ENVIRONMENTAL ASSESSMENT
INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

HEADQUARTERS AIR MOBILITY COMMAND

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

ENVIRONMENTAL ASSESSMENT OF INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

INTRODUCTION

A permanent C-17 Northeast Landing Zone (NE LZ) is scheduled for completion by Fiscal Year (FY) 2010 at Naval Air Engineering Station (NAES) Lakehurst, New Jersey, to serve as the primary northeast C-17 aircraft training airfield for use by both the 305th Air Mobility Wing (305 AMW) from McGuire Air Force Base (AFB) and the 436th Airlift Wing (436 AW) from Dover AFB. In the interim, there is a need to establish temporary landing zone (LZ) capabilities at one or more airfields in the northeast. The proposed interim C-17 LZs would be in close proximity to McGuire AFB and Dover AFB to allow day and night assault training and tactical approaches and departures for C-17 aircrews. Two locations [Wheeler-Sack Army Airfield (AAF) and Richmond International Airport (IAP)] meet the required criteria and were selected as the Interim Flight Training Authority sites for the C-17.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

In order to satisfy the United States Air Force (USAF) aircrew training requirements, a permanent LZ for C-17 training is being constructed at NAES Lakehurst. The construction of the NAES Lakehurst LZ is covered under another EA and is scheduled for completion in FY 2010. However, there is a need to establish a temporary northeast LZ in order to meet the proficiency training requirements of C-17 aircrew members until construction at the NAES Lakehurst is completed. The potential interim airfields for C-17 aircraft training include the following proposed locations.

- Wheeler-Sack AAF, Fort Drum, New York
- Richmond IAP, Virginia
- McGuire AFB, New Jersey
- Dover AFB, Delaware
- Blackstone AAF, Fort Pickett, Virginia
- John Murtha Johnstown-Cambria County Airport, Pennsylvania

Additionally, Air Force Instruction (AFI) 11-2KC-10, Volume 1, *KC-10 Aircrew Training,* outlines requirements for tactical arrival and departure training for the KC-10 aircraft. Prior to October of 2004, KC-10 tactical training requirements were not required. Therefore, KC-10 aircrews were able to conduct the majority of their required training at the home station. However, these requirements are currently not being met by KC-10 aircraft assigned to the 305 AMW due to the congestion of the airspace around McGuire AFB. Wheeler-Sack AAF is a military airfield capable of providing the needed environment for KC-10 tactical maneuvers, in close proximity to McGuire AFB, and enroute to established refueling areas used by the 305 AMW. It is anticipated that the congestion of the airspace around McGuire AFB would be relieved once the C-17 aircrews can conduct the majority of their tactical maneuvers at NAES Lakehurst. At that time, the KC-10 aircrews would revert back to utilizing McGuire AFB to conduct the majority of their tactical training.

The potential interim airfields for KC-10 aircraft training include the following proposed locations:

- Wheeler-Sack AAF, Fort Drum, New York
- Griffiss AFB, New York
- Westover Air Reserve Base (ARB)/Metropolitan Airport, Massachusetts
- Kinston Regional Jetport at Stallings Field, North Carolina

DESCRIPTION OF THE PROPOSED ACTION

Under the Proposed Action, the type of C-17 airfield operations conducted by the 305 AMW and 436 AW at the interim LZ location would be primarily tactical in nature. The types of tactical approaches utilized are the beam approach, 90/270 maneuver, spiral down, teardrop, high-speed straight-in, and the high-altitude straight-in. Tactical arrival, departure, and landing training are best accomplished at an airfield that has both an LZ and a longer main runway. This allows the aircrew to practice tactical training as well as other nontactical takeoffs and landings at the same airfield, thereby maximizing use of training time. Landings on the LZ are typically followed by a takeoff from the main runway to a closed pattern to either the LZ or main runway.

Wheeler-Sack AAF currently provides support for approximately 146,960 annual aircraft operations. Under the Proposed Action, a maximum of 24,960 annual C-17 LZ-related operations would occur at Wheeler-Sack AAF bringing the Wheeler-Sack AAF operations to 170,960. Under the Proposed Action, a maximum of 24,960 annual C-17 LZ-related operations would occur at Richmond IAP increasing the total annual operations for all aircraft at Richmond IAP from 108,246 to approximately 133,206.

In addition, requirements for tactical arrival and departure training for the KC-10 aircraft assigned to the 305 AMW are currently not being met due to congestion of the airspace around McGuire AFB. With the beddown of the C-17 and the constricted airspace at McGuire AFB, it has become very difficult to meet these requirements. Therefore, Headquarters (HQ) AMC is proposing to establish interim training capabilities at another airfield until the number of total military aircraft operations conducted at McGuire AFB is relieved. At that time, the KC-10 aircrews would revert back to utilizing McGuire AFB to conduct the majority of their training. Under the Proposed Action, a maximum of 5,200 annual KC-10 operations would occur at Wheeler-Sack AAF increasing the total annual operations for all aircraft at Wheeler-Sack AAF to 176,160.

NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no change to baseline conditions at McGuire AFB, Dover AFB, Wheeler-Sack AAF, or Richmond IAP. C-17 aircrews from the 305 AMW and the 436 AW would continue to attempt to find airspace time if available and train at LZs in other parts of the country until the permanent LZ is established at NAES Lakehurst. C-17 aircrews from McGuire AFB and Dover AFB might be unable to obtain initial C-17 certification or maintain mandatory assault proficiency resulting in decertification. Additionally, KC-10 aircraft assigned to the 305 AMW would continue not to meet requirements for tactical arrival and departure training due to the congested airspace at McGuire AFB.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

There would be no adverse effects resulting from the Proposed Action on safety, geological resources, water resources, biological resources, cultural resources, socioeconomics, infrastructure, or hazardous materials and wastes at Fort Drum and Richmond IAP. There would be short-term minor adverse effects resulting from the interim LZ use on airspace management, the noise environment, land use, air quality, and environmental justice. Adverse effects associated would be localized to the immediate area of the LZ and would end once the permanent LZ is constructed.

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) will be made available to the public for a 30-day review period. Public and agency comments will be addressed at the end of the review period prior to implementing the Proposed Action.

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 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.

