MidAmerica (USFWS 2019a). See section 3.3.2.1.4 for a detailed discussion of migratory birds with potential to occur in proposed action area and section 3.3.2.1.4 for a detailed discussion of bald and golden eagles with potential to occur in the proposed action area.

Table 3-3. Federally-Listed and Migratory Species Historically Observed on MidAmerica

Common Name	Scientific Name	Protection Status	Historically Observed on MidAmerica?
Mammals			
Indiana Bat	<i>Myotis sodalis</i>	FE	No. However, known habitat occurs adjacent to MidAmerica, at Scott AFB.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	FT	No. However, known habitat occurs adjacent to MidAmerica, at Scott AFB.
Birds			
Least Tern	<i>Sterna antillarum</i>	FE, MBTA	No
American Bittern	<i>Botaurus lentiginosus</i>	MBTA, BCC	Yes
Bald Eagle	<i>Haliaeetus leucocephalus</i>	MBTA, BGEPA	Yes
Cerulean Warbler	<i>Dendroica cerulea</i>	MBTA, BCC	No
Henslow's Sparrow	<i>Ammodramus henslowii</i>	MBTA, BCC	No
Kentucky Warbler	<i>Oporornis formosus</i>	MBTA, BCC	Yes
Lesser Yellowlegs	<i>Tringa avipes</i>	MBTA, BCC	No
Prothonotary Warbler	<i>Protonotaria citrea</i>	MBTA, BCC	No

Table 3-3. Federally-Listed and Migratory Species Historically Observed on MidAmerica (Continued)

Common Name	Scientific Name	Protection Status	Historically Observed on MidAmerica?
Birds (Continued)			
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	MBTA, BCC	Yes
Rusty Blackbird	<i>Euphagus carolinus</i>	MBTA, BCC	No
Semipalmated Sandpiper	<i>Calidris pusilla</i>	MBTA, BCC	No
Wood Thrush	<i>Hylocichla mustelina</i>	MBTA, BCC	No
Fishes			
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	FE	No
Crustaceans			
Illinois Cave Amphipod	<i>Gammarus acherondytes</i>	FE	No
Flowering Plants			
Decurrent False Aster	<i>Boltonia decurrens</i>	FT	No
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	FT	No

Sources: USFWS 1997a, 1998, 2005, 2006, 2015a, USFWS 2019a, b, c

Federally Endangered (FE), Federally Threatened (FT), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), Bird of Conservation Concern (BCC).

3.3.2.1.3 Illinois Wildlife Regulations

Illinois State agencies have regulations that affect wildlife management at airports. The Illinois state wildlife laws are administered by the IDNR. IDNR's jurisdiction includes resident and migratory birds, mammals, reptiles, amphibians, and State threatened or endangered species. IDNR also issues permits to MidAmerica for the taking of problematic species under their control. These species include nuisance mammals and birds that pose collision risks between wildlife and aircraft.

Illinois Natural Heritage Database Populations of rare, threatened, and endangered avian species have been monitored within the MidAmerica airport vicinity since the monitoring program was initiated in 1991 (MidAmerica 2009a). While some species were observed during migration periods, some have exhibited evidence of breeding on or adjacent to the airport property. These species include the state endangered little blue heron (*Egretta caerulea*) and black-crowned night-heron (*Nycticorax nycticorax*) (MidAmerica 2009a; IDNR 2018).

3.3.2.1.4 Migratory Bird Treaty Act

The USFWS maintains a list of designated migratory birds known to occur in various regions of the United States. Birds of Conservation Concern (BCCs) are a subset of MBTA-protected species identified by the USFWS as those in the greatest need of additional conservation action to avoid future listing under the ESA. BCCs have been identified at three geographic scales: National, USFWS Regions, and Bird Conservation Regions (BCRs). The proposed project area is located within BCR 22 Eastern Tallgrass Prairie. There are thirty-nine species listed in BCR 22 (see Appendix B for the full species list). Additionally, the USFWS IPaC system identified 11 migratory bird species with potential to occur in proposed action area (USFWS 2019a). Of the 11 species identified, four (including the American bittern, Kentucky warbler, red-headed woodpecker, and bald eagle [discussed in Section 3.3.2.1.5]) were observed during the 2012 Wildlife Hazard Assessment of Scott AFB and MidAmerica Airport (Table 3-3) (Scott AFB 2015).

MidAmerica employs a WHMP that serves in partnership with the USAF's Bird/Wildlife-Aircraft Strike Hazard (BASH) program. Both programs serve to establish overall bird/wildlife control protocols to minimize aircraft exposure to potentially hazardous wildlife strikes. The WHMP is based on known hazards from both resident and seasonal bird populations that utilize the area (MidAmerica 2017). Under issuance from the USFWS Migratory Bird Permit Office, MidAmerica holds a depredation permit that allows for the take or live-trapping and relocation of various migratory bird species that pose strike hazards to aircraft, provided that the species are not listed as federal or state threatened or endangered.

3.3.2.1.5 Bald and Golden Eagle Protection Act

Bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) protected under the BGEPA are not known to nest or forage at MidAmerica. However, it is possible that bald eagles could be observed soaring in St. Clair County, Illinois. Bald Eagles typically nest in forested areas adjacent to rivers and large bodies of water, staying away from heavily developed areas when possible (Cornell 2017). It is estimated that 30 to 40 pairs of bald eagles currently nest in Illinois (IDNR 2019). Golden eagles are less common and generally occur only as rare migrant and winter residents in Illinois (IDNR 2016).

3.3.2.2 *Special Use Airspace*

3.3.2.2.1 Vegetation and Wildlife

Vegetation communities under the special use airspace proposed for training include those of the Eastern Temperate Forest ecoregion (CEC 1997). Eastern Temperate Forests are comprised of two ecosystems: eastern hardwood forests and the Southeastern Coastal Plain. Forests within the ROI include beech-maple-basswood and oak-hickory (NPS 2017). See Section 3.6.2.2 for a discussion of additional natural areas under the special use airspace.

The Eastern Temperate Forest ecoregion supports a vast diversity of wildlife species. Common mammals include a variety of small rodents, rabbits, deer, raccoons, opossums, bats, squirrels, and foxes. Reptiles and amphibians are numerous, with various species of snakes, lizards, skinks, turtles, salamanders, frogs, and toads present. The special use airspace proposed for training is located within the Mississippi flyway, a migration route used by more than 325 bird species annually (Audubon 2019b).

3.3.2.2.2 Special Status Species

Federally listed threatened, endangered, and/or candidate mammal and bird species that could occur in the 47 counties included for analysis under the special use airspace proposed for training are presented in Table 3-4. No ground disturbance would occur under the special use airspace proposed for training therefore special status plant, invertebrate, and fish species were excluded from further analysis under the special use airspace proposed for training. See sections 3.3.2.2.3 and 3.3.2.2.4 for a discussion of migratory birds and bald eagles with potential to occur under the special use airspace proposed for training.

Table 3-4. Federally Listed Species with Potential to Occur Below the Special Use Airspace Proposed for Training

Common Name	Scientific Name	Protection Status	USFWS Designated Critical Habitat Under the Airspace?
Mammals			
Gray Bat	<i>Myotis grisescens</i>	FE	No
Indiana Bat	<i>Myotis sodalis</i>	FE	Yes. Designated critical habitat present below the Lindbergh A and B MOA.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	FT	No
Birds			
Red-cockaded Woodpecker	<i>Picoides borealis</i>	FE	No
Least Tern	<i>Sterna antillarum</i>	FE	No

Sources: USFWS 1997a,b, 1998, 2005, 2006, 2015a, USFWS 2019a, b, c, d

Notes: FE = federally endangered, FT= federally threatened, MBTA = protected under the Migratory Bird Treaty Act (MBTA), BGEPA = protected under the Bald and Golden Eagle Protection Act

3.3.2.2.3 Migratory Bird Treaty Act

The special use airspace proposed for training is located in the USFWS designated BCR 22 Eastern Tallgrass Prairie and BCR 24 Central Hardwoods (see Appendix B for a full list of species), under the Mississippi Flyway migration route (USFWS 2008).

3.3.2.2.4 Bald and Golden Eagle Protection Act

Habitat for the bald eagle includes areas under the special use airspace proposed for training. Bald eagles utilize aquatic habitats (coastal areas, river, lakes, and reservoirs) with forested shorelines or cliffs in North America (USFWS 2015b). Throughout their range they select large roost trees that are open and accessible. Bald eagles winter primarily in coastal estuaries and river systems. Golden eagles are less likely to occur, but may be observed as rare migrants or possible winter residents in small numbers (IDNR 2016, 2019; MDC 2018). As described in Section 3.3.2.1.2, the USAF submitted a letter to the Marion, Illinois, USFWS Field Office with a map of the special use airspace proposed for use and a request for information on listed species and eagles.

3.4 CULTURAL RESOURCES

3.4.1 Definition of the Resource

Cultural resources are historic districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources, architectural/engineering resources, and traditional resources. Cultural resources that are eligible for listing on the National Register of Historic Places (NRHP) are known as historic properties. The Area of Potential Effect (APE) for cultural resources includes the Golf Ramp of MidAmerica, areas proposed for construction adjacent to the Golf Ramp located in the northern portion of MidAmerica, and the areas below the airspace proposed for training.

3.4.2 Existing Conditions

3.4.2.1 Airfield

Architectural Resources. Buildings at MidAmerica were constructed as part of the airport development during the early 1990s or have been constructed since that time. Due to the recent

construction and lack of events with major historical significance, no buildings on MidAmerica are considered eligible for listing on the NRHP.

Archaeological Resources. Several archaeological properties were identified during the development of MidAmerica. In a Memorandum of Agreement with the Illinois State Historic Preservation Officer (SHPO), St. Clair County agreed to protect and preserve these properties (St. Clair County 1999). No archaeological properties have been identified near the APE. Archaeological properties located nearest to the APE include Site 11-S-86 and 11-S-230. Both sites are located more than 1.5 miles from the APE.

Traditional Resources. Scott AFB has identified 19 Native American tribes potentially affiliated with the installation. These tribes (see Table A-1 in Appendix A) were asked to review/consult and provide information on any properties to which they attach religious and cultural significance at MidAmerica. No known tribal sacred sites or properties of traditional religious and cultural importance are located at MidAmerica.

3.4.2.2 *Special Use Airspace*

Table 3-5 presents the number of NRHP-listed sites under the special use airspace proposed for training. One-hundred thirty-nine (139) NRHP-listed properties have been identified under the airspace. No tribes are known to own land under the special use airspace proposed for training. No other known traditional cultural resources have been identified under the special use airspace proposed for training. It is possible that such resources could exist in the area, because the exact location of some traditional cultural resources is confidential.

Table 3-5. NRHP-Listed Sites and Native American Reservation Lands Below the Special Use Airspace Proposed for Training

Airspace Designations	Number of NRHP Properties Under Airspace ^a	Native American Reservation Lands Under Airspace ^a
Howard East MOA	48	None
Lindbergh MOAs	46	None
Pruitt MOAs	18	None
Red Hills MOAs	18	None
Salem MOA	9	None

^a Due to the sensitivity of the locations, archaeological sites are not included in this table or shown on any figures.

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

3.5.1 Definition of the Resource

The terms “hazardous materials” and “hazardous waste” refer to substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristic, could present substantial danger to public health or the environment when released into the environment (49 *CFR* 171-173; 42 *USC* 6903(5)). Products containing hazardous materials that could result in the generation of hazardous waste include fuel, adhesives, sealants, corrosion-prevention compounds, hydraulic fluids, lubricants, oils, paints, polishes, thinners, and cleaners. The ROI for hazardous materials and waste includes portions of MidAmerica where these substances are used, stored, transported, or disposed. The ROI does not include the special use airspace proposed for training and therefore there is no special use airspace section in Chapter 4 for this resource area.

3.5.2 Existing Conditions

As a current tenant at MidAmerica, Boeing is currently listed as a RCRA small quantity generator (ILR000163840). A small quantity generator is defined as anyone who generates between 220 to 2,200 pounds per month of hazardous waste. Hazardous materials are currently used and hazardous wastes are currently generated during aircraft maintenance and operations at MidAmerica. Wastes generated at the site include ignitables, corrosives, metals, spent halogenated solvents, and non-halogenated solvents. Examples of materials associated with maintaining aircraft include lubricant oils, anti-seize compounds (e.g., WD-40), sealing compounds, and hydraulic fluids.

Hazardous materials and wastes are managed in compliance with federal and State of Illinois hazardous waste regulations; through the Illinois Special Waste Regulations (Title 35 Illinois Administrative Code, Parts 700-739); and in compliance with AFI 21-101. USAF Contracting Officer Representatives and/or Government Ground Representatives perform inspections in accordance with AFI 10-220.

MidAmerica manages oil and hazardous substance spills and releases through implementation of the MidAmerica Spill Prevention Control and Countermeasure Plan (MidAmerica 2019). The plan serves to reduce the likelihood of spills, prepare personnel to respond rapidly in the event of a spill, minimize discharge in the event of a spill, and protect the environment and public health at MidAmerica.

3.6 LAND USE

3.6.1 Definition of the Resource

Land use describes the way the natural landscape has been modified or managed to provide for human needs. In developed and urbanized areas, land uses typically include residential, commercial, industrial, utilities and transportation, recreation, open space, and mixes of these basic types. Other uses such as mining, agriculture, forestry, and specially protected areas (e.g., monuments, parks, and preserves) are usually found on the fringes of or outside of urbanized areas. Plans and policies guide how land resources are allocated and managed to best serve multiple needs and interests. Ordinances and regulations define specific limitations on uses.

The attributes of land use addressed in this analysis include general land use patterns in and surrounding MidAmerica and the land use in areas below the airspace proposed for training. The ROI for Land Use includes areas surrounding MidAmerica and the land below the special use airspace proposed for training. For the airspace ROI, the primary impact to land use would be the changes in noise levels below the special use airspace.

3.6.2 Existing Conditions

3.6.2.1 Airfield

Land use in the areas immediately surrounding MidAmerica is primarily agricultural with some smaller areas of commercial and residential land use. MidAmerica is located in the boundaries of the City of Mascoutah, and the Village of Shiloh borders Scott AFB to the west (St. Clair County 2011). The City of O'Fallon is located approximately six miles to the northwest. The Interstate (I)-64 corridor borders MidAmerica to the north and State Highway 4 is located to the east. Other major highways in the area include State Highways 158 and 161. A Joint Land Use Study (JLUS) (Scott AFB 2008) has been completed for the areas surrounding MidAmerica to provide guidance to the City of Mascoutah, the Village of Shiloh, and other surrounding communities. The JLUS, in part, recommends land uses that are compatible with the noise zones surrounding MidAmerica and Scott AFB.

3.6.2.2 *Special Use Airspace*

This section summarizes land use and discusses Special Use Land Management Areas (SULMAs) under the special use airspace proposed for training. Land use under the airspace near MidAmerica is discussed in Section 3.6.2.1. SULMAs include selected areas managed by federal and state agencies that provide recreational and scenic opportunities (e.g., parks, monuments, and scenic river corridors), solitude or wilderness experiences (e.g., forests and wilderness areas), and conservation of natural or cultural resources (e.g., wildlife refuge areas and historical sites). SULMAs often provide a combination of these attributes. Some SULMAs could include recreation-oriented sites such as campgrounds, canoeing opportunities, trails, and visitor centers.

The special use airspace proposed for training is primarily located in Illinois and Missouri with smaller areas in northern Arkansas and southwestern Indiana (see Figure 2-1). The SULMAs under the special use airspace proposed for training include wilderness areas, National Forests, National Wildlife Refuges, state conservation and recreation areas, and state parks. The majority of federal land under the special use airspace proposed for training is administered by the U.S. Forest Service (USFS), followed by the USFWS. Figure 3-3 identifies the special use airspace near MidAmerica along with the SULMAs aggregated by ownership (i.e., USFS, USFWS, state land, etc.). The public lands under the special use airspace proposed for training support a variety of recreational opportunities and activities, with some areas having particular qualities or recreational purposes.

As discussed in Section 2.1, no new special use airspace would be established as part of this action. All SULMAs are located beneath existing MOAs, and this mission would be consistent with previously authorized activities within the designated airspace of each MOA. Potential impacts to the land use under the existing MOAs were addressed prior to establishment of these areas as MOAs, and the USAF's continued use of these MOAs for this temporary mission would be consistent with existing approvals.

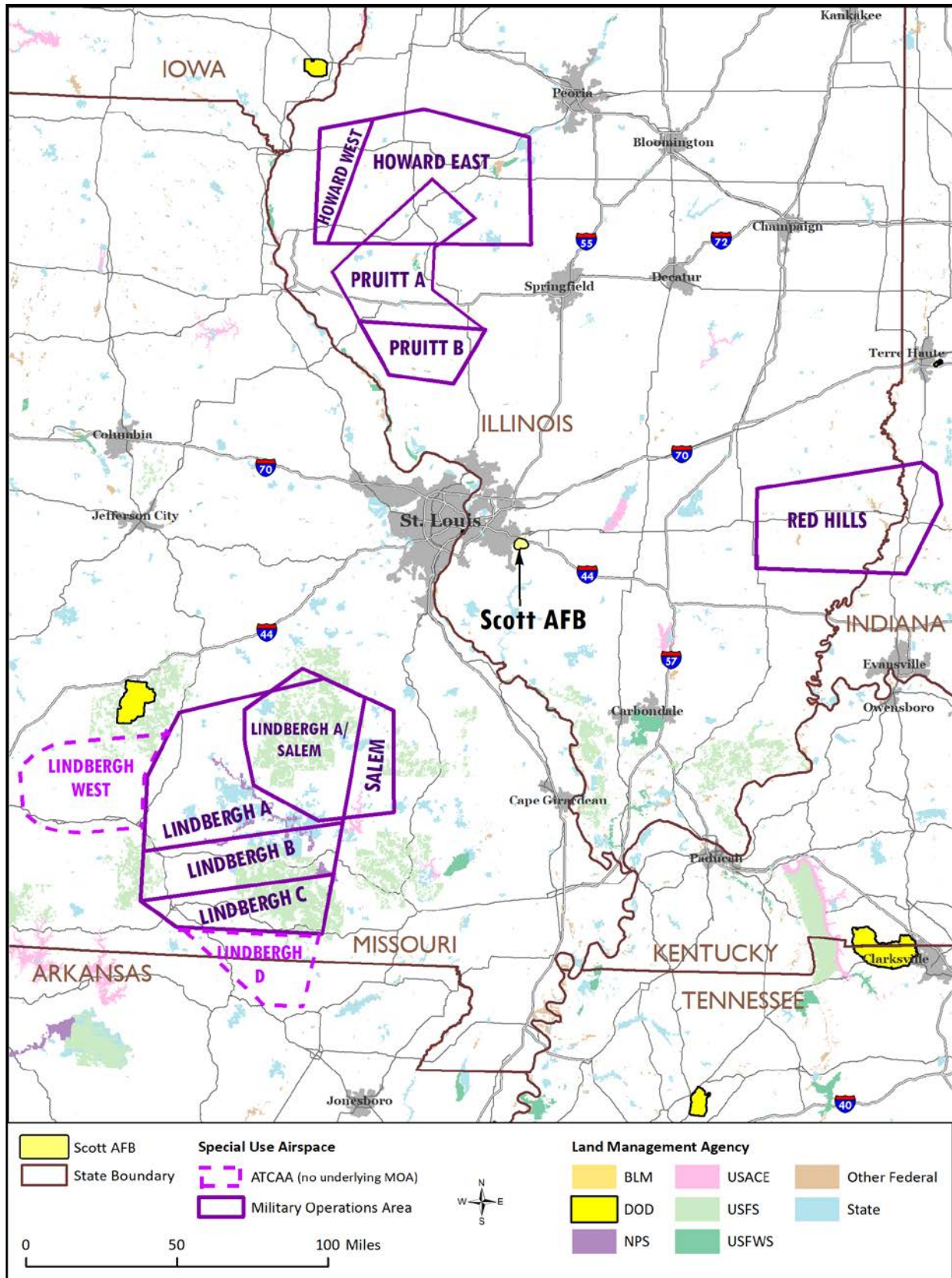


Figure 3-3. SULMAs Beneath Special Use Airspace in the Vicinity of MidAmerica

3.7 NOISE

3.7.1 Definition of the Resource

Noise is unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Responses to noise vary widely according to the characteristics of the sound source, the time of day, the distance between the noise source and the person hearing the sound, and the sensitivity and expectations of the person hearing the sound. This section describes noise as it relates to human health and welfare, as well as the potential for noise to affect structures.

Sound intensity varies widely (e.g., from a soft whisper to a jet engine), and it is measured on a logarithmic scale to accommodate this wide range. The logarithm is a mathematical tool used to simplify 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.

The frequency (or pitch) 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.

The communication of sound intensity is refined to account for frequency through the use of “A-weighting.” A-weighting is applied to measured sound to account for differences in how people respond to sound. This scale most closely approximates the relative loudness of sounds in air as perceived by the human ear (FAA 2019b). The normal human ear can detect sounds that range in frequency from approximately 20 to 20,000 Hz. However, not all sounds in this range are heard equally well. Therefore, through internal electronic circuitry, some sound meters are calibrated to emphasize frequencies in the 1,000 to 4,000 Hz range and de-emphasize sound energy in other frequencies. The human ear is most sensitive to frequencies in this range, and sounds measured with these instruments are termed “A-weighted.” For purposes of this document, decibel (dB) levels provided are A-weighted and provided in A-weighted decibels (dBA). Examples of typical dBA of common sounds are shown on Figure 3-4.

The word “metric” is used to describe a standard of measurement. As used in environmental noise analysis, there are many different types of noise metrics. Each metric has a different physical meaning and was developed by researchers attempting to represent a particular set of noise effects.

This analysis includes the noise metric DNL, which FAA and DoD regulations identify as the primary noise metric for assessment of community noise impacts as well as supplemental noise metrics, that further describe the noise or predict particular noise impact categories. In accordance with DoD and FAA regulations, the DNL calculations are conducted for an ‘average annual day’ (i.e., 1/365th of total annual operations). Metrics other than DNL (i.e., supplemental noise metrics) were selected to assess impacts to speech interference and classroom interference in accordance with Department of Defense Noise Working Group (DNWG) recommendations (DNWG 2013).

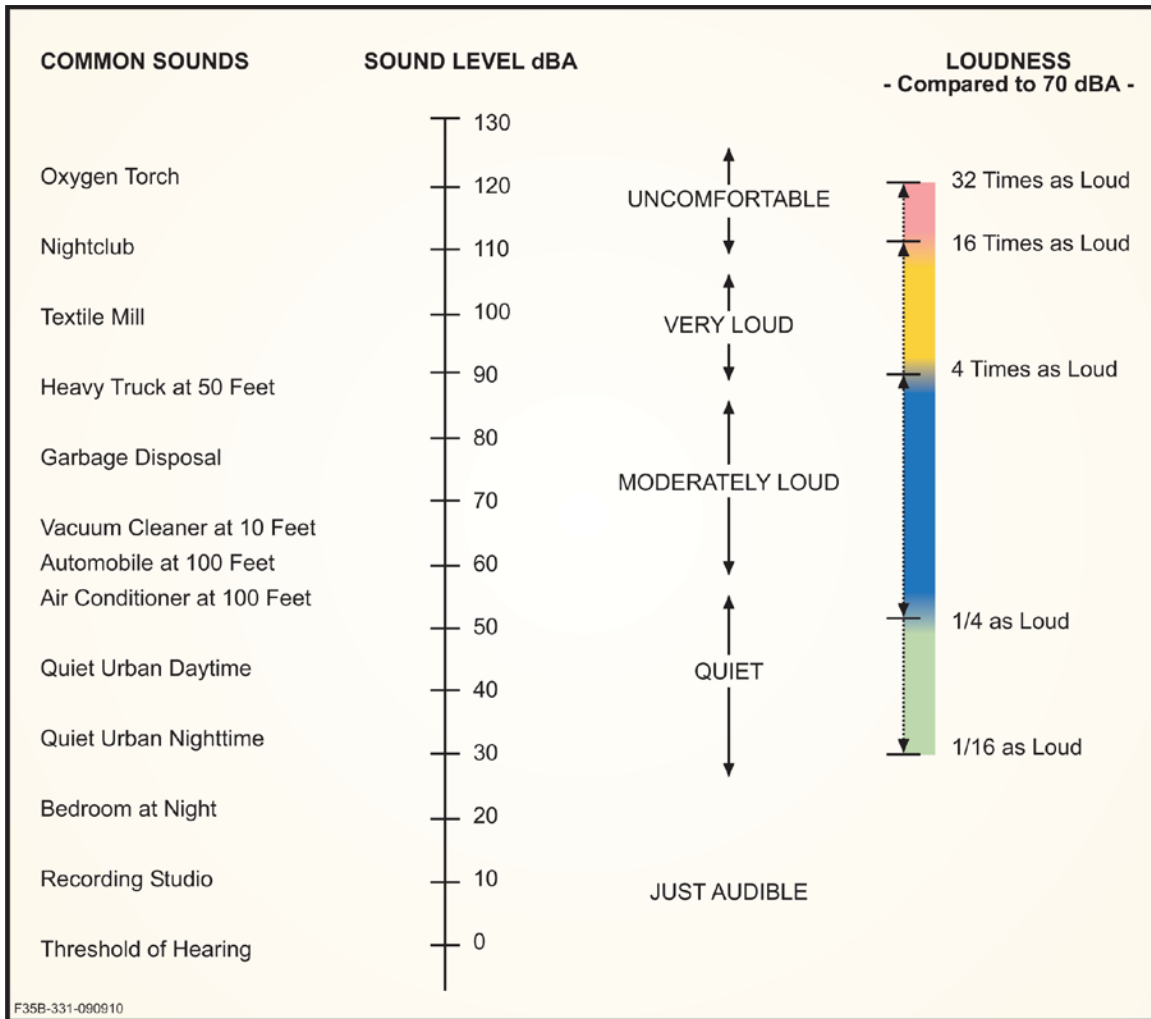


Figure 3-4. Typical A-Weighted Levels of Common Sounds

The metrics supporting the assessment of noise from aircraft operations and other activities evaluated in this document are the maximum sound level (L_{max}), sound exposure level (SEL), day-night average sound level (DNL), and daytime 9-hour equivalent noise level (L_{eq-9hr}).

