

**ENVIRONMENTAL ASSESSMENT
OF THE BEDDOWN OF C-9C AND C-40C AIRCRAFT
AT SCOTT AFB, ILLINOIS**



HEADQUARTERS AIR FORCE RESERVE COMMAND



August 2005

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ABBREVIATIONS AND ACRONYMS

375 AW	375th Airlift Wing	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
932 AW	932nd Airlift Wing	JOSAC	Joint Operational Support Airlift Center
ACM	asbestos-containing materials	kV	kilovolt
AFB	Air Force Base	LBP	lead-based paint
AFI	Air Force Instruction	LTO	landing/takeoff cycle
AFPD	Air Force Policy Directive	mgd	million gallons per day
AFRC	Air Force Reserve Command	msl	mean sea level
AFSC	U.S. Air Force Safety Center	MSLIAQCR	Metropolitan St. Louis Interstate Air Quality Control Region
AGE	Aerospace Ground Equipment	MSW	Municipal solid waste
AGL	above ground level	NAAQS	National Ambient Air Quality Standards
AICUZ	Air Installation Compatible Use Zone	NEPA	National Environmental Policy Act
AMC	Air Mobility Command	NHPA	National Historic Preservation Act
AOC	Area of Concern	NO ₂	nitrogen dioxide
APZ	Accident Potential Zone	NO _x	nitrogen oxide(s)
AQCR	Air Quality Control Region	NPDES	National Pollutant Discharge Elimination System
BAM	Bird Avoidance Model	NRHP	National Register of Historic Places
BASH	Bird/Wildlife Aircraft Strike Hazard	NSR	New Source Review
C&D	construction and demolition	NTSB	National Transportation Safety Board
CAA	Clean Air Act	O ₃	ozone
CEQ	Council on Environmental Quality	Pb	lead
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PM ₁₀	particulate matter equal to or less than 10 microns
CFR	Code of Federal Regulations	PM _{2.5}	particulate matter equal to or less than 2.5 microns
CLS	Contractor Logistics Support	POL	Petroleum, Oil, and Lubricants
CO	carbon monoxide	ppm	parts per million
CODEL	Congressional delegations	PSD	Prevention of Significant Deterioration
CTK	Consolidated Tool Kit	QRP	Qualified Recycling Program Prevention of Significant Deterioration
CWA	Clean Water Act	RCRA	Resource Conservation and Recovery Act
CY	Calendar Year	SARA	Superfund Amendments and Reauthorization Act
dB	decibels	SHPO	State Historic Preservation Office
dba	A-weighted sound level measurements	SIP	State Implementation Plan
DNL	Day-Night Average A-weighted Sound Level	SMAQMD	Sacramento Metropolitan Air Quality Management District
DOD	Department of Defense	SO ₂	sulfur dioxide
DV	distinguished visitor	tpy	tons per year
EA	Environmental Assessment	TSCA	Toxic Substances Control Act
EIAP	Environmental Impact Analysis Process	U.S.C.	United States Code
EIS	Environmental Impact Statement	USAF	U.S. Air Force
EO	Executive Order	USEPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program	VOC	volatile organic compound
FAA	Federal Aviation Administration	WWTP	wastewater treatment plant
FIP	Federal Implementation Plan	μg/m ³	micrograms per cubic meter
FONSI	Finding of No Significant Impact		
FY	Fiscal Year		
HAP	High Accident Potential		
HAZMAT	Hazardous Materials		
HVAC	heating, ventilation, and air conditioning		

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT OF THE BEDDOWN OF C-9C AND C-40C AIRCRAFT AT SCOTT AFB, ILLINOIS

INTRODUCTION

The 932nd Airlift Wing (932 AW), an Air Force Reserve Command (AFRC) unit, is located at Scott Air Force Base (AFB), Illinois. The 932 AW operates three C-9A aircraft primarily to transport distinguished visitors. The host unit at Scott AFB is the 375th Airlift Wing (375 AW). The 375 AW is also host to the 126th Air Refueling Wing (Illinois Air National Guard) which operates 11 KC-135E tanker aircraft for in-flight refueling of military aircraft worldwide. The 375 AW operates 12 C-21A aircraft that provide cargo and passenger airlift. The 375th Maintenance Group and the 11th Airlift Squadron were inactivated at Scott AFB in September 2003. The unit's inactivation was the direct result of the C-9A retirement from the active-duty inventory. Three C-9A aircraft were transferred from the active-duty inventory to the 932 AW.

The U.S. Air Force (USAF) proposes to replace three existing C-9A aircraft at Scott AFB with three C-9C aircraft, presently stationed at Andrews AFB, Maryland, and to beddown three new C-40C aircraft. To provide supporting infrastructure for operation and maintenance of these aircraft, AFRC and 932 AW also propose projects involving construction and renovation of facilities.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to beddown aircraft at Scott AFB and to provide appropriate supporting infrastructure for their operation and maintenance.

The need for the Proposed Action is to respond to a June 2004 Congressional directive for the 932 AW to sustain mission operations and training at Scott AFB through the continuation of the C-9A mission. The June 2004 Congressional directive also requires the 932 AW to support mission transition and augmentation until commencement of missions related to the transfer of C-9C aircraft from Andrews AFB, Maryland, and the acquisition of new C-40C aircraft is completed. These latter aircraft are used in the distinguished visitor mission, which entails providing passenger and cargo services in support of Congressional delegations; other senior military leaders; foreign dignitaries; and Joint Operational Support Airlift Center requirements. Since the C-9C and C-40C aircraft provide nationwide and worldwide services, the aircraft need to be strategically placed in a central location. Such a location must also meet the demands of flights involving longer range and shorter flight time. These actions are needed, as well, to enable the USAF to carry out its assigned national security responsibilities as the Department of Defense (DOD) and the USAF transform to meet the evolving national security requirements of the 21st century. As part of broad changes throughout the USAF, the 932 AW is shouldering a greater role in supporting combat commanders' command and control functions and in conducting passenger and cargo transport operations.

DESCRIPTION OF THE PROPOSED ACTION

Under the Proposed Action, the 932 AW would replace three C-9A Nightingale aircraft with three C-9C Nightingale aircraft, currently stationed at Andrews AFB, Maryland, during Fiscal Years (FYs) 2005 and 2006. As determined by Air Mobility Command (AMC), the existing C-9A aircraft would be transferred to another Air Force base or would be disposed of. Under the Proposed Action, 932 AW would operate

three new C-40C Clipper aircraft from Scott AFB. These aircraft would be delivered by the manufacturer, the Boeing Company, in February, May, and November 2007.

Implementation of the Proposed Action would include nine construction and interior modification projects required to accommodate and support the proposed beddown of aircraft. Although C-9C and C-40C aircraft operations are expected to rise, the number of personnel would not increase when compared to calendar year (CY) 2002 personnel authorizations.

Current flying hours for the C-9C are estimated to be 1,000 hours annually. Proposed flying hours for the C-9C and C-40C are estimated to be 1,440 hours annually beginning with the basing of C-40 aircraft in 2007. Table 2-1 shows historic, current, and proposed C-9 and C-40 aircraft operations for CY 2000 through 2009 at Scott AFB. Most of the programmed flying hours would occur off-station (away from Scott AFB).

Fifty-eight percent of the operations would be performed at MidAmerica Airport. MidAmerica Airport is operated by St. Clair County, Illinois. MidAmerica Airport has one runway connected by a taxiway to the Scott AFB runway. Personnel in a control tower situated between the two runways provide air traffic control services for both runways. A Joint Use Agreement between the USAF and St. Clair County was signed in 1991. That Agreement is currently being renewed. The purpose of renewing the Joint Use Agreement is for Scott AFB units and St. Clair County to operate under an agreement that more accurately reflects the current operations of both the military and civilian runways at the Joint Use Airport.

NO ACTION ALTERNATIVE

Under the No Action Alternative, existing conditions would remain as is and none of the proposed projects would occur. There would be no beddown of replacement or new aircraft and no related facilities projects at Scott AFB. If the No Action Alternative were carried forward there would be no change in or effects on noise, land use, air quality, safety, geological resources, water resources, cultural resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, or hazardous materials and wastes at Scott AFB.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

There would be *no adverse effects* resulting from aircraft beddown and construction and renovation activities on land use, safety, geological resources, water resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, or hazardous materials and wastes at Scott AFB. There would be *short-term minor adverse effects* resulting from construction and renovation activities on the noise environment and air quality. Adverse effects associated with construction activities would be localized to the immediate area of construction and would subside following the end of construction in that area. *Long-term direct minor beneficial effects* on noise and land use would be expected. Although Hangar 1 is within the Scott Field Historic District, the Illinois Historic Preservation Agency concurred in a finding of *no adverse effect* for the proposed building modifications.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

Based on the provisions set forth in the Proposed Action, all activities were found to comply with the criteria or standards of environmental quality and coordinated with the appropriate Federal, state, and local agencies. The Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) were made available to the public for a 15-day review period. No public comments were received.

FINDING OF NO SIGNIFICANT IMPACT

After review of the EA prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations, and Environmental Impact Analysis Process (EIAP), Air Force Instruction 32-7061 (32 Code of Federal Regulations Part 989, as amended), I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment and, therefore, an Environmental Impact Statement (EIS) does not need to be prepared. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of USAF.



RICHARD A. KLUMP, JR., Colonel, USAF
EPC Chairperson

12 Sep 05

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BEDDOWN OF C-9C AND C-40C AIRCRAFT AT
SCOTT AFB, ILLINOIS**

**Headquarters Air Force Reserve Command
Environmental Division
255 Richard Ray Boulevard
Robins Air Force Base, Georgia 31098-1637**

AUGUST 2005

COVER SHEET

ENVIRONMENTAL ASSESSMENT OF THE BEDDOWN OF C-9C AND C-40C AIRCRAFT AT SCOTT AFB, ILLINOIS

Responsible Agencies: U.S. Air Force (USAF), Headquarters Air Force Reserve Command (AFRC) and Air Mobility Command (AMC), Air Force Center for Environmental Excellence (AFCEE), and 932nd Airlift Wing (932 AW), Scott Air Force Base (AFB), Illinois.

Affected Location: Scott AFB, Illinois.

Proposed Action: Beddown C-9C and C-40C aircraft and construct and renovate existing facilities at Scott AFB to provide supporting infrastructure.

Report Designation: Environmental Assessment (EA).

Abstract: The EA evaluates the 932 AW's Proposed Action to replace three C-9A aircraft with three C-9C aircraft and to beddown three new C-40C aircraft at Scott AFB to meet USAF missions. The Proposed Action would include 9 facility projects to support operations. Under the No Action Alternative, Scott AFB personnel would continue to use existing aircraft and facilities. There would be no change from existing conditions at the Installation.

An EA has been prepared to evaluate the Proposed Action and the No Action Alternative. Resources that are considered in the impact analysis include noise, land use, air quality, safety, geological resources, water resources, cultural resources, biological resources, socioeconomic and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The EA will be made available to the public upon completion.

Written comments and inquiries regarding this document should be directed to 375 AW/PA, 101 Heritage Drive, Room 38, Scott AFB, IL 62225, 375aw.pa@scott.af.mil, (618)256-4241.

**ENVIRONMENTAL ASSESSMENT OF THE
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1. Purpose of and Need for Proposed Action

1.1 Background

The 932nd Airlift Wing (932 AW), an Air Force Reserve Command (AFRC) unit, is located at Scott Air Force Base (AFB), Illinois. The 932 AW operates three C-9A aircraft primarily to transport distinguished visitors. The host unit at Scott AFB is the 375th Airlift Wing (375 AW). The 375 AW is also host to the 126th Air Refueling Wing (Illinois Air National Guard) which operates 11 KC-135E tanker aircraft for in-flight refueling of military aircraft worldwide. The 375 AW operates 12 C-21A aircraft that provide cargo and passenger airlift. The 375th Maintenance Group and the 11th Airlift Squadron were inactivated at Scott AFB in September 2003. The unit's inactivation was the direct result of the C-9A retirement from the active-duty inventory. Three C-9A aircraft were transferred from the active-duty inventory to the 932 AW.

The U.S. Air Force (USAF) proposes to replace three existing C-9A aircraft at Scott AFB with three C-9C aircraft, presently stationed at Andrews AFB, Maryland, and to beddown three new C-40C aircraft. To provide supporting infrastructure for operation and maintenance of these aircraft, AFRC and 932 AW also propose projects involving construction and renovation of facilities.

Scott AFB is in St. Clair County in the southwestern portion of Illinois. The base is 6.5 miles south of the City of Shiloh and approximately 25 miles east of the Mississippi River (see Figure 1-1). The areas adjacent to the airfield consist of farmland to the north, west, and south of the base; and wooded areas along the eastern edge of the base. Beddown of replacement C-9C aircraft and new C-40C aircraft would occur at the Scott AFB airfield. Facility projects would occur adjacent to the airfield in improved areas of Scott AFB.

This Environmental Assessment (EA) is being prepared to analyze the Proposed Action and the No Action Alternative. If the analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a Finding of No Significant Impact (FONSI) will be prepared. A FONSI briefly presents reasons why a Proposed Action would not have a significant effect on the human environment and why an Environmental Impact Statement (EIS) is unnecessary. If significant environmental issues are identified that cannot be mitigated to insignificance, an EIS will be prepared or the Proposed Action will be abandoned and no action will be taken.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to beddown aircraft at Scott AFB and to provide appropriate supporting infrastructure for their operation and maintenance.

The need for the Proposed Action is to respond to a June 2004 Congressional directive for the 932 AW to sustain mission operations and training at Scott AFB through the continuation of the C-9A mission. The June 2004 Congressional directive also requires the 932 AW to support mission transition and augmentation until commencement of missions related to the transfer of C-9C aircraft from Andrews AFB, Maryland, and the acquisition of new C-40C aircraft are completed. These latter aircraft are used in the distinguished visitor mission, which entails providing passenger and cargo services in support of Congressional delegations; other senior military leaders; foreign dignitaries; and Joint Operational Support Airlift Center requirements. Since the C-9C and C-40C aircraft provide nationwide and worldwide services, the aircraft need to be strategically placed in a central location. Such a location must also meet the demands of flights involving longer range and shorter flight time. These actions are needed

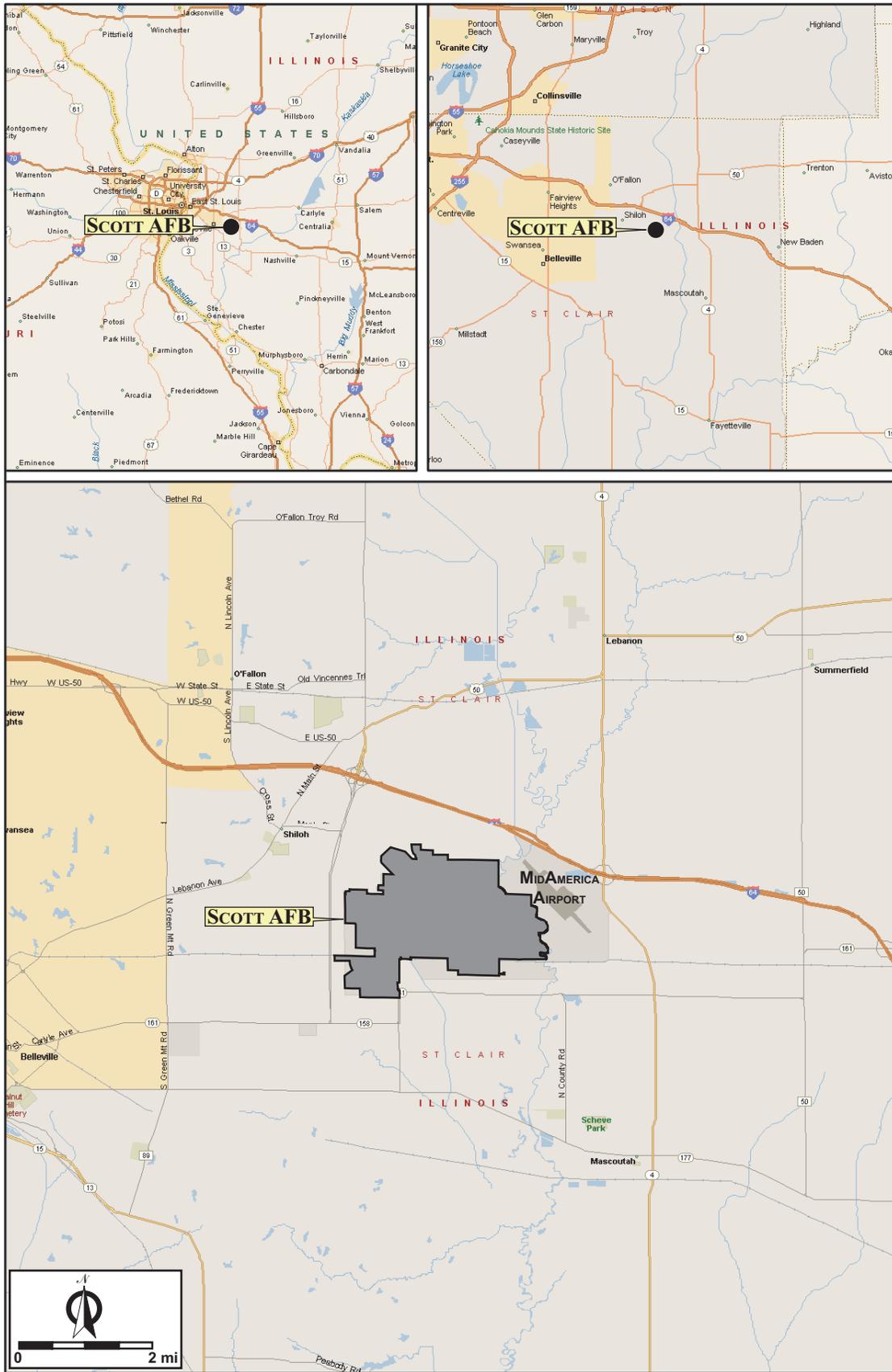


Figure 1-1. Scott AFB Vicinity Map

to enable USAF to carry out its assigned national security responsibilities as the Department of Defense (DOD) and USAF transform to meet the evolving national security requirements of the 21st century. As part of broad changes throughout USAF, the 932 AW is shouldering a greater role in supporting combat commanders' command and control functions and in conducting passenger and cargo transport operations.