Christopher A. Kelly

27/10/06

CHRISTOPHER A. KELLY
Lieutenant General, USAF
Vice Commander

Date

ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
305 AMW	305th Air Mobility Wing
436 AW	436th Airlift Wing
AAF	Army Airfield
AFB	Air Force Base
AFI	Air Force Instruction
AFPD	Air Force Policy Directive
AGL	Above ground level
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
AMCI	Air Mobility Command Instruction
APE	Area of Potential Effect
AQCR	air quality control region
AR	Aerial Refueling
ARB	Air Reserve Base
ATC	Air traffic control
BRAC	Base realignment and closure
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CNY IAQCR	Central New York Intrastate AQCR
dB	decibels
dBA	A-weighted sound level measurements
DNL	Day-Night Average A-weighted Sound Level
DOD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FLIP	Flight Information Publications
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GPS	Global Positioning System
HQ	Headquarters
HUD	Housing and Urban Development
IAP	International Airport
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
IMC	Instrument meteorological conditions
IR	Instrument route

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IREA	Institute for Environmental Safety and Occupational Health Risk Analysis
KIAS	Knots indicated airspeed
LTO	landings and takeoffs
LZ	landing zone
mg/m^3	milligrams per cubic meter
MOA	Military operations area
mph	Miles per hour
MSL	mean sea level
MTR	Military training route
NAAQS	National Ambient Air Quality Standards
NAES	Naval Air Engineering Station
ND	No data available
NEPA	National Environmental Policy Act
NM	nautical mile
NO_2	nitrogen dioxide
NOA	Notice of Availability
NO_x	nitrogen oxides
NSR	New source review
NVG	Night vision goggles
NYARNG	New York Army National Guard
NYSDEC	New York State Department of Environmental Conservation
NZ	Noise zone
O_3	ozone
Pb	lead
PM_{10}	particulate matter equal to or less than 10 microns in diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RNAV	Area Navigation
ROI	Region of Influence
SCIAQCR	State Capital Intrastate AQCR
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	Slow route
SWPPP	Storm Water Pollution Prevention Plan
TGO	touch-and-go operations
tpy	tons per year
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VFR	Visual Flight Rules
VMC	Visual meteorological conditions
VOC	volatile organic compound
VR	Visual route

COVER SHEET
ENVIRONMENTAL ASSESSMENT OF
INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

Responsible Agencies: United States Air Force (USAF); Headquarters Air Mobility Command (HQ AMC); 305th Air Mobility Wing (305 AMW), McGuire Air Force Base (AFB), New Jersey; and 436th Airlift Wing (436 AW), Dover AFB, Delaware.

Affected Locations: McGuire AFB, Burlington County, New Jersey; Dover AFB, Kent County, Delaware; Wheeler-Sack Army Airfield (AAF), Fort Drum, Jefferson County, New York; and Richmond International Airport (IAP), Henrico County, Virginia.

Report Designation: Environmental Assessment (EA).

Proposed Action: A permanent C-17 landing zone (LZ) is proposed for completion by Fiscal Year 2010 at Naval Air Engineering Station (NAES) Lakehurst, New Jersey, to serve as the primary northeast C-17 aircraft training airfield for use by both the 305 AMW from McGuire AFB and the 436 AW from Dover AFB. In the interim, there is a need to gain interim flight training authority at one or more airfields in the northeast.

The purpose of the Proposed Action is to gain interim flight training authority for C-17s to perform tactical maneuvers at airfields in the northeast. The proposed interim airfield would be in close proximity to McGuire AFB and Dover AFB to allow day and night assault training and tactical approaches and departures for C-17 aircrews. Two locations (Wheeler-Sack AAF and Richmond IAP) meet the C-17 LZ criteria.

In addition, requirements for tactical arrival and departure training for the KC-10 aircraft assigned to the 305 AMW are currently not being met due to congestion of the airspace around McGuire AFB. Therefore, HQ AMC is proposing to establish interim KC-10 training capabilities at Wheeler-Sack AAF.

This EA has been prepared to evaluate the Proposed Action, Alternative Actions, and the No Action Alternative. Resources considered in the impact analysis are airspace management, noise, land use, air quality, and environmental justice. All other resources were eliminated from further analysis during the initial scoping process. The rationale for this elimination is discussed at the beginning of Section 3.0. The EA was made available to the public on 28 April 2006 for a 30-day review period.

Written comments and inquiries regarding this document should be directed to the HQ AMC environmental project coordinator, Mr. Doug Allbright, HQ AMC/A75C, 507 Symington Drive, Scott AFB, IL 62225-5022, 618-229-0846.

ENVIRONMENTAL ASSESSMENT OF INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

HEADQUARTERS AIR MOBILITY COMMAND
COMMUNITY PLANNING BRANCH
507 SYMINGTON DRIVE
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SEPTEMBER 2006

ENVIRONMENTAL ASSESSMENT OF INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

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1. Purpose of and Need for Proposed Action

This section includes seven subsections: a brief introduction, a statement of the purpose of and need for the Proposed Action, the location of the Proposed Action, a definition of aircraft operations, a summary of the key environmental compliance requirements, a description of the interagency coordination and community involvement process, and an overview of the organization of this Environmental Assessment (EA).

1.1 Introduction

The 305th Air Mobility Wing (305 AMW) is the host unit at McGuire Air Force Base (AFB) and reports to the Air Mobility Command (AMC) headquartered at Scott AFB, Illinois. The mission of 305 AMW is to provide airlift, airdrop, and air refueling support, including the movement of troops, passengers, military equipment, cargo, and mail. The 305 AMW currently operates C-17 and KC-10 aircraft. The C-17 aircraft recently replaced the unit's retired C-141C aircraft. An EA, entitled *Environmental Assessment of C-17 Basing at McGuire Air Force Base, New Jersey,* was completed and a Finding of No Significant Impact (FONSI) was signed on April 16, 2002. Detailed requirements for construction of a landing zone (LZ) were defined during the development of the EA; however, due to a lack of availability of complete information, a specific location for the LZ was not identified.

In July 1993, McGuire AFB was selected to become the East Coast Mobility Center. In conjunction with this announcement, the base received McDonnell Douglas KC-10 Extender tanker/cargo aircraft. Until recently, the requirements for tactical arrival and departure training for the KC-10 aircraft assigned to the 305 AMW were being met at McGuire AFB. However, due to congestion of the airspace around McGuire AFB with additional C-17 aircraft operations and heavy civilian air traffic in the vicinity of McGuire AFB, an additional location is required to support KC-10 tactical arrival and departure training requirements.