Maximum Sound Level (L_{max}). The L_{max} is the highest sound level measured during a noise event which is typically logged in 1/8-second intervals during aircraft noise level measurements. In many situations, noise levels vary over time for one reason or another. In the case of an aircraft overflight, the noise level varies as the aircraft moves closer to or farther away from the observer on the ground. L_{max} is a useful metric for judging a noise event's interference with conversation and other common activities.

Sound Exposure Level (SEL). The SEL compresses the total sound energy of an overflight event into a single second reflecting both the intensity and duration of the noise event. For noise events lasting more than one second, the SEL will be higher than the L_{max} .

Day-Night Average Sound Level (DNL). The DNL metric sums individual A-weighted noise events and averages the acoustic energy over a 24-hour period. Thus, it is a composite metric that considers the maximum noise levels, the duration of the events, the number of events that occur, and the time of day during which they occur. This metric adds 10 dB to those events that occur

between 10:00 P.M. and 7:00 A.M. to account for the increased intrusiveness of noise events that occur at night when ambient noise levels are normally lower than during the daytime.

Ignoring the acoustic nighttime penalty, DNL may be thought of as the continuous or cumulative A-weighted sound level that would be present if all of the variations in sound level over the given time period were smoothed out so as to contain the same total sound energy. It is fully recognized that the DNL metric does not provide specific information on the number of noise events or the specific individual sound levels that occur. For example, a DNL of 65 dB could result from a few very noisy events or a large number of quieter events.

Although it does not represent the sound level heard at any one particular time, DNL does accurately represent the total sound exposure at a location. Social surveys have found the DNL metric to be the best predictor of community annoyance resulting from transportation noise. Its use is endorsed by the scientific community and several governmental agencies (USEPA 1974); (FICON 1992); (FICUN 1980). The DoD and several other federal agencies consider certain noise-sensitive land uses to be incompatible with DNL greater than 65 dB.

Daytime Nine-hour Equivalent Noise Level (L_{eq-9hr}). This metric describes the average noise level during a 9-hour time period, which corresponds to the approximate length of a school day. It is the metric recommended for assessing the acceptability of classroom noise levels.

Monthly Onset-Rate Adjusted Day Night Average Sound Level (L_{dnmr}). This variant of the DNL metric is used to quantify noise levels in special use airspace. To avoid underrepresenting impacts in special use airspace where operations tempo is highly variable, the metric is calculated for the busiest month. It includes a penalty for the ‘surprise factor’ associated with sudden onset of noises, which can occur when aircraft fly fast at low altitudes.

The most common impact associated with exposure to elevated noise levels is public annoyance. Annoyance due to aircraft noise can be predicted based on the noise metric DNL (Schultz 1978; Finegold 1994). When subjected to DNL of 65 dB, approximately 12 percent of persons exposed will be “highly annoyed” by the noise. At levels below 55 dB, the percentage of annoyance is correspondingly lower (less than 3 percent). The percentage of people annoyed by noise never drops to zero, because some people experience annoyance to any elevated noise level, regardless of magnitude. However, at levels below 55 dB, noise is reduced enough to be essentially negligible. Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmark referred to is 65 dB DNL. This threshold is often used to determine residential land use compatibility around airports, highways, or other transportation corridors.

Indoor speech interference from flight operations can be annoying to the public. For this analysis, the recommended conservative indoor noise threshold of 50 dB is used to indicate flight events, which have the potential to interfere, at least momentarily, with speech. The average number of events per hour exceeding 50 dB during 7:00 A.M. to 10:00 P.M. was calculated under each scenario for a person outdoors, indoors with windows open, and indoors with windows closed. When windows are open, the noise reduction from the outside of the house to inside is 15 dB (this depends on house construction and is an average) (DNWG 2009). When windows are closed, the noise reduction from the outside of the house to the inside is 25 dB (this depends on the windows type and is an average for newer construction homes) (DNWG 2009). Thus, to calculate the number of events above 50 dB indoors with windows open, a 65 dB threshold is applied (50 dB plus house reduction of 15 dB). To calculate the number of events above 50 dB indoors with windows closed, a 75 dB threshold is applied (50 dB plus house and windows reduction of 25 dB).

To assess the potential impacts to the school and classroom environment, two metrics are calculated to estimate the noise levels generated during the school day: $L_{eq,9hr}$ and number of indoor events with potential to interfere with speech. The $L_{eq,9hr}$ metric provides the average sound level generated by aircraft operations during a school day, and the number of events with potential to interfere with speech provides an intuitive description of potential classroom interference. The DNWG guideline for classroom interference recommends using an outdoor $L_{eq,9hr}$ of 60 dB as a screening level to indicated schools requiring further assessment (DNWG 2013). The number of events exceeding 50 dB indoors provides an indicator of the frequency of potential speech interference. For the estimation of these metrics, the flight operations are scaled by a factor of 9/15 to account for the difference in the 9-hour school day and the 15-hour acoustic daytime period used for the DNL calculation.

In order to determine noise levels resulting from aircraft operations, the USAF uses the computer program NoiseMap (version 7.3) to calculate noise levels in the airport vicinity, and the program MRNMAP (version 3.0) to calculate noise levels below the special use airspace proposed for training. Computer noise modeling supports informed decision-making by allowing for the direct comparison of noise levels resulting from the proposed action and alternatives to baseline noise levels. Both models make use of field-measured aircraft noise levels. Because F-15QA noise levels are not yet included in the Noisemap or MRNMAP reference noise level datasets, noise level calculations were conducted using the most similar surrogate noise source for which data is available (i.e., the F-15E aircraft).

The USAF considers “significance” of noise impacts in the context of the NEPA in terms of context and intensity, and has not defined uniformly applicable significance thresholds. The FAA defines a threshold for “significant” noise impacts in FAA Order 1050.1F as a DNL increase of 1.5 dB or more relative to the No Action Alternative, at a noise-sensitive area, that is exposed to DNL greater than or equal to 65 dB. The FAA also establishes thresholds for “reportable” impacts if a noise sensitive area experiences a 3-dB increase and the end-state is between 60 and 65 dB DNL or if a noise sensitive area experiences a 5 dB increase and the end-state is between 45 and 60 dB DNL. If “reportable” impacts would be associated with a proposed action, other factors must be considered in determining whether a significant impact would occur.

3.7.2 Existing Conditions

3.7.2.1 Airfield

MidAmerica supports the operations of civilian passenger and cargo aircraft as well as Scott AFB based and transient military aircraft. Civilian aircraft include mid-sized jets (e.g., Airbus 320), smaller jets (e.g., Learjet 35), and propeller-driven aircraft (e.g., single-engine, variable-pitch propeller-driven aircraft). Military aircraft include KC-135 aircraft (a derivative of the Boeing 707) assigned to the 126 ARW, C-40 aircraft (a derivative of the Boeing 737) assigned to the 932 AW, and C-21 aircraft (a derivative of the Learjet 35) assigned to the 375 AMW. Transient aircraft pilots also use the runways at MidAmerica/Scott AFB. Transient military aircraft include fighter aircraft (e.g., F-18) which operate at MidAmerica on an occasional basis. The baseline and proposed annual airfield operations at MidAmerica/Scott AFB are listed in Table 2-1.

The flight and static engine run operations of aircraft at MidAmerica and at Scott AFB were taken into account during a noise study completed in April 2019 (USAF 2019). The study found that DNL exceeding 65 dB is limited to areas on or near the MidAmerica runways, and does not extend beyond the boundaries of airport-owned land (Figure 3-5).

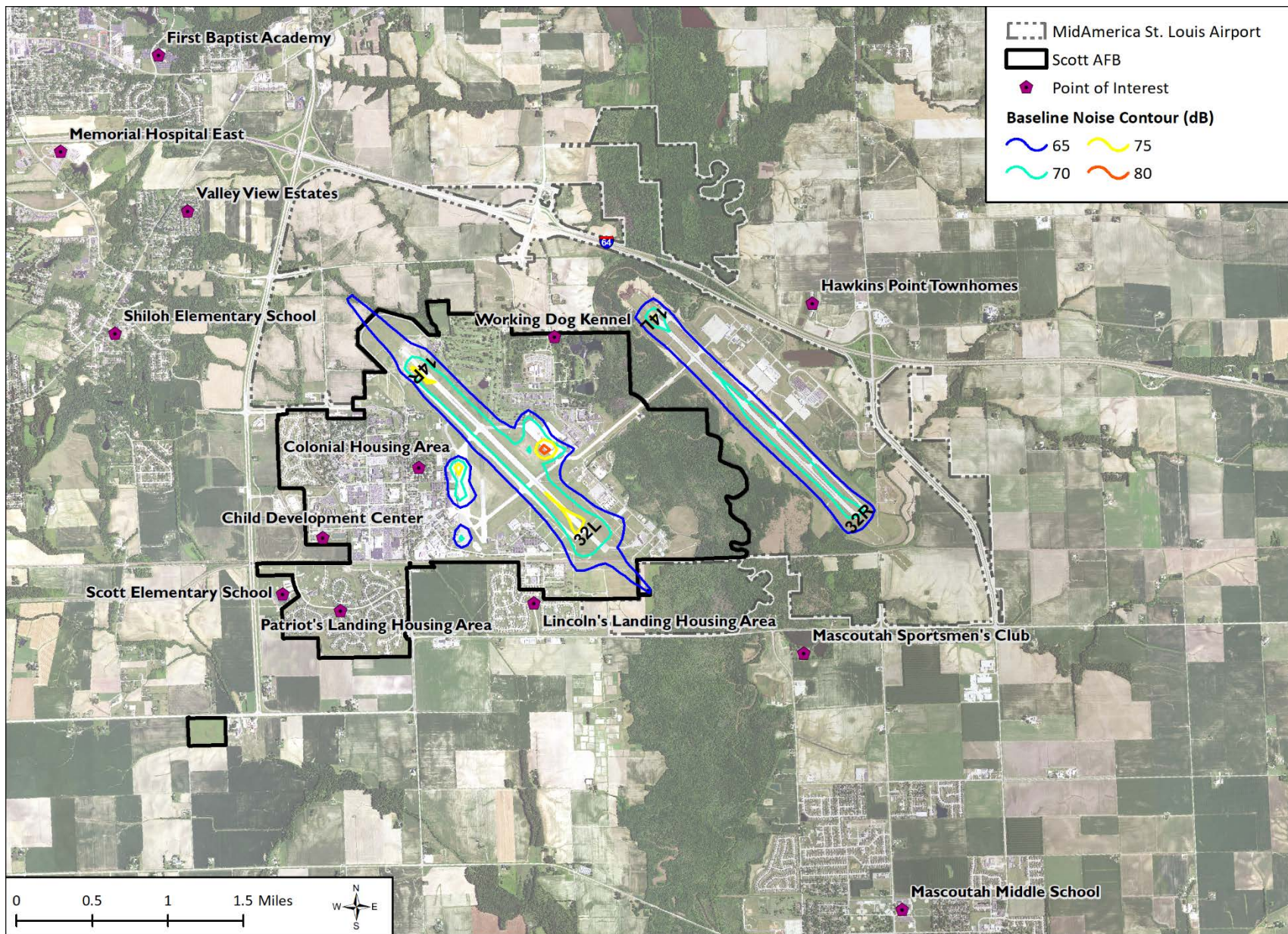


Figure 3-5. MidAmerica St. Louis Airport and Scott Air Force Base Joint Use Noise Contours Under Existing Conditions

Several representative noise-sensitive locations near MidAmerica were selected for more detailed analysis. The locations studied are not an exhaustive list of places that could be considered to be noise-sensitive, but are representative of nearby noise-sensitive locations. As shown in Table 3-6, noise levels at representative noise-sensitive locations are all below USAF land use compatibility thresholds (i.e., less than 65 dB DNL).

Table 3-6. Day-Night Average Sound Level Under Existing Conditions

ID#	Description	Day-Night Average Sound Level (dB DNL)
		Baseline
1	Child Development Center	43.7
2	Colonial Housing Area	53.0
3	First Baptist Academy	49.1
4	Hawkins Point Townhomes	46.3
5	Lincoln's Landing Housing Area	50.2
6	Mascoutah Middle School	47.3
7	Mascoutah Sportsmen's Club	50.6
8	Memorial Hospital East	53.6
9	Patriot's Landing Housing Area	43.6
10	Scott Elementary School	43.9
11	Shiloh Elementary School	46.8
12	Valley View Estates	54.6
13	Working Dog Kennel	50.8

Table 3-7 lists the number of aircraft noise events per average daytime hour (i.e., 7:00 A.M. to 10:00 P.M.) with the potential to interfere with speech at least momentarily. Because values are calculated for an average hour, some hours include more and other hours include less events with potential to interfere with speech.

Table 3-7. Events Per Average Hour With Potential to Interfere With Speech Under Existing Conditions

ID#	Description	Events Per Average Hour
Indoor with Windows Closed (25 dB structural noise attenuation)		
1	Child Development Center	0.0
2	Colonial Housing Area	0.1
3	First Baptist Academy	0.4
4	Hawkins Point Townhomes	0.0
5	Lincoln's Landing Housing Area	0.1
6	Mascoutah Middle School	0.2
7	Mascoutah Sportsmen's Club	0.5
8	Memorial Hospital East	0.4
9	Patriot's Landing Housing Area	0.0
10	Scott Elementary School	0.0
11	Shiloh Elementary School	0.3
12	Valley View Estates	0.6
13	Working Dog Kennel	0.1

Table 3-7. Events Per Average Hour With Potential to Interfere With Speech Under Existing Conditions (Continued)

ID#	Description	Events Per Average Hour
Indoor with Windows Open (15 dB structural noise attenuation)		
1	Child Development Center	0.6
2	Colonial Housing Area	1.4
3	First Baptist Academy	1.0
4	Hawkins Point Townhomes	1.2
5	Lincoln's Landing Housing Area	1.0
6	Mascoutah Middle School	0.8
7	Mascoutah Sportsmen's Club	1.4
8	Memorial Hospital East	0.9
9	Patriot's Landing Housing Area	0.6
10	Scott Elementary School	0.5
11	Shiloh Elementary School	0.7
12	Valley View Estates	1.2
13	Working Dog Kennel	1.9
Outdoor (no structural attenuation)		
1	Child Development Center	2.5
2	Colonial Housing Area	2.7
3	First Baptist Academy	2.2
4	Hawkins Point Townhomes	2.2
5	Lincoln's Landing Housing Area	2.7
6	Mascoutah Middle School	2.0
7	Mascoutah Sportsmen's Club	2.9
8	Memorial Hospital East	2.0
9	Patriot's Landing Housing Area	2.4
10	Scott Elementary School	2.1
11	Shiloh Elementary School	2.0
12	Valley View Estates	2.1
13	Working Dog Kennel	2.9

Schools are a special case relative to potential interference with speech. Daytime noise levels at nearby schools are well below the criteria exterior noise level of 60 dB $L_{eq-9\text{ hr}}$ (Table 3-8).

Table 3-8. Daytime Noise Levels ($L_{eq-9\text{hr}}$) at Schools Under Existing Conditions

ID#	Description	$L_{eq-9\text{hr}}$
		Baseline
1	Child Development Center	45.2
3	First Baptist Academy	50.1
6	Mascoutah Middle School	48.5
10	Scott Elementary School	45.5
11	Shiloh Elementary School	48.3

Approximately 89 percent of airfield operations at MidAmerica occur during daytime hours (7:00 A.M. to 10:00 P.M.) when most people are awake. Sleep disturbance is not currently a major concern at MidAmerica.

MidAmerica is located in a sparsely populated rural area. The ambient soundscape (i.e., sounds when aircraft operations are not under way) are dominated by ground vehicle traffic on nearby roads or natural sounds such as wind and birds. Ambient sound levels in rural locations are typically approximately 45 dB. In locations where aircraft noise levels are below ambient noise levels, aircraft noise does not add meaningfully to the overall noise level.

3.7.2.2 *Special Use Airspace*

The special use airspace proposed for training is infrequently used (see Table 2-1). The most frequently used airspace complex under baseline conditions is the Lindbergh/Salem complex, which supports approximately 1,475 airspace operations annually by aircraft types including A-10, B-2, B-52, C-17, F-15, F-16, KC-135, and T-38. Other airspace units are used less often. The airspace units proposed for use are large and, as a result, direct overflight of any particular location is relatively infrequent. The Lindbergh/Salem complex, for example, covers more than 6,800 square miles. The areas below the airspace proposed for training are primarily rural, and ambient sound levels in these areas can be assumed to be approximately 45 dB. L_{dnmr} below all of the airspace units proposed for regular use are less than 45 dB.

3.8 SAFETY

3.8.1 Definition of the Resource

For the purposes of this EA, safety includes both ground and flight safety. Ground safety considerations include issues associated with construction, and operations and maintenance activities that support aircraft operations, including fire and emergency response. Flight safety considerations include the interaction of F-15QA operations with other flight activities in the region. Flight safety also addresses potential for aviation mishaps and hazards from bird/wildlife strikes. The ROI for safety includes MidAmerica and the airspace around the airfield, and the special use airspace proposed for training. Both ground safety and flight safety are discussed in Section 3.8.2.1. Flight safety in the special use airspace proposed for training is also discussed in Section 3.8.2.2.

3.8.2 Existing Conditions

3.8.2.1 *Airfield*

3.8.2.1.1 Ground Safety

Short-term safety risks are associated with any construction activities, including the minor construction activities included as part of the proposed action. Adherence to standard safety practices (Occupational Safety and Health Administration [OSHA] Standard 29 CFR) would minimize potential risks.

Ground safety also relates to aircraft operations and the determination of accident potential. Determination of accidental potential does not produce accident probability statistics because the question of probability involves too many variables for an accurate prediction model to be developed. The analysis of historical military aircraft accidents focuses on determining where (within the airfield environments) an accident would likely occur and estimates the size of the impact area that could result from any single accident. Per Department of Defense Instruction (DoDI) 4165.57, *Air Installations Compatible Use Zones (AICUZ)*, all structures on the ground have the potential to create hazards to flight. The FAA provides detailed instructions for the marking (i.e., paint schemes and lighting) of obstructions to warn pilots of their presence. Any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet AGL or exceeds any obstruction standard contained in 14 CFR 77 should normally be marked and/or lighted. The FAA can also recommend marking and/or lighting a structure that does not exceed 200 feet AGL or 14 CFR 77 standards because of its particular location. The obstruction standards in 14 CFR 77 are primarily focused on structures in the immediate vicinity of airports and approach and departure corridors from airports (14 CFR 77). Runways 14L and 32R at MidAmerica have Runway Protection Zones (RPZs). The RPZ is a trapezoidal area centered on

the extended runway centerline. The length and width of the RPZ are contingent on the size of the aircraft operating on the runway as well as the type of approach (i.e., visual, instrument) and approach minimally available. RPZs are designed to enhance the protection of people and property on the ground. The RPZ near the end of the runway is 1,000 feet wide; the RPZ farthest from the end of the runway is 1,750 feet wide. All runway RPZs are on land owned by St. Clair County or Scott AFB and contain compatible land uses.

For construction safety, MidAmerica maintains the comprehensive MidAmerica Construction Safety Program, which is described in the MidAmerica St. Louis Airport Construction Safety Manual (MidAmerica 2009b). The MidAmerica Construction Safety Program requires every contractor and or subcontractor on the airport to meet or exceed the requirements of the program. Every contractor is required to provide the necessary degree of safety whether or not the specific situation is covered in this manual. The MidAmerica Construction Safety Program includes the standards and regulations of the OSHA, the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA) as they apply.

For aircraft emergencies, MidAmerica maintains an Airport Emergency Plan (AEP) involving all civilian and military aircraft along with the facilities on MidAmerica (MidAmerica 2013). The AEP includes mitigation, administrative, and recovery issues associated with aircraft emergencies.

MidAmerica maintains a JUA with the USAF that describes safety and incident response and management. In accordance with the St. Clair County/Scott AFB JUA, in the event of an aircraft incident or accident at MidAmerica, the Commander, 375 AW, Scott AFB, or his/her designated representative, will serve as the Incident Commander (IC) upon arriving on scene. The MidAmerica airport director provides support as requested and is available for emergency situations. In the event of an accident involving both civilian and military aircraft, a unified command shall be established between the Scott AFB IC (on behalf of the Commander, 375 AW) and the airport director.

MidAmerica provides primary fire, crash, rescue, and structural fire protection for the airport and associated aircraft. MidAmerica maintains a Mutual Aid Box Alarm System agreement with Scott AFB, which includes mutual aid for safety, fire protection, first responder and lifesaving services, and hazardous materials incident response.

3.8.2.1.2 Flight Safety

The primary concern regarding flight safety is the potential for aviation mishaps. Aviation mishaps could include accidents related to weather, mechanical failure, or pilot error; mid-air collisions; collisions with manmade structures or terrain; or bird-aircraft collisions. Flight risks apply to all aircraft; they are not limited to the military. Currently 8,027 annual sorties are conducted at MidAmerica/Scott AFB. The USAF maintains an active mid-air collision avoidance program and regularly communicates with civilian pilots. The website for the Scott AFB mid-air collision avoidance program is: www.scott.af.mil/units/safety.

Bird-aircraft strikes constitute a safety concern because they can result in damage to aircraft, injury to aircrews, or injury to local human populations if an aircraft crashes. Most birds fly below 500 feet AGL, except during migration and the greatest chance for a bird-aircraft strike occurs in the lower elevations around the airfield environment. More than 97 percent of reported bird-aircraft strikes occur below 3,000 feet AGL, approximately 30 percent occur in the airport environment, and approximately 55 percent occur during low-altitude flight training (USAF 2017). MidAmerica employs a WHMP that serves in partnership with the USAF's Bird Aircraft Strike Hazard (BASH) program. Both programs serve to establish overall bird/wildlife control protocols to minimize aircraft

exposure to potentially hazardous wildlife strikes. The WHMP is based on known hazards from both resident and seasonal bird populations that utilize the area (MidAmerica 2017).

3.8.2.2 Special Use Airspace

3.8.2.2.1 Flight Safety

Aviation mishaps, while still possible in the special use airspace, are less likely due to greater separation among aircraft and the larger area in which aircraft are maneuvering. Aviation mishaps in the special use airspace could include accidents related to weather, mechanical failure, or pilot error; mid-air collisions; or bird-aircraft collisions. Flight risks apply to all aircraft; they are not limited to the military. The USAF maintains an active mid-air collision avoidance program and regularly communicates with civilian pilots. The website for the Scott AFB mid-air collision avoidance program is: www.scott.af.mil/units/safety

As noted in the airfield section, bird-aircraft strikes constitute a safety concern for the USAF because they can result in damage to aircraft, injury to aircrews, or injury to local human populations if an aircraft crashes. Most bird-aircraft strikes occur at lower elevations. More than 97 percent of reported bird-aircraft strikes occur below 3,000 feet AGL, approximately 30 percent occur in the airport environment, and approximately 55 percent occur during low-altitude flight training (USAF 2017).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 AIR QUALITY

The QEAF F-15QA mission at MidAmerica would increase air emissions due to proposed aircraft operations within the base region of St. Clair County and associated airspaces in Illinois and adjoining states. The following section describes the estimations of impacts due to proposed construction and operational activities within these project regions.

The project air quality analysis used the USEPA GCR de minimis thresholds as indicators of the significance of potential impacts to air quality. These indicators only provide a clue to the potential impacts to air quality. In the case of criteria pollutants for which the proposed project region attains a NAAQS, the analysis compared the net increase in annual air pollutant emissions estimated for each project alternative to a pollutant indicator value of 100 tons per year, based on the GCR de minimis threshold for the least severe nonattainment classification for all criteria pollutants. Given that conformity de minimis thresholds represent the maximum net change an action can acceptably emit in nonattainment and maintenance areas, these threshold values would conservatively indicate that emissions from an action within an attainment area also would be acceptable. In the case of criteria pollutants for which the proposed project region does not attain a NAAQS, the analysis compared the net increase in annual emissions to the applicable pollutant threshold that requires a conformity determination for that region.

If estimated emissions exceed a conformity threshold, further analysis was conducted to determine whether impacts were significant. In such cases, if emissions (1) do not contribute to an exceedance of an ambient air quality standard or (2) conform to the approved SIP, then impacts would not be significant.

St. Clair County is in marginal nonattainment of the 2015 O₃ standard and in attainment of all other NAAQS. Therefore, the analysis used the USEPA GCR de minimis threshold of 100 tons per year of a pollutant as an indicator of the significance of projected air quality impacts within the MidAmerica project region.

4.1.1 Construction

The QEAF F-15QA mission at MidAmerica would require construction/installation of temporary facilities, such as aircraft sunshades, metal aircraft tie downs, conex storage containers, and a temporary guard facility. After completion of the action, the temporary facilities would be removed to pre-mission conditions.