1.3 Summary of Key Environmental Compliance Requirements

1.3.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA mandated a structured approach to environmental impact analysis that requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee Federal policy in this process. The CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare an EIS or a FONSI, aid in an agency's compliance with NEPA when an EIS is unnecessary, and facilitate preparation of an EIS when one is necessary.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process (EIAP)*, 32 CFR 989, as amended.

1.3.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

This EA examines potential effects of the Proposed Action and alternatives on 11 resource areas: noise, land use, air quality, safety, geological resources, water resources, cultural resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes. These resource areas were identified as being potentially affected by the Proposed Action, and include applicable critical elements of the human environment whose review is mandated by Executive Order (EO), regulation, or policy.

Appendix A contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis. Only those resource areas with relevant laws, regulations, and other requirements are included in Appendix A. In addition, various permits would be required for construction

activities. An Air Force Form 103, Base Civil Engineering Work Clearance Request, is required under AFI 32-1031. The Illinois Underground Utility Facilities Damage Prevention Act, Public Act 86-0674 (amended several times, most recently by Public Act 93-0430) establishes liability for damage to underground utility facilities during excavation and outlines procedures that must be followed before any excavation or demolition operation begins. The National Pollutant Discharge Elimination System (NPDES) permit would need to be reviewed. In addition, proper coordination with the Illinois State Historic Preservation Office (SHPO) would need to be complete before construction can begin. Other permits may also be required.

1.4 Agency Coordination and Public Involvement

NEPA requirements help ensure that environmental information is made available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. 40 CFR 1501.7 specifically states, “There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to proposed actions. This process shall be termed scoping.”

The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. AFI 32-7060 requires AFRC to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements. Through the IICEP process, the USAF notified relevant Federal, state, and local agencies of the Proposed Action and provided them sufficient time to make known their environmental concerns specific to the action.

The public involvement process also provides the USAF the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. A Notice of Availability for the EA and FONSI was published in the *Belleville News Democrat* and a copy of the EA was made available to the public at the City of Belleville Library for a 15-day review period. Appendix B includes a copy of the letter mailed to the agencies, the distribution list and the Notice of Availability. The 375 AW did not receive public comments regarding the Proposed Action.

1.5 Introduction to the Organization of this Document

The EA is organized into seven sections. Section 1 contains background information on Scott AFB, a statement of the purpose of and need for the Proposed Action, a listing of applicable regulatory requirements, a discussion of agency coordination and public involvement, and an introduction to the organization of the EA. Section 2 provides a detailed description of the Proposed Action, a discussion of Alternatives, a description of the No Action Alternative, a description of the decision to be made, and identification of the preferred alternative. Section 3 contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action or the No Action Alternative. Section 4 presents an analysis of the environmental consequences. Section 5 includes an analysis of the potential cumulative impacts on Scott AFB. Section 6 lists the preparers of the document. Section 7 lists the sources of information used in the preparation of the document. Appendix A contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis. Appendix B includes a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and agency and public comments. Appendix C includes air quality emissions calculations from the Proposed Action.

2. Description of Proposed Action and Alternatives

2.1 Detailed Description of the Proposed Action

AFRC and 932 AW propose to beddown replacement and new aircraft and to provide for supporting infrastructure at Scott AFB. This section provides details on the Proposed Action and Alternatives.

2.1.1 Aircraft Descriptions

Replacement Aircraft – C-9C

Under the Proposed Action, the 932 AW would replace three C-9A Nightingale aircraft with three C-9C Nightingale aircraft, currently stationed at Andrews AFB, Maryland, during Fiscal Years (FYs) 2005 and 2006. As determined by Air Mobility Command (AMC), the existing C-9A aircraft would be transferred to another Air Force base or would be disposed of.

The C-9A is a twin-engine, medium-range jet aircraft used primarily for medical evacuation and transport. A modified version of the Boeing Company's DC-9, the C-9A operates with a crew of 8 (flight and medical personnel) and can transport up to 40 litter patients. The C-9C is used for the transporting of distinguished persons. The aircraft operates with a 4-person flight crew and 4 in-flight attendants and can carry up to 42 passengers.

New Aircraft – C-40C

Under the Proposed Action, 932 AW would operate three new C-40C Clipper aircraft from Scott AFB. These aircraft would be delivered by the manufacturer, the Boeing Company, in February, May, and November 2007.

The C-40C is based on the commercial Boeing 737-700 business jet. Powered by two turbofan engines, its mission is to provide high-priority personnel transport. The C-40C is equipped with state-of-the-art avionics, integrated global positioning system and flight management system/electronic flight instrument system, and a heads-up display. It operates with a crew of 10 and can carry 42 to 111 passengers. The C-40C would be used for transport of dignitaries, including members of Congress and the Cabinet.

2.1.2 Proposed Facilities Projects

Implementation of the Proposed Action would include 9 construction and interior modification projects required to accommodate and support the proposed beddown of aircraft. The locations of the proposed projects are shown in Figure 2-1. The projects are described as follows.

Interior modifications to Building 433 (Hangar 1):

- ***Construct C-9C/C-40C Inspection Section and Consolidated Tool Kit (CTK), Contractor Logistics Support (CLS) (FY06).*** This project would modify the interior of Building 433 (east wall, north end) to provide a 1,200-square-foot caged area to house the Inspection Section, CTK equipment. Above the entire caged area would be a mezzanine with 500 square feet of office space.
- ***Repair Building 433 Tail Doors (FY06).*** The hangar doors would be serviced to restore operation to a pre-existing requirement which would accommodate the tail of the C-40 aircraft.

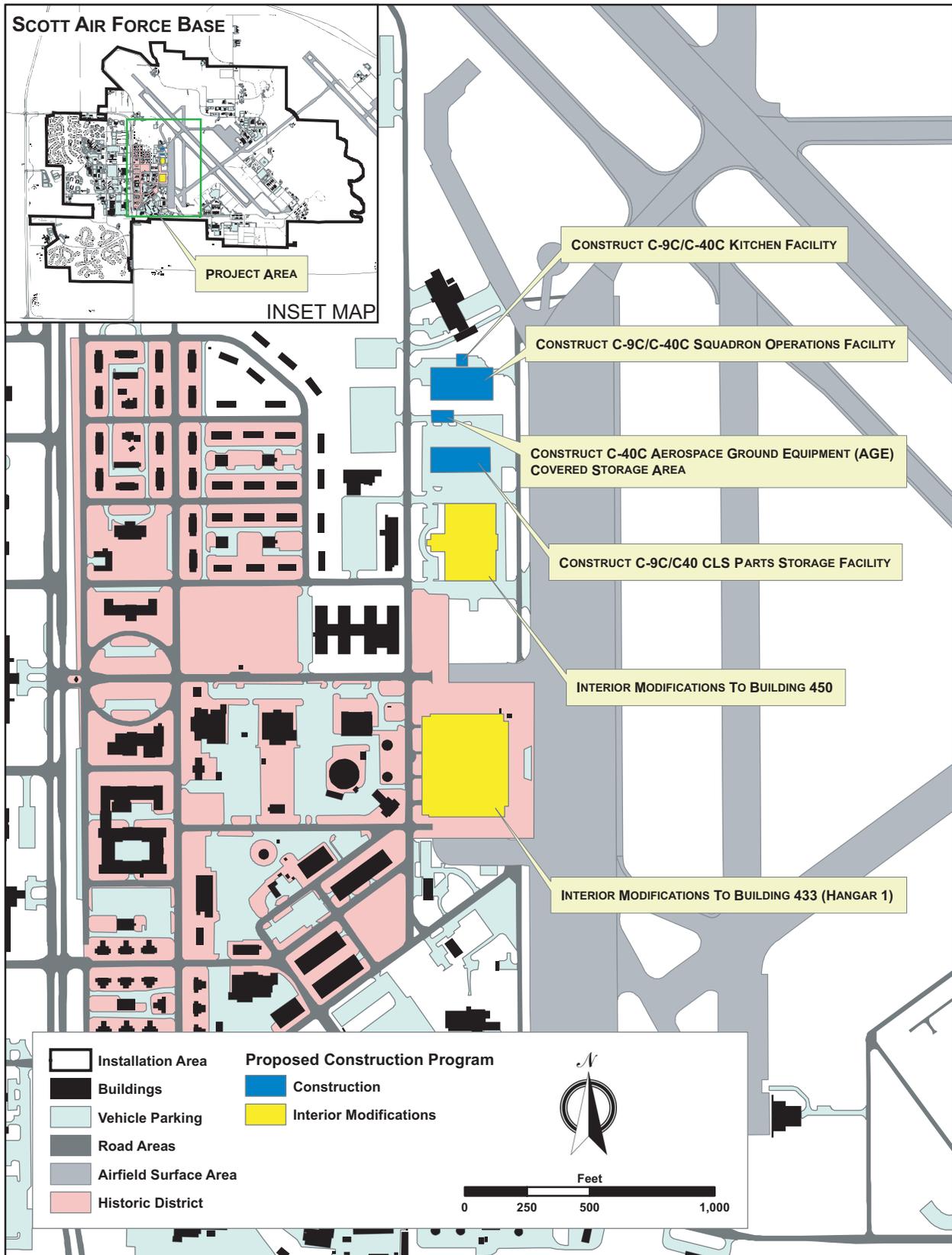


Figure 2-1. Scott AFB Proposed Project Locations

- **Conduct Structural Analysis of Building 433 Hangar Floor (FY06).** A structural analysis is necessary to ensure the hangar floor is structurally sound to support the beddown of the heavier C-40C aircraft.
- **Survey Building 433 Electrical System (FY06).** This project would determine whether the electrical system in Building 433 (Hangar 1) is sufficient to support C-40C aircraft maintenance requirements.

Interior Modifications to Building 450 (FY06). This project would renovate the 2,478-square-foot parachute room (Room 104) of Building 450 to provide space for contractor administrative functions and parts storage. Work would include installation of new heating, ventilation, and air conditioning (HVAC) equipment and ductwork to address mold problems, lay-in ceiling, lighting, and power drops for modular offices.

Construct C-40C Aerospace Ground Equipment (AGE) Covered Storage Area (FY06). This project would provide a 5,000-square-foot pre-engineered metal building to serve as a covered storage area for portable carts, various lifts, and tow truck and catering truck to support C-40C requirements.

Construct C-9C/C-40C Kitchen Facility (FY06). This project would provide a 2,600-square-foot pre-engineered steel building flight kitchen to support C-9C and C-40C operations. The building would include food preparation areas (including walk-in freezers), office space, and areas for flight attendant training.

Construct C-9C/C-40C Squadron Operations Facility (FY08). This project would provide a 32,700-square-foot facility near the flightline area for 932 AW staff. The facility would be configured to accommodate different crew compositions, training requirements, and mission planning.

Construct C-9C/C-40C CLS Parts Storage Facility (FY08). This project would provide a 24,000-square-foot steel frame, brick exterior facility. The new facility would support C-9C operations of the 932 AW and would be near the flightline adjacent to Building 450.

2.1.3 Proposed Aircraft Operations

Current flying hours for the C-9C are estimated to be 1,000 hours annually. Proposed flying hours for the C-9C and C-40C are estimated to be 1,440 hours annually beginning with the basing of C-40 aircraft in 2007. Table 2-1 shows historic, current, and proposed C-9 and C-40 aircraft operations for calendar year (CY) 2000 through 2009 at Scott AFB. Most of the programmed flying hours would occur off-station (away from Scott AFB).

Fifty-eight percent of the operations would be performed at MidAmerica Airport. MidAmerica Airport is operated by St. Clair County, Illinois. MidAmerica Airport has one runway connected by a taxiway to the Scott AFB runway. Personnel in a control tower situated between the two runways provide air traffic control services for both runways. A Joint Use Agreement between the USAF and St. Clair County was signed in 1991. That Agreement is currently being renewed. The purpose of renewing the Joint Use Agreement is for Scott AFB units and St. Clair County to operate under an agreement that more accurately reflects the current operations of both the military and civilian runways at the Joint Use Airport.

2.1.4 Proposed Personnel Changes

Programmed manpower authorizations to operate and maintain the C-9C and C-40C aircraft are shown in Table 2-2. Although C-9C and C-40C aircraft operations are expected to rise (see Table 2-1), the number of personnel would not increase when compared to CY 2002 personnel authorizations.

Table 2-1. Historic, Current, and Proposed C-9 and C-40 Aircraft Operations

	Historic		Current	Proposed	
	C-9A (CY 2000)	C-9A (CY 2002)	C-9A (CY 2005)	C-9C and C-40C (CY 2007)	C-9C and C-40C (CY 2009)
Number of C-9 and C-40 Aircraft	10	10	3	6	6
Total Flying Hours	8,985	8,976	1,000	1,440	4,000
Total Mission and Local Sorties	1,432	1,408	110	420	1,215
Average Airfield Daily Operations	31.4	27.8	2	9	26

Sources: SAFB 2001 and information provided by 932 AW representatives

Table 2-2. Historic, Current, and Proposed C-9 and C-40 Personnel Authorizations

	Historic	Current	Proposed	
	C-9A (CY 2002)	C-9A (CY 2005)	C-9C (CY 2006)	C-9C and C-40C (CY 2007)
Active-Duty full-time personnel	360	0	0	60
Reserves full-time personnel	62	61	82	126
Reserves part-time personnel	215	206	233	390
Total (full- and part-time)	637	267	315	576

2.2 Alternatives

As part of the NEPA process, reasonable alternatives to a Proposed Action must be considered. Consistent with the intent of NEPA, a screening process focuses on identifying a range of reasonable project-specific alternatives and, from that, developing proposed actions that could be implemented in the foreseeable future.

The need for the Proposed Action is to respond to a June 2004 Congressional directive for the 932 AW to sustain mission operations and training at Scott AFB by continuation of the C-9A mission. The June 2004 Congressional directive also requires the 932 AW to support mission transition and augmentation until commencement of missions related to the transfer of C-9C aircraft from Andrews AFB, Maryland and the acquisition of new C-40C aircraft are completed. Locating the C-9C or C-40 aircraft at an installation other than Scott AFB would not meet the Congressional directive. In addition, assigning aircraft other than the C-9C or C-40C aircraft to the 932 AW would not meet the Congressional directive.

Therefore, feasible alternatives to the beddown of C-9C and C-40C aircraft at Scott AFB were not developed and are not analyzed in this EA.