The 436th Airlift Wing (436 AW) is the host unit at Dover AFB and reports to AMC. The mission of the 436 AW is to "provide combat ready professionals and equipment to enhance global reach for America." Headquarters (HQ) Air Mobility Command (AMC) completed an EA entitled *Environmental Assessment of East Coast Basing of C-17 Aircraft* which includes analysis of the conversion of the unit's C-5 aircraft to C-17 aircraft in October 2005. The EA addresses the construction and use of a permanent LZ on Naval Air Engineering Station (NAES) Lakehurst, New Jersey, to serve as the primary northeast C-17 aircraft training airfield for use by both the 305 AMW and 436 AW beginning in Fiscal Year (FY) 2010.

Based on the tactical training requirements of the 305 AMW and 436 AW aircrews, HQ AMC is proposing to establish interim training capabilities at one or more nearby airfields that would allow C-17 aircrews to meet their training requirements in the interim until NAES Lakehurst LZ is constructed. Two locations [Wheeler-Sack Army Airfield (AAF), New York and Richmond International Airport (IAP), Virginia] meet the required criteria and were selected as the Interim Flight Training Authority sites for the C-17 aircraft. Additionally, the heavy civilian and military air traffic around McGuire AFB requires the KC-10 aircrews to seek training at other nearby airfields.

As part of the decisionmaking process, an EA is being completed to determine the potential environmental impacts of this Proposed Action. This EA analyzes HQ AMC's Proposed Action and Alternatives, including the No Action Alternative. If the analyses presented in this EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a FONSI would be prepared. A FONSI summarizes 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 result that cannot be mitigated to insignificant, an EIS will be completed, 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 gain interim flight training authority for C-17s to perform tactical maneuvers at airfields in the northeast. The 305 AMW and 436 AW have a requirement to remain proficient in flying the C-17 aircraft in order to satisfy the overall objective of the C-17 aircrew training program, as outlined in Air Force Instruction (AFI) 11-2C-17, Volume 1, *C-17 Aircrew Training*. Proficiency is required to develop and maintain a high state of mission readiness for the immediate and effective employment in exercises, peacekeeping operations, contingencies, and war in any environment; and to be ready at all times to support our national security demands. Mission readiness and effective employment are achieved through the development and mastery of core competencies for C-17 crewmembers. These core competencies include the ability to conduct air refueling, tactical ingress, tactical egress, airdrop (for qualified crewmembers), assault landings, night vision goggle (NVG) operations during all phases of flight, instrument procedures, mission planning, and LZ ground operations.

In order to satisfy the United States Air Force (USAF) requirement, a permanent LZ for C-17 training is being proposed at NAES Lakehurst. The construction of the NAES Lakehurst LZ was analyzed under another EA and is scheduled for completion in FY 2010. However, there is a need to gain interim flight training authority to meet the proficiency training requirements of C-17 aircrew members until construction at the NAES Lakehurst is completed. The potential interim airfields for C-17 aircraft training include the following proposed locations.

- Wheeler-Sack Army Airfield (AAF), Fort Drum, New York
- Richmond International Airport (IAP), Virginia
- McGuire AFB, New Jersey
- Dover AFB, Delaware
- Blackstone AAF, Fort Pickett, Virginia
- John Murtha Johnstown-Cambria County Airport, Pennsylvania

Additionally, AFI 11-2KC-10, Volume 1, *KC-10 Aircrew Training,* outlines requirements for tactical arrival and departure training for the KC-10 aircraft. Prior to October 2004, KC-10 tactical training requirements were not required. Therefore, KC-10 aircrews were able to conduct the majority of their required training at the home station. However, these requirements are currently not being met by KC-10 aircraft assigned to the 305 AMW due to the congestion of the airspace around McGuire AFB. Wheeler-Sack AAF is a military airfield capable of providing the needed environment for KC-10 tactical maneuvers, in close proximity to McGuire AFB, and enroute to established refueling areas used by the 305 AMW. Therefore, HQ AMC is proposing to establish interim training capabilities at Wheeler-Sack AAF until the number of total military aircraft operations conducted at McGuire AFB is relieved by the construction of NAES Lakehurst. It is anticipated that the congestion of airspace around McGuire AFB would be relieved once the C-17 aircrews can conduct the majority of their tactical maneuvers at NAES Lakehurst. At that time, the KC-10 aircrews would revert back to utilizing McGuire AFB to conduct the majority of their tactical training.

The potential interim airfields for KC-10 aircraft training include the following proposed locations.

- Wheeler-Sack AAF, Fort Drum, New York
- Griffiss AFB, New York
- Wright-Patterson AFB in Dayton, Ohio
- Westover Air Reserve Base (ARB)/Metropolitan Airport., Massachusetts
- Kinston Regional Jetport at Stallings Field, North Carolina

1.3 Location of the Proposed Action

Six locations were initially considered for the interim C-17 flight training authority in the northeast: McGuire AFB, New Jersey; Dover AFB, Delaware; Wheeler-Sack AAF, Fort Drum, New York; Johnstown-Cambria County Airport, Pennsylvania; Blackstone AAF, Fort Pickett, Virginia; and Richmond IAP, Virginia (see Figure 1-1). In addition, HQ AMC is proposing to establish interim KC-10 training capabilities at Wheeler-Sack AAF, Fort Drum, New York; Griffiss AFB, New York; Wright-Patterson AFB in Dayton, Ohio; Westover Air Reserve Base (ARB)/Metropolitan Airport., Massachusetts; or Kinston Regional Jetport at Stallings Field, North Carolina.

1.4 Definition of Aircraft Operations

Three terms are used to describe aircraft operations: *sortie, airfield operation,* and *sortie-operation*. Each has a distinct meaning and commonly applies to a specific set of activities in particular airspace areas:

- A sortie consists of a single military aircraft flight from takeoff through landing. One sortie can consist of multiple airfield operations or sortie-operations as depicted in the examples below.
- An airfield operation represents the single movement or individual portion of a flight in the base airfield airspace environment, such as one departure, one arrival, or one transit of the airport traffic area. Thus, a single sortie generates at least two airfield operations (takeoff and landing). Airfield operations consist of landings and takeoffs (LTOs), touch-and-go operations (TGOs), and closed-pattern flights (i.e., flights performed around and in proximity to an airfield). Since a pilot performing a TGO or a closed-pattern flight essentially performs a landing and a takeoff, TGOs and closed-pattern flights are each counted as two airfield operations.
- A sortie-operation is defined as the use of one airspace unit (e.g., military operating area, or aerial refueling by one aircraft. Sortie-operation applies to flight activities outside the home station airspace environment. Each time a single aircraft conducting a sortie flies in a different airspace unit, one sortie-operation is counted for that unit.