Air quality impacts resulting from the proposed construction activities would occur from (1) combustive emissions due to the use of fossil fuel-powered equipment and (2) fugitive dust emissions (PM₁₀/PM_{2.5}) resulting from the operation of equipment on exposed soil. While no exposed soil is anticipated, fugitive dust emissions were estimated to provide a conservative estimate of impacts. Because the proposed construction activities would be minimal, emissions from construction activities would be well below the annual indicator thresholds and therefore would result in minor air quality impacts.

Inclusion of standard construction practices into proposed construction activities would potentially reduce fugitive dust emissions from the operation of construction equipment on exposed soil by 50 percent from uncontrolled levels (Countess Environmental 2006). The standard construction practices for fugitive dust control include the following:

- 1) Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- 2) Minimize the amount of disturbed ground area at a given time.
- 3) Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site, and stabilize all disturbed areas with water application.
- 4) Designate personnel to monitor the dust control program and to increase watering, as necessary, to minimize the generation of dust.

4.1.2 Operations

The proposed QEAF F-15QA mission at MidAmerica primarily would generate air emissions from (1) F-15QA aircraft operations, (2) F-15QA engine maintenance and testing, and (3) AGE. The analysis also includes emissions resulting from commuting activities of staff that would support the action. To estimate these emissions from the proposed action, the analysis used the USAF Air Conformity Applicability Model (ACAM) version 5.0.14a (Solutio Environmental, Inc. 2019). The air quality analysis assumed that proposed operations would begin in October 2020 after the completion of all required infrastructure improvements. Appendix C presents details of the emission calculations for the proposed action.

Analysis of proposed aircraft operations is limited to operations that would occur in the lowest 3,000 feet of the atmosphere, because this is the typical depth of the atmospheric mixing layer, where the release of aircraft emissions would affect ground-level pollutant concentrations. In general, aircraft emissions released above the mixing layer would not appreciably affect ground-level air quality.

Table 4-1 summarizes the operational air emissions that would result from implementation of the QEAF F-15QA mission at MidAmerica. The data in Table 4-1 show that emissions from the proposed action would not exceed any annual indicator threshold in either calendar year designated for operation. Therefore, operational emissions associated with the QEAF F-15QA mission at MidAmerica would not result in significant air quality impacts.

Table 4-1. Projected Air Emissions from the QEAF F-15QA Mission at MidAmerica

Activity Type	Air Pollutant Emissions (tons) ^a						
	VOCs	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO _{2e} (mt)
F-15QA Flight Operations/Engine Trim Tests	1.89	10.65	65.49	3.53	5.73	5.16	9,584
F-15QA Engine Test Cells	0.04	0.17	0.67	0.04	0.06	0.06	100
Aerospace Ground Equipment	1.97	3.46	5.67	0.40	0.58	0.57	271
Commuting Activities	0.13	1.46	0.11	0.00	0.00	0.00	123
Total F-15QA Action Emissions	4.04	15.74	71.92	3.96	6.38	5.78	10,082
Annual Emissions – Year 2020	0.93	3.63	16.60	0.91	1.47	1.34	2,326
Annual Emissions – Year 2021	3.11	12.10	55.32	3.05	4.91	4.45	7,755
Annual Indicator Threshold	100	100	100	100	100	100	NA

^a Calculated values and totals have been rounded; therefore, totals may not match the totals row.

Key: mt = metric tons; NA = not applicable;

4.1.2.1 General Conformity Statement

The previous analyses show that the net changes in annual emissions within each calendar year resulting from implementation of the QEAF F-15QA mission at MidAmerica would remain below

the applicable VOCs and NO_x conformity de minimis thresholds. As a result, the proposed QEAF F-15QA mission at MidAmerica would not require a conformity determination under the GCR.

F-15QA aircraft operations in the special use airspace and along flight routes between these locations and MidAmerica would affect air quality in these portions of Illinois and adjoining states. All of the regions below these areas are currently in attainment of all NAAQS. Therefore, the analysis used the USEPA GCR de minimis threshold of 100 tons per year of a pollutant as an indicator of the significance of projected air quality impacts within these areas of operation.

Proposed F-15QA operations in airspace adjacent to MidAmerica that would occur below 3,000 feet AGL include the Salem MOA, Pruitt A MOA, and Pruitt B MOA. Therefore, aircraft operations in these areas would potentially affect ground-level air quality. Proposed F-15QA aircraft transiting between MidAmerica and these locations would occur above 3,000 feet AGL and therefore would not substantially affect ground-level air quality. To quantify the air quality effects of the QEAF F-15QA mission within airspace, the analysis employed the ACAM to estimate emissions of these F-15QA operations. The analysis used aircraft flight profiles developed by the project noise analyses as inputs to the ACAM. The analysis focused on operations within the lowest 3,000 feet of the atmosphere.

Table 4-2 presents the operational air emissions that would result from implementation of the QEAF F-15QA mission in special use airspaces proposed for training below 3,000 feet AGL. These data show that for each calendar year, emissions from proposed aircraft operations below 3,000 feet AGL within each airspace would not exceed any applicable air pollutant indicator threshold. Therefore, implementing the QEAF F-15QA training mission in the special use airspace proposed for training would not result in significant air quality impacts.

Table 4-2. Projected Air Emissions from the QEAF F-15QA Mission in Special Use Airspaces Proposed for Training

Activity Type	Air Pollutant Emissions (tons) ^a						
	VOCs	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO _{2e} (mt)
Pruitt A MOA – Year 2020	0.35	1.40	1.96	0.11	0.12	0.11	209
Pruitt A MOA – Year 2021	1.16	4.65	6.54	0.36	0.40	0.37	697
Pruitt B MOA – Year 2020	0.15	0.59	0.83	0.05	0.05	0.05	89
Pruitt B MOA – Year 2021	0.49	1.97	2.77	0.15	0.17	0.16	296
Salem MOA – Year 2020	0.50	1.99	2.79	0.15	0.17	0.16	298
Salem MOA – Year 2021	1.66	6.63	9.31	0.51	0.58	0.52	992
Indicator Threshold	100	100	100	100	100	100	NA

^a Calculated values and totals have been rounded; therefore, sum totals may not match the totals row.

Key: CO_{2e} (mt) = carbon dioxide equivalent in metric tons; NA = not applicable; () = negative values and net reductions in emissions

4.1.3 No Action Alternative

Under the No Action Alternative, no F-15QA-related construction would occur at MidAmerica and no additional aircraft operations would be conducted, resulting in no new emissions. The airspace would not be used and there would be no changes to air quality below the proposed training airspace. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.2 AIRSPACE MANAGEMENT AND USE

4.2.1 Airfield

For the purposes of this discussion, because MidAmerica/Scott AFB is a joint use facility, all references to aircraft operations are described in terms of the joint MidAmerica/Scott AFB aircraft operations. Implementation of the F-15QA mission would result in approximately 1,027 F-15QA sorties over an approximate 1-year period. This represents a temporary 13 percent increase in the number of annual sorties at MidAmerica/Scott AFB. Currently 8,027 annual sorties are conducted at MidAmerica/Scott AFB. This increase in airfield operations would not require changes to local airspace or airfield management, and no modifications would be required for this airspace structure or the manner in which ATC and local operating procedures manage MidAmerica/Scott AFB aircraft operations. No changes to the MidAmerica/Scott AFB airfield arrival or departure procedures would be required to accommodate the F-15QA aircraft performance or airfield operations. In a separate action, unrelated to F-15QA operations, military aircraft operations would be shifted from the Scott AFB runway to the MidAmerica runway during the period when the Scott AFB runway is closed for renovation. This runway shift does not change the number of aircraft operating in the airspace surrounding MidAmerica and it is not anticipated to interfere with F-15QA operations. Therefore, impacts to airspace use in the local air traffic environment would not be significant.

4.2.2 Special Use Airspace

No new airspace would be created as part of this project. All of the airspace proposed for training has been approved for the proposed use by F-15QA aircraft. As noted in Table 4-3, implementation of the F-15QA mission would result in increased sorties in the airspace proposed for training. The largest increases would occur in the Lindbergh/Salem, Red Hills, and Howard MOAs.

Table 4-3. Baseline and F-15QA Annual Sorties

Training Airspace	Baseline Sorties	F-15QA Sorties	Total
Lindbergh/Salem MOAs ^a	328	+381	709
Red Hills MOA	2	+264	266
Howard MOAs	0	+334	334
Pruitt MOAs	0	+47	47

^a Airspace units have been combined from those described in Chapter 2.1 to reflect units that would be used together for training.

The owning agency for the Lindbergh/Salem MOAs is the 139th Bomber Wing (MO ANG) at Whiteman AFB, Missouri. The primary users of the airspace are the Air Force Reserve A-10s at Whiteman AFB and the 138th Fighter Wing (Oklahoma Air National Guard [OK ANG]) F-16s from Tulsa, Oklahoma. Approximately 90 percent of the scheduled airspace use is attributable to fighter aircraft (A-10, F-16, F-15, T-38) and 10 percent is attributable to other aircraft (KC-135, B-2, B-52, C-17). Historically, the airspace was scheduled for use no more than 59 days each year. The addition of 381 sorties is not anticipated to impact the ANG/AFRC's use of this airspace. Additional coordination and scheduling would be required to deconflict F-15QA training from other DoD airspace users.

The primary using agency for the Red Hills MOA is the 122nd Fighter Wing, Indiana Air National Guard (IN ANG) at Fort Wayne International Airport, Indiana. All of the scheduled airspace use is by A-10s from the 122nd Fighter Wing. The addition of 264 sorties is not anticipated to impact the Indiana ANG's use of this airspace. Additional coordination and scheduling would be required to accommodate training for F-15QA and 126 ARW, Illinois Air National Guard (IL ANG) units.

The primary using agency for the Howard and Pruitt MOAs is the ANG at Scott AFB. No scheduled sorties were conducted in these MOAs in the last 5 years, and the additional F-15QA sorties are not anticipated to impact the ANG's use of this airspace.

General aviation pilots who have historically flown through these MOAs could experience some inconvenience if military aircraft are actively using the MOA(s). Activation of the MOAs for use by the F-15QA pilots would not prohibit the use of the MOAs by general aviation pilots. According to FAA Order JO 7400.2M, *Procedures for Handling Airspace Matters*, "MOAs are always joint use in that Visual Flight Rule aircraft are not denied access, and Instrument Flight Rule aircraft may be routed through the airspace, by agreement between controlling and using agencies, when approved separation can be provided from the MOA activity."

4.2.3 No Action Alternative

Under the No Action Alternative, no F-15QA aircraft would be operated from MidAmerica. Airspace use would not change and would continue to be used at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.3 BIOLOGICAL RESOURCES

4.3.1 Airfield

4.3.1.1 Vegetation and Wildlife

Implementation of the proposed action would include minor construction and the installation of temporary facilities. Ground disturbing activities would occur entirely within the previously disturbed turf areas adjacent to existing pavement. Unimproved grounds, or natural areas would not be disturbed. Therefore, no permanent impacts to unique vegetation would occur under implementation of the proposed action. Existing vegetation would be returned to preexisting conditions once temporary facilities have been removed.

Upon completion of the mission, the temporary facility would be removed and the Golf Ramp and the adjacent site would be returned to pre-mission conditions. Although a relatively small number of wildlife species could occur in the turf areas (generally those tolerant of human presence and activity) during construction and tear down, the limited habitat value substantially decreases the biological importance of the site. Therefore, temporary impacts to wildlife resulting from projects located within developed or maintained areas are generally considered minor.

4.3.1.2 Endangered Species Act

There is no suitable habitat for federally listed species in the area of the Golf Ramp at MidAmerica where this action would occur. However, the federally-endangered Indiana bat and federally threatened northern long-eared bat are known to roost in the forested floodplains of Silver Creek, adjacent to MidAmerica, at Scott AFB. Implementation of the proposed action would result in an increase in the annual sorties conducted in the special use airspace proposed for training. Although unlikely (F-15QA aircraft flights are limited to daylight hours), direct adverse impacts (mortality) to Indiana and northern long-eared bats could result from aircraft strikes. Proactive management of BASH issues would continue on MidAmerica and Scott AFB and implementation of the BASH Plan would continue to be followed to minimize and avoid direct adverse impacts. As a result, the USAF has determined that the proposed action *May Effect but is Not Likely to Adversely Affect*

both the Indiana and northern long-eared bat. The USFWS concurred with this determination in a letter dated 13 December 2019 (see Appendix A).

4.3.1.3 Illinois Wildlife Regulations

No state listed species are known to occur in or near the proposed action area. Ground disturbance associated with the proposed action would occur entirely within the previously disturbed turf areas adjacent to existing pavement. Unimproved grounds, or natural areas would not be disturbed. Therefore, no impacts to state listed species would occur under implementation of the proposed action.

4.3.1.4 Migratory Bird Treaty Act

Implementation of the proposed action would result in an increase in total annual airfield operations. Any increase in operations could result in an increased opportunity for bird-aircraft strikes to occur. Birds are the most common wildlife hazard at MidAmerica (MidAmerica 2017). To minimize the potential for impacts to birds (and other wildlife), MidAmerica partners with Scott AFB to manage and implement wildlife control protocols. Patrols are increased during the two peak migratory periods in the fall and spring where both waterfowl and enormous blackbird populations transit the airport. Control methods are employed to deter migratory birds and include (but are not limited to) airfield mowing, airport water drainage maintenance, and vegetation maintenance to reduce potential suitable habitat conditions. Nonlethal management techniques are also employed and include the use of bird (propane) cannons, live trapping, and relocation of species at risk when necessary. When conflicts with wildlife cannot be avoided, MidAmerica adheres to the conditions of the USFWS depredation permit. As part of the depredation permit annual coordination and reporting of bird aircraft strikes are mandated by the USFWS Migratory Bird Office.

Under the proposed action, MidAmerica would continue to adhere to the existing WHMP, Scott AFB BASH program, and USFWS depredation permit conditions, minimizing the risk of bird-aircraft strikes (including those for migratory birds and BCC) to negligible levels. Therefore, minimal impacts to migratory birds protected under the MBTA (including BCC) would result from implementation of the proposed action.

4.3.1.5 Bald and Golden Eagle Protection Act

No bald or golden eagles or nesting locations are known to occur at MidAmerica or in the immediate vicinity of the proposed action area. Therefore, no impacts to eagles protected under the BGEPA are anticipated to result from implementation of the proposed action.

4.3.2 Special Use Airspace

4.3.2.1 Vegetation and Wildlife

Under the proposed action, no ground disturbance would occur under the special use airspace proposed for training. Therefore, no impacts to vegetation would result from implementation of the proposed action.

Implementation of the proposed action would result in an increase in the annual sorties conducted in the special use airspace proposed for training. As described in Section 4.7.2, subsonic L_{dnmr} under the special use airspace would remain the same in the majority of the airspace proposed for training. Subsonic L_{dnmr} would increase by 1.7 dB in the Pruitt B MOA and 3.8 dB in the Salem MOA. DNL would not exceed 65 dB. Wildlife that are under the path of overflights would be exposed to short, but intense noise events from overflights. However, these airspace areas are very

large, and training operations are sufficiently spread out such that intense overflight noise events at any one location are infrequent.

Under the proposed action, F-15QA pilots would primarily fly at medium-to-high altitudes, under the current MOA parameters (see Table 2-2). The higher flight profile could reduce the response of wildlife to aircraft noise. Most birds fly below 500 feet, except during migration. No F-15QA low-level flight training is expected to occur below 500 feet AGL and the potential for bird-aircraft collisions would be minor.

4.3.2.2 *Special Status Species*

Potential impacts to special status species (including federally listed species, migratory birds, BCC, and bald eagles) from noise and aircraft collisions that could occur under the special use airspace proposed for training would be the same as those described for wildlife. Impacts to federally listed mammal and bird species (Table 3-4) are not anticipated, because no F-15QA low-level flight training is expected to occur below 500 feet AGL (with the exception of LOWAT exercises within the Salem and Pruitt MOAs, where a limited amount [9 percent] of LOWAT sorties would be conducted). Continued adherence to the WHMP and BASH programs would reduce the potential for bird-aircraft collisions in these low-altitude training areas, and safety actions currently in place for existing military aircraft would continue. Additionally, no aircraft operations would occur in any of the airspace proposed for use between 10:00 P.M. and 7:00 A.M, thus reducing the potential for collisions with bats (strikes causing mortality). Critical habitat for the Indiana bat (present under the Lindbergh A and B MOA) would not be impacted, because pilots would not fly below 7,000 feet MSL in these areas (Table 2-2). Therefore, the USAF has determined that the proposed action *May Affect, but is Not Likely to Adversely Affect* the gray bat, the Indiana bat, the northern long-eared bat, the red-cockaded woodpecker, or the least tern. The USFWS concurred with this determination in a letter dated 13 December 2019 (see Appendix A).

4.3.3 **No Action Alternative**

Under the No Action Alternative, no F-15QA-related ground disturbance would occur at MidAmerica and F-15QA aircraft would not be stationed or operated there. Airspace use would not change and would continue at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.4 **CULTURAL RESOURCES**

4.4.1 **Airfield**

Implementation of the proposed action would include minor construction and the installation of temporary facilities as described in Section 2.1.5 and shown on Figure 2-2. Construction would occur on existing pavements or on previously disturbed areas adjacent to existing pavement. The USAF has determined that no historic properties would be affected by implementation of the proposed action and the Illinois SHPO concurred with this finding in a letter dated 22 November 2019 (Appendix A).

No impacts to known archaeological resources would result from implementation of the proposed action at MidAmerica. All areas proposed for construction are in areas that have already been disturbed by previous construction and were previously inventoried for archaeological resources during the development of MidAmerica. No NRHP-eligible archaeological resources have been identified in the areas proposed for construction. Because ground-disturbing activities would occur in previously disturbed and inventoried areas, it is extremely unlikely that any previously undocumented archaeological resources would be encountered during construction. In the case of unanticipated or

inadvertent discoveries, the USAF would comply with National Historic Preservation Act (NHPA) and Native American Graves Protection and Repatriation Act (NAGPRA) regulations.

No Section 106 impacts to tribal resources or traditional cultural properties are anticipated to result from implementation of the F-15QA mission at MidAmerica. As required by Sections 101(d)(6)(B) and 106 of the NHPA; implementing regulations prescribed in 36 CFR Section 800.2(c)(2); EO 13175, *Consultation and Coordination with Indian Tribal Governments*; DoDI 4710.02, *DoD Interactions with Federally Recognized Tribes*; and AFI 90-2002, *Air Force Interactions with Federally Recognized Tribes*, the USAF initiated Section 106 consultation with 19 tribes to identify traditional cultural properties. Appendix A contains a record of these consultations. The consultation correspondence included an invitation to participate in the NEPA process, and an invitation to consult on the Section 106 process (see letter dated 24 October 2019, Appendix A). Scott AFB will continue to coordinate with interested tribes throughout the EA process.

4.4.2 Special Use Airspace

Implementation of the proposed action would result in an increase in the annual sorties conducted in the special use airspace proposed for training. As described in Section 4.7.2, subsonic L_{dnmr} under the special use airspace would remain the same in the majority of the special use airspace proposed for training. Subsonic L_{dnmr} would increase by 1.7 dB below the Pruitt B MOA and by 3.8 dB below the Salem MOA. DNL would not exceed 65 dB.

No impacts to historic properties under the special use airspace proposed for training are expected. Scientific studies of the effects of noise and vibration on historic properties have considered potential impacts on historic buildings, prehistoric structures, water tanks, archaeological cave/shelter sites, and rock art. These studies have concluded that even overpressures generated by supersonic overflight were below established damage thresholds and that subsonic operations would be even less likely to cause damage (Battis 1983). The proposed action includes only subsonic operations. No ground disturbance would occur under any of the special use airspace proposed for training. The USAF has determined that no historic properties would be affected by implementation of the proposed action and the SHPO concurred with this finding in a letter dated 22 November 2019 (Appendix A).

4.4.2.1 Native American Concerns

As described above, the USAF has contacted 19 federally affiliated Native American tribes to consult on a government-to-government basis regarding their concerns about potential impacts to traditional cultural resources and traditional cultural properties under the airspace proposed for training.

4.4.3 No Action Alternative

Under the No Action Alternative, there would be no F-15QA-related construction at MidAmerica and the F-15QA would not be stationed there. Airspace use would not change and would continue at current use rates. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The qualitative assessment of impacts to hazardous materials and waste management focuses on how (context) and to what degree (intensity) the F-15QA mission could affect hazardous materials usage and management, hazardous waste generation and management, and hazardous waste disposal. Potential impacts related to hazardous materials and wastes were analyzed for the following five effects:

1. Generation of hazardous material/waste types or quantities that could not be accommodated by the current management system;
2. Increased likelihood of an uncontrolled release of hazardous materials that could contaminate the soil, surface water, groundwater, or air;
3. Non-compliance with applicable federal and state regulations as a result of the proposed action;
4. Disturbance of or creation of contaminated sites, resulting in adverse effects on human health and/or the environment; and
5. Established management policies, procedures, and handling capacities would not be able to accommodate the proposed action.

4.5.1 Airfield

Hazardous materials and hazardous waste generation associated with the implementation of the proposed action would comply with the small quantity generator (ILR000163840) status of existing Boeing programs at MidAmerica. The existing permit includes aircraft manufacturing and maintenance. Materials used and waste generated from the F-15QA mission at MidAmerica would include lubricant oils, anti-seize compounds (e.g., WD-40), sealing compounds, and hydraulic fluids. Although not anticipated, if more than 2,200 pounds of hazardous waste per month are generated, a USEPA 8700-12 Form and Illinois identification number application would be submitted to change the generator status to a large quantity generator. This would occur prior to shipping the waste off-site and all the requirements of a large quantity generator would be followed while the waste is on-site. No deicing would occur as part of the proposed action.

In the event of an accidental hazardous material or waste release during the proposed construction or operations, the proper notifications and actions would be taken in accordance with the MidAmerica Spill Prevention Control and Countermeasure Plan (MidAmerica 2019). Spill kits would be available and accessible during aircraft refueling.

Impacts to hazardous materials and waste management from implementation of the proposed action would be minimal. Implementation of the proposed action would not negatively affect the Boeing hazardous materials and waste program at MidAmerica.

4.5.2 No Action Alternative

Under the No Action Alternative, no F-15QA-related improvements would occur on the Golf Ramp at MidAmerica and none of the proposed F-15QA operations would occur. Boeing would continue to use, manage, and dispose of hazardous materials and waste as described in Section 3.5.2. Implementation of the No Action Alternative would result in no impacts to the management, use, or generation of hazardous materials and waste at MidAmerica.

4.6 LAND USE

4.6.1 Airfield

The physical development proposed as part of the temporary F-15QA mission would occur on and immediately adjacent to the Golf Ramp at MidAmerica. The Golf Ramp was built to support aircraft parking and storage at the airport. None of the physical development associated with implementation of the F-15QA mission would impact land use, because the proposed construction and renovation would occur in land uses on the airport designated for the proposed use.

Impacts to land use were also evaluated in terms of the potential noise impacts to on- and off-base land uses resulting from the proposed F-15QA operations at MidAmerica. Noise impacts are discussed in Section 4.7 with a short summary provided here. Under the proposed action, the total number of acres affected by DNL greater than 65 dB would increase by approximately 1,241 (from 712 to 1,953 acres). The majority of those acres are located within the boundaries of MidAmerica/Scott AFB. The number of acres that are not within the boundaries of either MidAmerica or Scott AFB would increase from zero to approximately 62. The increase of approximately 62 acres consists almost entirely of areas in transportation corridors (i.e. road right-of-ways not owned by MidAmerica or Scott AFB).

A single residential parcel (located near the intersection of Rieder Road and I-64) is located within the 65 dB DNL contour line. Examination of aerial photography indicates that the actual dwelling on that property is outside of the 65 dB DNL noise contour. Therefore, no actual residences would be affected by DNL greater than 65 dB under the proposed action.

Since no residences would be affected by the 65 dB DNL contour and transportation corridors are not subject to noise related incompatible land use, no impacts to land use are anticipated within the airfield environment as a result of the proposed action.

4.6.2 Special Use Airspace

No construction or land use changes would occur below the airspace proposed for use and therefore only indirect impacts such as those caused by increases in noise or alteration of significant visual resources have a potential to impact land use below the airspace proposed for training. Impacts associated with noise are discussed for special use airspace (Salem and Pruitt B MOAs) that would experience increases in noise as a result of the proposed action.

As described in Section 4.7.2.2, implementation of the F-15QA mission would result in increased DNL below the Salem and Pruitt B MOAs. Noise below the Salem MOA would increase from a current baseline condition that is below 45 dB L_{dnmr} to a level of 48.8 dB L_{dnmr} . This represents a 3.8-dB increase. Noise below the Pruitt B MOA would increase from a current baseline condition that is below 45 dB L_{dnmr} to a level of 46.7 dB L_{dnmr} . This represents a 1.7 dB increase. These noise level increases are not considered significant (Section 4.7). The projected noise levels of less than 65 dB L_{dnmr} are compatible with residential land uses listed under the compatibility guidelines used by the DoD and USAF (AFI 32-7063, *Air Installations Compatible Use Zones Program*). These guidelines consider DNL less than 65 dB to be compatible with residential land use.

Certain noise sensitive areas such as wilderness areas, national wildlife refuges, and historic sites could warrant special consideration when assessing impacts to the noise environment. Table 4-4 lists SULMAs located under the Pruitt and Salem MOAs. Only land use areas below the Salem and Pruitt B MOAs would be exposed to additional noise. Reactions to noise in such recreational settings vary. A study by the USFS found that visitors to wilderness areas did not generally notice high-altitude aircraft noise intrusions, although, startle effects from low flying high-speed aircraft were noticed and reported as annoying by some visitors (USFS 1992). Visitors varied on whether aircraft overflights were a positive or detrimental factor to their outdoor experience. Reactions vary depending upon individual expectations and the context in which aircraft-caused noise occurs. These incidences are not likely to be persistent and would have only temporary impacts on any given experience. These events are not expected to change visitor habits or recreational land uses overall, but such intermittent overflight could be annoying to some residents and visitors.