Implementation of the Proposed Action would include 9 construction and interior modification projects required to accommodate and support the proposed beddown of aircraft. Scott AFB and HQ AFRC planning and logistics staff examined various potential sites for each proposed construction project. Proposed project siting was chosen based on accepted criteria and best professional judgment to identify feasible, realistic scenarios for meeting mission objectives and facility requirements, including

- Consistency with the land use designation of the site
- Adequately sized area to support required operational functions
- Access to necessary base infrastructure
- Suitability of the site for construction and support of operations
- Proximity to flightline operations

Other potential sitings for the proposed construction projects were considered in the early conceptual phase, however, no feasible alternatives were developed.

As a result of the screening process, only the Proposed Action and the No Action Alternative are analyzed in the EA.

2.3 No Action Alternative

Under the No Action Alternative, there would be no beddown of replacement or new aircraft and no related facilities projects at Scott AFB. Inclusion of the No Action Alternative, prescribed in regulations issued by the CEQ, serves as a benchmark against which the potential effects of Federal actions can be evaluated. The No Action Alternative is evaluated in detail in this EA.

2.4 Decision to be Made and Identification of Preferred Alternative

The 375 AW would make one of the following decisions:

- Implement the Proposed Action
- Not implement the Proposed Action (No Action Alternative)

The Preferred Alternative is the implementation of the Proposed Action as selected by 932 AW and AFRC.

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3. Affected Environment

Section 3.0 describes the environmental resources and conditions that would be affected by the Proposed Action. This section provides information to serve as a baseline from which to evaluate environmental changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental impacts of the Proposed Action and No Action Alternative on the baseline conditions are described in Section 4.0 and cumulative impacts are presented in Section 5.0.

In compliance with NEPA, CEQ guidelines, and AFI 32-7061, the description of the affected environment focuses on those resources and conditions potentially affected by the Proposed Action. Some environmental resources and conditions (biological resources, socioeconomics, and environmental justice) would not be affected by the Proposed Action and were not identified during scoping as a resource of concern. Therefore, they will not be analyzed further in this EA (see below for justification).

- **Biological Resources.** Implementation of the Proposed Action does not involve permanent alterations to biological resources. Threatened or endangered species or their habitat have not been observed in the area of the Proposed Action. No activity included in the Proposed Action would result in any damage to biological resources; therefore, there would be no impact on biological resources at Scott AFB. Accordingly, the USAF has omitted detailed examination of biological resources in this EA.
- **Socioeconomics.** The Proposed Action does not involve any activities that would contribute to changes in socioeconomic resources. There would be net decrease in personnel as compared to historic conditions (CY 2002) (see Table 2-2). The personnel required for construction would be minimal in comparison to the number of construction workers currently working in St. Clair County, Illinois. Accordingly, the USAF has omitted detailed examination of socioeconomics in this EA.
- **Environmental Justice.** The Proposed Action does not involve any activities that would contribute to changes in low-income or minority populations. Accordingly, the USAF has omitted detailed examination of environmental justice in this EA.

3.1 Noise

3.1.1 Definition of the Resource

Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech, and so forth. Thus, noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human response to increased noise levels varies according to the source type, characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to the noise event.

Human response to noise is dependent on the magnitude and the sound frequency distribution. The human ear is more susceptible to higher frequency than lower frequency sounds, as reflected in the

A-weighting scale. This scale assigns a weighting of zero to sounds with a frequency below 10 cycles per second, and a maximum weighting for sounds with a frequency of 2,000 to 5,000 cycles per second.

Figure 3-1 displays common noise sources and the associated decibel sound level (in dBA) emitted by the noise source. The threshold of human hearing is about 10 dBA. A bedroom at night measures 30 dBA, while quiet suburban nighttime levels are around 40 dBA. In contrast, a vacuum cleaner at 10 feet measures 70 dBA, a diesel truck at 50 feet during daytime measures 90 dBA, and a loud rock band or jet flyover at 1,000 feet measures close to 110 dBA (Landrum and Brown 2002).

Day-Night Average A-Weighted Sound Level. Noise levels, resulting from multiple single-events, are used to characterize community noise effects from aircraft or sustaining road and building construction activity and are measured in the Day-Night Average A-weighted Sound Level (DNL). This noise metric incorporates a “penalty” for evening and nighttime noise events to account for increased annoyance. DNL is the energy-averaged sound level measured over a 24-hour period, with a 10 dB penalty assigned to noise events occurring between 10:00 p.m. and 7:00 a.m. DNL values are obtained by averaging sound exposure level values for a given 24-hour period. DNL is the preferred noise metric of the U.S. Department of Housing and Urban Development, the Federal Aviation Administration (FAA), the U.S. Environmental Protection Agency (USEPA), and DOD for modeling airport environs.

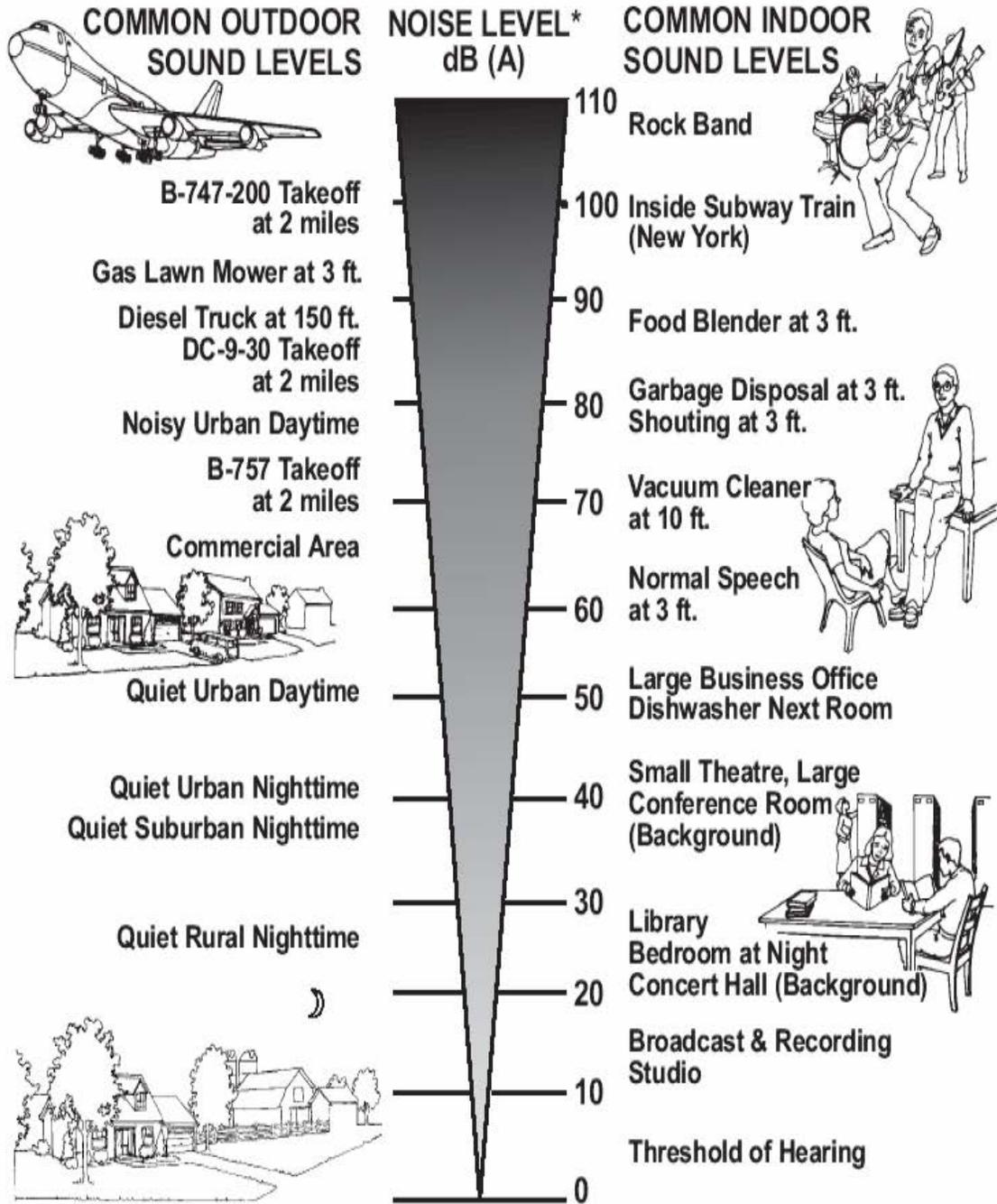
Most people are exposed to sound levels of DNL 50 to 55 dBA or higher on a daily basis. Studies specifically conducted to determine noise impacts on various human activities show that about 90 percent of the population is not significantly bothered by outdoor sound levels below DNL of 65 dBA (FICUN 1980). Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments and that there is a consistent relationship between DNL and the level of annoyance.

Noise Criteria and Regulations. Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The following paragraphs describe the guidelines and regulations that are relevant to the project.

According to USAF, FAA, and the U.S. Department of Housing and Urban Development criteria, residential units and other noise-sensitive land uses are “clearly unacceptable” in areas where the noise exposure exceeds DNL of 75 dBA, “normally unacceptable” in regions exposed to noise between the DNL of 65 to 75 dBA, and “normally acceptable” in areas exposed to noise where the DNL is 65 dBA or less. The Federal Interagency Committee on Noise developed land-use compatibility guidelines for noise in terms of DNL (FICUN 1980). For outdoor activities, USEPA recommends DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population will be at risk from any of the effects of noise (USEPA 1974).

3.1.2 Existing Conditions

There are several tenant units at Scott AFB, two of which are flying units, the 932 AW and the 126th Air Refueling Wing. The 932 AW operate 3 C-9A aircraft and the 126th Air Refueling Wing operate 11 KC-135E aircraft. The 375 AW operate 12 C-21A aircraft. Aircraft operating out of Scott AFB utilize the runway at Scott AFB as well as the runway at MidAmerica. MidAmerica is approximately 2 miles east of the runway at Scott AFB. The two airfields are connected by a taxiway, and personnel in a control tower situated between the two runways provide air traffic control services for both runways. Under a joint use agreement, the Air Force and St. Clair County operationally combine the runways and taxiways to operate as a single entity known as the Scott AFB–MidAmerica Airport (SAFB 2001). Accordingly, there are noise contours from the operations at Scott AFB on both runways.



* These values are equivalent to the Lmax values referenced on the Loudest Aircraft Noise Events Report.

Source: Landrum and Brown 2002

Figure 3-1. Common Noise Levels

Aircraft noise at military bases is analyzed periodically to provide guidance to the base and the local communities regarding land use compatibility. An Air Installation Compatible Use Zone (AICUZ) Study was completed in 2001 for Scott AFB. The noise contours presented in the 2001 AICUZ are shown in Figure 3-2.

3.2 Land Use

3.2.1 Definition of the Resource

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure both orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects on project sites and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

3.2.2 Existing Conditions

Scott AFB was originally established in a relatively undeveloped area in St. Clair County. Development has been steadily increasing in recent years around the base. Land adjacent to Scott AFB is primarily open space or agricultural with scattered commercial, industrial, and residential uses. Residential communities exist mainly to the northwest and southeast of the Scott AFB runway. Communities around Scott AFB and MidAmerica Airport include O’Fallon city to the northwest, Lebanon city to the northeast, and Mascoutah city to the south (SAFB 2001).

Land that could be impacted by aircraft noise was analyzed in the 2001 AICUZ to determine compatibility (see Figure 3-2). As discussed in Section 3.1.1, the 65 DNL noise contour is considered the point of significance. The land inside the 65 DNL contour presented in the 2001 AICUZ consists of open space, residential, and commercial land uses. More than 97 percent of the land inside the 65 DNL contour is open space, about 1.6 percent is residential, and the remaining portion is commercial.

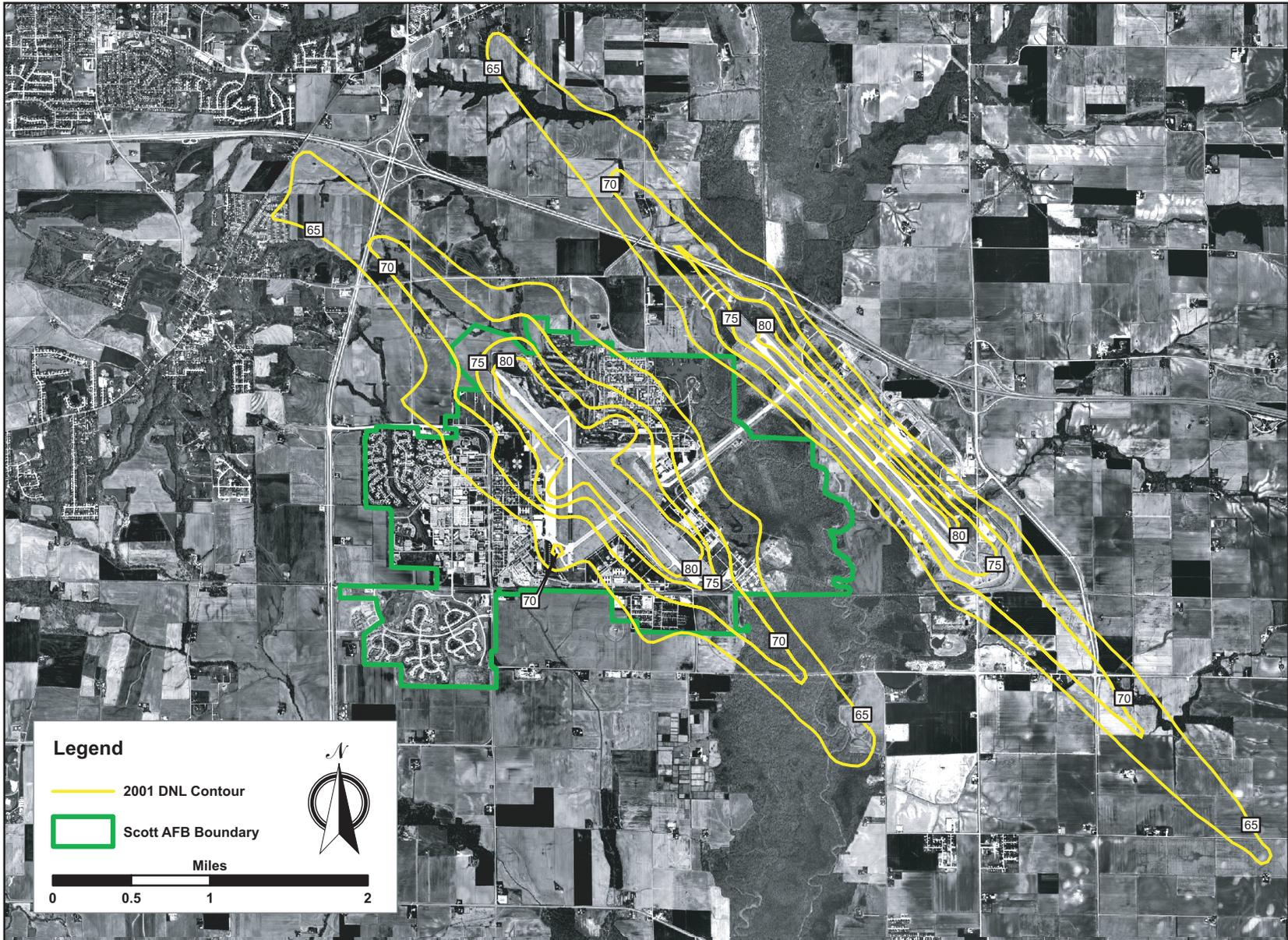


Figure 3-2. Scott AFB 2001 AICUZ Noise Contours

3.3 Air Quality

3.3.1 Definition of Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these “criteria pollutants” in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$\text{PM}_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. Table 3-1 presents the primary and secondary NAAQS that apply to the air quality in Illinois (USEPA 2004).

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or “ O_3 precursors.” These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_2 .

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in State Implementation Plans (SIPs) that must be developed by each state or local regulatory agency and approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA.