1.5 Summary of Key Environmental Compliance Requirements

1.5.1 National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 (NEPA) is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ) that is charged with the development of implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment.

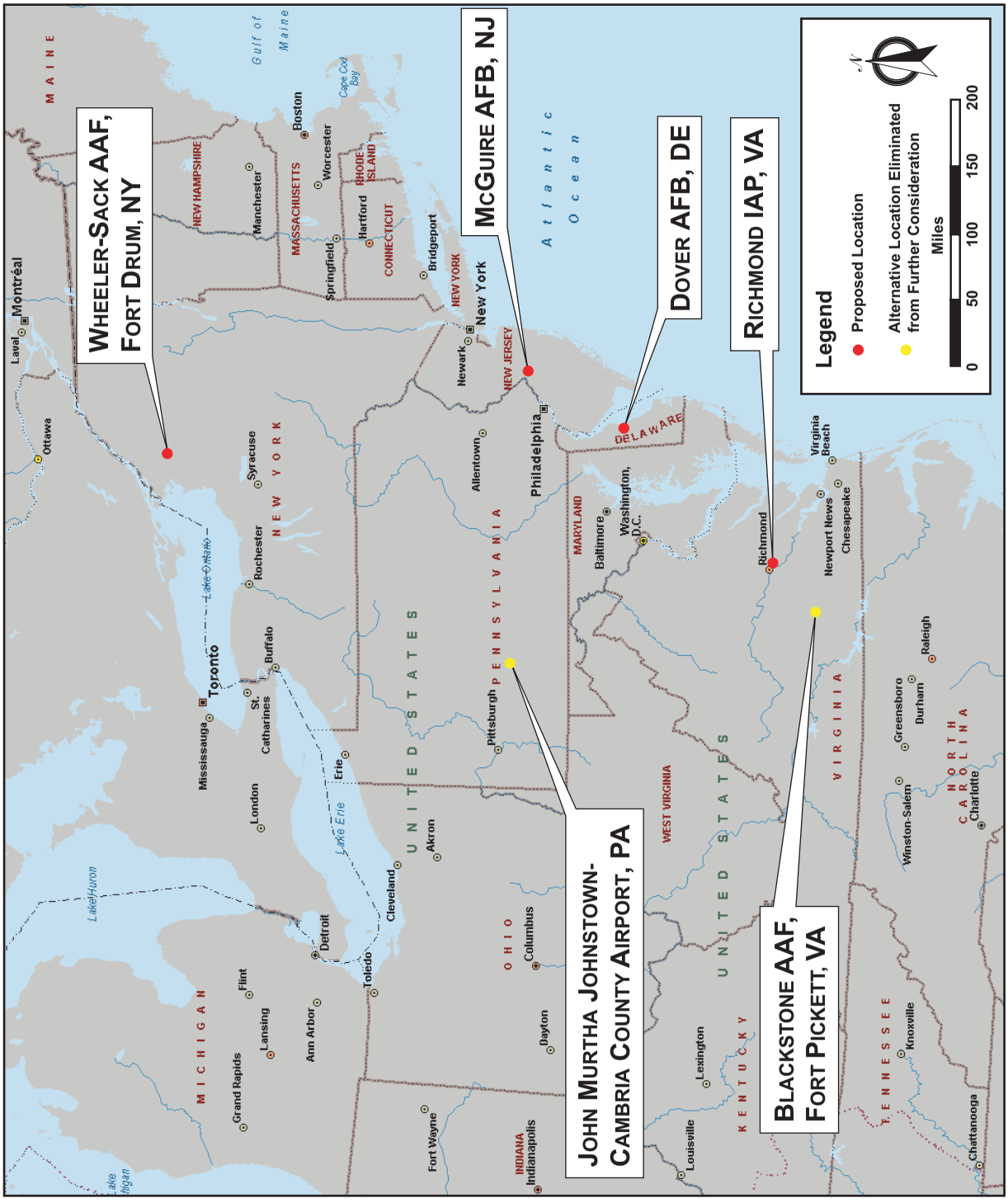

Figure 1-1. Proposed Interim C-17 and KC-10 Training Capabilities Locations

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 Code of Federal Regulations (CFR) 1500–1508, Regulations for Implementing the Procedural Provisions of NEPA.

The CEQ was established under NEPA to implement and oversee Federal policy in this process. To this end, 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 the *Environmental Impact Analysis Process (EIAP)*, 32 CFR 989, as amended.

1.5.2 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."

The EA examines potential effects of the Proposed Action and alternatives on five resource areas: airspace management, noise, land use, air quality, and environmental justice. These resources were identified as being potentially affected by the Proposed Action and include applicable critical elements of the human environment, a review of which is mandated by Executive Order (EO), regulation, or policy. Section 3 provides rationale for the resource areas not affected by the Proposed Action. Appendix A contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis.

1.6 Interagency Coordination and Community 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. CEQ regulations implementing NEPA state, "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 HQ AMC 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, HQ AMC notified relevant Federal, state, and local agencies of the action proposed and provided them sufficient time to make known their environmental concerns specific to the

action. The IICEP process also provides HQ AMC the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. The IICEP letter was sent on 19 January 2006 to the Federal Aviation Administration (FAA); the U.S. Environmental Protection Agency (USEPA); the U.S. Fish and Wildlife Service (USFWS); and other Federal, state, and local agencies. The comment period lasted for 30 days, ending on 19 February 2006. Agency responses were provided to HQ AMC and incorporated into the analysis of potential environmental impacts performed as part of the EA. IICEP correspondence is included in Appendix E.

A Notice of Availability (NOA) for the EA and Draft FONSI were published in the *Burlington County Times*, the *Richmond Times-Dispatch*, and the *Watertown Daily Times* on 28 April 2006. The NOA was published in the *Dover Post* on 03 May 2006. The published EA and Draft FONSI were sent to the Burlington County Library, Dover Public Library, Flower Memorial Library, and the Richmond Public Library for public review and comment on 28 April 2006. The public review period ended 02 June 2006. This was done to solicit comments on the Proposed Action and involve the local community in the decisionmaking process. During this time period no public comments were received. The NOA is included in Appendix B.