Table 4-4. Special Use Areas Land Management Areas Exposed to Noise Increases from the F-15QA Mission

SULMA Name	SULMA Owner	SULMA Acreage	Percentage of SULMA Under Airspace	Baseline Conditions	F-15 QA	
				L _{dnmr}	L _{dnmr}	Change
Pruitt A MOA						
Meredosia National Wildlife Refuge	USFWS	3,579	100	<45	<45	0
Meredosia Hill Prairie Nature Preserve	State of Illinois	30	100	<45	<45	0
Sanganois State Fish and Wildlife Area	USFWS	10,563	100	<45	<45	0
Siloam Springs State Park	State of Illinois	5,487	100	<45	<45	0
Ray Norbut State Fish and Wildlife Area	State of Illinois	1,693	100	<45	<45	0
Weinberg-King State Park	State of Illinois	2,304	37	<45	<45	0
Pruitt B MOA						
Two Rivers National Wildlife Refuge	USFWS	9,155	100	<45	46.7	1.7
Salem MOA						
Anderson Mountain Rare II Study Area	USFS	2,741	7	<45	48.8	3.8
Bell Mountain Wilderness	USFS	9,183	100	<45	48.8	3.8
Bismarck Conservation Area	State of Missouri	1,159	94	<45	48.8	3.8
Buford Mountain Conservation Area	State of Missouri	3,919	100	<45	48.8	3.8
Cedar Mountain Conservation Area	State of Missouri	117	100	<45	48.8	3.8
Champion Springs Conservation Area	State of Missouri	173	100	<45	48.8	3.8
Clearwater Recreation Area	State of Missouri	18,714	39	<45	48.8	3.8
Current River Conservation Area	State of Missouri	29,734	19	<45	48.8	3.8
Dillard Mill State Historic Site	State of Missouri	131	100	<45	48.8	3.8
Elephant Rocks State Park	State of Missouri	128	100	<45	48.8	3.8
Fort Davidson State Historic Site	State of Missouri	68	100	<45	48.8	3.8
Funk Memorial State Forest And Wildlife Area	State of Missouri	182	100	<45	48.8	3.8

Table 4-4. Special Use Areas Land Management Areas Exposed to Noise Increases from the F-15QA Mission (Continued)

SULMA Name	SULMA Owner	SULMA Acreage	Percentage of SULMA Under Airspace	Baseline Conditions	F-15 QA	
				Ldnmr	Ldnmr	Change
Salem MOA (Continued)						
Rocky Creek Conservation Area	State of Missouri	37,652	3	<45	48.8	3.8
Graves Mountain Conservation Area	State of Missouri	3,236	34	<45	48.8	3.8
Indian Trail Conservation Area	State of Missouri	12,863	100	<45	48.8	3.8
Johnson's Shut-Ins State Park	State of Missouri	8,304	100	<45	48.8	3.8
Ketcherside Mountain Conservation Area	State of Missouri	3,451	100	<45	48.8	3.8
Logan Creek Conservation Area	State of Missouri	11,985	94	<45	48.8	3.8
Lower Taum Sauk Lake	State of Missouri	1,347	100	<45	48.8	3.8
Mark Twain National Forest	USFS	1,505,503	23	<45	48.8	3.8
Pilot Knob National Wildlife Refuge	USFWS	118	100	<45	48.8	3.8
Riverside Conservation Area	State of Missouri	2,696	100	<45	48.8	3.8
Sunklands Conservation Area	State of Missouri	32,407	6	<45	48.8	3.8
Taum Sauk Mountain State Park	State of Missouri	2,125	100	<45	47	2.0

Recreational opportunity is classified by the Bureau of Land Management as a combination of the type of challenge provided, in part based on the degree of isolation and remoteness. Quiet and naturalness is an intrinsic part of some recreational experiences. Changes to quiet settings could constitute an effect on the range of recreational opportunities in an area or region, but would not be expected to change the land use of the area.

Impacts to visual resources would be minor. Approximately 91 percent of F-15QA training sorties would be conducted entirely at altitudes above 7,000 feet above MSL, and visual intrusion at ground level would be relatively low. The current charted floor of the Pruitt B and Salem MOAs is 500 feet AGL. Low-altitude sorties would be conducted in these MOAs as currently charted and approved. However, the number of low-altitude sorties would comprise approximately 9 percent of the total F-15QA sorties. These sorties would occur approximately once per week on average in each of the two MOAs.

No significant impacts to land use are anticipated to result from implementation of the proposed action. The highest modeled L_{dnmr} would be 48.8 dB below the airspace proposed for training. This level of noise is well below the noise levels that are used in the USAF compatibility guidelines. In addition, the USEPA identifies 55 dB as the noise level required for the protection of human health. The proposed noise levels would not impact or change land use under the airspace proposed for training. The primary effect of these noise levels could be annoyance for individuals who happen to experience overflights while using the special land use areas such as the Bell Mountain Wilderness Area. Exposure to noise and visual intrusion from overflights would be of short duration and these impacts would only be anticipated to occur on average once per week during

the temporary duration of this mission. Overflights in the MOAs would not occur at night and the flights would cease after the approximately one year time period of this action. Table 4-4 identifies SULMAs in areas that would be exposed to noise increases from the F-15QA Mission.

4.6.3 No Action Alternative

Under the No Action Alternative, no F-15QA related development would occur at MidAmerica and none of the associated F-15QA aircraft operations would be conducted. Airspace use would not change and would continue at current use rates. Noise levels at existing public, private, and DoD land uses would remain unchanged. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.7 NOISE

Under the proposed action, F-15QA aircraft would conduct operations at MidAmerica for a period of approximately 12 months. The baseline and proposed annual airfield operations at MidAmerica/Scott AFB are listed in Table 2-1. Departures would almost exclusively be conducted using afterburner power and multi-ship sorties would frequently occur. No sorties would occur during the late-night time period between 10:00 P.M. and 7:00 A.M. Runway usage patterns would mirror usage by current aircraft, with approximately 60 percent of operations conducted on a northbound traffic flow (i.e., using Runway 32) and 40 percent on a southbound flow (i.e., using Runway 14).

F-15QA aircraft operations in training airspace would be conducted in existing special use airspace units and primarily at high altitudes. The baseline and proposed annual airfield operations at MidAmerica/Scott AFB are listed in Table 2-1. Training in airspace other than the Red Hills, Lindbergh/Salem, and Howard/Pruitt airspace complexes would be conducted on an occasional basis only resulting in minimal effects on overall noise levels.

Because F-15QA missions are not expected to occur during the late-night (i.e., 10:00 P.M. to 7:00 A.M.), sleep disturbance would not be expected to be a common occurrence. A detailed assessment of sleep disturbance was therefore not conducted.

For the purposes of this EA, noise impacts would be considered potentially significant if the FAA thresholds described above were exceeded. The relative change in number of aircraft noise events with potential to interfere with speech and any exceedances of school day noise level criteria were also considered in assessing the significance of noise impacts.

4.7.1 Airfield

F-15QA aircraft are substantially louder than passenger/cargo type aircraft that make up the majority of flying operations at MidAmerica, but are nearly equal to transient fighter aircraft (F-18) that use MidAmerica on an occasional basis. SELs generated by representative aircraft types at a distance of 1,000 feet that are listed in Table 4-5. Because aircraft noise levels are highly dependent on aircraft configuration, atmospheric conditions, and other factors that vary from one flight to the next, the values listed in Table 4-5 are only intended to provide a general indication of the relative noise levels generated by various aircraft types.

Table 4-5. Representative Aircraft Sound Exposure Levels at a Distance of 1,000 Feet

Aircraft	Engine Power	SEL (dB) ^a
Departure		
F-15E	Afterburner	120
F-18A/C	Afterburner	121
Airbus 320	13,489 LBS	99
Learjet 35	2,650 LBS	97
1-engine propeller-driven aircraft ^b	100% RPM	85
C-40	23,500 LBS	99
KC-135	97.7% NC	92
Approach		
F-15E	72.4% NC	90
F-18A/C	82% NC	110
Airbus 320	4,496 LBS	83
Learjet 35	1,000 LBS	82
1-engine propeller-driven aircraft ^b	30% RPM	72
C-40	5,000 LBS	86
KC-135	90% NC	91

^a All reference sound levels are for aircraft at 160 knots in 59° F and 70 percent relative humidity

^b Generic single-engine aircraft with variable pitch propeller

LBS = pounds of thrust; RPM = revolutions per minute; NC = core engine speed

Noise levels under existing conditions and the proposed action are shown on Figure 4-1 as contours in 5-dB intervals ranging from 65 to 85 dB DNL. Because noise generated at Scott AFB is heard at MidAmerica and vice versa, noise levels near both airfield are shown. Table 4-6 lists the number of acres affected by each noise contour interval under existing conditions and the proposed action.

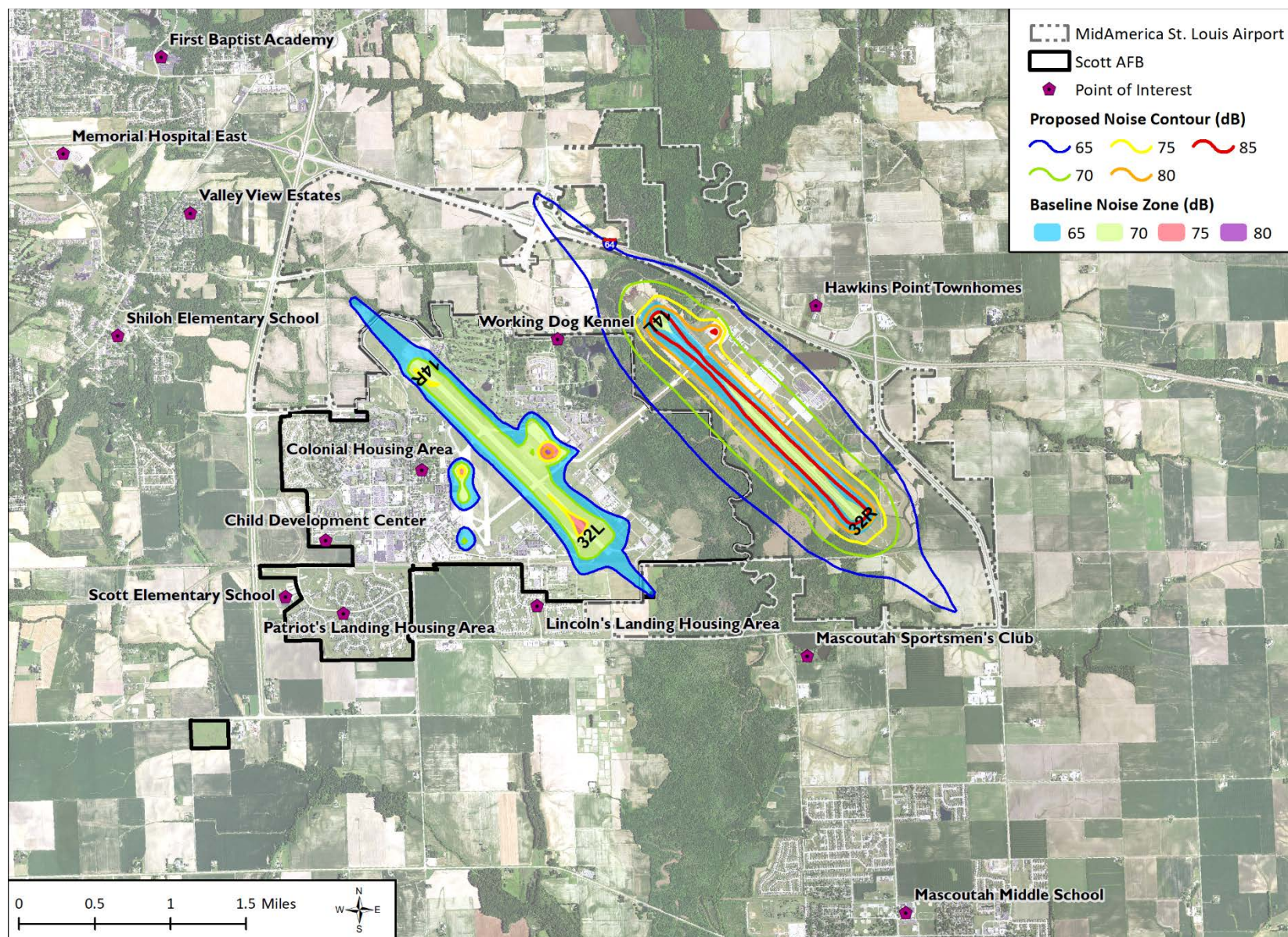


Figure 4-1. Noise Contours at MidAmerica St. Louis Airport Resulting from the F-15QA mission Relative to Existing Conditions

Table 4-6. Acres off Airport Property Affected by DNL of 65 dB or Greater Under Existing and Proposed Action Conditions

Contour Interval (dB DNL)	Existing Conditions			Proposed Action			Change		
	On-Airport/ Base	Off-Airport/ Base	Total Acres	On-Airport/ Base	Off-Airport/ Base	Total Acres	On-Airport/ Base	Off-Airport/ Base	Total Acres
65-69	425.3	0	425.3	907.9	57.3	965.2	482.6	57.3	539.9
70-74	269.2	0	269.2	522	3.6	525.6	252.8	3.6	256.4
75-79	16.3	0	16.3	205.6	1.5	207.1	189.3	1.5	190.8
80-84	1.2	0	1.2	147.8	0	147.8	146.6	0	146.6
>=85	0	0	0	107.5	0	107.5	107.5	0	107.5
Total	712	0	712	1890.8	62.4	1953.2	1178.8	62.4	1241.2

Under the proposed action, the total number of acres affected by DNL greater than 65 dB would increase by 1,241.2 from 712 to 1,953.2 acres. The number of acres that are not in the boundaries of either MidAmerica or Scott AFB would increase from zero to approximately 62. This area consists almost entirely of transportation corridors (i.e., road right of ways not owned by MidAmerica or USAF), which are not noise-sensitive. These corridors are not shown on Figure 4-1 to minimize visual clutter. A single residential property (located near the intersection of Rieder Road and I-64) would be affected by DNL exceeding 65 dB, but examination of aerial photography indicates that the actual dwelling on that property is outside of the 65 dB DNL noise contour. Therefore, no residences are affected by DNL greater than 65 dB under the proposed action.

DNL at several representative noise-sensitive locations are listed in Table 4-7. None of the locations are exposed to DNL greater than 65 dB, and all land uses would remain compatible in accordance with DoD land use compatibility criteria. Noise levels at the Hawkins Point Townhomes, Mascoutah Middle School, and the Scott AFB Working Dog Kennel would increase by more than 5 dB with end-state DNL between 45 and 60 dB. The 13 dB increase in DNL at the Hawkins Point Townhomes would be substantial and noticeable. However, these flight operations would be temporary. These increases would be considered ‘reportable’, but not ‘significant’ per impact criteria in FAA Order 1050.1F. Supplemental metrics were used to provide a more complete description of noise impacts and to further inform the assessment of impact significance.

Table 4-7. Day-Night Average Sound Level Under Existing and Proposed Action Conditions

ID#	Description	Day-Night Average Sound Level (dB DNL)			
		Existing	Proposed Action	Change	Significant
1	Child Development Center	43.7	45.5	1.8	No
2	Colonial Housing Area	53	53.8	0.8	No
3	First Baptist Academy	49.1	50.3	1.2	No
4	Hawkins Point Townhomes	46.3	59.3	13 ^a	No
5	Lincoln's Landing Housing Area	50.2	51.9	1.7	No
6	Mascoutah Middle School	47.3	53.4	6.1 ^a	No
7	Mascoutah Sportsmen's Club	50.6	55.1	4.5	No
8	Memorial Hospital East	53.6	53.7	0.1	No
9	Patriot's Landing Housing Area	43.6	45.1	1.5	No
10	Scott Elementary School	43.9	44.9	1	No
11	Shiloh Elementary School	46.8	47.4	0.6	No
12	Valley View Estates	54.6	54.8	0.2	No
13	Working Dog Kennel	50.8	58.6	7.8 ^a	No

^a Although the change in DNL at three locations would be “reportable” none would be significant.

Table 4-8 lists the aircraft events per average hour with the potential to interfere with speech at least momentarily. If windows are closed (25 dB structural noise attenuation assumed), the events

per average hour would increase by 0.5 or less with the largest increase at the Hawkins Point Townhomes and would remain below 1 at all locations. If windows are open (15-dB structural attenuation), the events per hour would increase by 0.6 or less with the largest increase at the Hawkins Point Townhomes and all locations would experience less than three events per hour. For people outdoors (i.e., no structural attenuation), the number of events per hour would increase by 0.6 at all of the locations studied and all locations would experience less than four events per hour.

Table 4-8. Events Per Average Hour With Potential to Interfere With Speech Under Existing and Proposed Action Conditions

ID#	Description	Events Per Average Hour		
		Baseline	Proposed	Change
Indoor with Windows Closed (25 dB structural noise attenuation)				
1	Child Development Center	0.0	0.1	0.1
2	Colonial Housing Area	0.1	0.2	0.1
3	First Baptist Academy	0.4	0.4	0.1
4	Hawkins Point Townhomes	0.0	0.5	0.5
5	Lincoln's Landing Housing Area	0.1	0.2	0.1
6	Mascoutah Middle School	0.2	0.3	0.0
7	Mascoutah Sportsmen's Club	0.5	0.7	0.2
8	Memorial Hospital East	0.4	0.5	0.0
9	Patriot's Landing Housing Area	0.0	0.1	0.1
10	Scott Elementary School	0.0	0.1	0.1
11	Shiloh Elementary School	0.3	0.4	0.1
12	Valley View Estates	0.6	0.7	0.1
13	Working Dog Kennel	0.1	0.4	0.4
Indoor with Windows Open (15 dB structural noise attenuation)				
1	Child Development Center	0.6	0.8	0.2
2	Colonial Housing Area	1.4	1.6	0.2
3	First Baptist Academy	1.0	1.2	0.2
4	Hawkins Point Townhomes	1.2	1.7	0.6
5	Lincoln's Landing Housing Area	1.0	1.3	0.3
6	Mascoutah Middle School	0.8	1.1	0.2
7	Mascoutah Sportsmen's Club	1.4	2.0	0.6
8	Memorial Hospital East	0.9	1.1	0.2
9	Patriot's Landing Housing Area	0.6	0.8	0.2
10	Scott Elementary School	0.5	0.7	0.2
11	Shiloh Elementary School	0.7	0.9	0.2
12	Valley View Estates	1.2	1.4	0.2
13	Working Dog Kennel	1.9	2.5	0.6
Outdoor (no structural attenuation)				
1	Child Development Center	2.5	3.1	0.6
2	Colonial Housing Area	2.7	3.3	0.6
3	First Baptist Academy	2.2	2.8	0.6
4	Hawkins Point Townhomes	2.2	2.8	0.6
5	Lincoln's Landing Housing Area	2.7	3.3	0.6
6	Mascoutah Middle School	2.0	2.6	0.6
7	Mascoutah Sportsmen's Club	2.9	3.5	0.6
8	Memorial Hospital East	2.0	2.6	0.6
9	Patriot's Landing Housing Area	2.4	3.0	0.6
10	Scott Elementary School	2.1	2.7	0.6
11	Shiloh Elementary School	2.0	2.6	0.6
12	Valley View Estates	2.1	2.7	0.6
13	Working Dog Kennel	2.9	3.6	0.6

Daytime noise levels would not exceed criteria levels (60 dB L_{eq-9hr}) at nearby schools (Table 4-9). Although noise levels at the schools would increase under the proposed action, classroom noise levels would remain below impact thresholds.

F-15QA sorties would not occur during the late-night time period between 10:00 P.M. and 7:00 A.M. when most people are asleep. Therefore, the probability of sleep disturbance impacts would remain low under the proposed action.

Table 4-9. Daytime Noise Levels (L_{eq-9hr}) at Schools Under Existing and Proposed Action Conditions

ID#	Description	L_{eq-9hr}		
		Baseline	Proposed	Change
1	Child Development Center	45.2	47.2	2.0
3	First Baptist Academy	50.1	51.6	1.5
6	Mascoutah Middle School	48.5	55.2	6.7
10	Scott Elementary School	45.5	46.6	1.1
11	Shiloh Elementary School	48.3	49.0	0.7

In summary, F-15QA operations would be louder than most of the operations currently occurring at MidAmerica and increased noise levels could result in an increased likelihood of annoyance among affected people. The number of acres that are not owned by MidAmerica or Scott AFB and that would be exposed to DNL greater than 65 dB would increase from zero to 62.4. No residences would be exposed to DNL greater than 65 dB. The number of potential speech interference events per average hour would increase by 0.6 per hour or less at sensitive locations studied, and all schools would remain below criteria levels. Sleep disturbance would not be common because F-15QA operations would not occur during the late night (10:00 P.M. to 7:00 A.M.) when most people are asleep. The temporary F-15QA mission is scheduled to last for approximately one year and noise impacts while the mission is under way would be limited to an increased likelihood of annoyance among people living and working near MidAmerica. No significant noise impacts would occur in the vicinity of MidAmerica under the proposed action, and no noise mitigation measures are proposed at this time.

4.7.2 Special Use Airspace

As shown in Table 4-10, L_{dnmr} beneath special use airspace units proposed for training by MidAmerica-based F-15QA pilots would remain well below 65 dB, and increases would be below impact thresholds identified in FAA Order 1050.1F.

Table 4-10. Airspace Noise Levels (L_{dnmr}) under Existing and Proposed Action Conditions

Airspace	L_{dnmr}			Significant ^a
	Baseline	Proposed	Change	
Red Hills MOA/ATCAA	<45	<45	0	No
Lindbergh A (excluding Salem MOA overlap)	<45	<45	0	No
Lindbergh B	<45	<45	0	No
Lindbergh C	<45	<45	0	No
Lindbergh D ATCAA	<45	<45	0	No
Lindbergh West ATCAA	<45	<45	0	No
Salem MOA	<45	48.8	3.8	No
Howard East	<45	<45	0	No
Howard West	<45	<45	0	No
Pruitt A	<45	<45	0	No
Pruitt B	<45	46.7	1.7	No

^a Noise level changes below the airspace proposed for use would not be significant or "reportable".

The airspace proposed for training is shown on Figure 2-1, and the proposed annual airfield operations at MidAmerica/Scott AFB are listed in Table 2-1. The airspace units proposed for use are large and, as a result, direct overflight of any particular location is relatively infrequent. Furthermore, most F-15QA operations would be conducted at high altitudes. Approximately 91 percent of F-15QA training sorties would be conducted entirely at altitudes above 7,000 feet MSL, and noise levels experienced at ground level would be relatively low. Low-altitude sorties would only be conducted in Pruitt and Salem MOAs. However, these sorties comprise only approximately 9 percent of total F-15QA sorties, and would occur approximately once per week on average in each of the two MOAs. No significant noise impacts to areas below the airspace proposed for training would result from implementation of the F-15QA mission.

4.7.3 No Action Alternative

Implementation of the No Action Alternative would result in no changes in noise levels surrounding MidAmerica/Scott AFB or below the airspace proposed for training. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

4.8 SAFETY

4.8.1 Airfield

4.8.1.1 Ground Safety

No unique construction practices or materials would be required as part of proposed action. Day-to-day construction operations associated with the proposed action would be performed in accordance with all applicable safety regulations, as well as the MidAmerica Construction Safety Manual. Construction and demolition activities would require a jobsite safety plan that explains how tasks would be accomplished while assuring job safety throughout the life of the project. Construction workers would be required to follow applicable OSHA requirements as governed by the terms of the contract.

No aspects of the proposed action would create new or unique ground safety issues. None of the temporary construction on the Golf Ramp at MidAmerica would impact aircraft takeoff and landings or penetrate any primary approach and transitional surfaces. Construction activity would not result in any safety risk or obstructions to navigation.

All construction would be completed in accordance with the MidAmerica Construction Safety Program. Operations and maintenance procedures, as they relate to ground safety, would be conducted by Boeing personnel and would not change from procedures already in effect for other Boeing aircraft at MidAmerica. All activities would continue to be conducted in accordance with applicable OSHA, ANSI and NFPA requirements.

All F-15QA operations would classify in the same general types of operations that have historically occurred at MidAmerica. For example, F-15QA pilots would follow established local approach and departure patterns currently used. Therefore, F-15QA operations would not require changes to any of the RPZs.

Capability for fire response is located on MidAmerica, on Scott AFB and in nearby communities. As described in Section 3.8.2, the Scott AFB Fire Department would continue to be party to mutual aid with the nearby communities. These functions would continue to occur as they have under current conditions.

4.8.1.2 Flight Safety

The temporary addition of 6 F-15QA aircraft would result in an increase in airfield operations. F-15QA pilots would conduct operations within the airfield under similar procedures currently in use for existing military or transient aircraft and a Boeing instructor pilot would be in the aircraft at all times during aircraft operation. Current safety policies and procedures at MidAmerica/Scott AFB ensure the lowest possible potential for aircraft mishaps. These safety policies and procedures would continue upon implementation of the proposed action. The mid-air collision avoidance program would be updated to include information on F-15QA aircraft.

Implementation of the proposed action is not anticipated to result in any net increase in safety risks associated with aircraft mishaps or result in any increase in the risks of occurrence of those mishaps.