USEPA classifies the air quality in an air quality control region (AQCR) or in subareas of an AQCR according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either “attainment,” “non-attainment,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS, nonattainment indicates that air quality exceeds NAAQS, and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-hour Average ^a	9 ppm	(10 mg/m ³)	Primary and Secondary
1-hour Average ^a	35 ppm	(40 mg/m ³)	Primary
Nitrogen Dioxide (NO₂)			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m ³)	Primary and Secondary
Ozone (O₃)			
1-hour Average ^f	0.12 ppm	(235 µg/m ³)	Primary and Secondary
8-hour Average ^e	0.08 ppm	(157 µg/m ³)	Primary and Secondary
Lead (Pb)			
Quarterly Average		1.5 µg/m ³	Primary and Secondary
Particulate < 10 micrometers (PM₁₀)			
Annual Arithmetic Mean ^b		50 µg/m ³	Primary and Secondary
24-hour Average ^c		150 µg/m ³	Primary
Particulate < 2.5 micrometers (PM_{2.5})			
Annual Arithmetic Mean ^c		15 µg/m ³	Primary and Secondary
24-hour Average ^d		65 µg/m ³	Primary
Sulfur Dioxide (SO₂)			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)	Primary
24-hour Average ^a	0.14 ppm	(365 µg/m ³)	Primary
3-hour Average ^a	0.5 ppm	(1300 µg/m ³)	Secondary

Source: USEPA 2004

Notes: Parenthetical values are approximate equivalent concentrations.

mg/m³ – milligrams per cubic meter

^a Not to be exceeded more than once per year.

^b To attain this standard, the expected annual arithmetic mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

^c To attain this standard, the 3-year average of the annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

^d To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

^e To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

^f (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by Appendix H. (b) The 1-hour NAAQS will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004 (40 CFR 50.9; see Federal Register of April 30, 2004 [69 FR 23996]).

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan (FIP). More specifically, CAA Conformity is assured when a Federal action does not cause a new violation of the NAAQS, contribute to an increase in the frequency or severity of violations of NAAQS, or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered “regionally significant” or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 CFR 93.153 and listed in Table 3-2. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR’s total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

Table 3-2. Conformity *de minimis* Emissions Thresholds

Pollutant	Status	Classification	<i>de minimis</i> Limit (tpy)
Ozone (measured as Nitrogen Oxides (NO _x) or Volatile Organic Compounds (VOCs))	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO _x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO _x)
		Outside ozone transport region	100
Carbon Monoxide (CO)	Nonattainment/maintenance	All	100
Particulate Matter (PM ₁₀)	Nonattainment/maintenance	Serious	70
		Moderate	100
		Not Applicable	100
Sulfur Dioxide (SO ₂)	Nonattainment/maintenance	Not Applicable	100
Nitrogen Oxides (NO _x)	Nonattainment/maintenance	Not Applicable	100

Source: 40 CFR 93.153

Note: No *de minimis* limit has been established for PM_{2.5}.

tpy – tons per year

3.3.2 Existing Conditions

Scott AFB is in St. Clair County, which is part of the Metropolitan St. Louis Interstate Air Quality Control Region (MSLIAQCR). The MSLIAQCR consists of seven counties in Illinois and four counties in Missouri, in addition to the City of St. Louis. St. Clair County has been designated a maintenance area for the 1-hour ozone standard, a moderate nonattainment area for the 8-hour ozone standard, and nonattainment for PM_{2.5}. St. Clair County has been classified as attainment or unclassified for all other criteria pollutants (USEPA 2005).

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that can emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific “major source” permitting thresholds apply in nonattainment areas. For example, the Title V permitting threshold for an “extreme” O₃ nonattainment area is 10 tpy of potential VOC or NO_x emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be “significant” if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 µg/m³ or more [40 CFR 52.21(b)(23)(iii)]. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s designation as Class I, II, or III [40 CFR 52.21(c)].

3.4 Safety

3.4.1 Definition of Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The public has little access to the construction activities associated with the Proposed Action, so the primary safety concern is the potential for aircraft crashes and loss of life and property damage. Aircraft safety focuses on matters such as the potential for aircraft mishaps, airspace congestion, Bird/Wildlife Aircraft Strike Hazard (BASH), munitions handling and use, flight obstructions, weather, and fire risks.

Aircraft mishaps might involve midair collisions with other aircraft; collisions with objects such as towers, buildings, or mountains; weather-related accidents; and bird/wildlife-aircraft collisions. The environment for air safety is based on the physical risks associated with aircraft flight and current military operational procedures concerning air safety. Safe flying procedures, adherence to flight rules, and knowledge of emergency procedures form consistent and repeated aspects of training for all aircrews, including those at Scott AFB. Since the inception of the USAF in 1947, aircraft accidents have steadily declined each year.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environs. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation processes creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

The following provides additional information on specific safety hazards associated with training flights.

Aircraft Safety. Obstructions to flights, which include things such as towers and power transmission lines, represent safety concerns for aircrews, especially those engaged in low-altitude flight training. Aircrews are briefed and familiarized with potential obstructions along their routes before undertaking a

mission. Furthermore, DOD Flight Information Publications and aeronautical charts identify the location of such hazards and indicate the required horizontal and vertical separation distances to ensure safety.

Hazardous weather conditions can pose safety hazards and influence a pilot to alter flight. Pilots consult the National Weather Service or weather services at local airports to obtain preflight weather information. Adverse weather conditions of concern include tornadoes, thunderstorms, hail, severe turbulence, dust storms, and wind shear. The evaluation of potential hazards of weather conditions rests in a pilot's sound discretion based on knowledge of available information, experience, and the operational limits of the aircraft.

The U.S. Air Force Safety Center (AFSC) has defined four classifications of mishaps: Classes A, B, and C; and High Accident Potentials (HAPs). Class A mishaps result in a total cost in excess of \$1 million for injury, occupational illness, and property damage; a fatality or permanent total disability; or destruction or damage beyond economical repair to USAF aircraft. Class B mishaps result in a total cost of \$200,000 to \$1 million in property damage, permanent partial disability, or hospitalization of five or more personnel. Class C mishaps result in total damage that costs range from \$10,000 to \$200,000, or an injury or occupational illness that results in a loss of worker productivity greater than 8 hours. Mishaps not meeting the definitions of Class A, B, or C, but, because of damage or injury, necessitate USAF reporting, are classified as HAPs.

The National Transportation Safety Board (NTSB) maintains mishap statistics on commercial aircraft. These data are analogous, but not identical to those maintained by the USAF. These data reflect the number of hull (aircraft frame) losses per 1 million flight hours for all commercial aircraft. It should be noted that specific aircraft types are not classified, nor are hull losses categorized as flight-related or not (i.e., the hull might have been lost as a result of a ground incident). Based on 20 years of data, these statistics show that there have been 70 hull losses during 295.205 million flying hours. This reflects 0.237 hull loss for every million hours (USDOT NTSB 2005).

BASH is a safety concern caused by the potential damage that a strike might have on the aircraft or potential injury to aircrews. Birds might be encountered at altitudes of 30,000 feet and higher. However, most birds fly close to ground level, and approximately 95 percent of all reported incidents in which a USAF aircraft has struck a bird have been below 3,000 feet above ground level (AGL). Approximately half of these bird strikes occur in the airport environment, and approximately one-third occur during low-altitude training. Strike rates rise substantially as altitude decreases.

The USAF devotes considerable attention to avoiding the possibility of bird/wildlife-aircraft strikes. For decades, it has conducted a worldwide program to study bird migrations, bird flight patterns, and past strikes to develop predictions of where and when bird/wildlife-aircraft strikes might occur. This program, which consistently updates the data, also defines avoidance procedures through a Bird Avoidance Model (BAM). Each time an aircrew plans a training sortie along an established training route or other training airspace, they use the BAM to define altitudes and locations to avoid. Use of this model has minimized BASH. Each base or flying unit also develops and maintains a bird/wildlife-aircraft avoidance plan that dictates the location and timing of avoidance measures within the airspace used by the base or unit.

Construction and Demolition Safety. Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration and USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

3.4.2 Existing Conditions

Aircraft Safety. Risks associated with takeoffs and landings at Scott AFB are presented in the AICUZ Study for the base, which was developed to address safety issues and to identify hazard potential due to aircraft accidents, obstructions to navigation, and incompatible land uses based on exposure levels to aircraft noise in the surrounding area. The Scott AFB AICUZ Study also defines obstruction-free areas and Accident Potential Zones (APZs) relative to runways and taxiways, which in turn results in constraints in the siting and location of facilities on base.

Scott AFB is surrounded by agricultural lands and wooded stream corridors, and is located within the Mississippi Flyway, which creates a significant BASH threat. Scott AFB follows the *Scott/MidAmerica Airport Joint Use Plan 91-202, Bird Aircraft Strike Hazard (BASH) Plan* to reduce BASH incidents (SAFB 2004a). The plan describes methods necessary to control bird hazards, such as routine airfield inspections, habitat manipulation, dispersal measures, and depredation. A grid of Kevlar fibers was installed over the golf course pond adjacent to the airfield, which is used for irrigation. The grid prevents larger waterfowl such as geese and ducks from landing on the pond.

Scott AFB actively implements a BASH Plan, thereby reducing the potential for a bird/wildlife strike to occur at the Base by providing procedures for

- The base's Bird Hazard Working Group.
- Altering or discontinuing flying operations based on reported hazardous bird activity.
- Disseminating information to all assigned and transient aircrews for specific bird hazards and procedures for avoidance.
- Eliminating or reducing environmental conditions that attract birds to the airfield.
- Dispersing birds on the airfield.

The BASH Plan includes maintenance specifications for grass mowing on the airfield, seasonal inspection requirements for grain-type grasses that attract high-threat avian species, and periodic inspection requirements for ponding and proper drainage on the airfield whenever possible to reduce insect breeding. BASH reduction techniques currently listed in the BASH Plan include abating nuisance avian species using pyrotechnics, when necessary.

Strike rates rise dramatically as altitude decreases, which is partly due to the greater number of low-altitude missions, but mostly because birds are more active close to the ground. Any gain in altitude above 1,000 feet represents a substantial reduction of a threat of a bird strike (AMC 2002). The C-9 and C-40 aircraft are not flown regularly on low-level routes, which are less than 3,000 feet AGL. Missions conducted at heights above 3,000 feet AGL account for less than 6 percent of all USAF wildlife strikes where altitude was known (AFSC 2005a).

BAMs are used to analyze BASH visually during flight planning. The majority of costs incurred by the USAF occur during the fall migration of waterfowl and raptors. On average, October is the highest incident month with 14.19 percent of all bird/wildlife-aircraft strikes, accounting for 46 percent of USAF BASH costs (AFSC 2005b). In addition, most bird/wildlife-aircraft strikes occur after 10:00 a.m. (AFSC 2005c). Using online BAM software to calculate avian densities during the highest risk months (October through February) and at high-risk day times for Scott AFB, avian density over the region of influence is shown as moderate to severe (USAF 2005). A majority of the severe avian densities occur during the winter months.

Construction Safety. All contractors performing construction activities at Scott AFB are responsible for following ground safety regulations and worker compensation programs and are required to conduct construction activities in a manner that does not pose any risk to its workers or base personnel. An industrial hygiene program addresses exposure to hazardous materials, use of personal protective equipment, and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable.

Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

3.5 Geological Resources

3.5.1 Definition of Resource

An area's geological resources typically consist of surface and subsurface materials and their inherent properties. Principal factors influencing the ability of geological resources to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability, and topography.

The term soil generally refers to unconsolidated materials overlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil depth, structure, elasticity, strength, shrink-swell potential, and erodibility determine a soil's ability to support man-made structures and facilities. Soils typically are described in terms of their series or association, slope, physical characteristics, and relative compatibility or constraints with respect to particular construction activities and types of land use.

Topography is defined as the relative position and elevations of the natural or man-made features of an area that describe the configuration of its surface. An area's topography is influenced by many factors, including human activity, seismic activity of the underlying geological material, climatic conditions, and erosion. Information about an area's topography typically encompasses surface elevations, slope, physiographic features (i.e., mountains, ravines, or depressions), and their influence on human activities.

3.5.2 Existing Conditions

Physiography. Scott AFB lies on the Springfield Plain subdivision of the Till Plains section of the Central Lowlands Physiographic Province. Scott AFB is in a closed basin of the Kaskaskia River.

Topography. The base land surface is generally level. The maximum surface elevation at Scott AFB is approximately 420 feet above mean sea level (msl) along the eastern boundary of the base within the Silver Creek floodplain. The base is situated on the west end of the Silver Creek Valley basin that is characterized by generally flat to gently rolling hills (SAFB 2003a). The elevation of Silver Creek east of the base is about 405 feet above msl.

The base lies within Seismic Zone IX, which contains the New Madrid Fault Zone. This fault zone extends from Cairo, Illinois, on the Ohio River southward through New Madrid, Missouri. It is the most active seismic area east of the Rocky Mountains. The last major earthquake along this fault was in 1812 and measured more than 8.0 on the Richter scale. However, tremors are common, and on rare occasions,

small quakes measuring 3.0 to 4.0 or more on the Richter scale occur along the New Madrid Fault (SAFB 2003a).

Geology. St. Clair County rests primarily on Paleozoic sedimentary rocks and Cenozoic unconsolidated materials. Pennsylvanian Age bedrock lies approximately 85 feet below the surface and includes layers of shale, siltstone, sandstone, limestone, claystone, and coal. The Pennsylvanian strata are approximately 265 feet thick. Beneath the Pennsylvanian strata is the water-yielding Chesterian Series sandstone, which has wells that yield 20 to 25 gallons per minute (SAFB 2003a). Glacial and alluvial deposits ranging in thickness from 50 feet to 125 feet dominate the surficial geology in this area.

Soils. The predominant soil types on Scott AFB are silt loams and silty clay loams, which occur to a depth of 16 inches. They have a moderately high water-holding capacity, moderate to high shrink-swell ratios, and moderate to high corrosive potentials. These soils are developed from tall grass prairie and mixed hardwood forest, and as a result, are quite fertile. The two primary soil associations on Scott AFB are the Herrick-Virden Association in upland areas and the Wakeland-Bonnie Association in bottomland forests along Silver Creek. A soil association is a landscape that has a distinctive pattern of soils in defined proportions. Soil erosion at Scott AFB is not a widespread problem because the topography of the base is relatively flat.

3.6 Water Resources

3.6.1 Definition of Resource

Water resources include surface water, groundwater, and floodplains. This evaluation identifies the quantity and quality of the resource and its demand for potable, irrigation, and industrial purposes.

Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water flows, which may be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to management of surface water. Storm water is also important to surface water quality because of its potential to introduce sediments and other contaminants into lakes, rivers, and streams.

Groundwater consists of subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically is described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Floodplains are areas of low-level ground present along a river or stream channel. Such lands might be subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency, which evaluates the floodplain for 100- and 500-year flood events. EO 11988, *Floodplain Management*, and state and local regulations often limit floodplain development to passive uses such as recreational and preservation activities in order to reduce the risks to human health and safety.

3.6.2 Existing Conditions

Surface Water. The eastern boundary of Scott AFB is bounded by Silver Creek. Silver Creek is a tributary of the Kaskaskia River, which is a tributary to the Mississippi River. Ash Creek is on the west side of the base and is a tributary to Loop Creek, which joins Silver Creek approximately 2.5 miles south

of the base. North Ditch, South Ditch, and Mosquito Creek are on-base tributaries to Silver Creek. Storm water flows from seven drainage outfalls on base (SAFB 2004b).

Groundwater. The groundwater system at Scott AFB generally flows from west to east. The groundwater levels range from 20 feet on the western side of the base to less than 1 foot on the eastern side of the base. Groundwater yields are generally too low to be a significant source of potable or irrigation water in the vicinity of Scott AFB (SAFB 2003a).

Floodplains. There are approximately 390 acres of floodplains along the Silver Creek drainage through Scott AFB. However, no new hydrologic studies have been conducted since various modifications and structures have been built in the floodplain as a result of the MidAmerica Airport Construction (SAFB 2004c).

3.7 Cultural Resources

3.7.1 Definition of Resource

Cultural resources consist of prehistoric and historic artifactual material; archaeological sites, districts, structures; or any other physical evidence of previous human activities that are part of the current landscape. The three primary categories of cultural resources that are addressed by Federal regulations regarding the protection and preservation of cultural resources on Federal property are (1) archaeological sites (typically subsurface deposits), (2) architectural resources (standing structures and buildings), and (3) Traditional Cultural Properties (landscapes determined to be important to a particular culture or group). For undertakings on Federal property, the assessment of impacts on cultural resources in association with the EA process is conducted according to the regulations contained in the National Historic Preservation Act of 1966 (NHPA); 36 CFR Part 800, *Protection of Historic and Cultural Properties*; Archaeological Resources Protection Act of 1979; EO 13007, *Indian Sacred Sites*; and EO 13084, *Consultation and Coordination with Indian Tribal Governments*.