1.7 Introduction to the Organization of this Document

This EA is organized into seven sections. Section 1 contains an introduction, a statement of the purpose of and need for the Proposed Action, the location of the Proposed Action, a listing of applicable regulatory requirements, a description of interagency coordination and community involvement, and an introduction to the organization of the EA. Section 2 provides a detailed description of the Proposed Action, alternatives to the Proposed Action, 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 could potentially be affected by the Proposed Action, alternatives, or the No Action Alternative. Section 4 presents an analysis of the environmental consequences. Section 5 includes an analysis of the potential cumulative impacts. Section 6 lists the preparers of the EA. Section 7 lists the sources of information used in the preparation of the document. Appendix A includes a brief description of laws, regulations, and other requirements that are relevant to the Proposed Action and are considered in the EA. Appendix B includes a copy of the IICEP letter that was mailed to the agencies for this action, the IICEP distribution list, and the NOA that was published. Appendix C presents the Noise Management Report, which contains the background detail for analyzing the Proposed Action and Alternatives. Appendix D includes air quality emissions calculations from the Proposed Action. Appendix E contains the agency correspondence that has been received.

2. Description of Proposed Action and Alternatives

This section has four subsections: a description of the proposed interim C-17 northeast LZ, a description of the proposed interim KC-10 tactical training, a description of the No Action Alternative, and a description of the decision to be made and identification of the preferred alternative.

The construction of the permanent C-17 LZ at NAES Lakehurst will not be complete until FY 2010. In the interim, HQ AMC is proposing to gain interim authority at airfields by establishing temporary C-17 LZ capabilities at two airfields in the northeast to support the training requirements of the C-17 aircrews assigned to the 305 AMW and the 436 AW. Additionally, in order to meet KC-10 training requirements, HQ AMC is proposing to establish interim training capabilities for KC-10 aircraft at Wheeler-Sack AAF.

2.1 Proposed Interim C-17 Northeast LZ

The C-17 Globemaster III is a heavy-lift, cargo and troop transport aircraft. Designed to support both inter- and intratheater operations, the aircraft affords direct delivery airlift of all classes of military cargo, including outsized items, such as armored vehicles. It is the first aircraft capable of air-landing or air-dropping outsized cargo in the tactical environment. Four Pratt and Whitney F117-PW-100 turbofan engines power the aircraft. Each engine develops 40,440 pounds of thrust, enabling the aircraft to operate from small, austere airfields (3,000 feet by 90 feet), and cruise at greater than 500 miles per hour. Design features of the aircraft provide reduced takeoff and landing distances, improved lift, and reduced risk of stall. Thrust reversers on the engines afford enhanced ground maneuverability. The aircraft is capable of backing up a 2-percent grade with 160,000 pounds of cargo and enough fuel to fly 1,000 nautical miles (NM). On the ground, the C-17 can make a 180-degree "U-Turn" in 114 feet, and a 180-degree "Star Turn" (with backing) in 90 feet. With a 130,000-pound payload, the C-17 has an unrefueled range of 3,200 miles. The aircraft's maximum payload is 170,900 pounds resulting in a 585,000-pound maximum takeoff weight.

C-17 aircrews require the use of an LZ for training purposes. A permanent C-17 LZ is currently proposed for completion by FY 2010 at NAES Lakehurst to serve as the primary northeast C-17 aircraft training airfield for use by both the 305 AMW and the 436 AW. In the interim, there is a need to gain interim authority at airfields by establishing temporary LZ capabilities at one or more airfields in the northeast.

The proposed interim airfields would be in close proximity to McGuire AFB and Dover AFB to allow day and night assault training for C-17 aircrews as well as tactical approaches and departures. Aircraft operations being conducted by the 305 AMW and 436 AW at the interim airfields would be primarily tactical in nature. The types of tactical approaches utilized are the beam approach, 90/270 maneuver, spiral down, spiral up, teardrop, high-speed straight-in, high-altitude straight-in and acceleration departure. Tactical arrival, departure, and landing training are best accomplished at an airfield that has both an LZ and a longer main runway. This allows the aircrew to practice tactical training as well as other nontactical takeoffs and landings at the same airfield, thereby maximizing use of training time. Landings on the LZ are typically followed by a takeoff from the main runway to a closed pattern to either the LZ or main runway.

Additionally, airspace must be available for the C-17 aircraft to conduct air refueling, tactical ingress, tactical egress, assault landings, NVG operations during all phases of flight, instrument procedures, mission planning, and LZ ground operations.

C-17s assigned to the 305 AMW and the 436 AW would use existing military training routes, aerial refueling routes, and FAA-approved victor routes to transition to and from the proposed airfield locations.

Airspace issues have been previously assessed for C-17 LZ operations in the *Environmental Assessment of East Coast Basing of C-17 Aircraft* (October 2005) and the *Environmental Assessment of C-17 Basing at McGuire Air Force Base* (April 2002).

The proposed interim airfield activities are presented in Table 2-1. It can be assumed that the numbers presented in Table 2-1 reflect the maximum number of C-17 aircraft activities proposed at one interim airfield location. However, it is not likely that one proposed interim airfield location would receive the maximum proposed C-17 aircraft activities due to bad weather days, airspace congestion, or scheduling conflicts. Thus, it is more likely that the total aircraft activities would be shared between more than one location.

2.1.1 Interim C-17 Northeast LZ Location Evaluation Criteria

To receive proficiency credit, C-17 pilots must conduct tactical maneuvers on an approved LZ. The following evaluation criteria were used to identify potential interim airfield locations:

1. The LZ should be within 1 hour flying time from McGuire AFB and Dover AFB.
2. The length of the LZ shall be 3,500 feet minimum and should not exceed 5,000 feet. The width shall be 90 feet minimum and should not exceed 100 feet. There should be 300-foot overruns at both ends (not including the clear zones) and a paved surface with adequate weight-bearing capacity in order to log an assault landing without a waiver.
3. The airfield must have a primary runway that has the weight-bearing capacity, length, and width to support non-LZ C-17 operations such as takeoffs, landings, and closed patterns.
4. C-17 tactical arrivals, departures, and landings and other training operations must not conflict with other aircraft traffic.
5. The airfield must have adequate fire/crash rescue services as specified in Air Mobility Command Instruction (AMCI) 11-208, *Tanker/Airlift Operations*.