4.8.1.3 Bird/Wildlife-Aircraft Strike Hazard

MidAmerica/Scott AFB maintains a bird and wildlife hazard program. All safety actions currently in place for existing military aircraft would continue for F-15QA pilot training. No significant impacts are anticipated to occur related to bird/wildlife strike hazards.

4.8.2 Special Use Airspace

4.8.2.1 Aircraft Mishaps

The temporary addition of 6 F-15QA aircraft would result in an increase in airfield operations. F-15QA pilots would conduct operations within the airfield under similar procedures currently in use for existing military or transient aircraft. Current safety policies and procedures at MidAmerica/Scott AFB ensure the lowest possible potential for aircraft mishaps. These safety policies and procedures would continue upon implementation of the proposed action. The mid-air collision avoidance program would be updated to include information on F-15QA aircraft.

Implementation of the proposed action is not anticipated to result in any net increase in safety risks associated with aircraft mishaps or result in any increase in the risks of occurrence of those mishaps.

4.8.2.2 Bird-Aircraft Strike Hazard

MidAmerica/Scott AFB maintain a bird and wildlife hazard program. All safety actions currently in place for existing military aircraft would continue for F-15QA pilot training. F-15QA pilots would operate the aircraft at higher elevations for the majority of the time in the special use airspace and bird-aircraft strikes would be less likely than in the airfield environment. No significant impacts are anticipated to result from bird/strike hazards.

4.8.3 No Action Alternative

Under the No Action Alternative, no F-15QA-related developments would occur at MidAmerica and no F-15QA pilot training would occur. Use of the airspace surrounding MidAmerica and in the special use airspace proposed for training would continue at current rates. There would be no change to safety related to the proposed action. Implementation of the No Action Alternative would mean that the QEAF pilots would not receive the training as required by the FMS contract.

5.0 CUMULATIVE EFFECTS

The CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental consequences resulting from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7).

Actions that have a potential to interact with the proposed actions are included in this cumulative effects analysis. This approach enables decision makers to have the most current information available so that they can evaluate the range of environmental consequences that would result from implementation of the proposed actions.

In this chapter, the USAF has identified past and present actions in the MidAmerica region. In addition, this analysis also evaluated reasonably foreseeable future actions that are in the planning phase in this region.

The assessment of cumulative effects begins with defining the scope of other project actions and the potential interrelationship with the proposed action (CEQ 1997). The scope of the analysis must consider other projects that coincide with the location and timetable of implementation of the proposed projects. Cumulative effects can arise from single or multiple actions and through additive or interactive processes acting individually or in combination with each other. Actions that are not part of the proposal, but that could be considered as actions connected in time or space (40 CFR 1508.25) (CEQ 1997), could include projects that affect areas on or near the project site. This analysis addresses three questions to identify cumulative effects:

1. Does a relationship exist such that elements of the proposed action or alternatives might interact with elements of past, present, or reasonably foreseeable actions?
2. If one or more of the elements of the alternatives and another action could be expected to interact, would the alternative affect or be affected by impacts of the other action?
3. If such a relationship exists, does an assessment reveal any potentially significant impacts not identified when the alternative is considered alone?

For the proposed actions under consideration to have cumulatively significant impacts on an environmental resource, two conditions must be met. First, the combined impacts of all identified past, present, and reasonably foreseeable projects, activities, and processes on a resource, including the impacts of the proposed action, must be significant. Second, the proposed action must make a substantial contribution to that significant cumulative impact. Proposed actions of limited scope do not typically require as comprehensive an assessment of cumulative impacts as proposed actions that have significant environmental impacts over a large area (CEQ 2005).

In the following sections, the cumulative significance is based on the context, intensity, and timing of the proposed action relative to the past, present, and reasonably foreseeable actions. A summary of the cumulative effects is provided in a table, followed by a discussion of the resource areas that have potentially significant cumulative effects based on the above evaluation criteria.

5.1 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS

This section provides decision makers with the cumulative effects of the proposed action, as well as the incremental contribution of past, present, and reasonably foreseeable actions. Table 5-1 summarizes past, present, and reasonably foreseeable actions within the region that could interact with implementation of the proposed projects. Table 5-1 briefly describes each identified action, presents the proponent or jurisdiction of the action and the timeframe (e.g., past, present/ongoing,

future), and indicates which resources could potentially interact with the proposed action. As part of the analysis for this EA, projects were identified that could interact with the proposed projects to cause cumulative impacts. Projects are listed in Table 5-1.

Past activities are those actions that occurred within the geographic scope of cumulative effects that have shaped the current environmental conditions of the project area. For most resource areas (e.g., biological resources), the impacts of past actions are now part of the existing environment and are incorporated in the description of the affected environment in Chapter 3.

Table 5-1. Past, Present, and Reasonably Foreseeable Actions near MidAmerica and Associated Region

Action	Proponent/ Location	Timeframe	Description	Possible Resource Interaction
Military Actions				
Installation Development Plan	Scott AFB	Present, Future	Fifteen (15) projects are proposed for installation development at Scott AFB from 2019-2022. These installation development projects are related to space and mission optimization and consolidation, infrastructure and safety improvements, or natural resources enhancements. Example projects include construction of a hangar, runway repair, expansion of a fire station, removal of trees for airfield violations, and improvements to habitat in Cardinal Lake.	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation
Scott AFB Runway Renovation	Scott AFB	Present, Future	Closure of Runway 14R/32L at Scott AFB for renovation.	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation
F-16 Relocation	IN ANG	Future	Potential relocation of an F-16 squadron (24 aircraft) to Fort Wayne International Airport, Indiana. Aircraft would utilize the Red Hills MOA for training.	Noise, Airspace Management and Use
State and Local Actions				
MidAmerica Renovations	MidAmerica/ St. Clair County	Present, Future	A 2.1-million dollar design contract was approved in 2018 for terminal improvements.	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation
MetroLink Light-Rail Extension	State of Illinois	Future	A 96-million dollar project to extend the rail system from Shiloh-Scott AFB to MidAmerica.	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation
MidAmerica Transportation Projects	MidAmerica/ St. Clair County	Past, Present, Future	Approximately 20 transportation projects have been conducted or are planned as part of the MidAmerica 2018 Transportation Plan. This includes improvements to access roads, service roads, apron expansion, etc.	Airspace Management and Use, Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation
Private Actions				
MQ-25A Stingray	Boeing, MidAmerica	Present	MQ-25A Stingray testing.	Airspace Management and Use
Additional airline route	Allegiant MidAmerica	Present	Addition of new airline route to Sarasota, Florida.	Airspace Management and Use
Commercial development	Tristar Properties I-64, Exit 21	Future	Conceptual plans for 1.5-million square feet of construction at the I-64 Rieder Road exit. Potential for an additional 1,300 acres of development.	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use and Recreation

5.2 CUMULATIVE IMPACT ANALYSIS

This section evaluates the cumulative effects from the past, present, and reasonably foreseeable future actions (see Table 5-1) and the proposed action. Table 5-2 provides a summary of the cumulative effects. As shown in Table 5-2, none of the resource areas evaluated are anticipated to contribute to cumulative effects. The proposed action is temporary and would not result in any adverse or long-term cumulative impacts to the noise environment or to other resource areas.

Table 5-2. Summary of Cumulative Effects

Resource Area	Proposed Action Projects	Past, Present, and Reasonably Foreseeable Actions	Cumulative Effects
Air Quality	■	○	○
Airspace Management and Use	■	○	○
Biological Resources	○	■	○
Cultural Resources	○	○	○
Hazardous Materials and Waste	○	○	○
Land Use	○	■	○
Noise	■	○	○
Safety	○	○	○

Key: ○ – not affected or beneficial impacts, ■ – affected but not significant, short- to medium-term, impacts that range from low to high intensity

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The irreversible environmental changes that would result from implementation of the proposed development involve the consumption of material resources and energy resources. The use of these resources is considered permanent. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the impacts that use of these resources will have on future generations. Irreversible impacts primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals). Irretrievable resource commitments also involve the loss in value of an affected resource that cannot be restored as a result of the action.

For the proposed development, most resource commitments would be neither irreversible nor irretrievable. Most impacts would be short-term and temporary (e.g., air emissions from construction), or longer lasting but negligible (i.e. use of fuel). Those limited resources that could involve a possible irreversible or irretrievable commitment would be used in a beneficial manner.

Construction and operational activities would continue to involve the consumption of nonrenewable resources, such as gasoline used in vehicles and equipment. None of these activities is expected to significantly decrease the availability of minerals or petroleum resources. Personal vehicle use by construction contractors and vehicles and aircraft used to support the existing missions consumes fuel, oil, and lubricants. Implementation of the proposed action would slightly increase the amount of these materials used; however, this additional use is not expected to significantly affect the availability of the resources in the region or the nation.

Specific information for each resource area is described below.

5.3.1 Airspace Resources

No new airspace resources are being created or are being used in a manner that is irreversible or irretrievable.

5.3.2 Air Quality

Proposed construction activities would result in minor amounts of (1) combustive emissions due to the use of fossil fuel-powered equipment and (2) fugitive dust emissions (PM₁₀/PM_{2.5}) resulting from the operation of equipment on exposed soil. Therefore, emissions from proposed construction activities, in combination with emissions from cumulative projects, would not contribute to an exceedance of a NAAQS. Proposed construction activities would result in less than significant cumulative air quality impacts.

The proposed operational activities within the MidAmerica project region primarily would generate air emissions from (1) F-15QA aircraft operations, (2) AGE, and (3) staff commuting activities. As discussed in Section 4.1.1.2, these activities would result in emissions that would not exceed any annual indicator threshold or applicable General Conformity threshold for NO_x or VOCs. Due to their intermittent nature, operational emissions would disperse to relatively low ambient levels at offsite locations. Therefore, emissions from proposed operational activities, in combination with emissions from cumulative projects, would not contribute to an exceedance of a NAAQS. Therefore, proposed operational activities within the MidAmerica project region would result in less than significant cumulative air quality impacts.

Low altitude F-15QA operations below 3,000 feet AGL would only occur in the Salem, Pruitt A, and Pruitt B MOAs. As discussed in Section 4.1.1.2, these activities would result in relatively minor amounts of emissions within these areas. The F-15QA aircraft would operate intermittently over these large areas and within an atmospheric layer of up to 3,000 feet AGL. As a result, emissions from these operations would be well diluted when transported to ground level. These emissions, in combination with low ambient pollutant levels in the airspaces, would not contribute to an exceedance of a NAAQS. Therefore, proposed operational activities within the MidAmerica project airspaces would result in less than significant cumulative air quality impacts.

5.3.3 Biological Resources

No irreversible or irretrievable impacts to biological resources would occur. Any disturbed vegetation or wildlife habitat will be returned to preexisting conditions once the temporary mission is completed.

5.3.4 Cultural Resources

No irreversible or irretrievable impacts to cultural resources would occur.

5.3.5 Hazardous Materials and Waste

No irreversible or irretrievable impacts related to hazardous materials and waste are anticipated to occur. Should a spill of petroleum products occur, the site would be cleaned up and returned to preexisting conditions.

5.3.6 Land Use

No irreversible or irretrievable impacts to land use would occur. All construction associated with the proposed action is removable and the land could be made available for other land uses as desired.

5.3.7 Noise

No irreversible or irretrievable impacts to the noise environment would occur. Once the mission is completed, all noise resulting from the mission would cease.

5.3.8 Safety

No irreversible or irretrievable impacts related to safety would occur.

6.0 LIST OF PREPARERS

Government Agency Development Team			
Name/Title		Role	
Air Force Civil Engineer Center (AFCEC) Jean Reynolds, Technical POC		Environmental Planning/Lead EA Development	
Headquarters (HQ) Air Mobility Command (AMC) / Scott Air Force Base (AFB) Nicole Gunyon, 375 CES/CENPL		NEPA Lead	
U.S. Air Force		Proponent	
Contractor Development Team			
Name/Title	Project Role	Subject Area	Qualifications
Earl Allbright Senior Environmental Scientist B.S. Industrial Engineering	QA/QC/Editor	Document Review	33 years planning, environmental science and NEPA
Jay Austin Noise Analyst M.S. Environmental Science B.A. Biology	Section Author	Noise	13 years environmental science
Chris Crabtree Air Quality Meteorologist B.A. Environmental Studies	Section Author	Air Quality	26 years environmental science
Tom Daues, PMP Biologist M.S. Natural Resources B.S. Biology	Project Manager, Section Author, Editor	QA/QC	26 years environmental science
Denise DeLancey Electronic Publishing Specialist B.A. English/Communications	Document Production	Document Production	19 years document production
Anthony Finley Electronic Publishing Specialist B.A. English	Document Production	Document Production	11 years document production
Nathan Gross, CHMM Environmental Scientist B.S. Wildlife and Fisheries Management	Section Author	Hazardous Materials and Waste	16 years environmental science
Melanie Peterson Document Production Specialist M.A. English B.A. English	Production	Document Production	8 years editing, document production
Sarah Raftery Technical Editor B.A. Fine Arts	Production	Document Production	6 years editing, document production
Sarah Rauch Conservation Ecologist B.S. Plant Biology, Environmental Science and Ecology	Section Author	Biological Resources	12 years environmental science
Brian Tutterow Environmental Scientist B.S. Biology	Section Author	Cultural Resources, Socioeconomics, Land Use	20 years environmental science

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7.0 PERSONS AND AGENCIES CONTACTED

Point-of-Contact	Agency	Type of Contact
Matthew Mangan	U.S. Fish and Wildlife Service	Project Letter
Robert Appleman	Illinois State Historic Preservation Officer	Project Letter
Point-of-Contact	Federally Recognized Native American Tribe	Type of Contact
Chairman John Barrett	Citizen Potawatomi Nation (Oklahoma)	Government-to-Government Consultation Letter
Chief Glenna Wallace	Eastern Shawnee Tribe of Oklahoma	Government-to-Government Consultation Letter
Chair Lynn Williams Dunson	Kaw Nation	Government-to-Government Consultation Letter
Chairman Lester Randall	Kickapoo Tribe of Indians in Kansas	Government-to-Government Consultation Letter
Chairman David Pacheco	Kickapoo Tribe of Oklahoma	Government-to-Government Consultation Letter
Chairperson Bob Peters	Match-e-be-nash-she-wish Band of Potawatmi Indians of Michigan (aka Gun Lake Tribe)	Government-to-Government Consultation Letter
Chief Douglas Lankford	Miami Tribe of Oklahoma	Government-to-Government Consultation Letter
Chairman Isaac Sherman	Omaha Tribe of Nebraska	Government-to-Government Consultation Letter
Principal Chief Geoffrey Standing Bear	Osage Nation of Oklahoma	Government-to-Government Consultation Letter
Chief Ethel E. Cook	Ottawa Tribe of Oklahoma	Government-to-Government Consultation Letter
Chief Craig Harper	Peoria Tribe of Indians of Oklahoma	Government-to-Government Consultation Letter
Chairperson Matthew Wesaw	Pokagon Band of Potawatomi Indians, Michigan and Indiana	Government-to-Government Consultation Letter
Chairman Larry Wright, Jr.	Ponca Tribe of Nebraska	Government-to-Government Consultation Letter
Chairman Douglas Rhodd	Ponca Tribe of Oklahoma	Government-to-Government Consultation Letter
Chairperson Joseph Rupnick	Prairie Band of Potawatomi Nation	Government-to-Government Consultation Letter
Chairman John Berrey	Quapaw Tribe of Indians	Government-to-Government Consultation Letter
Chairperson Tiauna Carnes	Sac and Fox Nation of Missouri in Kansas and Nebraska	Government-to-Government Consultation Letter
Chairperson Anthony Waseskuk	Sac and Fox Tribe of the Mississippi in Iowa	Government-to-Government Consultation Letter
Chief Justin Wood	Sac and Fox Nation of Oklahoma	Government-to-Government Consultation Letter

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Appendix A

Correspondence and Outreach

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STATE HISTORIC PRESERVATION OFFICE LETTER

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 375th AIR MOBILITY WING (AMC)

24 October 2019

Mr. Mark E. McCoy, USAF
P/2 Cultural Resources Manager
701 Hangar Road
Building 531
Scott AFB, IL 62225-5035

State Historic Preservation Office
Illinois Dept. Of Natural Resources
Attn: Review and Compliance
Mr. Robert Appleman
1 Old State Capital Plaza
Springfield, IL 62701-1512

Dear Mr. Appleman,

The U.S. Air Force (USAF) is preparing an Environmental Assessment (EA) for the temporary operation of up to six F-15QA aircraft at MidAmerica St. Louis Airport (MidAmerica), adjacent to Scott AFB, Illinois in compliance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] § 1500-1508), 32 CFR Part 989, *et seq.*, *Environmental Impact Analysis Process* and Air Force Instruction (AFI) 32-7061. This EA will evaluate the effects of proposed facility improvements at MidAmerica and the effects of aircraft operations in the region of MidAmerica and within the airspace proposed for use.

The USAF is providing information for your review and concurrence in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR Part 800. A description of the project is provided as Attachment 1. This information is provided to satisfy requirements listed under 36 CFR §800.11(d)(3)(e). As described in Attachment 1, only limited construction on or adjacent to existing pavements is proposed as part of this undertaking. The construction Area of Potential Effect (APE) is defined as the limited construction area on the Golf Ramp at MidAmerica. No historic properties are located in the construction APE. Archaeological surveys have been conducted at MidAmerica prior to the original construction of the airfield. There are no known archaeological sites in the vicinity of the proposed construction and the proposed construction is not anticipated to cause subsurface disturbances. The probability of encountering subsurface archeological materials outside of known sites is low. In the unlikely event that cultural resources are found during construction, construction would cease and your office would be notified.

In addition to the potential effects of construction, the undertaking includes aircraft operations in existing military airspace (see Attachments 1 and 3). This airspace is considered the airspace APE for the project. Attachment 4 identifies NRHP-listed resources underlying the airspace that would be used by F-15QA pilots. There are 139 NRHP-listed resources located under the airspace APE. The average noise levels on the ground would remain the same below the majority of the airspace proposed for use. Noise levels would increase by an average of 1.7 decibels (dB) under the Pruitt B MOA and 3.8 dB under the Salem MOA. Levels would not exceed 65 dB. The proposed undertaking would have no effect on the integrity or setting of the historic properties under the airspace proposed for use.

ENABLING RAPID GLOBAL MOBILITY

The USAF is also in the process of consulting with Federally Recognized American Indian Tribes concerning this undertaking (Attachment 2). The USAF is requesting the tribes to identify properties of religious and cultural significance that may be present. If any meet National Register eligibility criteria, we will consult with the tribes and your office.

We request your comment and/or concurrence on the APEs and the finding of *No Historic Properties Affected*. If we do not receive your comments and/or concurrence within the required 30 days we will assume concurrence and proceed with the undertaking as described. Please contact me by sending correspondence to my address provided above, by phone at (618) 256-9441, or by email at mark.mccoy.1@us.af.mil if you have any questions. Thank you for your assistance in this matter.

Sincerely,


MARK MCCOY, USAF
P2/Cultural Resources Manager

Attachments:

- Attachment 1. Project Description (includes Figure 1, Construction APE)
- Attachment 2. List of Federally-Recognized American Indian Tribes
- Attachment 3. Airspace Proposed for Use (Airspace APE)
- Attachment 4. NRHP Listed Resources Under the Airspace APE

Project Description

The USAF Air Education Training Command (AETC) Air Force Security Assistance Training (AFSAT) squadron is preparing an EA to evaluate the proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The government of Qatar is purchasing up to 48 F-15QA aircraft through the U.S. Foreign Military Sales (FMS) program and has requested that a small number of pilots and maintenance personnel be trained in the U.S. before the aircraft are delivered to the Qatar Emiri Air Force (QEAF). The USAF is supporting the Qatar request to temporarily train on and operate the new F-15QA aircraft at MidAmerica. This mission would include temporarily basing and operating up to six F-15QA aircraft at MidAmerica for approximately 1 year. As part of the proposed action, AFSAT would lead this temporary mission under the operational control of AETC. Pilots and maintenance personnel would be trained at MidAmerica, but no changes to any of the USAF organizations at Scott AFB would occur.

Because this mission would be temporary, the beddown and operation of the F-15QA aircraft and all supporting elements of the mission (e.g., personnel, facilities) would end or be removed at the conclusion of the mission.

The temporary mission at MidAmerica would include each of the following elements:

- Up to six F-15QA aircraft and associated equipment beginning in the Fall of 2020.
- Increased airfield operations at MidAmerica, and sortie operations in nearby airspace and Military Operations Areas (MOAs).
- Use of the Scott AFB air traffic control tower.
- Approximately five USAF flight training and logistics personnel, approximately 50 Boeing employees conducting flight and maintenance training, and approximately 16 QEAF personnel.
- Temporary trailers and security facilities for the personnel along with temporary sunshades and metal tie downs for the aircraft.

Airfield Flight Operations

As part of the proposed action, Boeing instructor pilots and QEAF pilots would fly the F-15QA aircraft. Boeing instructor pilots have been contracted by the USAF to oversee and implement the training of QEAF pilots. A Boeing instructor pilot would be in the aircraft at all times during every sortie. Throughout this document the term F-15QA pilots refers to both QEAF and Boeing instructor pilots.

Flying operations are expected to occur Monday through Friday. Weekend flying operations are not anticipated but could occur to meet training syllabus requirements. During the approximately 1 year of this temporary mission, F-15QA pilots would fly approximately 1,027 sorties. No flights would occur between 10:00 P.M. and 7:00 A.M. Typical mission profiles would include aircraft departing as either single-ship takeoffs or two-ship formation takeoffs, using afterburner on 100 percent of departures. The aircraft would depart the MidAmerica area to fly in nearby MOAs.

Upon returning to MidAmerica, the F-15QA pilots would fly multiple (up to four) instrument patterns and approach procedures under Regional Approach Control and/or multiple (up to six) overhead patterns under control of the Scott AFB control tower. The F-15QA pilots would use the standard fighter pattern altitude of 2,500 feet above mean sea level, and pilots would perform multiple touch and go landings before making a full-stop landing. Later in the training period, the F-15QA pilots would perform single-ship or formation landings to a full stop. Occasionally, up to four aircraft could depart and return as a flight.

Airfield Ground Support

Aerospace Ground Equipment would be used to support the F-15QA mission. Aerospace Ground Equipment could include F-15QA test and support equipment, Mobile Electric Power generators, field

deployable environmental control units, aircraft tugs, fuel trucks, compressors, etc. This equipment would be staged on the Golf Ramp and utilized as necessary during the temporary mission.

Airspace Flight Operations

No new airspace would be created as part of this mission. F-15QA pilots would depart MidAmerica to nearby Military Operations Areas (MOAs) for tactical maneuvering, primarily at medium-to-high altitudes, under the current MOA parameters (see Attachment 3). The airspace proposed for use includes the Lindbergh, Salem, Howard, Pruitt, and Red Hills MOAs, including all of their respective subsectors (A, B, C, etc.) and altitude blocks as necessary to meet the training syllabus requirements. Other existing charted airspace throughout the Midwest region would be used on an occasional basis.

While flying in the MOAs, F-15QA pilots would perform tactical maneuvering commensurate with air-to-air training. The training program would attempt to schedule dissimilar aircraft to serve as adversaries. Adversary aircraft could include T-38s from Whiteman AFB, Missouri, or F-16s from Air National Guard bases in Tulsa, Oklahoma, or Sioux Falls, South Dakota. No more than four F-15QA aircraft would be operated in a MOA at any given time, and pilots would typically operate within the boundaries of the MOA for less than 1 hour. Pilots would typically operate in two aircraft units either conducting basic fighter maneuvers or conducting intercept training. Intercept training occurs when two separate units (two aircraft each) conduct training with one unit practicing to locate and intercept the other unit. Pilots would fly a maximum of eight sorties a day on Monday/Wednesday/Friday and four sorties a day on Tuesday and Thursday. No chaff, flares, or live weapons would be used, and supersonic flight would not be conducted. As described above, no aircraft operations would occur in the airspace proposed for use between 10:00 P.M. and 7:00 A.M.

Pilot training would also include Low-Altitude Awareness Training. This training would only occur in the Salem and Pruitt MOAs within the altitude limits established and published by the Federal Aviation Administration (FAA) (FAA Order JO 7400.10A). Approximately 9 percent of sorties (approximately 93 sorties) over the 1-year training period would include Low-Altitude Awareness Training.

Temporary Personnel Changes

A variety of personnel would be required to support the temporary mission. As previously described, approximately 16 QEAF student pilots would be trained by approximately the same number of Boeing instructor pilots. A variety of maintenance, scheduling, and other Boeing support personnel would be required for this mission. Approximately 50 Boeing employees would support the mission at MidAmerica. In addition to the Boeing employees, approximately five USAF personnel would support the mission for training and logistics, including personnel in the air traffic control tower.

Temporary Facility Requirements

In support of the F-15QA beddown, a variety of temporary facilities would be installed on or adjacent to the Golf Ramp at MidAmerica. These temporary facilities include sunshades, metal aircraft tie downs, conex storage containers, and a temporary guard facility.

The six F-15QA aircraft would be parked along the western edge of the Golf Ramp (Figure 1). Three temporary sunshades (106 feet long by 90 feet wide by 45 feet high) and associated metal aircraft tie downs would be installed on the Golf Ramp. Each sunshade would shade two aircraft. The metal aircraft tie downs would be installed into the concrete on either side of each F-15QA aircraft at their proposed parking locations. The concrete ramp would be cut, broken, and re-poured to install flush steel anchor points for the aircraft tie downs. These metal tie downs would be used to secure the aircraft to the ramp while the aircraft are not being used at night and on weekends. Security fencing would also be installed around the three temporary sunshades.