As part of the EA process, the NHPA requires an assessment of potential impacts on cultural resources and the potential for adverse effects on historic properties associated with proposed undertakings located on Federal property or to be completed with Federal funds. Historic properties are cultural resources that have been evaluated and determined to be eligible for listing on the National Register of Historic Places (NRHP). Eligibility for nomination to the NRHP is determined by a cultural resource's ability to satisfy the eligibility criteria described in Section 106 of the NHPA, as defined in 36 CFR Part 800 and National Register Bulletin 15. Cultural resources that have not been evaluated for NHRP eligibility are considered eligible for compliance purposes until such evaluation has been completed and a formal determination of eligibility is made. In accordance with EO 12372, *Intergovernmental Review of Federal Programs*, and the requirements of the Scott AFB Integrated Cultural Resources Management Plan (SAFB 2003b), Section 106 consultation would be initiated with the SHPO if the Proposed Action were determined to represent potential adverse effects on cultural resources.

3.7.2 Existing Conditions

Scott AFB completed its identification and nomination requirements under Section 110 of the NHPA. Scott AFB is home to 104 historic buildings and structures that contribute to the Scott Field Historic District, which is listed on the NRHP. Cultural resource surveys have identified 12 archaeological sites and 2 historic cemeteries. Of the 12 sites, 2 were determined ineligible for the NRHP and destroyed by construction, one was determined eligible, mitigated and destroyed by construction; and one occurs on a property that is no longer part of Scott AFB. None of the remaining sites are eligible for the NRHP. All

of these sites are historic, although two of them have prehistoric artifacts mixed with the historic materials.

One facility associated with the Proposed Action (Hangar 1, Building 433) is part of the Scott Field Historic District. The Scott Field Historic District contains the largest concentration of pre-1945 constructed buildings and structures remaining at Scott AFB. It encompasses the original 1917 main base area and the 1937–1940 expansion area to the east of B Street. The district consists of 104 contributing features and 18 noncontributing features, and includes a variety of building types related to the base's early history. Architectural styles found within the historic district primarily include Georgian Revival and Colonial Revival. However, Flemish, Federal, and Neoclassical elements are also seen. The architectural and historical integrity of the District, its setting, and its components is excellent.

The District is a nationally significant historic property. It is significant according to NRHP Criterion A (events) because of its association with both the training of hundreds of lighter-than-air airship pilots between 1921 and 1937 and the training of thousands of radio-operator mechanics during World War II. The District is also architecturally significant (NRHP Criterion C) for its grouping of pre-1946 buildings within the original base area. Many of these buildings and structures share similar design and construction characteristics. As a result, the original base area represents a significant and coherent entity.

In addition to the general character-defining features that are present on nearly all of the buildings and structures within the District, some of the individual properties also retain unique or noteworthy features for which maintenance and rehabilitation considerations must be noted. Because a number of the properties within the District are of nearly identical design (e.g., duplexes), they retain nearly identical character-defining features. As such, the individual buildings and structures have been grouped by functional zones and some of the noteworthy character-defining features identified.

Scott AFB must make every reasonable effort to find compatible reuses for properties that are consistent with their original purpose. In those cases where compatible uses are not technically or economically feasible (e.g., within the service/industrial functional zone), every attempt must be made to ensure that the reuse does not impinge on any character-defining features of the building. If a building is being reused for a purpose that differs from the original use (e.g., original fire house used as office space), minimal accommodating alterations are a preferable alternative to abandonment, mothballing, or demolition.

For ease of management, properties within the historic district are generally grouped into three functional zones by property type: Dwellings, Administrative and Recreational Buildings and Structures, and Service and Industrial Buildings and Structures. Building 433 (Hangar 1) is included in the Service and Industrial Buildings and Structures. Service and Industrial Buildings and Structures are those that were built, or are presently used, to support maintenance and operation of the base. They are built of a variety of materials such as poured concrete, concrete block, brick, steel, and wood. Because their purpose is to house equipment, goods, and functions necessary for the operation of the base, the service/industrial buildings are generally constructed with minimal exterior architectural detailing; and interiors are almost exclusively devoid of architectural features. Within the District there are 20 service/industrial buildings, most of which are rectangular or square in plan and have either gable or hipped roofs. Building types include elevated water tanks, steel water reservoirs, warehouses, a hangar, a gas station, a heat plant, and the original fire station.

3.8 Infrastructure and Utilities

3.8.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure information provided below was obtained from the *Scott Air Force Base General Plan* (SAFB 2004c) and provides a brief overview of each infrastructure component and comments on its existing general condition. The infrastructure components to be discussed in this section include transportation systems, utilities (electrical power, natural gas, and water supply), solid waste, and sanitary systems.

Municipal solid waste (MSW) management primarily concerns itself with the availability of landfills to support a population’s residential, commercial, and industrial needs. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and limited to, disposal of construction and demolition (C&D) debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance on landfills for disposal.

3.8.2 Existing Conditions

Electrical. Scott AFB receives electrical resources through three feeds of 34.5 kilovolts (kV) each from Illinois Power (Dynergy Energy Partners). In addition, there are seven major substations, six minor substations, and one housing substation located throughout the base.

Potable Water. The Scott AFB water distribution system serves approximately 15,000 personnel by supplying water to more than 2,000 facilities and housing units. The water system was originally constructed in the 1930s and has been updated as the base has grown. There are approximately 65 miles of distribution piping ranging in size from 3 to 16 inches in diameter, and the total water storage capacity is 5.2 million gallons.

Scott AFB purchases all of its potable water from the Illinois American Water Company. Average water demand is approximately 1.5 million gallons per day (mgd) with a peak summer hour demand of approximately 4.15 mgd. The existing water distribution is sized to handle the current demand and it is assumed that the system would meet future demands.

Wastewater Treatment and Collection. Scott AFB has a wastewater treatment plant (WWTP) with a design capacity of 3 mgd and an average daily use of less than 2 mgd. The WWTP is permitted to discharge treated effluent to the Cardinal Creek Golf Course Lake, Cardinal Lake, and Mosquito Creek. There are also 13 wastewater lift stations, 20 oil/water separators, and 8 aerated septic systems throughout the base that are part of the wastewater collection system.

Transportation. Scott AFB is a few miles east of the convergence of several Interstate Highways (Highways 44, 55, 64, and 70). Interstate 64, north of the base, provides east-west access to Scott AFB and interconnects the base with the interstate, state, and local road network. Illinois 161 and Illinois 177, south of the base, also provide east-west access to the state and local system. Air Mobility Drive (Illinois 158), west of Scott AFB; and Illinois 4, east of the base, provide north-south mobility.

Scott Drive is a four-lane divided boulevard connecting the Shiloh Gate on the north with the Belleville Gate on the south. This roadway bisects the main core of the base into the contemporary administrative, community service, and residential areas to the west, and the historic district, industrial, and flightline activities to the east.

The region's light rail mass transit system, MetroLink, was recently extended to Southwestern Illinois College. The extension of the MetroLink from Southwestern Illinois College to the MidAmerica Airport terminal at Interstate 64 and Illinois 4 was completed in 2003. This extension includes park-and-ride stations on the east side of Air Mobility Drive (Illinois 158).

Solid Waste. Wastes disposed of in the MSW stream at Scott AFB are expected to consist only of those materials that cannot be effectively recycled. This commonly includes paper towels and other sanitary wastes, food-soiled wrapping and packaging, most food wastes, plastic bags and wrappings, non-recyclable C&D wastes, and other miscellaneous nonrecyclable materials from administrative, industrial, food-service, and retail operations. Scott AFB operates a comprehensive Qualified Recycling Program (QRP) through a subcontractor (SAFB 2004c).

C&D waste and nonrecurring MSW generated under contract are the responsibility of the contractor and are recycled or reused to the greatest extent possible. Contractors are required to report the quantities of recycled C&D waste. Specifications in these contracts require contractors to provide information regarding the disposition of the waste they generate. C&D material that could be recycled include metals, wood, land-clearing debris and concrete, asphalt, brick, and gypsum. Structural items that could be suitable for salvage by local contractors include flooring, framing lumber, doors, windows, cabinets, hardware, plumbing fixtures, ductwork, wiring, and piping (SAFB 2004c).

3.9 Hazardous Materials and Wastes

3.9.1 Definition of Resource

Hazardous material is defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA), as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, a serious irreversible illness, or incapacitating reversible illness; or pose a substantial threat to human health or the environment. Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, as any solid, liquid, contained gaseous, or semisolid waste; or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks and aboveground storage tanks and the storage, transport, and use of pesticides and herbicides, fuels, and Petroleum, Oil, and Lubricants (POL). Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on the type of soil, topography, and water resources.

The TSCA was enacted by Congress in 1976 to give USEPA the ability to track the 75,000 industrial chemicals being produced or imported into the United States and to control the production of new chemicals that might present an unreasonable risk of injury to health or the environment. TSCA also

authorizes USEPA to track thousands of new chemicals that industries develop each year. TSCA supplements other Federal statutes, including the CAA and Emergency Planning, and Community Right-To-Know Act. Because TSCA gives USEPA broad powers, the law covers virtually all manufactured and natural chemicals such as asbestos-containing material (ACM) and lead-based paint (LBP).

Hazards of significance associated with the Proposed Action are asbestos and lead-based paint. The presence of special chemical hazards or controls over them might affect, or be affected by, a proposed action. Information on special chemical hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

To protect habitats and people from inadvertent and potentially harmful releases of hazardous substances, the DOD has dictated that all facilities develop and implement Hazardous Material Emergency Planning and Response Plans or Spill Prevention, Control, and Countermeasure Plans. Also, DOD developed the Environmental Restoration Program (ERP) intended to facilitate thorough investigation and cleanup of contaminated sites on military installations. These plans and programs, in addition to established legislation (i.e., CERCLA and RCRA), effectively form the “safety net” intended to protect the ecosystems on which most living organisms depend.

AFPD 32-70, Environmental Quality, establishes the policy that the USAF is committed to environmentally sound practices:

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental impacts
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible

AFPD 32-70 and the AFI 32-7000 series incorporate the requirements of all Federal regulations, other AFIs, and DOD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

3.9.2 Existing Conditions

The 375th Environmental Flight (375 CES/CEV) at Scott AFB is responsible for hazardous material and waste plans for the installation. In conformance with the policies established by AFPD 32-70, the 375 CES/CEV has developed plans and procedures to manage hazardous materials, hazardous wastes, special hazards, and environmental restoration sites on the base.

Hazardous Materials. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and to those who manage, monitor, or track any of those activities. The 375 AW manages hazardous materials in accordance with AFI 32-7086.

Hazardous materials are managed through a centralized base hazardous material (HAZMAT) Pharmacy using an Environmental Management Information System, which tracks acquisition and inventory control of hazardous materials as well as hazardous waste disposal and health and safety information (SAFB 2004c). This system complements existing regulations, instructions, supplements, and higher headquarters policies and procedures.

Hazardous Wastes. The 375 AW is revising the *Hazardous Waste Management Plan* as directed by AFI 32-7042, *Solid and Hazardous Waste Compliance*. The *Hazardous Waste Management Plan* provides guidance to Scott AFB personnel on handling, storage, and disposal of hazardous materials and implements the USEPA “cradle-to-grave” management control of hazardous waste.

Hazardous wastes generated at Scott AFB include spent solvents, photofixer, waste POL, waste cleaning compounds, and various forms of waste paint. The Scott AFB Hazardous Waste Management Program also handles universal waste, including batteries, pesticides, mercury thermostats, and mercury-containing lamps. Special wastes include potentially infectious medical wastes, industrial process wastes, and pollution control wastes. There are approximately 23 satellite accumulation points where hazardous wastes are generated. There are an additional 23 satellite accumulation points on Scott AFB managed by the 126th Air Refueling Wing. Furthermore, the plan defines the waste accumulated and instructs base personnel on management procedures for the waste.

Special Chemical Hazards. The following paragraphs describe ACM and LBP in more detail:

- **Asbestos-Containing Materials.** AFI 32-1052, *Facilities Asbestos Management*, provides direction for asbestos management at USAF installations. AFI 32-1052 requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos management efforts. In addition, the instruction requires installations to develop an asbestos-operating plan detailing how the installation accomplishes asbestos-related projects. Asbestos is regulated by USEPA with the authority promulgated under the Occupational Safety and Health Act. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

The 375 AW fulfills the requirements of AFI 32-1052 with the *Scott AFB Asbestos Management Plan* (SAFB 2000a) and the *Asbestos Operations Plan* (SAFB 2000b). This plan specifies procedures for the removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects. The objective of the plan is to reduce the potential of personnel exposure to potentially hazardous levels of airborne asbestos fibers and assist in maintaining compliance with all Federal, state, and local asbestos regulations. According to the *Scott Air Force Base General Plan* (SAFB 2004c), when ACM is removed as a result of renovations or building demolitions, the costs of ACM abatement are incorporated into the overall project costs.

- **Lead-Based Paint.** The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws and regulations relating to LBP activities and hazards.

USAF policy and guidance establishes LBP management at USAF facilities (USAF 1993). Additionally, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. The *Lead Based Paint Management Plan* (SAFB 1996) provides an understandable and easy-to-follow approach to LBP management. It covers designation of duties, identification of hazards, testing procedures, abatement methods, training requirements, and protection of families and workers. In addition to addressing LBP concerns, the *Lead Based Paint Management Plan* also addresses lead exposure from other sources such as lead joints used in the potable water system and occupational exposure to lead through corrosion control, welding, and cable maintenance operations. Mitigation of LBP and other hazards, monitoring, and lead waste disposal are also discussed.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-to-Know Act; Pollution Prevention Act of 1990; EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 375 AW fulfills this requirement with the *Pollution Prevention Plan* (SAFB 2005) and the *Hazardous Materials Management Plan*. These plans ensure that Scott AFB maintains a waste-reduction program and meets the requirements of the Clean Water Act (CWA); the NPDES permit program; and Federal, state, and local laws and regulations for spill prevention, control, and countermeasures.

Scott AFB participates in an affirmative procurement program mandated by EO 13101. This program encourages the purchase of products that have lesser or decreased impacts on human health and the environment when compared with competing products or services serving the same purpose. This program is detailed in the Scott AFB Affirmative Procurement Plan

Environmental Restoration Program. ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense Environmental Restoration Program that became law under SARA. The ERP requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

Preliminary Assessments/Site Investigations completed at Scott AFB in 1995 identified 16 ERP sites. Two ERP sites have been closed with no further site remediation planned and there are 17 Areas of Concern (AOCs) under investigation as potential ERP sites (SAFB undated). No ground-disturbing activities are scheduled to occur as part of the Proposed Action in areas of ERP Sites and AOCs. Construction workers would not be exposed to any contamination related to ERP sites and AOCs; therefore, ERP will not be discussed further in this EA.

4. Environmental Consequences

This Section of the EA assesses potential environmental consequences associated with the Proposed Action (Sections 4.1 through 4.9) and the No Action Alternative (Section 4.10). Environmental consequences are addressed in the context of the scope of the Proposed Action as described in Section 2.0 and in consideration of the potentially affected environment as characterized in Section 3.0. The EA analysis includes direct, indirect, and cumulative impacts. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative effects are impacts that result from incremental impacts 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 actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). The cumulative impact analysis is provided in Section 5.0 of this EA.

4.1 Noise

4.1.1 Evaluation Criteria

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels).

Noise is a principal concern associated with aircraft operations. The main issues concerning noise effects on humans are physiological effects (hearing loss and nonauditory effects), behavioral effects (speech or sleep interference and performance effects), and subjective effects such as annoyance. Noise impacts would be considered adverse if increased noise levels affected land use compatibility.

4.1.2 Proposed Action

Aircraft Operations. Beneficial effects would be expected as a result of the Proposed Action. As shown in Table 4-1, under the Proposed Action, there would be a net decrease in the number of airfield operations at Scott AFB compared to the historic and current scenarios. The proposed decrease in airfield operations would be a result of the proposed decrease in based aircraft (see Table 4-1). Under the proposed scenarios, three C-9C would replace three C-9A aircraft in 2005–2006. In 2007, three C-40C aircraft would begin operating at Scott AFB. Based on this information, it was assumed that the based aircraft under the proposed scenarios would consist of three C-9C and three C-40C aircraft and that the aircraft operations would be evenly split between the two aircraft types. Only the proposed 2009 scenario was analyzed since that year contains the largest number of operations (see Table 4-1).