2.1.2 Interim C-17 Northeast Airfield Locations Considered but not Carried Forward for Detailed Analysis

Initially a list of potential interim airfields was established. This list considered all locations in the vicinity of McGuire AFB and Dover AFB that could be used for C-17 tactical training (see Section 1.2). However, based on the evaluation criteria listed in Section 2.1.1, the following airfields were eliminated from further consideration as potential airfield locations:

- ***McGuire AFB.*** Although McGuire AFB meets most of the criteria listed in Section 2.1.1 and has a runway that can be used to conduct tactical maneuvers, C-17 pilots do not receive proficiency credit because the runways at McGuire AFB do not contain a LZ wavier. Therefore McGuire AFB does not meet evaluation criterion 2 (see Section 2.1.1). In addition, aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace when conducting C-17 tactical maneuvers at the home station, which does not meet criterion 4. Therefore, this location is not viable for C-17 LZ interim use.

Table 2-1. Proposed Interim C-17 Northeast Airfield Activities

Activities	Weekly Maximum	Monthly Maximum	Annual Maximum
Total Sorties	24	104	1,248
Total Airfield Operations	**480**	**2,080**	**24,960**

Source: Fehl 2005

Note: Totals based on the required pilot training required to keep four squadrons proficient. Weekly and monthly activities calculated by dividing annual activities by 52 and 12, respectively.

- ***Dover AFB.*** Dover AFB has a runway that could be used to conduct tactical maneuvers; however, C-17 pilots do not receive proficiency credit because this runway is not a waiver approved LZ and does not meet criterion 2 (see Section 2.1.1). Therefore, this location is not viable for C-17 LZ interim use.
- ***Blackstone AAF.*** Blackstone AAF does not have an adequate Fire/Crash Rescue Station or services to adhere to the guidance specified in AMCI 11-208. Therefore, this location does not meet evaluation criterion 5 (see Section 2.1.1) and is not viable for C-17 LZ interim use.
- ***John Murtha Johnstown-Cambria County Airport.*** Johnstown-Cambria County Airport does not have adequate trucks or personnel to adhere to the guidance specified in AMCI 11-208. Therefore, this location does not meet evaluation criterion 5 (see Section 2.1.1) and is not viable for C-17 LZ interim use.

Table 2-2 summarizes the airfield locations that were considered but dismissed, and cites the reasons they were eliminated.

Table 2-2. C-17 Interim Locations Considered but Dismissed

Location Name	Criteria Not Met [a]	Reason Why Eliminated
McGuire AFB	2	C-17 pilots do not receive proficiency credit because this runway is not an approved LZ.
	4	Aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace when conducting C-17 tactical maneuvers at the home station.
Dover AFB	2	C-17 pilots do not receive proficiency credit because this runway is not an approved LZ.
Blackstone AAF	5	This airfield does not have an adequate Fire/Crash Rescue Station or services to adhere to the guidance specified in AMCI 11-208.
John Murtha Johnstown-Cambria County Airport	5	This airfield does not have adequate trucks or personnel to adhere to the guidance specified in AMCI 11-208.

Note: [a] See Section 2.1.1 for Criteria

2.1.3 Interim C-17 Northeast Airfield Locations Carried Forward for Analysis

Wheeler-Sack AAF

Location and Mission. Fort Drum is approximately 30 miles from Canada, with the Great Lakes to the west and the Adirondack Mountains to the east (see Figure 2-1). The surrounding counties of Jefferson, Lewis, and St. Lawrence are rich in history and tradition. Fort Drum consists of 107,265 acres. Its mission includes command of active component units assigned to the installation, administrative and logistical support to tenant units, support to active and reserve units from all services in training at Fort Drum, and planning and support for the mobilization and training of almost 80,000 troops annually.

Fort Drum is the home of the 10th Mountain Division (Light Infantry) and is a major training center for reserve component forces. Units of the New York Army National Guard (NYARNG) rank among the post's most frequent customers. The nearly 12,000-member NYARNG is composed of state headquarters and three major commands: Headquarters 42nd Infantry Division (Mechanized), Headquarters 53rd Troop Command, and the 27th Separate Infantry Brigade (Enhanced). Battalions, companies, and detachments of these commands are distributed among more than 60 armories across the state from Niagara Falls to the tip of Long Island. Fort Drum's mission is to provide equitable, efficient, and effective management of Fort Drum resources to support readiness and mission execution of combat-ready forces, while providing for the well-being and security of soldiers, civilians, and family members; improving infrastructure; and preserving the environment.

Wheeler-Sack AAF is a world-class facility with three runways, multiple hangars, a control tower, and a Rapid Deployment Facility to stage and deploy the division's troops and equipment only minutes from their modern, consolidated unit areas. The Wheeler-Sack AAF expansion project, completed in November 1998, allowed the division to move its primary departure airfield from Griffiss AFB (85 miles away) to Wheeler-Sack AAF. The expanded Wheeler-Sack AAF runway accommodates all USAF aircraft, and additional airfield deployment facilities include scales, an ammunition holding area, refueling points, and a vehicle staging and inspection area. In addition to the expanded runway, a new rapid deployment facility at Wheeler-Sack AAF holds up to 1,200 soldiers to stage and conduct deployment processing at the airfield.

In addition to primary Runway 3/21, which is 10,000 feet long by 150 feet wide, Wheeler-Sack AAF has two crosswind runways: Runway 15/33 and Runway 8/26, which are 4,999 feet and 4,482 feet long respectively. Runway 15/33 and Runway 8/26 are each 150 feet wide. Runway 15/33 would become the principal runway used for LZ airfield operations.

Wheeler-Sack AAF is an ideal location to conduct C-17 tactical maneuvers because it provides the flexibility of a visual and an instrument environment to accomplish tactical and normal proficiency training. C-17s assigned to the 305 AMW could fly to Wheeler-Sack AAF in approximately 0.8 hours and C-17s assigned to the 436 AW could fly there in approximately 1 hour. A full time fire/crash rescue team is available at Wheeler-Sack AAF. Although Runway 15/33 at Wheeler-Sack AAF is 150 feet wide, which is 50 feet wider than the required 100 feet for a LZ, Wheeler-Sack has a waiver for the additional 50 feet that allows aircrews to receive proficiency credit for conducting LZ maneuvers.