As additional support for this temporary action, up to four temporary storage facilities (conex containers) would be located on or adjacent to the Golf Ramp. These containers would be used to secure tools, flight equipment, and other materials and equipment necessary to support the F-15QA mission.

To accommodate the security requirements, a temporary guard facility would also be located on or adjacent to the Golf Ramp during the approximately 1 year temporary mission timeframe.

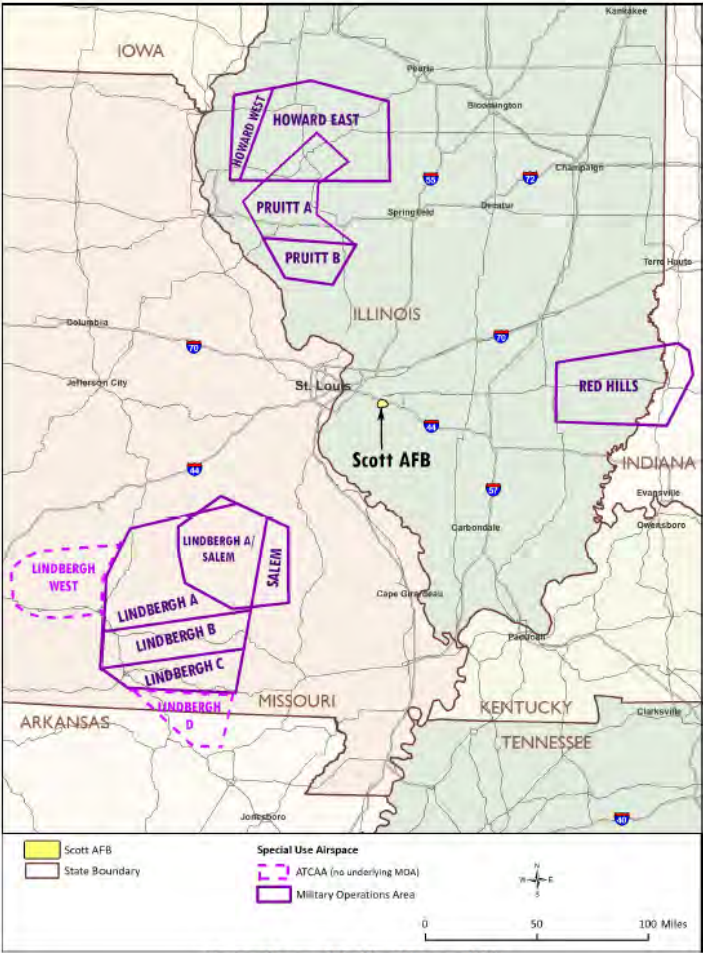


Figure 1. Golf Ramp and Secure Area at MidAmerica (Construction APE)

Upon completion of the mission, the sunshades, metal aircraft tie downs, conex containers, and temporary guard facility would be removed and the Golf Ramp and the adjacent site would be returned to pre-beddown conditions.

List of Federally Recognized Native American Tribes

- Citizen Potawatomi Nation (Oklahoma)
- Eastern Shawnee Tribe of Oklahoma
- Kaw Nation
- Kickapoo Tribe of Indians in Kansas
- Kickapoo Tribe of Oklahoma
- Match-e-be-nash-she-wish Band of Potawatomi Indians of Michigan (aka Gun Lake Tribe)
- Miami Tribe of Oklahoma
- Omaha Tribe of Nebraska
- The Osage Nation of Oklahoma
- Ottawa Tribe of Oklahoma
- Peoria Tribe of Indians of Oklahoma
- Pokagon Band of Potawatomi Indians, Michigan & Indiana
- Ponca Tribe of Nebraska
- Ponca Tribe of Oklahoma
- Prairie Band of Potawatomi Nation
- Quapaw Tribe of Indians
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Sac and Fox Tribe of the Mississippi in Iowa
- Sac and Fox Nation, Oklahoma
- Forest County Potawatomi Community, Wisconsin
- Kickapoo Traditional Tribe of Texas



Airspace Proposed for Use (Airspace APE)

NRHP LISTED RESOURCES UNDER THE AIRSPACE APE

Property	Reference Number
Administration Building, Missouri State Fruit Experiment Station	79001398
Alley Spring Roller Mill	81000336
Alton Club	05001162
Bailey, William S., House	12000553
Bates-Geers House	82003159
Beardstown Grand Opera House	00000471
Bernadotte Bridge	80001360
Big Spring Historic District	81000101
Buckeye Bridge	80001361
Buford-Carty Farmstead	04000603
Buttin Rock School	91000605
Caledonia Historic District	86003389
Carithers Store Building	87001262
Carthage Courthouse Square Historic District	86001482
Carthage Jail	73000703
Chilton-Williams Farm Complex	81000696
Chipman, Edith, House	96001290
Church of Christ	06000675
Civil War Fortification at Barnesville	98000817
Cole, Arthur W., and Chloe B., House	98001500
Courthouse Square Historic District	03000651
Dam and Spillway in the Hatchery Area at Montauk State Park	85000528
Dent County Courthouse	72000711
Dickson Mounds	72000457
Dilworth, Robert, House	93001236
Duncan Mills Bridge	80001356
Durell, William Franklin and Rebecca, House	96001292
East Waterford School	09000897
Ebenezer Methodist Episcopal Chapel and Cemetery	84000921
Elledge Arcade Buildings	01000011
Elliott Street Historic District	80001405
Enoco Coal Mine	10001100
Exchange Bank	86003714
Fort Davidson	70000332
George Rogers Clark National Historical Park	66000007
Greene County Almshouse	91000568
Greer Mill	05001551
Gregg Park	13000756
Griggsville Historic District	79000863

NRHP LISTED RESOURCES UNDER THE AIRSPACE APE (Continued)

Property	Reference Number
Griggsville Landing Lime Kiln	99000974
Hack and Simon Office Building	03000141
Hamer, Edward, House	96001293
Hamer, Patterson, House	96001287
Harrison, William Henry, Home	66000018
Havana Public Library	94000014
Havana Water Tower	93000325
Hillyard Cabin	94000851
Holly Grove Presbyterian Church	91000581
Hoopes, William, House	96001285
Hopkinson, Ambrose, House	01000083
Hotel Roodhouse	95001238
Houston High School	09000016
Houston Ranger Station Historic District	03000713
Hunter, Lucinda, House	96001286
Immanuel Evangelical Lutheran Church	79001364
International Shoe Company Building	11000783
Iron County Courthouse Buildings	79001363
Ironton Lodge Hall	13000191
Kansas City, Fort Scott and Memphis Railroad Depot	92000617
Kelton House	86002803
Kimmell Park	13000757
King, Moses, Brick and Tile Works	01000866
Kixmiller's Store	78000035
Kleinkopf, Clarence, Round Barn	82002586
Klepzig, Walter, Mill and Farm	90000001
La Grange Lock and Dam Historic District	04000170
Lamoine Hotel	10000760
Larchmound	80001406
Lawrence County Courthouse	10000992
Looney-- French House	04001035
Love, Col. Thomas C., House	85000108
Lower Parker School	91000604
Macomb Courthouse Square historic District	13000295
Mammoth Spring Dam and Lake	09000512
McCormick, Charles Emmor, House	96001284
McDonough County Courthouse	72001448
McWorter, Free Frank, Grave Site	87002533

NRHP LISTED RESOURCES UNDER THE AIRSPACE APE (Continued)

Property	Reference Number
Mershon, Joab, House	96001294
Montauk State Park Open Shelter	85000529
Morris, T. H., House	90001462
Mount Sterling Commercial Historic District	87000724
Mount Zion Lodge Masonic Temple	11000188
Mountain Grove Bandstand	88003218
Mountain Grove City Hall	12000050
Nichols Farm District	89002129
Nova Scotia Ironworks Historic District	03000793
Oak Hill Cemetery	95001240
O'Connell, Daniel, House	96001288
Ogden-Fettie Site	72000458
Old Cathedral Complex	76000025
Old Mill at Montauk State Park	85001478
Old State Bank	74000021
Olney Carnegie Library	02000037
Osterhout Mound Park	73001045
Page, Henry H., House	96001289
Petersburg Historic District	76000722
Phoenix Opera House Block	85001010
Pittsfield East School	71000295
Pittsfield Historic District	80001404
Queen, Harrison, House	02000700
Rainey, Henry T., Farm	87000682
Ravenden Springs School	03001379
Reed Log House	91000456
Rhinehart Ranch	80002395
Rice--Upshaw House	04001107
Robinson--Bonnett Inn	90001198
Ross, Harvey Lee, House	96001295
Saint Andrew's Episcopal Church	86002944
Seville Bridge	80001359
Shadowwood	01000618
Shastid, John, House	03000579
Smith, W.J. and Ed, Building	01000012
Snowden, Elsworth, House	96001283
South Fulton Churchhouse	94001264
Spring River Bridge	13001104
St. James Episcopal Church	74000761
St. Paul's Episcopal Church	69000107

NRHP LISTED RESOURCES UNDER THE AIRSPACE APE (Continued)

Property	Reference Number
Stapleford--Hover--Whitney House	96001291
Table Grove Community Church	79003783
Tartar's Ferry Bridge	80001363
Territorial Capitol of Former Indiana Territory	73000021
Thomas, F. D., House	83000299
Tillery, Virginia, Round Barn	82002536
Ursuline Academy--Arcadia College Historic District	98000816
Vermont Historic District	97001334
Vermont Masonic Hall	88002236
Vincennes Fortnightly Club	00001133
Vincennes Historic District	74000022
Welling-Everly Horse Barn	85001911
West Plains Bank Building	01000013
Western Illinois State Normal School Building	98000470
White Hall Foundry	80001365
White Hall Historic District	86003145
White Oak Hall	02001757
Wilder, Laura Ingalls, House	70000353
Winchester Historic District	79000870
Winona Ranger Station Historic District	03000715
Young, W. A., House	88000147
Zoe Theatre	12001116

STATE HISTORIC PRESERVATION OFFICE LETTER RESPONSE

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Illinois Department of Natural Resources

www.dnr.illinois.gov

J.B. Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

St. Clair County
Scott AFB
Golf Ramp, Mascoutah
USAF
New construction, F-15QA Aircraft training facility - MidAmerica St. Louis Airport

PLEASE REFER TO: SHPO LOG #005102519

November 22, 2019

Mark McCoy
Department of the Air Force
375 CES/CEIEC
701 Hangar Road - Bldg. 531
Scott AFB, IL 62225-5035

Dear Mr. McCoy:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or Jeffery.kruchten@illinois.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman
Deputy State Historic
Preservation Officer

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EXAMPLE TRIBAL LETTER WITHOUT ATTACHMENTS

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 375th AIR MOBILITY WING (AMC)

24 October 2019

Mr. Mark E. McCoy, P.G.
P2/Cultural Resource Manager
701 Hangar Road; Building 531
Scott Air Force Base, IL 62225-5035

The Honorable John Barrett
Chairman
Citizen Potawatomi Nation (Oklahoma)
1601 S. Gordon Cooper Drive
Shawnee, OK 74801

Dear Mr. Barrett,

The purpose of this letter is twofold: to provide an opportunity for you to review and comment on proposed activities at MidAmerica St. Louis Airport (MidAmerica) pursuant to the National Environmental Policy Act (NEPA) of 1969; and to invite your tribe to participate in government-to-government consultation with Scott Air Force Base (AFB) pursuant to Section 106 of the National Historic Preservation Act (NHPA).

The U.S. Air Force (USAF) is preparing an Environmental Assessment (EA) for the temporary operation of up to six F-15QA aircraft at MidAmerica St. Louis Airport (MidAmerica), adjacent to Scott AFB, Illinois in compliance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] § 1500-1508), 32 CFR Part 989, *Environmental Impact Analysis Process*.

Per Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 CFR Part 800, *Protection of Historic Properties*, the USAF is engaging early with tribal governments as it formulates this undertaking. The USAF is also requesting NHPA Section 106 consultation for this project. Scott AFB and MidAmerica do not know of any historic properties of religious and cultural significance to the Citizen Potawatomi Nation (Oklahoma) within Scott AFB or MidAmerica. Nevertheless, we request consultation pursuant to Section 106 of the NHPA to ask for your assistance in identifying any such properties that may be affected by the project described in Attachment 1. You can use the questionnaire below to indicate whether you are interested in consulting. Upon completion, please return the questionnaire to us in the stamped and self-addressed envelope, as provided. Your decision to consult, or not consult, will have no effect on the handling of any human remains or associated funerary objects that may be inadvertently discovered during excavation. If any are discovered, we will contact you at that time to arrange for their disposition.

We look forward to receiving any input you may have regarding this endeavor. If you have any questions, please contact me by sending correspondence to my address provided above, by phone at (618) 256-9441, or by email at mark.mccoy.1@us.af.mil.

Sincerely,


MARK MCCOY, P.G.,
P2/Cultural Resources Manager

Attachments:
Attachment 1. Project Description
Attachment 2. Airspace Proposed for Use
Attachment 3. Questionnaire

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RECORD OF TRIBAL OUTREACH AND TRIBAL LETTER RESPONSES

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Table A-1. Record of Tribal Outreach

Tribe	Initial Letter Sent	UPS Letter Received by Tribe	1st Follow Up Phone Call	2nd Follow Up Email	Tribal Response Letter	Tribal Response Notes
Citizen Potawatomi Nation (Oklahoma)	10/24/19	10/26/19	12/3/19	NA	12/5/19	Action will not impact any known sites.
Eastern Shawnee Tribe of Oklahoma	10/24/19	10/26/19	12/3/19	12/6/19		
Kaw Nation	10/24/19	10/29/19	12/3/19	12/6/19		
Kickapoo Tribe of Indians in Kansas	10/24/19	10/28/19	12/3/19	12/6/19		
Kickapoo Tribe of Oklahoma	10/24/19	10/25/19	12/3/19	12/6/19		
Match-e-be-nash-she-wish Band of Potawatmi Indians of Michigan (aka Gun Lake Tribe)	10/24/19	10/25/19	12/3/19	12/6/19		
Miami Tribe of Oklahoma	10/24/19	10/29/19	12/3/19	NA	12/3/19	No further need to consult on this project.
Omaha Tribe of Nebraska	10/24/19	10/29/19	12/3/19	12/6/19		
Osage Nation of Oklahoma	10/24/19	10/28/19	12/3/19	NA	12/13/19	No further concern on this project.
Ottawa Tribe of Oklahoma	10/24/19	10/29/19	12/3/19	12/6/19		
Peoria Tribe of Indians of Oklahoma	10/24/19	10/28/19	12/3/19	12/6/19		
Pokagon Band of Potawatomi Indians, Michigan and Indiana	10/24/19	10/31/19	12/3/19	NA	12/4/19	No Historic Properties in the APE.
Ponca Tribe of Oklahoma	10/24/19	10/28/19	12/3/19	12/6/19		
Ponca Tribe of Nebraska	10/24/19	10/25/19	12/3/19	NA	12/4/19 email	No sites in or near the proposed project site
Prairie Band of Potawatomi Nation	10/24/19	10/25/19	12/3/19	12/6/19		
Quapaw Tribe of Oklahoma	10/24/19	10/28/19	12/3/19	NA	12/5/19	Quapaw Tribe does not wish to comment or consult.
Sac and Fox Nation of Missouri in Kansas and Nebraska	10/24/19	10/25/19	12/3/19	12/6/19		
Sac and Fox Nation of Oklahoma	10/24/19	10/28/19	12/3/19	12/6/19	1/21/20	No issues with the F-15Q/A Beddown EA

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U.S. FISH AND WILDLIFE SERVICE CORRESPONDENCE

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 375th AIR MOBILITY WING (AMC)

24 October 2019

Mr. Keith Brumley, USAF
Natural Resources Manager
701 Hangar Road
Building 531
Scott AFB, IL 62225-5035

Matthew Mangan
U.S. Fish and Wildlife Service
Marion Illinois Sub-Office
8588 Route 148
Marion, Illinois 62959
1511 47th Ave
Moline, IL 61265-7022

Dear Mr. Mangan,

Pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), the United States Air Force (USAF), Scott Air Force Base (AFB) is requesting concurrence from the U.S. Fish and Wildlife Service (USFWS) that the proposed action *may affect, but is not likely to adversely affect* the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*M. septentrionalis*).

Proposed Action

The USAF is preparing an Environmental Assessment (EA) for the temporary operation of up to six (6) F-15QA aircraft at MidAmerica St. Louis Airport (MidAmerica), adjacent to Scott AFB, Illinois in compliance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] § 1500-1508), 32 CFR Part 989, *et seq.*, *Environmental Impact Analysis Process* and Air Force Instruction (AFI) 32-7061. This EA will evaluate the effects of proposed facility improvements at MidAmerica and the effects of aircraft operations in the region of MidAmerica and within the airspace proposed for use. Please find the Project Description (Attachment 1) and a map of the airspace proposed for use (Attachment 2) for further details.

Threatened, Endangered, and Candidate Species and Critical Habitat

The USFWS Information for Planning and Consultation (IPaC) system was accessed online to request an *Official Species List* to identify species protected under Section 7(c) of the ESA that could occur within the proposed action area. On 8 October 2019, an *Official Species List* with the names of seven (7) federally listed species that could occur (Table 3-1) was generated (via online letters) by the USFWS Illinois-Iowa Ecological Services Field Office and the Southern Illinois Sub-Office (Consultation Codes: 03E18000-2020-SLI-0023, 03E18100-2020-SLI-0028) (Attachment 3). There are no documented occurrences of the federally listed species presented in Table 1 at MidAmerica (Trapp 2019). Additionally, no critical habitat for USFWS federally listed species was identified on or near the proposed action area (USFWS 2019a).

Table 1: Federally Listed Species with the Potential to Occur within the Proposed Action Area

Common Name	Scientific Name	Protection Status
Mammals		
Indiana Bat	<i>Myotis sodalis</i>	Endangered
Northern Long-eared Bat	<i>M. septentrionalis</i>	Threatened
Birds		
Least Tern	<i>Sterna antillarum</i>	Endangered
Fishes		
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered
Crustaceans		
Illinois Cave Amphipod	<i>Gammarus acherondytes</i>	Endangered
Flowering Plants		
Decurrent False Aster	<i>Boltonia decurrens</i>	Threatened
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened

Determination of Effects from the Proposed Action

The proposed action may affect, but is not likely to adversely affect the federally endangered Indiana bat and the federally threatened northern long-eared bat. There is no suitable habitat for these federally listed species within the proposed action area, and no new airspace would be created as part of this mission. However, the federally-endangered Indiana bat and federally threatened northern long-eared bat are known to roost in the forested floodplains of Silver Creek at Scott AFB, adjacent to MidAmerica (Scott AFB 2015). Implementation of the proposed action would result in an increase in the annual sorties conducted in the airspace proposed for use. F-15QA sorties would primarily be conducted during daylight hours and no flights would occur between 10:00 PM and 7:00 AM. For these reasons, it is considered unlikely, but possible, that aircraft could strike a listed bat species resulting in mortality. Therefore, the USAF has determined that the proposed action *may affect, but is not likely to adversely affect* the Indiana bat and the northern long-eared bat.

In addition, the proposed action would have *no effect* on the least tern, pallid sturgeon, Illinois cave amphipod, decurrent false aster, and eastern prairie fringed orchid as these species have not been observed at MidAmerica, nor is there suitable habitat for these species in the proposed action area. Additionally, no ground disturbance would occur under any of the airspace proposed for use. Attachment 4, Table 2 contains additional information and rationale on the effects determinations for these species.

We request your written concurrence with our determinations and any other comments or information regarding the action within 30 days from receipt of this letter to ensure the USAF has sufficient time to consider your input in the preparation of the Draft EA. Please forward written issues or concerns to me, within 30 days of receipt of this letter. If you have any questions, please contact me at 618-256-8328 or keith.brumley@us.af.mil. Keith Brumley, USAF Natural Resources Manager, 701 Hangar Road, Building 531, Scott AFB, IL 62225-5035. Thank you in advance for your assistance in this effort.

Sincerely,



KEITH BRUMLEY, USAF
Natural Resources Manager

Attachments:

Attachment 1. Project Description

Attachment 2. Airspace Proposed for Use

Attachment 3. Information for Planning and Conservation Trust Resources Reports

Attachment 4. Table 2. Potential for Impacts from the Proposed Action to Federally Listed Species within the Proposed Action Area

Project Description

The USAF Air Education Training Command (AETC) Air Force Security Assistance Training (AFSAT) squadron is preparing an EA to evaluate the proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The government of Qatar is purchasing up to 48 F-15QA aircraft through the U.S. Foreign Military Sales (FMS) program and has requested that a small number of pilots and maintenance personnel be trained in the U.S. before the aircraft are delivered to the Qatar Emiri Air Force (QEAF). The USAF is supporting the Qatar request to temporarily train on and operate the new F-15QA aircraft at MidAmerica. This mission would include temporarily basing and operating up to six F-15QA aircraft at MidAmerica for approximately 1 year. As part of the proposed action, AFSAT would lead this temporary mission under the operational control of AETC. Pilots and maintenance personnel would be trained at MidAmerica, but no changes to any of the USAF organizations at Scott AFB would occur.

Because this mission would be temporary, the beddown and operation of the F-15QA aircraft and all supporting elements of the mission (e.g., personnel, facilities) would end or be removed at the conclusion of the mission.

The temporary mission at MidAmerica would include each of the following elements:

- Up to six F-15QA aircraft and associated equipment beginning in the Fall of 2020.
- Increased airfield operations at MidAmerica, and sortie operations in nearby airspace and Military Operations Areas (MOAs).
- Use of the Scott AFB air traffic control tower.
- Approximately five USAF flight training and logistics personnel, approximately 50 Boeing employees conducting flight and maintenance training, and approximately 16 QEAF personnel.
- Temporary trailers and security facilities for the personnel along with temporary sunshades and metal tie downs for the aircraft.

Airfield Flight Operations

As part of the proposed action, Boeing instructor pilots and QEAF pilots would fly the F-15QA aircraft. Boeing instructor pilots have been contracted by the USAF to oversee and implement the training of QEAF pilots. A Boeing instructor pilot would be in the aircraft at all times during every sortie. Throughout this document the term F-15QA pilots refers to both QEAF and Boeing instructor pilots.

Flying operations are expected to occur Monday through Friday. Weekend flying operations are not anticipated but could occur to meet training syllabus requirements. During the approximately 1 year of this temporary mission, F-15QA pilots would fly approximately 1,027 sorties. No flights would occur between 10:00 P.M. and 7:00 A.M. Typical mission profiles would include aircraft departing as either single-ship takeoffs or two-ship formation takeoffs, using afterburner on 100 percent of departures. The aircraft would depart the MidAmerica area to fly in nearby MOAs.

Upon returning to MidAmerica, F-15QA pilots would fly multiple (up to four) instrument patterns and approach procedures under Regional Approach Control and/or multiple (up to six) overhead patterns under control of the Scott AFB control tower. The F-15QA pilots would use the standard fighter pattern altitude of 2,500 feet above mean sea level, and pilots would perform multiple touch and go landings before making a full-stop landing. Later in the training period, the F-15QA pilots would perform single-ship or formation landings to a full stop. Occasionally, up to four aircraft could depart and return as a flight.

Airfield Ground Support

Aerospace Ground Equipment would be used to support the F-15QA mission. Aerospace Ground Equipment could include F-15QA test and support equipment, Mobile Electric Power generators, field

deployable environmental control units, aircraft tugs, fuel trucks, compressors, etc. This equipment would be staged on the Golf Ramp and utilized as necessary during the temporary mission.

Airspace Flight Operations

No new airspace would be created as part of this mission. F-15QA pilots would depart MidAmerica to nearby Military Operations Areas (MOAs) for tactical maneuvering, primarily at medium-to-high altitudes, under the current MOA parameters (see Attachment 3). The airspace proposed for use includes the Lindbergh, Salem, Howard, Pruitt, and Red Hills MOAs, including all of their respective subsectors (A, B, C, etc.) and altitude blocks as necessary to meet the training syllabus requirements. Other existing charted airspace throughout the Midwest region would be used on an occasional basis.

While flying in the MOAs, F-15QA pilots would perform tactical maneuvering commensurate with air-to-air training. The training program would attempt to schedule dissimilar aircraft to serve as adversaries. Adversary aircraft could include T-38s from Whiteman AFB, Missouri, or F-16s from Air National Guard bases in Tulsa, Oklahoma, or Sioux Falls, South Dakota. No more than four F-15QA aircraft would be operated in a MOA at any given time, and pilots would typically operate within the boundaries of the MOA for less than 1 hour. Pilots would typically operate in two aircraft units either conducting basic fighter maneuvers or conducting intercept training. Intercept training occurs when two separate units (two aircraft each) conduct training with one unit practicing to locate and intercept the other unit. Pilots would fly a maximum of eight sorties a day on Monday/Wednesday/Friday and four sorties a day on Tuesday and Thursday. No chaff, flares, or live weapons would be used, and supersonic flight would not be conducted. As described above, no aircraft operations would occur in the airspace proposed for use between 10:00 P.M. and 7:00 A.M.

Pilot training would also include Low-Altitude Awareness Training. This training would only occur in the Salem and Pruitt MOAs within the altitude limits established and published by the Federal Aviation Administration (FAA) (FAA Order JO 7400.10A). Approximately 9 percent of sorties (approximately 93 sorties) over the 1-year training period would include Low-Altitude Awareness Training.