The Scott AFB *Air Installation Compatible Use Zone (AICUZ) Study, February 2001* was used to establish airfield characteristics such as flight track, runway use, and day-night percentages. However, the runway use percentage between Scott AFB and MidAmerica would be different under the Proposed Action. Under the Proposed Action, the runway use at MidAmerica would be an estimated 58 percent, with the remaining 42 percent of the operations performed at Scott AFB. Since this percentage is slightly higher than the percentage that was used for C-9A aircraft in the 2001 AICUZ, the runway use percentage between Scott AFB and MidAmerica was refigured for this EA. All remaining aircraft operations, including based and transient aircraft, were assumed to be the same. Therefore, except for the C-9 and C-40 aircraft, all aircraft operations presented in the 2001 AICUZ remained the same for this analysis.

Table 4-1. Historic, Current, and Proposed C-9 and C-40 Aircraft Operations

Fiscal Year	Historic		Current	Proposed	
	CY 2000	CY 2002	CY 2005	CY 2007	CY 2009
Aircraft	C-9A	C-9A	C-9C	C-9C and C-40C	C-9C and C-40C
Number of Aircraft	10	10	3	6	6
Average Airfield Daily Operations	31.4	27.8	2	9	26

Sources: SAFB 2001 and information provided by 932 AW representatives

This noise analysis was estimated in the NOISEMAP, Baseops Version 7.296 software program, which is a DOD-approved program. NOISEMAP does not have the C-9C or the C-40C aircraft in the database, consequently aircraft substitutions with similar engine types and body sizes were made. The C-9A was used as a substitute for the C-9C and the 737-500 was used as a substitute for the C-40C.

Figure 4-1 shows the proposed 2009 and the 2001 AICUZ noise contours in 5-dB increments ranging from 65 to 75 dB DNL. There are a few areas where the proposed 2009 contours would overlap the 2001 contours, however this is generally the exception. Overall, the proposed contours would be smaller than the 2001 AICUZ contours. This would be expected since the number of average airfield daily operations would decrease from 31.4 in 2000 to 26 in 2009 and the number of based aircraft would decrease from 10 in 2000 to 6 in 2009 (as shown in Table 4-1). Therefore, *no adverse effects* on the noise environment on or surrounding Scott AFB would be expected.

Construction Impacts. Implementation of the Proposed Action would have *short-term minor effects* on the noise environment near the project sites resulting from the use of heavy equipment during construction activities. The nearby facilities would experience muffled construction noise during the workday. However, noise generation would last only for the duration of construction activities, and could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). In addition, the noise environment on base is dominated by military aircraft overflights. Noise associated with construction activities would be comparatively minor. No significant long-term adverse effects are anticipated as a result of the construction activities.

4.2 Land Use

4.2.1 Evaluation Criteria

The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use impact would be significant if it were to

- Be inconsistent or in noncompliance with existing land use plans or policies.
- Preclude the viability of existing land use.
- Preclude continued use or occupation of an area.
- Be incompatible with adjacent land use to the extent that public health or safety is threatened.
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

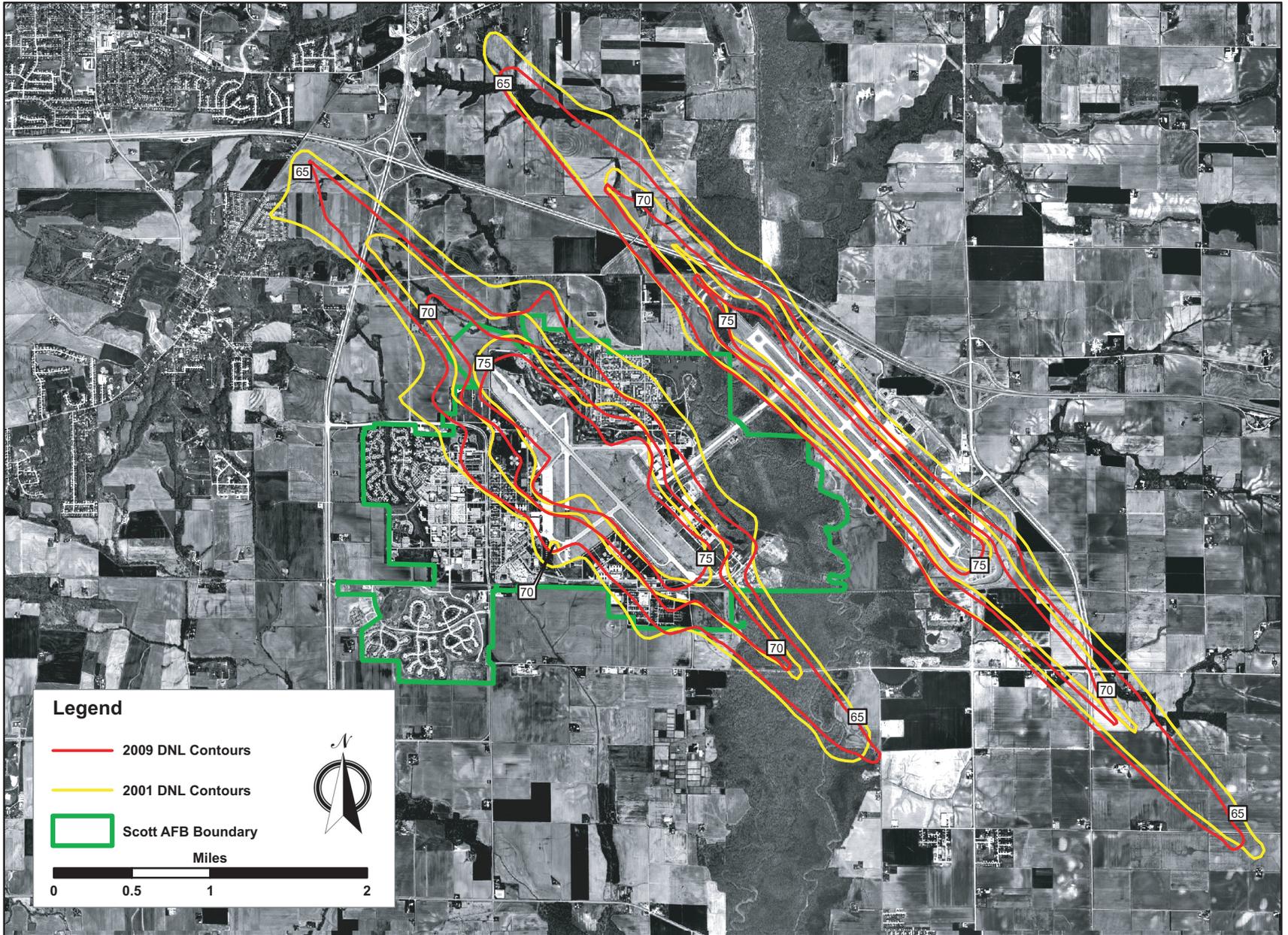


Figure 4-1. 2001 AICUZ and Proposed 2009 Noise Contours

4.2.2 Proposed Action

As discussed in Section 4.1.1, the proposed 2009 noise contours would be smaller than the 2001 AICUZ contours. (Figure 3-2 shows the 2001 AICUZ noise contours and Figure 4-1 shows the proposed 2009 noise contours.) Consequently, there would be a decrease in the number of acres inside of the 65 DNL noise contour. Since the proposed 2009 noise contours are inside of the 2001 AICUZ contours, there would be *no adverse effects* on land use under the Proposed Action.

All of the proposed facilities would be constructed or modified on Scott AFB property. Construction equipment would be brought in on existing roads. Property easements would not be required and there would not be any change in land use during the construction phases or once the proposed facilities were completed. The Proposed Action is consistent with the existing operations and buildings already on the site. No modifications would be made to existing land use plans or policies. *No adverse effects* would occur on land use as a result of the Proposed Action.

4.3 Air Quality

4.3.1 Evaluation Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS “attainment” areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a SIP

Effects on air quality in NAAQS “nonattainment” areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area’s emissions inventory by 10 percent or more for one or more nonattainment pollutants, or if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 $\mu\text{g}/\text{m}^3$ or more (40 CFR 52.21(b)(23)(iii)).

4.3.2 Proposed Action

As discussed in Section 3.1.2, Scott AFB is in St. Clair County, which has been designated as a maintenance area for the 1-hour ozone standard, a moderate nonattainment area for the 8-hour ozone standard, and a nonattainment area for the PM_{2.5} standard. The Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, and construction operations, but these emissions would be temporary and would not be expected to generate any off-site effects. The Proposed Action would also result in a slight increase in air pollutant emissions from fuel combustion in aircraft. No long-term air quality effects would be expected from the Proposed Action. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS.

The Proposed Action consists of two construction projects that would result in a temporary increase in emissions: the construction of the Squadron OPS Facility, and the construction of the Parts Storage Facility. The construction projects would generate total suspended particulate and PM10 emissions as fugitive dust from ground-disturbing activities (e.g., grading, soil piles) and combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site-preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9 dated October 1998 and Section 13.2 dated December 2003. These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays). Using data from the National Oceanic and Atmospheric Administration, the average soil percent moisture was estimated to be 55 percent (NOAA 2005). Wind speed of greater than 12 miles per hour is recorded 36 percent of the time during O3 season (April 1 to October 31), which is based on average wind rose data and measured speed for the St. Louis area near Scott AFB (PES 1999).

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in Air Quality Thresholds of Significance from the Sacramento Metropolitan Air Quality Management District (SMAQMD 2004).

For purposes of this analysis, the project duration and affected project site area that would be disturbed (presented in Section 2) was used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions include the estimated annual construction PM10 emissions associated with the Proposed Action at Scott AFB. These emissions would produce slightly elevated short-term PM10 ambient air concentrations. However, the effects would be temporary, and would fall off rapidly with distance from the proposed construction site.

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established methodologies for construction and experience with similar types of construction projects. Combustion by-product emissions from construction equipment exhausts were estimated using SMAQMD emissions factors for heavy-duty, diesel-powered construction equipment.

The construction emissions include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM₁₀ emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term effects. There would be *short-term adverse indirect effects* on air quality as a result of the Proposed Action. Proposed construction emissions estimates are presented in Table 4-2 and are also included in the total proposed emissions estimates presented in Table 4-3.

The Proposed Action also consists of the replacement of C-9A aircraft with C-9C aircraft and the addition of C-40C aircraft, which would result in an increase in emissions. Aircraft-specific data and emissions factors from the *IERA Air Emissions Inventory Guidance* and from the *ICAO Engine Exhaust Emissions Data Bank* were used to estimate emissions (IERA 2001; ICAO 2002). For purposes of emissions calculations, all missions or sorties were assumed to consist of one landing/takeoff cycle (LTO). In addition, proposed LTOs were assumed to be split evenly amongst the C-9C and the C-40C. Proposed aircraft emissions estimates for CYs 2000, 2007, and 2009 are presented in Table 4-4, and are also included in the total proposed emissions estimates presented in Table 4-2.

As shown in Table 4-3, emissions from the Proposed Action would be well below the applicable *de minimis* thresholds and would be well below 10 percent of the regional emissions inventory. Therefore, a General Conformity Determination is not required and effects on air quality from the Proposed Action would be considered insignificant. Appendix C details the emissions factors, calculations, and estimates of construction-related emissions for the Proposed Action.

In summary, *no long-term adverse effects* on regional or local air quality would result from implementation of the Proposed Action.

Table 4-2. Construction Emissions Estimates from the Proposed Action

Calendar Year	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM ₁₀ (tpy)
CY 2009	7.82	1.32	9.07	0.23	1.21

Table 4-3. Total Emissions Estimates from the Proposed Action

	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM ₁₀ (tpy)
CY 2007 (Aircraft Only)	2.28	0.99	4.39	0.00	0.00
CY 2009 (Aircraft and Construction)	14.16	4.08	21.25	0.23	1.21
CY 2010 and Beyond (Aircraft Only)	6.34	2.76	12.18	ND	ND
<i>de minimis</i> thresholds	100	50	NA	NA	NA
Emissions Inventory Threshold (10 Percent of the Regional Emissions Inventory)	27,798	15,364	97,713	49,612	22,234

Notes: ND – No data available

NA – Not applicable

Table 4-4. Aircraft Emissions Estimates from the Proposed Action

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM₁₀ (tpy)
CY 2000 (Aircraft Baseline Year)	1.54	1.72	6.08	ND	ND
CY 2007 (Aircraft Emissions)	2.28	0.99	4.39	ND	ND
CY 2009 (Aircraft Emissions)	6.34	2.76	12.18	ND	ND
Increase in Emissions from 2000 to 2009	4.8	1.04	6.1	ND	ND

Notes: ND – No data available

According to 40 CFR Part 81, there are no Class I areas in the vicinity of Scott AFB. Therefore, Federal PSD regulations would not apply to the Proposed Action.

Local and regional pollutant effects resulting from direct and indirect emissions from stationary emissions sources under the Proposed Action are addressed through Federal and state permitting program requirements under New Source Review (NSR) regulations (40 CFR Parts 51 and 52).

4.4 Safety

4.4.1 Evaluation Criteria

Potential impacts were assessed based on direct effects from aircraft crashes (i.e., damage to aircraft and points of impact), as well as secondary effects, such as fire and environmental contamination. The extent of these secondary effects is situationally dependent and difficult to quantify. For example, there would be a higher risk of fire from aircraft crashes in highly vegetated areas during a hot, dry summer than would be the case if the mishap occurred in a rocky, barren area during the winter. As stated earlier, historical mishap databases enable the military to calculate the mishap rates for each type of aircraft. These rates are based on the estimated flying time that an aircraft is expected to be in the airspace, the accident rate per 100,000 flying hours for that aircraft, and the annual flying hours for that aircraft.

If implementation of the Proposed Action were to substantially increase risks associated with the safety of Scott AFB personnel, contractors, or the local community, or substantially hinder the ability to respond to an emergency, it would represent a significant impact. Furthermore, if implementation of the Proposed Action would result in incompatible land use with respect to safety criteria (e.g., height restrictions), impacts on safety would be significant.

4.4.2 Proposed Action

Aircraft Safety. Aircraft safety is a primary concern of those residing near military installations. The 932 AW follows all designated and approved flight tracks, including altitudes, during training missions. Since the AFSC has no established Class A mishap rates for C-9 and C-40 aircraft, flight risks were evaluated based on NTSB mishap data. As discussed in Section 3.7, NTSB data reflect a catastrophic mishap rate (hull loss) of 0.237 per 1 million flight hours (USDOT NTSB 2005). At full operation in CY 2009, 4,000 operational flight hours are proposed (see Table 2-1). Based on the mishap rates from NTSB, the Proposed Action's chance for a major mishap would be extremely small. In addition, continued adherence to the BASH Plan would decrease the potential for bird/wildlife-aircraft strikes. Therefore, *no adverse effects* on safety would be expected as a result of the Proposed Action.

Construction Safety. *Short-term minor adverse effects* would be expected during the duration of the construction activities of the Proposed Action. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Scott AFB during the normal workday because of the increase in construction activities. Contractors would be required to establish and maintain Occupation Safety and Health Administration compliant safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or to activities at the base. Proposed construction projects would enable the 932 AW to meet future mission objectives at the base, and conduct or meet mission requirements in a safe operating environment.

4.5 Geological Resources

4.5.1 Evaluation Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating environmental consequences of a proposed action on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Analysis of environmental consequences on geological resources typically includes the following evaluation tools:

- Identification and description of resources that could potentially be affected
- Examination of a proposed action and the potential effects this action may have on the resource
- Assessment of the significance of environmental consequences
- Provision of mitigation measures in the event that potentially significant impacts are identified

4.5.2 Proposed Action

Under the Proposed Action, construction activities, such as grading, excavation, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit environmental consequences from construction activities. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion control means (silt fencing, sediment traps, application of water sprays, and re-vegetation of disturbed areas) would also reduce environmental consequences from construction activities. Therefore, *no adverse effects* would be expected.

The Proposed Action would not cause or create significant changes to the topography of the Scott AFB area. Therefore, *no adverse effects* on regional or local topography or physiographic features would result from implementation of the Proposed Action.