Aircraft Operations. As presented in the *EA for Army Transformation Implementation at Fort Drum, New York* dated April 2005 (hereafter referred to as the Transformation EA), Wheeler-Sack AAF

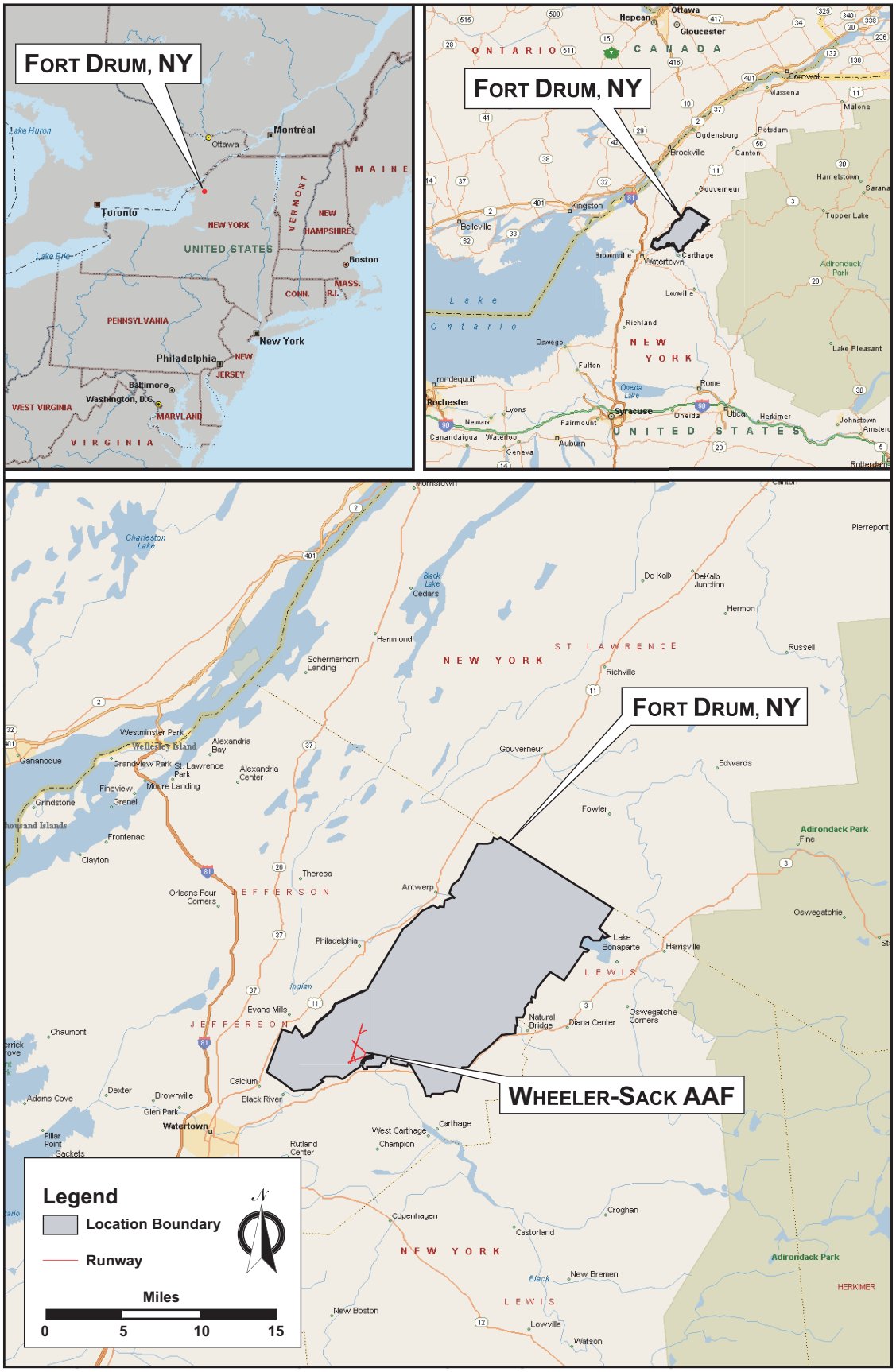

Figure 2-1. Wheeler-Sack AAF and Surrounding Area

currently provides support for approximately 146,000 annual rotary and fixed wing aircraft operations. Under the Proposed Action, a maximum of 24,960 annual C-17 LZ-related operations would occur at Wheeler-Sack AAF resulting in total annual operations of 170,960 (see Table 2-3). However it is not likely that all of the aircraft from both squadrons at McGuire AFB and Dover AFB would operate at Wheeler-Sack AAF on a daily basis. Therefore, the Proposed Action maximum number of annual aircraft operations is a conservative estimate for noise impacts. Section 2.2 discusses current and proposed aircraft operations at Wheeler-Sack AAF.

Table 2-3. Current Operations and Proposed C-17 Aircraft Operations at Wheeler-Sack AAF

Aircraft Operations	Current Annual Operations [a]	Proposed C-17 Annual Operations [b]	Total Annual Operations
Military	146,000	24,960	170,960
Total Aircraft Operations	**146,000**	**24,960**	**170,960**

Sources: [a] US Army 2005, [b] Fehl 2005.

Note: It is estimated that approximately 9,000 of the current annual operations are fixed wing and that the remaining 137,000 operations are rotary wing.
Annual C-17 operations are based on 312 flying days per year.

Richmond IAP

Location and Mission. Richmond IAP is the gateway to central Virginia (see Figure 2-2). Located 7 miles southeast of Richmond, the capital of Virginia, and within an hour drive of historic Williamsburg and a 2-hour drive from Washington, D.C., the Blue Ridge Mountains, and Virginia Beach, Richmond IAP is a hub to tourist attractions in Virginia.

The 192nd Fighter Wing is based at Richmond IAP in Sandston, Virginia. Also known as Byrd Field, named after the arctic explorer Admiral Richard E. Byrd, it is 4 miles southeast of downtown Richmond. The base consists of 143 acres and is surrounded by residential areas to the north and northeast. To the west and south lie the airport operating surfaces and the airport-owned wetlands are to the east. It is home to 294 officer and enlisted personnel and surges to 1,000 personnel one weekend a month.

In addition to primary Runway 16/34, which is 9,003 feet long by 150 feet wide, Richmond IAP has two crosswind runways: Runway 2/20 (6,607 feet long by 150 feet wide) and Runway 7/25 (5,326 feet long by 100 feet wide). Runway 7/25 would become the principal runway used for LZ airfield operations. Runway 7/25 is considered a good choice for the C-17 maneuvers because a pavement analysis concluded that it is strong enough to endure the C-17 aircraft and it is not used by other aircraft at Richmond IAP on a regular basis.