Temporary Personnel Changes

A variety of personnel would be required to support the temporary mission. As previously described, approximately 16 QEAF student pilots would be trained by approximately the same number of Boeing instructor pilots. A variety of maintenance, scheduling, and other Boeing support personnel would be required for this mission. Approximately 50 Boeing employees would support the mission at MidAmerica. In addition to the Boeing employees, approximately five USAF personnel would support the mission for training and logistics, including personnel in the air traffic control tower.

Temporary Facility Requirements

In support of the F-15QA beddown, a variety of temporary facilities would be installed on or adjacent to the Golf Ramp at MidAmerica. These temporary facilities include sunshades, metal aircraft tie downs, conex storage containers, and a temporary guard facility.

The six F-15QA aircraft would be parked along the western edge of the Golf Ramp (Figure 1). Three temporary sunshades (106 feet long by 90 feet wide by 45 feet high) and associated metal aircraft tie downs would be installed on the Golf Ramp. Each sunshade would shade two aircraft. The metal aircraft tie downs would be installed into the concrete on either side of each F 15QA aircraft at their proposed parking locations. The concrete ramp would be cut, broken, and re-poured to install flush steel anchor points for the aircraft tie downs. These metal tie downs would be used to secure the aircraft to the ramp while the aircraft are not being used at night and on weekends. Security fencing would also be installed around the three temporary sunshades.

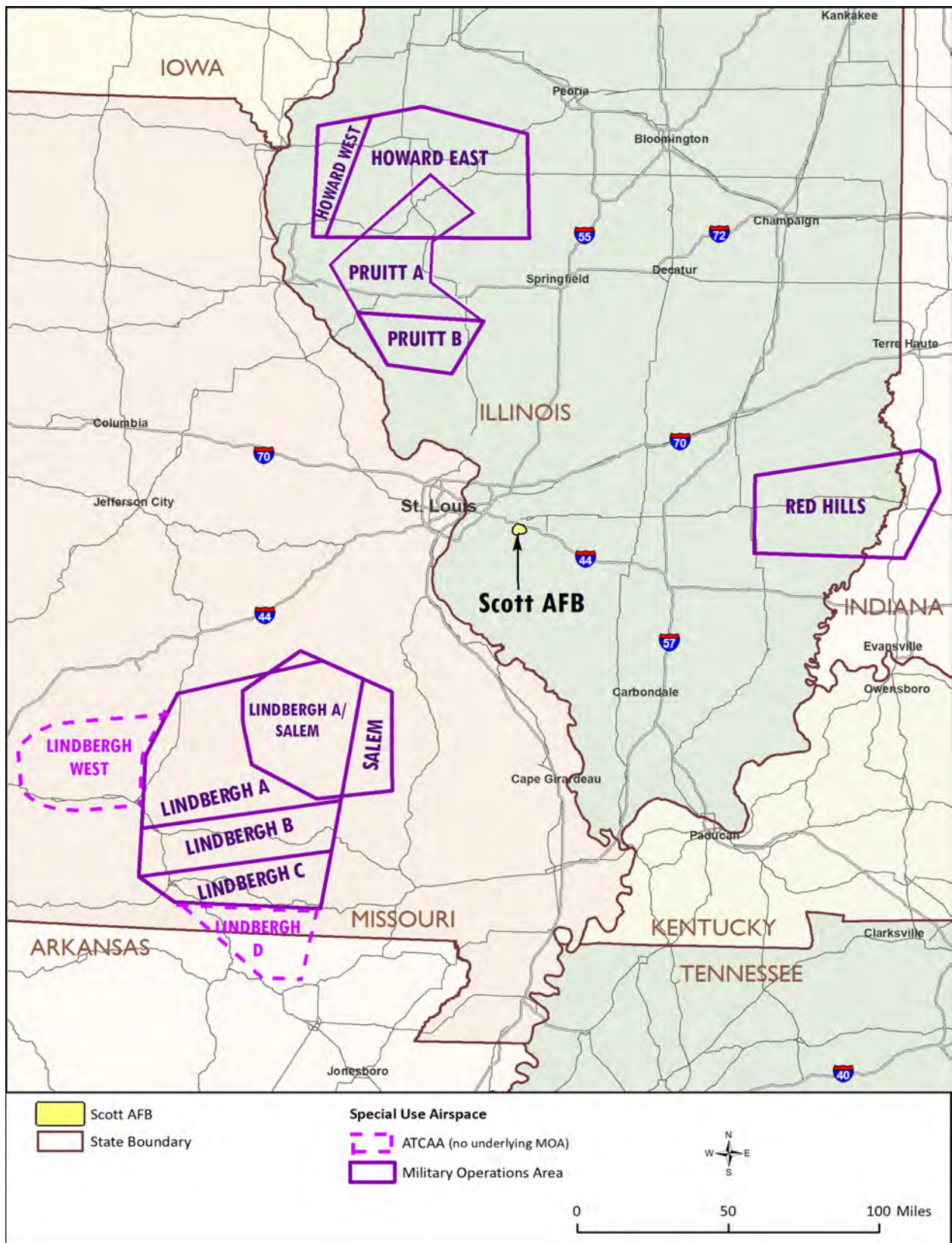
As additional support for this temporary action, up to four temporary storage facilities (conex containers) would be located on or adjacent to the Golf Ramp. These containers would be used to secure tools, flight equipment, and other materials and equipment necessary to support the F-15QA mission.

To accommodate the security requirements, a temporary guard facility would also be located on or adjacent to the Golf Ramp during the approximately 1 year temporary mission timeframe.



Figure 1. Golf Ramp and Secure Area at MidAmerica (Construction APE)

Upon completion of the mission, the sunshades, metal aircraft tie downs, conex containers, and temporary guard facility would be removed and the Golf Ramp and the adjacent site would be returned to pre-beddown conditions.



Airspace Proposed for Use



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Southern Illinois Sub-Office (ES)
8588 Route 148
Marion, Illinois 62959

FWS/SISO

December 13, 2019

Mr. Keith Brumley, USAF
Natural Resources Manager
701 Hangar Road
Building 531
Scott AFB, Illinois 62225-5035

Dear Mr. Brumley:

Thank you for your letter dated October 24, 2019, requesting review of the temporary operation of up to six F-15QA aircraft at Scott Air Force Base (AFB), St. Clair County, Illinois. These comments are provided under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.); and, the National Environmental Policy Act (83 Stat. 852, as amended P.L. 91-190, 42 U.S.C. 4321 et seq.).

Threatened and Endangered Species

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service (Service) information concerning any species, listed or proposed to be listed, which may be present in the area of the proposed project. The list for the proposed project area includes the endangered Indiana bat (*Myotis sodalis*), endangered least tern (*Sterna antillarum*), endangered Illinois cave amphipod (*Gammarus acherondynus*), endangered pallid sturgeon (*Scaphirhynchus albus*), threatened decurrent false aster (*Boitonia decurrens*), threatened eastern prairie fringed orchid (*Platanthera leucophaea*), and threatened northern long-eared bat (*Myotis septentrionalis*). There is no designated critical habitat in the project area at this time.

Information in your letter indicates that suitable habitat does not exist in the project area for the Illinois cave amphipod, least tern and pallid sturgeon and that the decurrent false aster and eastern prairie fringed orchid are not known to occur within the project area, thus you have made a no effect determination for these species. This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended, for these species.

Mr. Keith Brumley

2

Known roosting habitat for the Indiana bat and northern long-eared bat occur on Scott AFB adjacent to the proposed action area. Information in your letter indicates that the proposed activities are temporary and would last approximately 1 year. In addition, the flights would primarily occur during daylight hours and no flights would occur between 10:00 PM and 7:00 AM. Based on this information you have determined that the proposed action is not likely to adversely affect the Indiana bat and northern long-eared bat. Given that the proposed action is temporary, primarily occurring during daylight hours, and involves a minor increase to existing flight operations at Scott AFB it is highly unlikely that an aircraft would strike a listed bat species. Based on this information, the Service concurs that the proposed actions are not likely to adversely affect the Indiana bat and northern long-eared bat. Should this project be modified or new information indicate listed or proposed species may be affected, consultation or additional coordination with this office, as appropriate, should be initiated.

Future temporary flight operations should be evaluated for their inclusion under the programmatic consultation being conducted for Air Force flight operations at multiple installations including Scott AFB.

Thank you for the opportunity to review and comment on the proposed projects. For additional coordination, please contact me at 618-998-5945.

Sincerely,

/s/ Matthew T. Mangan

Matthew T. Mangan
Fish and Wildlife Biologist

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PUBLIC NOTICE NEWSPAPER ADVERTISEMENT

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Draft EA Newspaper Display Advertisement

PUBLIC NOTICE

Notice of Availability (NOA) of the Draft Environmental Assessment (EA) for Qatar Emiri Air Force (QEAF) F-15QA Training MidAmerica Airport, Illinois

The Draft EA addresses the potential impacts resulting from the temporary (up to 1 year) construction of facilities and operation of up to six F-15QA aircraft from MidAmerica.

Qatar is purchasing F-15QA aircraft through the U.S. Foreign Military Sales (FMS) program and requested that a small number of pilots be trained in the U.S. The USAF is supporting this request to temporarily train and operate the new F-15QA aircraft from MidAmerica. FAA charted and approved Special Use Airspace in Illinois, Missouri and Arkansas would be temporarily used for aircraft operations. The Air Education Training Command (AETC) would lead this temporary mission. Qatar student pilots would be trained at MidAmerica by U.S. instructor pilots, but no changes to any of the USAF organizations at Scott AFB would occur. The public is invited to review the Draft EA and provide comments. The public comment period extends from February 28, 2020 to March 29, 2020. An electronic copy of the Draft EA is available at: www.scott.af.mil

A printed copy of the Draft EA is also available at the Belleville Main Library, 121 East Washington; Belleville, IL 62220 and at the O'Fallon Public Library at 120 Civic Plaza; O'Fallon, IL 62269. Substantive written comments and questions will be addressed in the Final EA. To be included in the Final EA, substantive comments and questions must be received prior to the close of the formal comment period on March 29, 2020. Comments and questions about the Draft EA or the comment process can be directed to: 375 AMW Public Affairs Office, 901 South Drive, Building 700 West, Scott AFB, IL 62225. Comments are encouraged to be sent by email to 375AMW.PA@us.af.mil. The telephone number is (618) 256-4241.

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Appendix B
Biological Resources Supporting Information

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**U.S. FISH AND WILDLIFE SERVICE INFORMATION FOR PLANNING AND
CONSULTATION (IPaC) REPORT FOR ST. CLAIR COUNTY, ILLINOIS**

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

St. Clair County, Illinois



Local offices

Illinois-Iowa Ecological Services Field Office

☎ (309) 757-5800

📠 (309) 757-5807

Illinois & Iowa Ecological Services Field Office

1511 47th Ave

Moline, IL 61265-7022

Southern Illinois Sub-Office

☎ (618) 997-3344

📠 (618) 997-8961

Southern Illinois Sub-office

8588 Route 148

Marion, IL 62959-5822

<http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html>

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Indiana Bat *Myotis sodalis***Endangered**

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/5949>

Northern Long-eared Bat *Myotis septentrionalis***Threatened**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9045>

Birds

NAME

STATUS

Least Tern *Sterna antillarum***Endangered**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8505>

Fishes

NAME

STATUS

Pallid Sturgeon *Scaphirhynchus albus***Endangered**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7162>

Crustaceans

NAME

STATUS

Illinois Cave Amphipod *Gammarus acherondytes***Endangered**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8412>

Flowering Plants

NAME

STATUS

Decurrent False Aster *Boltonia decurrens***Threatened**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7705>

Eastern Prairie Fringed Orchid *Platanthera leucophaea***Threatened**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/601>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A
BREEDING SEASON IS INDICATED
FOR A BIRD ON YOUR LIST, THE
BIRD MAY BREED IN YOUR
PROJECT AREA SOMETIME WITHIN
THE TIMEFRAME SPECIFIED,

WHICH IS A VERY LIBERAL
ESTIMATE OF THE DATES INSIDE
WHICH THE BIRD BREEDS
ACROSS ITS ENTIRE RANGE.
"BREEDS ELSEWHERE" INDICATES
THAT THE BIRD DOES NOT LIKELY
BREED IN YOUR PROJECT AREA.)

American Bittern *Botaurus lentiginosus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/6582>

Breeds Apr 1 to Aug 31

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Oct 15 to Aug 31

Cerulean Warbler *Dendroica cerulea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/2974>

Breeds Apr 21 to Jul 20

Henslow's Sparrow *Ammodramus henslowii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3941>

Breeds May 1 to Aug 31

Kentucky Warbler *Oporornis formosus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 20 to Aug 20

Lesser Yellowlegs *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Breeds elsewhere

Prothonotary Warbler *Protonotaria citrea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 1 to Jul 31

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rusty Blackbird *Euphagus carolinus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper *Calidris pusilla*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

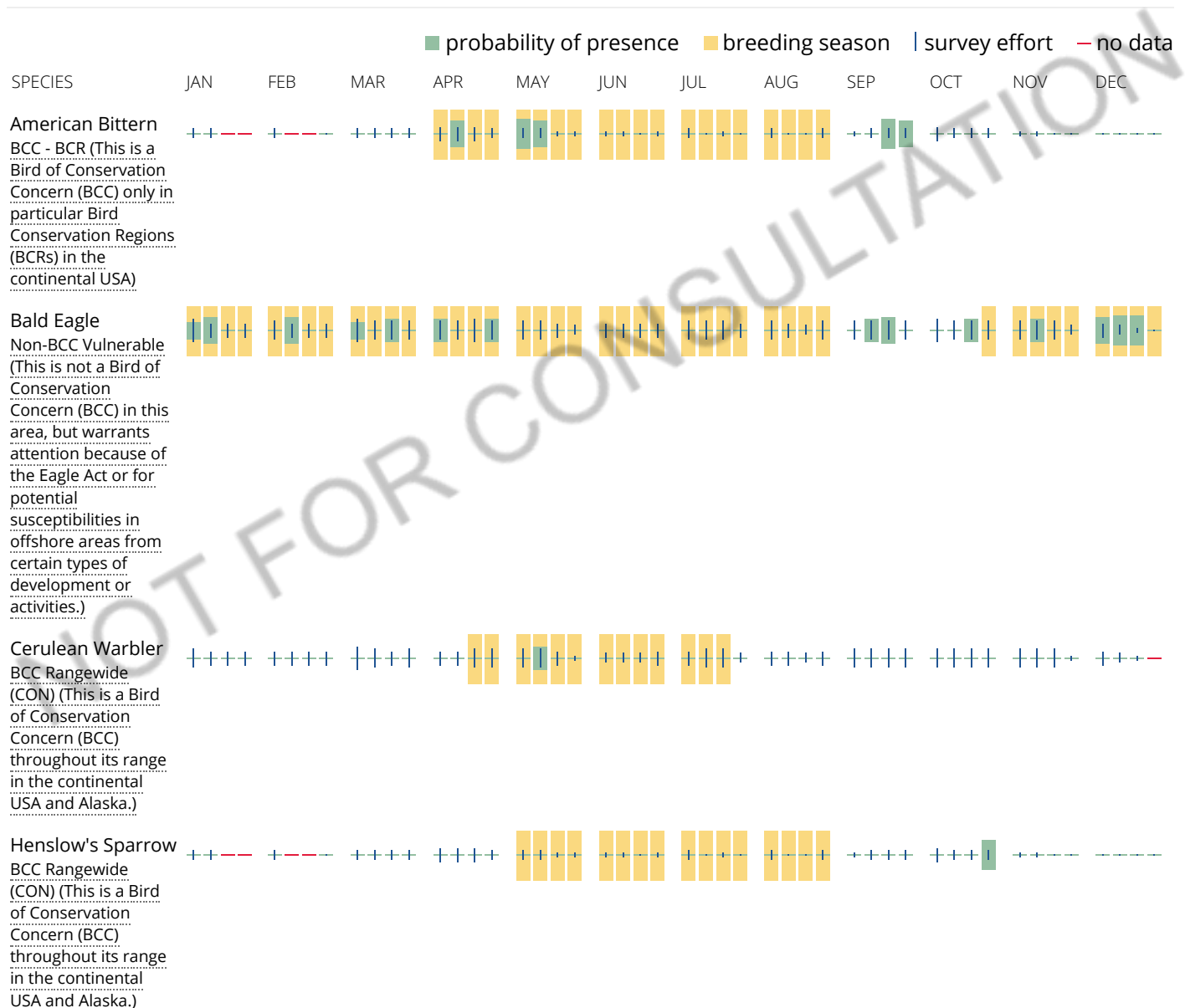
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and

avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird

impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal,

state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

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**ILLINOIS DEPARTMENT OF NATURAL RESOURCES THREATENED AND
ENDANGERED SPECIES LIST FOR ST. CLAIR COUNTY**

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Illinois Threatened and Endangered Species by County

Illinois Natural Heritage Database

as of July 23, 2018

Important Note: The Illinois Natural Heritage Database is updated daily with data pertaining to threatened and endangered species occurrences in Illinois. Please check this website quarterly for updates to this list or contact Database staff directly at tara.kieninger@illinois.gov.

Note that because many birds observed in the state are merely migrants passing through, we typically only track those sightings which have evidence of breeding (nest with young, breeding and/or nesting behavior in adults, juveniles observed, etc.). We normally do not track birds observed perched on a tree branch, flying in the air, or feeding unless other evidence of breeding is witnessed or there is an existing breeding record for the species in the area.

State Status:

LE - listed as endangered

LT - listed as threatened

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u># of Occurrences</u>	<u>Last Observed</u>
Adams				
<i>Acipenser fulvescens</i>	Lake Sturgeon	LE	1	1966-09-28
<i>Anguilla rostrata</i>	American Eel	LT	4	2016-09-14
<i>Carex prasina</i>	Drooping Sedge	LT	1	1989-06-15
<i>Cumberlandia monodonta</i>	Spectaclecase	LE	1	1987-07-19
<i>Delphinium carolinianum</i>	Wild Blue Larkspur	LT	2	1971-05-20
<i>Dendroica cerulea</i>	Cerulean Warbler	LT	2	2007-06-30
<i>Ellipsaria lineolata</i>	Butterfly	LT	4	2016-07-21
<i>Elliptio crassidens</i>	Elephant-ear	LE	1	1987-06-18
<i>Fusconaia ebena</i>	Ebonysnail	LE	3	2016-07-21
<i>Hybognathus hayi</i>	Cypress Minnow	LE	1	2004-09-16
<i>Ictinia mississippiensis</i>	Mississippi Kite	LT	1	1990-07-13
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE	2	1989
<i>Ligumia recta</i>	Black Sandshell	LT	3	2015-07-21
<i>Melanthium virginicum</i>	Bunchflower	LT	1	1944-06-29
<i>Mentzelia oligosperma</i>	Stickleaf	LE	1	2009
<i>Myotis grisescens</i>	Gray Bat	LE	1	2000-02-08
<i>Myotis septentrionalis</i>	Northern Long-eared Myotis	LT	10	2016-06-27
<i>Myotis sodalis</i>	Indiana Bat	LE	16	2017-05-28
<i>Pandion haliaetus</i>	Osprey	LE	1	1986-SU
<i>Plethobasus cyphus</i>	Sheepnose	LE	1	1987-07-19
<i>Poa wolfii</i>	Wolf's Bluegrass	LE	1	2018-05-29
<i>Scirpus polyphyllus</i>	Bulrush	LT	1	1989-06-15
<i>Thryomanes bewickii</i>	Bewick's Wren	LE	1	2013-05-18
<i>Trifolium reflexum</i>	Buffalo Clover	LT	1	2018-05-29
<i>Trillium viride</i>	Green Trillium	LE	1	2002-05-10
<i>Ulmus thomasii</i>	Rock Elm	LE	1	1943-06-20
<i>Viburnum molle</i>	Arrowwood	LT	3	2011-06-20

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u># of Occurrences</u>	<u>Last Observed</u>
<u>Shelby</u>				
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LE	1	2011-06-16
<i>Pandion haliaetus</i>	Osprey	LE	1	2017
<i>Penstemon tubaeiflorus</i>	Tube Beard Tongue	LE	1	1997-06-27
<i>Phalaropus tricolor</i>	Wilson's Phalarope	LE	1	2005-06-23
<i>Plethobasus cyphus</i>	Sheepnose	LE	1	2017-08-24
<i>Rallus elegans</i>	King Rail	LE	1	2013-07-14
<i>Terrapene ornata</i>	Ornate Box Turtle	LT	1	1967-06-12
<i>Trifolium reflexum</i>	Buffalo Clover	LT	1	2004-05-19
<i>Tyto alba</i>	Barn Owl	LT	3	2016
<u>Total # of Species</u>			<u>22</u>	

<u>St. Clair</u>				
<i>Anguilla rostrata</i>	American Eel	LT	3	1991-08-22
<i>Apalone mutica</i>	Smooth Softshell	LE	1	2015-08-17
<i>Asio flammeus</i>	Short-eared Owl	LE	1	2013-WI
<i>Boltonia decurrens</i>	Decurrent False Aster	LT	1	2015-09
<i>Circus cyaneus</i>	Northern Harrier	LE	1	2013-WI
<i>Egretta caerulea</i>	Little Blue Heron	LE	2	2014-07-14
<i>Egretta thula</i>	Snowy Egret	LE	1	2001-06-16
<i>Fontigens antroecetes</i>	Hydrobiid cave snail	LE	1	2016-12-11
<i>Gallinula galeata</i>	Common Gallinule	LE	5	2004-06-22
<i>Gammarus acherondytes</i>	Illinois Cave Amphipod	LE	1	1965-06-13
<i>Ixobrychus exilis</i>	Least Bittern	LT	2	2015-06-25
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE	1	1983-06-30
<i>Malvastrum hispidum</i>	False Mallow	LE	1	2001-11-08
<i>Myotis septentrionalis</i>	Northern Long-eared Myotis	LT	1	2009-07-06
<i>Myotis sodalis</i>	Indiana Bat	LE	2	2014-06-20
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	LE	2	1999-07-14
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LE	2	2014-06-30
<i>Salvia azurea</i>	Blue Sage	LT	1	1963-09-05
<i>Trifolium reflexum</i>	Buffalo Clover	LT	1	1990-07-25
<i>Trillium viride</i>	Green Trillium	LE	1	1999-05-13
<i>Tyto alba</i>	Barn Owl	LT	7	2016-06-14
<u>Total # of Species</u>			<u>21</u>	

<u>Stark</u>				
<i>Bartramia longicauda</i>	Upland Sandpiper	LE	1	2011-07-08
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE	3	2005-05-24
<i>Notropis heterolepis</i>	Blacknose Shiner	LE	2	2010-08-18

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u># of Occurrences</u>	<u>Last Observed</u>
<u>Shelby</u>				
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LE	1	2011-06-16
<i>Pandion haliaetus</i>	Osprey	LE	1	2017
<i>Penstemon tubaeiflorus</i>	Tube Beard Tongue	LE	1	1997-06-27
<i>Phalaropus tricolor</i>	Wilson's Phalarope	LE	1	2005-06-23
<i>Plethobasus cyphus</i>	Sheepnose	LE	1	2017-08-24
<i>Rallus elegans</i>	King Rail	LE	1	2013-07-14
<i>Terrapene ornata</i>	Ornate Box Turtle	LT	1	1967-06-12
<i>Trifolium reflexum</i>	Buffalo Clover	LT	1	2004-05-19
<i>Tyto alba</i>	Barn Owl	LT	3	2016
<u>Total # of Species</u>			<u>22</u>	

<u>St. Clair</u>				
<i>Anguilla rostrata</i>	American Eel	LT	3	1991-08-22
<i>Apalone mutica</i>	Smooth Softshell	LE	1	2015-08-17
<i>Asio flammeus</i>	Short-eared Owl	LE	1	2013-WI
<i>Boltonia decurrens</i>	Decurrent False Aster	LT	1	2015-09
<i>Circus cyaneus</i>	Northern Harrier	LE	1	2013-WI
<i>Egretta caerulea</i>	Little Blue Heron	LE	2	2014-07-14
<i>Egretta thula</i>	Snowy Egret	LE	1	2001-06-16
<i>Fontigens antroecetes</i>	Hydrobiid cave snail	LE	1	2016-12-11
<i>Gallinula galeata</i>	Common Gallinule	LE	5	2004-06-22
<i>Gammarus acherondytes</i>	Illinois Cave Amphipod	LE	1	1965-06-13
<i>Ixobrychus exilis</i>	Least Bittern	LT	2	2015-06-25
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE	1	1983-06-30
<i>Malvastrum hispidum</i>	False Mallow	LE	1	2001-11-08
<i>Myotis septentrionalis</i>	Northern Long-eared Myotis	LT	1	2009-07-06
<i>Myotis sodalis</i>	Indiana Bat	LE	2	2014-06-20
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	LE	2	1999-07-14
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LE	2	2014-06-30
<i>Salvia azurea</i>	Blue Sage	LT	1	1963-09-05
<i>Trifolium reflexum</i>	Buffalo Clover	LT	1	1990-07-25
<i>Trillium viride</i>	Green Trillium	LE	1	1999-05-13
<i>Tyto alba</i>	Barn Owl	LT	7	2016-06-14
<u>Total # of Species</u>			<u>21</u>	

<u>Stark</u>				
<i>Bartramia longicauda</i>	Upland Sandpiper	LE	1	2011-07-08
<i>Lanius ludovicianus</i>	Loggerhead Shrike	LE	3	2005-05-24
<i>Notropis heterolepis</i>	Blacknose Shiner	LE	2	2010-08-18

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**BIRD CONSERVATION REGION (BCR) 22 AND 24 BIRDS OF CONSERVATION
CONCERN (BCC) 2008 LIST**

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BCR 22 (Eastern Tallgrass Prairie) BCC 2008 list.²²