4.6 Water Resources

4.6.1 Evaluation Criteria

Evaluation criteria for water resources impacts are based on water availability, quality, and use; existence of floodplains; and associated regulations. A potential impact on water resources would be significant if it were to reduce water availability to existing users or interfere with the supply; create or contribute to overdraft of groundwater basins or exceed safe annual yield of water supply sources; adversely affect

water quality or endanger public health by creating or worsening adverse health hazard conditions; threaten or damage unique hydrologic characteristics; or violate established laws or regulations that have been adopted to protect or manage water resources of an area. The impact of flood hazards on a proposed action is significant if such an action is proposed in an area with a high probability of flooding.

4.6.2 Proposed Action

Surface Water. Implementation of the Proposed Action is expected to have *no adverse effects* on surface water and water quality. The Proposed Action would result in only a minor increase to impervious surfaces and runoff on the installation. Adherence to proper engineering practices and applicable codes and ordinances would reduce storm water runoff-related impacts to a level of insignificance. Erosion and sediment controls would be in place during construction to reduce and control siltation or erosion impacts to areas outside of the construction site.

Groundwater. The activities associated with the Proposed Action would have *no adverse effects* groundwater quality. The proposed facilities are designed to be slab-on-grade construction and intrusion into the subgrade would be minimal.

Floodplains. The Proposed Action does not involve construction activities in a floodplain, would not induce development in a floodplain, and construction impacts would be kept as minimal as possible. Therefore, the Proposed Action would have *no adverse effects* on floodplains on Scott AFB.

4.7 Cultural Resources

4.7.1 Evaluation Criteria

The analysis of the potential impacts and adverse effects on cultural resources associated with proposed actions on Federal property includes the assessment of both direct and indirect impacts on cultural resources and the determination of their potential to result in adverse effects on identified historic properties or unevaluated, potentially eligible resources. Adverse effects include physically altering, damaging, or destroying; altering a defining characteristic that is a contributing element to the eligibility of; the introduction of visual or audible elements that are out of character or affect the original setting of; or the intentional or benign neglect of a historic property or potentially eligible resource that results in its full or partial destruction. Adverse effects associated with indirect impacts typically include the cumulative effects of the intensified use of an area in which a historic property or unevaluated resource is located resulting from construction or project-related improvement of the area, including improvements to transportation corridors in the vicinity that provide for or indirectly lead to increased access to the area.

4.7.2 Proposed Action

One facility associated with the Proposed Action (Hangar 1, Building 433) is part of the Scott Field Historic District. Surveys of the hangar floor and the electrical system would be performed to determine if the hangar adequately meets the requirements of the C-40C aircraft. In addition, a 1,200-square-foot caged area would be constructed along the northeast wall of the hangar and the hangar doors would be serviced to restore operation to a pre-existing requirement which would accommodate the tail of the C-40 aircraft.

Consultation with the SHPO is included in Appendix B. Although Hangar 1 is within the Scott Field Historic District, the SHPO concurred in a finding of *no adverse effect* for the proposed building modifications.

4.8 Infrastructure and Utilities

4.8.1 Evaluation Criteria

Impacts on infrastructure are evaluated for their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, wastewater systems, and transportation patterns and circulation. Impacts could arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads, changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to base activities.

Several things are considered when evaluating the significance of impacts on solid waste. These include evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and the capacity of the area landfill.

4.8.2 Proposed Action

Electrical. It is anticipated that *no adverse effects* on electrical power would result from implementation of the Proposed Action at Scott AFB. The Proposed Action would evaluate the existing electrical system in Hangar 1 (Building 433) to determine whether the system is sufficient to support C-40C aircraft maintenance requirements; and install new HVAC equipment and lighting to Room 104 of Building 450. Overall, the Proposed Action would have minimal impact on the electrical system. The Proposed Action would upgrade old electrical systems and new buildings would be constructed with energy-efficient equipment.

Potable Water. The Proposed Action would not result in a net change in water usage. Therefore, *no adverse effects* on water supply systems would result from the Proposed Action.

Wastewater Treatment and Collection. The Proposed Action would not result in a net change in wastewater treatment or collection. Therefore, *no adverse effects* on water supply systems would result from the Proposed Action.

Transportation. The C&D phase of the Proposed Action would require delivery of materials to and removal of debris from construction sites. C&D traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept onsite for the duration of C&D activities, resulting in relatively few additional trips. Furthermore, potential increases in traffic volume associated with proposed C&D activities would be temporary. Heavy vehicles are frequently on base roads; therefore, the vehicles necessary for C&D are not expected to have a heavy impact on base roads. All road and lane closures would be coordinated with the 375th Transportation Squadron prior to commencing C&D activities and would be temporary in nature; therefore, *no adverse effects* on transportation systems would be expected.

Solid Waste. It is anticipated that the implementation of the Proposed Action at Scott AFB would have a *minor adverse effect* on the solid waste management program at the base or the capacity of the area landfill. Solid waste generated from the Proposed Action C&D activities would consist of a minimal amount of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Solid waste generated from the proposed C&D activities would consist of solid pieces of concrete, metals (conduit, piping, ductwork, and wiring), and lumber. While some of the material can be reused in the various construction projects at Scott AFB, some material would be properly disposed by the contractor in the landfill or recycled in accordance with the QRP at Scott AFB. Contractors are required to report the quantities of recycled C&D waste.

4.9 Hazardous Materials and Wastes

4.9.1 Evaluation Criteria

Numerous local, state, and Federal laws regulate the storage, handling, disposal, and transportation of hazardous material and waste. The primary purpose of these laws is to protect public health and the environment. Environmental consequences associated with hazardous material and waste would be significant if the storage, use, transportation, or disposal of these substances were to substantially increase the risk to human health or exposure to the environment.

4.9.2 Proposed Action

Hazardous Materials. Construction activities associated with the Proposed Action would require the use of certain hazardous materials such as paints, welding gases, solvents, preservatives, and sealants. Construction equipment that would be used in the Proposed Action contains fuel, lubricating oils, hydraulic fluid, and coolants that could be regulated as hazardous substances if they spilled or leaked on the construction site. During project activities, contractors would be required to minimize the potential for a release of hazardous substances from all construction equipment, include daily inspection of equipment to ensure that there are no discharges, maintain appropriate spill containment material onsite, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the construction site.

It is anticipated that the quantity of products containing hazardous materials used during the C&D activities would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal and state regulations. Therefore, *no adverse effects* on hazardous materials management at Scott AFB would be expected by the proposed C&D activities.

Under the Proposed Action, three C-9A aircraft would be replaced with three C-9C aircraft, and three new C-40C aircraft would operate from Scott AFB. The increase in maintenance operations to accommodate the increase in aircraft would increase the amount of material purchased, and the waste streams generated as a result of their use. However, since Scott AFB utilizes a HAZMAT Pharmacy, the increase in hazardous material usage would result in *no adverse effects* on operations or the environment.

Hazardous Wastes. It is anticipated that the quantity of hazardous wastes generated from proposed C&D activities would be negligible. Contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations. Construction of the proposed facilities would not impact the Scott AFB hazardous waste management program. The Proposed Action could slightly increase the amount of hazardous waste generated at Scott AFB; however, the Scott AFB hazardous waste management program would accommodate the increase and *no adverse effects* would be expected.

Asbestos-Containing Materials. Testing for ACM would be conducted prior to any renovation or construction activities associated with the Proposed Action. Any ACM encountered during renovation of existing buildings would be handled in accordance with established USAF policy. USAF regulations prohibit the use of ACM and LBP for new construction. Specifications for new facilities would be in accordance with USAF policies and regulations.

Lead-Based Paint. Testing for LBP would be conducted prior to any renovation or construction activities associated with the Proposed Action. Any LBP encountered during renovation of existing buildings would be handled in accordance with established USAF policy. USAF regulations prohibit the use of

ACM and LBP for new construction. Specifications for new facilities would be in accordance with USAF policies and regulations.

Pollution Prevention. It is anticipated that the Proposed Action would have a *minor adverse effect* on the pollution prevention program at Scott AFB. Quantities of hazardous material and chemical purchases, off-base transport of hazardous waste, disposal of MSW, and energy consumption would increase with implementation of the Proposed Action. However, the Pollution Prevention Program at Scott AFB would accommodate the Proposed Action.

4.10 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is and none of the proposed projects would occur. There would be no beddown of replacement or new aircraft and no related facilities projects at Scott AFB. If the No Action Alternative were carried forward there would be *no change in or effects* on noise, land use, air quality, safety, geological resources, water resources, cultural resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, or hazardous materials and wastes at Scott AFB.

5. Cumulative and Adverse Impacts

Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

Other projects to evaluate in the cumulative impact analysis were identified through review of public documents, information gained from the IICEP, and coordination with multiple agencies. During the timeframe of the Proposed Action, the 375 AW would be modifying three of its entry control points (Shiloh Gate, Belleville Gate, and Mascoutah Gate) to improve safety and security on base. No significant impacts on the environment are anticipated from the Proposed Action in conjunction with these three projects.

5.1 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Geological Resources. Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Standard erosion control means would also reduce environmental consequences related to these characteristics. Although unavoidable, impacts on soils at the base are not considered significant.

Hazardous Materials and Wastes. The generation of hazardous materials and wastes are unavoidable conditions associated with the Proposed Action. However, the potential for these unavoidable situations would not significantly increase over baseline conditions and, therefore, are not considered significant.

Energy. The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action or No Action Alternative.

5.2 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Impacts on the ground surface as a result of the Proposed Action would occur entirely within the boundaries of Scott AFB. The Proposed Operations and Maintenance construction activities would not result in any significant or incompatible land use changes on or off base. The proposed projects have been sited according to existing land use zones. Consequently, construction activities would not be in conflict with base land use policies or objectives. The Proposed Action would not conflict with any applicable off-base land use ordinances or designated clear zones.

5.3 Relationship Between Short-term Use and Long-term Productivity

Short-term uses of the biophysical components of man's environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occurs over a period of less than 5 years. Long-term uses of man's environment include those impacts occurring over a period of more than 5 years, including permanent resource loss.

Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that affect long-term productivity.

The Proposed Action would not result in an intensification of land use at Scott AFB or in the surrounding area. Development of the Proposed Action would not represent a significant loss of open space. Scott Drive bisects such land use categories as industrial, administrative, accompanied and unaccompanied housing, outdoor recreation, and open space; the current Education Center area is designated as community service land use, and the temporary Education Center location (near Building 1500) is designated as community commercial land use. These sites are not planned for use as open space. Therefore, it is anticipated that the Proposed Action would not result in any cumulative land use or aesthetic impacts. Long-term productivity of these sites would be increased by the development of the Proposed Action.

5.4 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involve the consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Material Resources. Material resources utilized for the Proposed Action include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure). Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel), natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operation, gasoline would be used for the operation of private and government-owned vehicles. Natural gas and electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Biological Habitat. The Proposed Action would result in a minimal, temporary loss of vegetation and wildlife habitat on proposed construction sites. Proposed construction occurs entirely on already disturbed land.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities and is considered beneficial.

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APPENDIX A

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

Appendix A

Applicable Laws, Regulations, Policies, and Planning Criteria

When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws as well as Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

Noise

The Air Installation Compatible Use Zone (AICUZ) Program, (Air Force Instruction [AFI] 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near U.S. Air Force (USAF) installations.

Land Use

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVS, August 1, 1986). This document provides for the use of 12 basic land use types found on an Air Force installation. In addition, land use guidelines established by the U.S. Department of Housing and Urban Development (HUD) and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQSs) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the USEPA as being in attainment or nonattainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCR). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassifiable. Section 309 of the CAA authorizes the USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action may have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency may also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

Safety

AFI 91-202, *USAF Mishap Prevention Program*, implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife

Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements AFD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by the USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires the USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 303(d) of the CWA requires states and the USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a water-body can receive and still be in compliance with state water-quality standards. After determining TMDLs for impaired waters, states are required to identify all point and non-point sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source in order to meet the state standards. The TMDL program is currently the nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL plans typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The Coastal Zone Management Act (CZMA) of 1972 declares a national policy to preserve, protect and develop, and, where possible, restore or enhance the resources of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, and includes the Great Lakes. The CZMA encourages states to exercise their full authority over the coastal zone, through the development of land and water use programs in cooperation with Federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Development projects affecting land or water use or natural resources of a coastal zone, must ensure the project is, to the maximum extent practicable, consistent with the state's coastal zone management program.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require the USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals

(MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants, and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977) directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintains the list. A list of Federal endangered species can be obtained from the Endangered Species Division, USFWS (703-358-2171). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species, such as the bald eagle, also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport or carry from one state, territory or district to another, or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970) states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their

policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 11990, *Protection of Wetlands* (May 24, 1977) directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001) creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. EO 13186 provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and the National Register of Historic Places (NRHP). ACHP advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the NHPA directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the ACHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where

appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain “cultural items,” defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate American Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971) directs the Federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which may qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996) provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners’ access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13287, *Preserve America* (March 3, 2003) orders Federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. EO 13287 established new accountability for agencies with regard to inventories and stewardship.

Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994) directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agency-wide environmental justice strategies. The strategy must list “programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations.” A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes the USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for clean up of sites where potentially responsible parties cannot be identified, the USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control. EO 12856, *Federal Compliance with Right-to Know Laws and Pollution Prevention Requirements* (August 3, 1993) requires Federal agencies to comply with the provisions of the PPA and requires Federal agencies to ensure all necessary actions are taken to prevent pollution. In addition, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for “cradle-to-grave” management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by the USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong cleanup standards and authorizes the USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. EO 12856 requires Federal agencies to comply with the provisions of EPCRA. If a Federal agency acquires a contaminated site, it can be held liable for clean-up as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 U.S. Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA authorized the USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated bi-phenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and may cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like

PCBs. TSCA Title II provides statutory framework for “Asbestos Hazard Emergency Response,” which applies only to schools. TSCA Title III, “Indoor Radon Abatement,” states indoor air in buildings of the U.S. should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, “Lead Exposure Reduction,” directs Federal agencies to “conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards.” Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

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APPENDIX B

SCOPING, PUBLIC INVOLVEMENT, AND INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING

**ENVIRONMENTAL ASSESSMENT OF
THE BEDDOWN OF C-9C AND C-40C AIRCRAFT AT SCOTT AFB, ILLINOIS**

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 375TH AIRLIFT WING (AMC)

MEMORANDUM FOR: SEE DISTRIBUTION

June 17, 2005

FROM: 375 CES/CEV
701 Hangar Road, Bldg. 56
Scott AFB, IL 62225

SUBJECT: Description of Proposed Action and Alternatives (DOPAA) for the Beddown of C-9C and C-40C Aircraft at Scott AFB, Illinois

1. The Air Force Reserve Command (AFRC) is preparing an Environmental Assessment (EA) for the Beddown of C-9C and C-40C Aircraft at Scott AFB, Illinois. The Proposed Action is to replace three C-9A aircraft with three C-9C aircraft and add three C-40C aircraft at Scott AFB. There are also four construction projects, one demolition project, and two renovation projects associated with the Proposed Action. The detailed description is included as an attachment to this correspondence.
2. The environmental impact analysis process for the Proposed Action and the No Action Alternative is being conducted by Headquarters AFRC in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached description of the Proposed Action and solicit your comments concerning the proposal and any potential environmental consequences.
3. Please provide any comments or information directly to 375 CES/CEV, 701 Hangar Road, Bldg. 56, Scott AFB, IL 62225 by 5 July 2005.
4. If members of your staff have any questions, our point of contact is Mr. David Lewis, 375 CES/CEV, (618) 256-2319, or e-mail to david.lewis3@scott.af.mil.


JOHN W. PATTERSON, GS-13, DAF
Flight Chief, Environmental Mgmt

Attachment:

Description of the Proposed Action



**ENVIRONMENTAL ASSESSMENT OF
THE BEDDOWN OF C-9C AND C-40C AIRCRAFT AT SCOTT AFB, ILLINOIS**
Description of Proposed Action

Background

The 932nd Airlift Wing (932 AW), an Air Force Reserve Command (AFRC) unit, is located at Scott Air Force Base (AFB), Illinois. Scott AFB encompasses 2,819 acres located in the Shiloh Valley Township of St. Clair County, Illinois. The host unit at Scott AFB is the 375th Airlift Wing (375 AW). The 932nd AW (932 AW) is a tenant unit on the base. In September 2003, the 375th Maintenance Group and the 11th Airlift Squadron were inactivated at Scott AFB. The unit's inactivation was the direct result of the C-9A retirement from the active-duty inventory. These aircraft became part the AFRC inventory and three of the 10 C-9A aircraft located at Scott AFB were transferred to the 932 AW. The 932 AW currently uses the three C-9A aircraft primarily to transport distinguished visitors.

The U.S. Air Force (USAF) proposes to replace the three existing C-9A aircraft with three C-9C aircraft and to beddown three new C-40C aircraft. The 932 AW and AFRC are proposing projects involving demolition, construction and renovation of facilities to provide supporting infrastructure for operation and maintenance of these aircraft.

An Environmental Assessment (EA) is being prepared to analyze the Proposed Action and the No Action Alternative.

Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to beddown aircraft at Scott AFB and to provide appropriate supporting infrastructure for their operation and maintenance. The need for the Proposed Action is to carry out assigned national security responsibilities. The Department of Defense and USAF are transforming to meet evolving national security requirements of the 21st century. As part of broad changes throughout the USAF, the 932 AW is shouldering a greater role in supporting combat commanders' command and control functions and in conducting passenger transport operations.

Proposed Construction Projects

- Construction of 4 new buildings
 - C-9C/C-40 Squad Operations Facility (in empty space next to Building 450)
 - C-9C/C-40 Contractor Logistics Support Parts Storage Facility (replaces Building 350)
 - C-40 AGE Covered Storage (adjacent to Building 450)
 - C-9C/C-40 Kitchen Facility (adjacent to new Squad Ops Facility)
- Demolition of Building 350
- Modifications to Building 433 (Hangar 1) – electrical system survey, hangar floor structural analysis, C-9C/C-40 Inspection Section and Contractor Tool Kit, CLS caged area inside hangar, and configure tail doors for C-40C aircraft
- Interior modifications to Building 450 (Parachute Room Renovation)

Proposed Changes in Personnel and Aircraft Operations

The changes in personnel associated with the Proposed Action would be very minor and would not be expected to result in adverse impacts on the environment. The aircraft operations associated with the Proposed Action would decrease when compared to the total C-9A aircraft activity presented in the 2001 Air Installation Compatible Use Zone (AICUZ) Study.



Illinois Historic
Preservation Agency

1 Old State Capitol Plaza • Springfield, Illinois 62701-1512 • Teletypewriter Only (217) 524-7128

Voice (217) 782-4836

www.illinois-history.gov

St. Clair County
O'Fallon

Alter Hangar Tail Doors
Hangar 1, Building 433, Scott AFB
IHPA Log #026061005

July 6, 2005

Maria Lanctot
Department of Air Force
375th CES/CEV
701 Hangar Road; Building 56
Scott AFB, IL 62225-5035

Dear Ms. Lanctot:

We have reviewed documentation provided for the referenced project. This property is located within the Scott Field Historic District, which was listed on the National Register of Historic Places on March 10, 1994. In our opinion, the project meets The Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" and we concur in a finding of no adverse effect as defined in 36 CFR Part 800.5 (b).

If these plans should be modified, please notify our office. Please retain this letter as evidence of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

If you have any questions, please contact Cody Wright, Cultural Resource Manager, 1 Old State Capitol Plaza, Springfield, IL 62701, 217/785-3977.

Sincerely,

Anne E. Haaker
Deputy State Historic
Preservation Officer

The Draft Finding of No Significant Impact (FONSI) and Environmental Assessment (EA) were made available for public review from August 17 to September 2, 2005. The below Notice of Availability was published in the *Belleville News Democrat* on August 17 and 21, 2005.

PUBLIC NOTICE

**Notice of Availability
Draft Finding of No Significant Impact for the Environmental
Assessment of the Beddown of C-9C and C-40C Aircraft at
Scott AFB, Illinois**

Scott AFB, Illinois – An Environmental Assessment (EA) for the Beddown of C-9C and C-40C Aircraft at Scott Air Force Base, Illinois has been prepared. The Air Force Reserve Command is proposing to issue a Finding of No Significant Impact (FONSI) based on this EA. The analysis considered in detail potential effects of the Proposed Action and the No Action Alternative on 11 resource areas: noise, land use, air quality, safety, geological resources, water resources, cultural resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The results, as found in the EA, show that the Proposed Action would not have an adverse impact on the environment – indicating that a FONSI would be appropriate. An Environmental Impact Statement should not be necessary to implement the proposed action.

Copies of the Draft FONSI and EA showing the analysis are available for review at the City of Belleville Library, 121 East Washington, Belleville, IL 62220, (618) 234-0441.

Public comments on the Draft FONSI and EA will be accepted through September 1, 2005.

Written comments and inquiries on the FONSI and EA should be directed to 375 AW/PA 101 Heritage Dr., Room 38, Scott AFB, IL 62225, fax (618) 256-8837, email 375aw.pa@scott.af.mil.

In addition, the following Privacy Advisory was published as a part of the Cover Sheet to the Draft EA:

Privacy Advisory

Letters or other written comments provided may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

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APPENDIX C

AIR QUALITY EMISSION CALCULATIONS

Scott AFB Beddown of C-9C and C-40C

Summary	Summarizes total emissions by calendar year. Pages C-1, C-2, and C-3 for 2009
Combustion	Estimates emissions from non-road equipment exhaust as well as painting. Pages C-4, C-5, C-6, and C-7 for 2009
Fugitive	Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust. Pages C-8, C-9, C-10 for 2009
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions. Page C-11 for 2009
Aircraft	Estimates emissions from aircraft exhaust. Page C-13

NOTE: It is assumed that construction will not take place during winter months; therefore, it is assumed that activities scheduled for FY 2008 will take place during CY 20C

	NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2007					
Combustion	0.00	0.00	0.00	0.00	0.00
Fugitive Dust					0.00
Aircraft Operations	2.28	0.99	4.39	ND	ND
TOTAL CY2007	2.28	0.99	4.39	0.00	0.00

	NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2009					
Combustion	7.82	1.32	9.07	0.23	0.26
Fugitive Dust					0.94
Aircraft Operations	6.34	2.76	12.18	ND	ND
TOTAL CY2009	14.16	4.08	21.25	0.23	1.21

ND - No data available.

VOC assumed to equal HC (hydrocarbons)

Since future year budgets were not readily available, actual 1999 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Metropolitan St. Louis Interstate AQCR

Year	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
1999	277,979	153,643	977,132	496,115	222,343

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/emcatrep.html?st~MO~Missouri and IL~Illinois>). Site visited 6/24/05

Determination Significance (Significance Threshold = 10%)

Minimum -1999
2007 Emissions
Proposed Action %

Point and Area Sources Combined				
NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
277,979	153,643	977,132	496,115	222,343
2.28	0.99	4.39	0.00	0.00
0.0008%	0.0006%	0.0004%	0.0000%	0.0000%

Minimum -1999
2009 Emissions
Proposed Action %

Point and Area Sources Combined				
NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
277,979	153,643	977,132	496,115	222,343
14.16	4.08	21.25	0.23	1.21
0.0051%	0.0027%	0.0022%	0.0000%	0.0005%

Scott AFB Beddown of C-9C and C-40C

Construction Combustion Emissions for CY 2009

Combustion Emissions of VOC, NOx, SO2, CO and PM10 Due to Construction

Includes:

1 Construct Squadron OPS Facility	32,700 ft ²	0.75	acres
2 Construction Parts Storage Facility (no grading b/c on pavement)	4,330 ft ²	0.10	acres

Total Building Construction Area:	37,030 ft ²	(1 and 2)
Total Demolished Area:	0 ft ²	
Total Paved Area:	0 ft ²	
Total Disturbed Area:	32,700 ft ²	(1)
Construction Duration:	1.0 year(s)	
Annual Construction Activity:	230 days/yr	(assume 230 days/year unless project-specific data known)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days	
Grading:	32,700	0.75	1	(from "Grading" worksheet)
Paving:	0	0.00	0	
Demolition:	0	0.00	0	
Building Construction:	37,030	0.85	230	
Architectural Coating	37,030	0.85	20	(per the SMAQMD "Air Quality of Thresholds of Significance", 1994 version)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total 'Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

Emission factors are taken from Table 3-2 for CY 2005. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment ^d	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Req ^d . ^a per 10 acres	NOx (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

- a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.
- c) The SMAQMD 2004 reference does not provide SO₂ emission factors. For this worksheet, SO₂ emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO₂ factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)
- d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NOx	VOC	CO	SO ₂ **	PM10
Grading Equipment	1	60.51	9.02	70.69	1.21	2.03
Paving Equipment	1	12.94	2.23	18.96	0.26	0.36
Demolition Equipment	1	28.75	4.95	42.14	0.58	0.80
Building Construction	1	67.16	9.98	78.03	2.02	2.27
Air Compressor for Architectural Coating	1	6.83	0.85	5.82	0.14	0.27
Architectural Coating**			15.68			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Annual Emissions by Activity (lbs/yr)

	NOx	VOC	CO	SO2	PM10
Grading Equipment	60.5	9.0	70.7	1.2	2.0
Paving	0.0	0.0	0.0	0.0	0.0
Demolition	0.0	0.0	0.0	0.0	0.0
Building Construction	15446.8	2295.4	17946.9	464.6	522.1
Architectural Coatings	136.6	330.7	116.4	2.7	5.4
Total Emissions (lbs/yr):	15643.9	2635.1	18134.0	468.5	529.5

Results: Daily and Annual Emission Rates

	NOx	VOC	CO	SO2	PM10
Emissions, average lbs/day	15643.91	2635.08	18133.99	468.50	529.53
Emissions, tons/yr	7.82	1.32	9.07	0.23	0.26

Scott AFB Beddown of C-9C and C-40C

Construction Fugitive Dust Emissions for CY 2009

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	0.75 acres/yr	(From "CY09 Combustion" worksheet)
Grading days/yr:	0.42 days/yr	(From "CY09 Grading" worksheet)
Exposed days/yr:	90 assumed days/yr	graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	55 %	(http://www.cpc.noaa.gov/products/soilmst/w.shtml)
Annual rainfall days, p:	110 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, l:	36 %	Ave. of wind speed at St. Louis, MO (http://home.pes.com/windroses/wrgifs/13994.GIF)
Fraction of TSP, J:	0.5	per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	3.00 vehicles	(From "CY09 Grading" worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	1.5	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor a	0.9 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor b	0.45 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

TSP - Total Suspended Particulate
VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance ActivitiesOperation Parameters (Calculated from User Inputs)

Grading duration per acre	4.5 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15 VMT/day	
Construction VMT per acre	8.4 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^a (W/3)^b)] [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.07 lbs/hr	4.5 hr/acre	0.30 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.46 lbs/VMT	8.4 VMT/acre	20.70 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

Soil Piles EF = $1.7(s/1.5)[(365 - p)/235](l/15)(J) = (s)(365 - p)(l)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 12.5 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
 Soil Piles EF = 1.25 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.30 lbs/acre	0.75	NA	0	0.00
Grading	0.80 lbs/acre	0.75	NA	1	0.00
Vehicle Traffic	20.70 lbs/acre	0.75	NA	16	0.01
Erosion of Soil Piles	1.25 lbs/acre/day	0.75	90	84	0.04
Erosion of Graded Surface	26.40 lbs/acre/day	0.75	90	1,784	0.89
TOTAL				1,884	0.94

Soil Disturbance EF: 21.80 lbs/acre
 Wind Erosion EF: 27.65 lbs/acre/day

Back calculate to get EF: 5987.04 lbs/acre/grading day

Scott AFB Beddown of C-9C and C-40C**Construction (Grading) Schedule for CY 2009**

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 0.75 acres/yr (from "Combustion" Worksheet)
 Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.

Terrain is mostly flat.

An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.

200 hp bulldozers are used for site clearing.

300 hp bulldozers are used for stripping, excavation, and backfill.

Vibratory drum rollers are used for compacting.

Stripping, Excavation, Backfill and Compaction require an average of two passes each.

Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	0.75	0.09
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	0.75	0.37
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.38	0.38
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.38	0.16
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	0.75	0.26
TOTAL								1.26

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 1.26
 Qty Equipment: 3.00
 Grading days/yr: 0.42

Scott AFB Beddown of C-9C and C-40C

Metropolitan St. Louis Interstate Air Quality Control Region (MSLIAQCR)

State	County	AREA SOURCE EMISSIONS					POINT SOURCE EMISSIONS				
		CO	NOx	PM10	SO2	VOC	CO	NOx	PM10	SO2	VOC
Illinois	Bond	9,851	1,977	5,004	169	1,256	145	39	34.3	5.33	25.3
	Clinton	13,525	2,577	8,183	243	2,260	215	1,302	60.3	363	180
	Madison	92,501	11,995	13,759	891	14,719	19,917	27,138	5,823	65,776	5,265
	Monroe	9,668	2,560	5,280	245	1,456	6.33	10.3	107	0.02	37.8
	Randolph	11,067	4,510	7,577	794	2,131	1,223	55,199	13,362	245,267	287
	St. Clair	93,675	11,859	13,463	927	12,691	213	770	1,177	3,193	1,580
Missouri	Washington	10,833	2,163	6,152	167	1,424	17.8	38	211	0.08	189
	Franklin	41,010	7,379	23,324	1,007	7,934	2,037	10,432	1,733	38,782	575
	Jefferson	71,670	10,079	37,043	1,147	11,156	1,264	6,040	2,227	55,403	340
	St. Charles	90,019	11,645	24,728	957	14,107	707	24,226	1,731	43,775	352
	St. Louis City	120,174	26,608	9,428	5,838	17,235	1,064	2,692	1,334	8,517	4,068
	St. Louis	384,365	48,129	39,743	7,805	50,436	1,965	8,612	859	14,844	3,939
	MSLIAQCR	948,358	141,481	193,684	20,190	136,805	28,774	136,498	28,659	475,925	16,838

SOURCE:
<http://www.epa.gov/air/data/emcatrep.html?st~MO~Missouri and ~IL~Illinois>
 USEPA - AirData NET Tier Report
 *Net Air pollution sources (area and point) in tons per year (1999)
 Site visited on June 24, 2005

Aircraft	Engine	Time in Mode (minutes)				Fuel Flow (kg/sec)				HC Emission Index (g/kg)				CO Emission Index (g/kg)				NOx Emission Index (g/kg)			
		T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle
C-9A/C	JT8D-9 series	0.40	0.10	1.60	13.00	1.04	0.85	0.30	0.13	0.47	0.47	1.73	10.00	1.24	1.66	9.43	34.50	17.92	14.21	5.64	2.90
Emissions (lb/LTO)										0.03	0.01	0.11	2.27	0.07	0.02	0.59	7.81	0.98	0.16	0.35	0.66

Aircraft	Engine	Time in Mode (minutes)				Fuel Flow (kg/sec)				HC Emission Index (g/kg)				CO Emission Index (g/kg)				NOx Emission Index (g/kg)			
		T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle
C-40C	CFM56-7B27	0.40	0.10	1.60	13.00	1.28	1.04	0.35	0.12	0.10	0.10	0.10	1.70	0.20	0.50	1.40	17.90	30.90	23.70	11.00	4.80
Emissions (lb/LTO)										0.01	0	0.01	0.3384	0.01	0.01	0.1	3.563	2.095	0.326	0.811	0.955

Aircraft	Engine	Total Emissions per LTO (lb)		
		HC	CO	NOx
C-9A/C	JT8D-9 series	2.41	8.49	2.15
C-40B	CFM56-7B27	0.35	3.6867	4.1874

Aircraft	Year	LTOs	Emissions (tons per year)		
			HC	CO	NOx
C-9A	2000	1432	1.72	6.08	1.54
C-9C	2007	720	0.87	3.06	0.78
	2009	2000	2.4051	8.4948	2.155
C-40C	2007	720	0.1274	1.3272	1.507
	2009	2000	0.3539	3.6867	4.187

NOTES: Time in mode data is from USAF IERA "Air Emissions Inventory Guidance", July 2001, Table 3-7 for General Aviation Business Jets.
 Fuel flow and emissions data are from the ICAO Engine Exhaust Emissions Data Bank, downloaded 7/16/02.
 All missions or sorties are assumed to consist of one LTO
 Proposed LTOs are assumed to be split evenly amongst the C-9C and the C-40C.

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