Pied-billed Grebe	Dickcissel
Horned Grebe (nb)	Rusty Blackbird (nb)
American Bittern	
Least Bittern	
Black-crowned Night-Heron	
Bald Eagle (b)	
Peregrine Falcon (b)	
Black Rail	
Solitary Sandpiper (nb)	
Upland Sandpiper	
Whimbrel (nb)	
Hudsonian Godwit (nb)	
Marbled Godwit (nb)	
Red Knot (<i>roselaari</i> ssp.) (nb)	
Red Knot (<i>rufa</i> ssp.) (a) (nb)	
Buff-breasted Sandpiper (nb)	
Short-billed Dowitcher (nb)	
Black Tern	
Common Tern	
Black-billed Cuckoo	
Short-eared Owl (nb)	
Whip-poor-will	
Red-headed Woodpecker	
Northern Flicker	
Acadian Flycatcher	
Loggerhead Shrike	
Bell's Vireo (c)	
Bewick's Wren (<i>bewickii</i> ssp.)	
Wood Thrush	
Blue-winged Warbler	
Cerulean Warbler	
Prothonotary Warbler	
Kentucky Warbler	
Field Sparrow	
Grasshopper Sparrow	
Henslow's Sparrow	
Smith's Sparrow	
Longspur (nb)	

²² (a) ESA candidate, (b) ESA delisted, (c) non-listed subspecies or population of Threatened or Endangered species, (d) MBTA protection uncertain or lacking, (nb) non-breeding in this BCR

BCR 24 (Central Hardwoods) BCC 2008 list.²⁴

Bald Eagle (b)
Peregrine Falcon (b)
Black Rail
Solitary Sandpiper (nb)
Buff-breasted Sandpiper (nb)
Short-eared Owl (nb)
Whip-poor-will
Red-headed Woodpecker
Loggerhead Shrike
Bell's Vireo (c)
Brown-headed Nuthatch
Bewick's Wren (*bewickii* ssp.)
Sedge Wren
Wood Thrush
Blue-winged Warbler
Prairie Warbler Cerulean
Warbler Worm-eating
Warbler Swainson's
Warbler Kentucky
Warbler Bachman's
Sparrow Henslow's
Sparrow LeConte's
Sparrow (nb) Smith's
Longspur (nb) Painted
Bunting
Rusty Blackbird (nb)

24 (a) ESA candidate, (b) ESA delisted, (c) non-listed subspecies or population of Threatened or Endangered species, (d) MBTA protection uncertain or lacking, (nb) non-breeding in this BCR

Appendix C
Air Conformity Applicability Model Report

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AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance And Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: SCOTT AFB
State: Illinois
County(s): St Clair
Regulatory Area(s): St Louis, MO-IL

b. Action Title: QEAF F-15QA Training Action at MidAmerica

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2020

e. Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

f. Point of Contact:

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
 ___X___ not applicable

Conformity Analysis Summary:

2020

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
St Louis, MO-IL			
VOC	0.932	100	No
NOx	16.596	100	No
CO	3.631		
SOx	0.914		
PM 10	1.474		
PM 2.5	1.336		
Pb	0.000		
NH3	0.002		
CO2e	2559.0		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2021

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
St Louis, MO-IL			
VOC	3.107	100	No
NOx	55.320	100	No
CO	12.104		
SOx	3.046		
PM 10	4.913		
PM 2.5	4.454		
Pb	0.000		
NH3	0.006		
CO2e	8530.2		

2022 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
St Louis, MO-IL			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Chris Crabtree, AQ Specialist/Meteorologist

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SCOTT AFB
State: Illinois
County(s): St Clair
Regulatory Area(s): St Louis, MO-IL

- **Action Title:** QEAF F-15QA Training Action at MidAmerica

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 10 / 2020

- **Action Purpose and Need:**

- Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

- Point of Contact

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

- Activity List:

Activity Type		Activity Title
2.	Aircraft	QEAF F-15QA training action at MidAmerica
3.	Aircraft	QEAF F-15QA Training Action at MidAmerica
4.	Personnel	QEAF F-15QA Training Action at MidAmerica

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- **Add or Remove Activity from Baseline?** Add

- Activity Location

County: St Clair
Regulatory Area(s): St Louis, MO-IL

- **Activity Title:** QEAF F-15QA training action at MidAmerica

- Activity Description:

F-15QA LTOs, trim tests, and AGE usage at MidAmerica.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date

Start Month: 10
Start Year: 2020

- Activity End Date

Indefinite: No
End Month: 10
End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	3.306161
SO _x	1.950172
NO _x	23.519350
CO	13.759982
PM 10	3.469105

Pollutant	Total Emissions (TONs)
PM 2.5	3.162384
Pb	0.000000
NH ₃	0.000000
CO ₂ e	4881.7

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
VOC	1.292315
SO _x	1.516806
NO _x	17.183831
CO	10.128282
PM 10	2.823584

Pollutant	Total Emissions (TONs)
PM 2.5	2.540387
Pb	0.000000
NH ₃	0.000000
CO ₂ e	4472.9

- Activity Emissions [Test Cell part]:

Pollutant	Total Emissions (TONs)
VOC	0.043794
SO _x	0.036516
NO _x	0.666622
CO	0.174883
PM 10	0.061140

Pollutant	Total Emissions (TONs)
PM 2.5	0.055092
Pb	0.000000
NH ₃	0.000000
CO ₂ e	110.4

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Total Emissions (TONs)
VOC	1.970052
SO _x	0.396850
NO _x	5.668897
CO	3.456818
PM 10	0.584381

Pollutant	Total Emissions (TONs)
PM 2.5	0.566905
Pb	0.000000
NH ₃	0.000000
CO ₂ e	298.5

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: F-15E
Engine Model: F100-PW-229
Primary Function: Combat
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Original Aircraft Name:

Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	1087.00	0.45	1.07	3.80	10.17	2.06	1.85	3234
Approach	3098.00	0.24	1.07	15.08	1.17	2.63	2.37	3234
Intermediate	5838.00	0.35	1.07	17.54	0.15	2.06	1.85	3234
Military	11490.00	0.31	1.07	29.29	0.33	1.33	1.20	3234
After Burn	20793.00	5.26	1.07	14.30	21.51	1.15	1.04	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	6
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	1027
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	0
Number of Annual Trim Test(s) per Aircraft:	12

- Default Settings Used: Yes

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	18.5 (default)
Takeoff [Military] (mins):	0.2 (default)
Takeoff [After Burn] (mins):	0.2 (default)
Climb Out [Intermediate] (mins):	0.8 (default)
Approach [Approach] (mins):	3.5 (default)
Taxi/Idle In [Idle] (mins):	11.3 (default)

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12 (default)
Approach (mins):	27 (default)
Intermediate (mins):	9 (default)
Military (mins):	9 (default)
AfterBurn (mins):	3 (default)

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

NE: Number of Engines

LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$$AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{LTO} : Aircraft Emissions (TONs)

AEM_{IDLE_IN} : Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT} : Aircraft Emissions for Idle-Out Mode (TONs)

$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)

$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$$

AEM_{POL} : Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

TGO: Number of Touch-and-Go Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{TGO} : Aircraft Emissions (TONs)

$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)

$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM} : Aircraft Emissions (TONs)

$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)

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AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
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2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
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2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

2.5 Aircraft Engine Test Cell

2.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 12

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1 (default)
Idle Duration (mins):	12 (default)
Approach Duration (mins):	27 (default)
Intermediate Duration (mins):	9 (default)
Military Duration (mins):	9 (default)
After Burner Duration (mins):	3 (default)

2.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2.5.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$$\text{TestCellPS}_{\text{POL}} = (\text{TD} / 60) * (\text{FC} / 1000) * \text{EF} * \text{NE} * \text{ARU} / 2000$$

TestCellPS_{POL}: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)

ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year

$$\text{TestCell} = \text{TestCellPS}_{\text{IDLE}} + \text{TestCellPS}_{\text{APPROACH}} + \text{TestCellPS}_{\text{INTERMEDIATE}} + \text{TestCellPS}_{\text{MILITARY}} + \text{TestCellPS}_{\text{AFTERBURN}}$$

TestCell: Aircraft Engine Test Cell Emissions (TONs)

TestCellPS_{IDLE}: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)

TestCellPS_{APPROACH}: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)

TestCellPS_{INTERMEDIATE}: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)

TestCellPS_{MILITARY}: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)

TestCellPS_{AFTERBURN}: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

2.6 Aerospace Ground Equipment (AGE)

2.6.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 1027

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	0.33	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Bomb Lift	MJ-1B
1	0.33	No	Generator Set	A/M32A-86D
1	0.5	No	Heater	H1
1	0.5	No	Hydraulic Test Stand	MJ-2/TTU-228 - 130hp
1	8	No	Light Cart	NF-2
1	0.33	No	Start Cart	A/M32A-60A

2.6.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MJ-1B	0.0	3.040	0.219	4.780	3.040	0.800	0.776	141.2
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0

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H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2/TTU-228 - 130hp	7.4	0.195	0.053	3.396	0.794	0.089	0.086	168.8
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

2.6.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)

AGE: Total Number of Aerospace Ground Equipment

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: St Clair

Regulatory Area(s): St Louis, MO-IL

- Activity Title: QEAF F-15QA Training Action at MidAmerica

- Activity Description:

F-15QA Closed Patterns at MidAmerica

- Activity Start Date

Start Month: 10

Start Year: 2020

- Activity End Date

Indefinite: No

End Month: 10

End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.603397
SO _x	2.009178
NO _x	48.287195
CO	0.516835
PM 10	2.914373

Pollutant	Total Emissions (TONs)
PM 2.5	2.624571
Pb	0.000000
NH ₃	0.000000
CO ₂ e	6072.6

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
VOC	0.603397
SO _x	2.009178

Pollutant	Total Emissions (TONs)
PM 2.5	2.624571
Pb	0.000000

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

NO _x	48.287195
CO	0.516835
PM 10	2.914373

NH ₃	0.000000
CO _{2e}	6072.6

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: F-15E
Engine Model: F100-PW-229
Primary Function: Combat
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	1087.00	0.45	1.07	3.80	10.17	2.06	1.85	3234
Approach	3098.00	0.24	1.07	15.08	1.17	2.63	2.37	3234
Intermediate	5838.00	0.35	1.07	17.54	0.15	2.06	1.85	3234
Military	11490.00	0.31	1.07	29.29	0.33	1.33	1.20	3234
After Burn	20793.00	5.26	1.07	14.30	21.51	1.15	1.04	3234

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 6
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 7323
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used:

No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins): 0
Takeoff [Military] (mins): 0.86
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 0.74
Approach [Approach] (mins): 0
Taxi/Idle In [Idle] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

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- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$$AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{LTO}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

TGO: Number of Touch-and-Go Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{TGO}: Aircraft Emissions (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{\text{TRIM}} = AEPS_{\text{IDLE}} + AEPS_{\text{APPROACH}} + AEPS_{\text{INTERMEDIATE}} + AEPS_{\text{MILITARY}} + AEPS_{\text{AFTERBURN}}$$

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

3.4 Auxiliary Power Unit (APU)

3.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
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3.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
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3.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$$APU_{\text{POL}} = APU * OH * LTO * EF_{\text{POL}} / 2000$$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

4. Personnel

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: St Clair

Regulatory Area(s): St Louis, MO-IL

- Activity Title: QEAF F-15QA Training Action at MidAmerica

- Activity Description:

Personnel Commuting

- Activity Start Date

Start Month: 10

Start Year: 2020

- Activity End Date

Indefinite: No

End Month: 10

End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.129433
SO _x	0.000897
NO _x	0.109461
CO	1.458319
PM 10	0.003261

Pollutant	Total Emissions (TONs)
PM 2.5	0.002906
Pb	0.000000
NH ₃	0.008239
CO ₂ e	134.9

4.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel: 5

Civilian Personnel: 0

Support Contractor Personnel: 50

Air National Guard (ANG) Personnel: 0

Reserve Personnel: 0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel: 5 Days Per Week (default)

Civilian Personnel: 5 Days Per Week (default)

Support Contractor Personnel: 5 Days Per Week (default)

Air National Guard (ANG) Personnel: 4 Days Per Week (default)

Reserve Personnel: 4 Days Per Month (default)

4.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

GOVs	54.49	37.73	4.67	0	0	3.11	0
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4.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.284	000.002	000.210	003.297	000.008	000.007		000.023	00334.752
LDGT	000.373	000.003	000.376	004.605	000.010	000.009		000.024	00432.145
HDGV	000.759	000.005	001.058	016.595	000.024	000.021		000.046	00793.273
LDDV	000.119	000.003	000.128	002.465	000.004	000.004		000.008	00323.662
LDDT	000.269	000.004	000.373	004.281	000.007	000.006		000.008	00460.243
HDDV	000.349	000.013	004.048	001.427	000.172	000.158		000.026	01481.655
MC	002.458	000.003	000.737	012.849	000.026	000.023		000.052	00398.228

4.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$$VMT_P = NP * WD * AC$$

VMT_P: Personnel Vehicle Miles Travel (miles/year)

NP: Number of Personnel

WD: Work Days per Year

AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$$

VMT_{Total}: Total Vehicle Miles Travel (miles)

VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)

VMT_C: Civilian Personnel Vehicle Miles Travel (miles)

VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)

VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)

VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year

$$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{Total}: Total Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Personnel On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance And Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: SCOTT AFB
State: Illinois
County(s): Brown; Scott
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: QEAF F-15QA Training Action at MidAmerica

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2020

e. Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

f. Point of Contact:

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions.

“Air Quality Indicators” were used to provide an indication of the significance of potential impacts to air quality. These air quality indicators are EPA General Conformity Rule (GCR) thresholds (de minimis levels) that are applied out of context to their intended use. Therefore, these indicators do not trigger a regulatory requirement; however, they provide a warning that the action is potentially significant. It is important to note that these indicators only provide a clue to the potential impacts to air quality.

Given the GCR de minimis threshold values are the maximum net change an action can acceptably emit in non-attainment and maintenance areas, these threshold values would also conservatively indicate an actions emissions within an attainment would also be acceptable. An air quality indicator value of 100 tons/yr is used based on the GCR de minimis threshold for the least severe non-attainment classification for all criteria pollutants (see 40 CFR 93.153). Therefore, the worst-case year emissions were compared against the GCR Indicator and are summarized below.

Analysis Summary:

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

2020

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.349	100	No
NOx	1.961	100	No
CO	1.395	100	No
SOx	0.107	100	No
PM 10	0.121	100	No
PM 2.5	0.110	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	229.9		

2021

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.164	100	No
NOx	6.537	100	No
CO	4.651	100	No
SOx	0.356	100	No
PM 10	0.404	100	No
PM 2.5	0.365	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	766.4		

2022 - (Steady State)

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000	100	No
SOx	0.000	100	No
PM 10	0.000	100	No
PM 2.5	0.000	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	0.0		

None of estimated emissions associated with this action are above the GCR indicators, indicating no significant impact to air quality; therefore, no further air assessment is needed.

Chris Crabtree, AQ Specialist/Meteorologist

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SCOTT AFB
State: Illinois
County(s): Brown; Scott
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: QEAF F-15QA Training Action at MidAmerica

- Project Number/s (if applicable):

- Projected Action Start Date: 10 / 2020

- Action Purpose and Need:

- Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

- Point of Contact

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

- Activity List:

Activity Type		Activity Title
2.	Aircraft	F-15AQ Airspace Operations - Pruitt A MOA

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Brown; Scott
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: F-15AQ Airspace Operations - Pruitt A MOA

- Activity Description:

F-15AQ Aircraft Operations below 3,000' AGL in the Pruitt A MOA
All flight operations identified as TGOs, but engine power settings would be 50% afterburner/50% military for each operation.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date

Start Month: 10
Start Year: 2020

- Activity End Date

Indefinite: No
End Month: 10
End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.513048
SO _x	0.463090
NO _x	8.497981
CO	6.046877
PM 10	0.525440

Pollutant	Total Emissions (TONs)
PM 2.5	0.474752
Pb	0.000000
NH ₃	0.000000
CO ₂ e	996.3

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
VOC	1.513048
SO _x	0.463090
NO _x	8.497981
CO	6.046877
PM 10	0.525440

Pollutant	Total Emissions (TONs)
PM 2.5	0.474752
Pb	0.000000
NH ₃	0.000000
CO ₂ e	996.3

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: F-15E
Engine Model: F100-PW-229
Primary Function: Combat
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO ₂ e
Idle	1087.00	0.45	1.07	3.80	10.17	2.06	1.85	3234
Approach	3098.00	0.24	1.07	15.08	1.17	2.63	2.37	3234
Intermediate	5838.00	0.35	1.07	17.54	0.15	2.06	1.85	3234
Military	11490.00	0.31	1.07	29.29	0.33	1.33	1.20	3234
After Burn	20793.00	5.26	1.07	14.30	21.51	1.15	1.04	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:	6
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	33
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	0
Takeoff [Military] (mins):	22.5
Takeoff [After Burn] (mins):	22.5
Climb Out [Intermediate] (mins):	0
Approach [Approach] (mins):	0
Taxi/Idle In [Idle] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$$AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{LTO}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

TGO: Number of Touch-and-Go Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{TGO}: Aircraft Emissions (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$$

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
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2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
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2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance And Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: SCOTT AFB
State: Illinois
County(s): Greene; Pike
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: QEAF F-15QA Training Action at MidAmerica

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2020

e. Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

f. Point of Contact:

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions.

“Air Quality Indicators” were used to provide an indication of the significance of potential impacts to air quality. These air quality indicators are EPA General Conformity Rule (GCR) thresholds (de minimis levels) that are applied out of context to their intended use. Therefore, these indicators do not trigger a regulatory requirement; however, they provide a warning that the action is potentially significant. It is important to note that these indicators only provide a clue to the potential impacts to air quality.

Given the GCR de minimis threshold values are the maximum net change an action can acceptably emit in non-attainment and maintenance areas, these threshold values would also conservatively indicate an actions emissions within an attainment would also be acceptable. An air quality indicator value of 100 tons/yr is used based on the GCR de minimis threshold for the least severe non-attainment classification for all criteria pollutants (see 40 CFR 93.153). Therefore, the worst-case year emissions were compared against the GCR Indicator and are summarized below.

Analysis Summary:

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

2020

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.148	100	No
NOx	0.832	100	No
CO	0.592	100	No
SOx	0.045	100	No
PM 10	0.051	100	No
PM 2.5	0.046	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	97.5		

2021

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.494	100	No
NOx	2.773	100	No
CO	1.973	100	No
SOx	0.151	100	No
PM 10	0.171	100	No
PM 2.5	0.155	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	325.1		

2022 - (Steady State)

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000	100	No
SOx	0.000	100	No
PM 10	0.000	100	No
PM 2.5	0.000	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	0.0		

None of estimated emissions associated with this action are above the GCR indicators, indicating no significant impact to air quality; therefore, no further air assessment is needed.

Chris Crabtree, AQ Specialist/Meteorologist

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SCOTT AFB
State: Illinois
County(s): Greene; Pike
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: QEAF F-15QA Training Action at MidAmerica

- Project Number/s (if applicable):

- Projected Action Start Date: 10 / 2020

- Action Purpose and Need:

- Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

- Point of Contact

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

- Activity List:

Activity Type		Activity Title
2.	Aircraft	F-15AQ Airspace Operations - Pruitt B MOA

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Greene; Pike
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: F-15AQ Airspace Operations - Pruitt B MOA

- Activity Description:

F-15AQ Aircraft Operations below 3,000' AGL in the Pruitt B MOA
All flight operations identified as TGOs, but engine power settings would be 50% afterburner/50% military for each operation.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date

Start Month: 10
Start Year: 2020

- Activity End Date

Indefinite: No
End Month: 10
End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.641899
SO _x	0.196462
NO _x	3.605204
CO	2.565342
PM 10	0.222914

Pollutant	Total Emissions (TONs)
PM 2.5	0.201410
Pb	0.000000
NH ₃	0.000000
CO ₂ e	422.7

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
VOC	0.641899
SO _x	0.196462
NO _x	3.605204
CO	2.565342
PM 10	0.222914

Pollutant	Total Emissions (TONs)
PM 2.5	0.201410
Pb	0.000000
NH ₃	0.000000
CO ₂ e	422.7

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: F-15E
Engine Model: F100-PW-229
Primary Function: Combat
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO ₂ e
Idle	1087.00	0.45	1.07	3.80	10.17	2.06	1.85	3234
Approach	3098.00	0.24	1.07	15.08	1.17	2.63	2.37	3234
Intermediate	5838.00	0.35	1.07	17.54	0.15	2.06	1.85	3234
Military	11490.00	0.31	1.07	29.29	0.33	1.33	1.20	3234
After Burn	20793.00	5.26	1.07	14.30	21.51	1.15	1.04	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:	6
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	14
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	0
Takeoff [Military] (mins):	22.5
Takeoff [After Burn] (mins):	22.5
Climb Out [Intermediate] (mins):	0
Approach [Approach] (mins):	0
Taxi/Idle In [Idle] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$$AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{LTO}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

TGO: Number of Touch-and-Go Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{TGO}: Aircraft Emissions (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$$

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
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2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
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2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance And Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: SCOTT AFB
State: Missouri
County(s): Iron; Reynolds
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: QEAF F-15QA Training Action at MidAmerica

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2020

e. Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

f. Point of Contact:

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions.

“Air Quality Indicators” were used to provide an indication of the significance of potential impacts to air quality. These air quality indicators are EPA General Conformity Rule (GCR) thresholds (de minimis levels) that are applied out of context to their intended use. Therefore, these indicators do not trigger a regulatory requirement; however, they provide a warning that the action is potentially significant. It is important to note that these indicators only provide a clue to the potential impacts to air quality.

Given the GCR de minimis threshold values are the maximum net change an action can acceptably emit in non-attainment and maintenance areas, these threshold values would also conservatively indicate an actions emissions within an attainment would also be acceptable. An air quality indicator value of 100 tons/yr is used based on the GCR de minimis threshold for the least severe non-attainment classification for all criteria pollutants (see 40 CFR 93.153). Therefore, the worst-case year emissions were compared against the GCR Indicator and are summarized below.

Analysis Summary:

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF AIR ANALYSIS (ROAA)

2020

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.497	100	No
NOx	2.793	100	No
CO	1.987	100	No
SOx	0.152	100	No
PM 10	0.173	100	No
PM 2.5	0.156	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	327.5		

2021

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.658	100	No
NOx	9.310	100	No
CO	6.625	100	No
SOx	0.507	100	No
PM 10	0.576	100	No
PM 2.5	0.520	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	1091.5		

2022 - (Steady State)

Pollutant	Action Emissions (ton/yr)	AIR QUALITY INDICATOR	
		Threshold (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000	100	No
SOx	0.000	100	No
PM 10	0.000	100	No
PM 2.5	0.000	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	0.0		

None of estimated emissions associated with this action are above the GCR indicators, indicating no significant impact to air quality; therefore, no further air assessment is needed.

Chris Crabtree, AQ Specialist/Meteorologist

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SCOTT AFB
State: Missouri
County(s): Iron; Reynolds
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: QEAF F-15QA Training Action at MidAmerica

- Project Number/s (if applicable):

- Projected Action Start Date: 10 / 2020

- Action Purpose and Need:

- Action Description:

Proposed temporary operation of up to six F-15QA aircraft at MidAmerica. The presence would include temporarily basing and operating the F-15QA aircraft for approximately 1 year – temporary beddown.

- Point of Contact

Name: Chris Crabtree
Title: AQ Specialist/Meteorologist
Organization: Leidos Corp.
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

- Activity List:

Activity Type		Activity Title
2.	Aircraft	F-15QA Airspace Operations - Salem MOA

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Iron; Reynolds
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: F-15QA Airspace Operations - Salem MOA

- Activity Description:

F-15QA Aircraft Operations below 3,000' AGL in the Salem MOA
All flight operations identified as TGOs, but engine power settings would be 50% afterburner/50% military for each operation.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date

Start Month: 10
Start Year: 2020

- Activity End Date

Indefinite: No
End Month: 10
End Year: 2021

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	2.154947
SO _x	0.659552
NO _x	12.103184
CO	8.612219
PM 10	0.748354

Pollutant	Total Emissions (TONs)
PM 2.5	0.676162
Pb	0.000000
NH ₃	0.000000
CO ₂ e	1419.0

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Total Emissions (TONs)
VOC	2.154947
SO _x	0.659552
NO _x	12.103184
CO	8.612219
PM 10	0.748354

Pollutant	Total Emissions (TONs)
PM 2.5	0.676162
Pb	0.000000
NH ₃	0.000000
CO ₂ e	1419.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: F-15E
Engine Model: F100-PW-229
Primary Function: Combat
Aircraft has After burn: Yes
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO ₂ e
Idle	1087.00	0.45	1.07	3.80	10.17	2.06	1.85	3234
Approach	3098.00	0.24	1.07	15.08	1.17	2.63	2.37	3234
Intermediate	5838.00	0.35	1.07	17.54	0.15	2.06	1.85	3234
Military	11490.00	0.31	1.07	29.29	0.33	1.33	1.20	3234
After Burn	20793.00	5.26	1.07	14.30	21.51	1.15	1.04	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations

Number of Aircraft:	6
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	0
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	47
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	0
Takeoff [Military] (mins):	22.5
Takeoff [After Burn] (mins):	22.5
Climb Out [Intermediate] (mins):	0
Approach [Approach] (mins):	0
Taxi/Idle In [Idle] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	9
AfterBurn (mins):	3

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$$AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{LTO}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

TGO: Number of Touch-and-Go Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{TGO}: Aircraft Emissions (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$$

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$$

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
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2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
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2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

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