Runway 7/25 at Richmond IAP is 5,326 feet long, which is 326 feet longer than the maximum required length of 5,000 feet for an LZ. Consequently, the airport has received a waiver for the additional 326 feet that allows aircrews to receive proficiency credit for conducting LZ maneuvers. Personnel at Richmond IAP would be asked to install the panels before the C-17 aircraft arrive, these panels would need to be removed after the C-17 operations were completed.

Richmond IAP is an ideal location to conduct tactical maneuvers because it provides a location that meets all the criteria listed in Section 2.1.1. C-17s assigned to the 305 AMW could fly to Richmond IAP in approximately 0.75 hours and C-17s assigned to the 436 AW could fly there in approximately 0.6 hours.

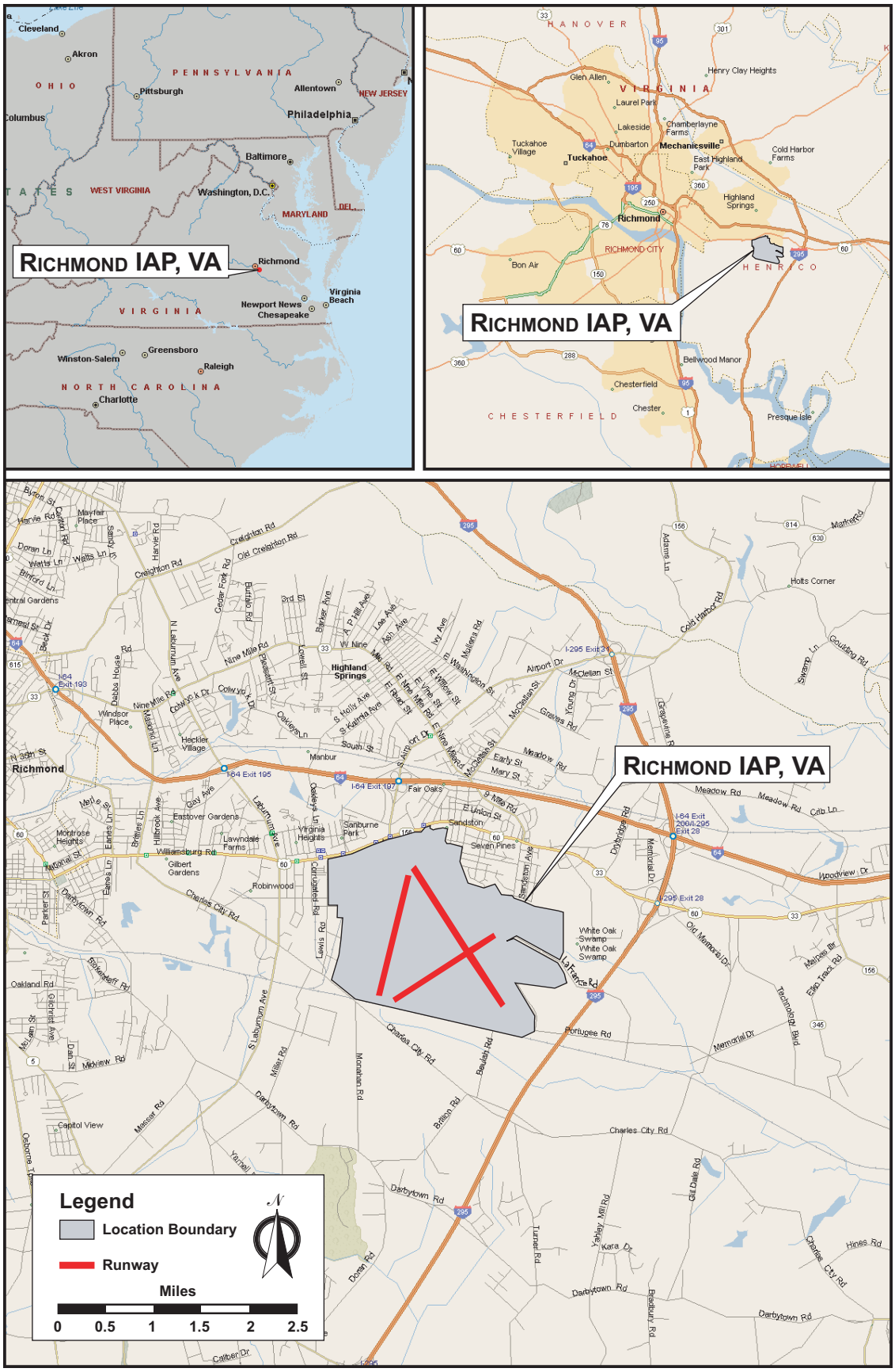

Figure 2-2. Richmond IAP and Surrounding Area

Richmond IAP offers a full time fire/crash rescue team, sufficient airspace, and the required runways to conduct tactical training.

Aircraft Operations. Under the Proposed Action, a maximum of 24,960 annual C-17 LZ-related operations would occur at Richmond IAP increasing the total annual operations for all aircraft at Richmond IAP from 108,246 to approximately 133,206. However it is not likely that all of the aircraft from both squadrons at McGuire AFB and Dover AFB would operate at Richmond IAP on a daily basis. Therefore, the Proposed Action maximum number of annual aircraft operations is a conservative estimate for noise impacts. Table 2-4 shows current and proposed aircraft operations at Richmond IAP.

Table 2-4. Current Operations and Proposed C-17 Aircraft Operations at Richmond IAP

Aircraft Operations	Current Annual Operations [a]	Proposed C-17 Annual Operations [b]	Total Annual Operations
Military	11,318	24,960	36,278
Other Aircraft	96,928	0	96,928
Total Aircraft Operations	**108,246**	**24,960**	**133,206**

Sources: [a] Richmond IAP 2004, [b] Fehl 2005.

Note: The number of flying days is mixed for military aircraft and is 365 days per year for other aircraft.

2.2 Proposed Interim KC-10 Tactical Training

The KC-10 Extender is an advanced tanker and cargo aircraft designed to provide increased global mobility for U.S. armed forces. Although the KC-10's primary mission is aerial refueling, it can combine the tasks of a tanker and cargo aircraft by refueling fighters and simultaneously carrying the fighter support personnel and equipment on overseas deployments. The KC-10 can transport up to 75 people and nearly 170,000 pounds of cargo a distance of about 4,400 miles without refueling. In addition to the three main DC-10 wing fuel tanks, the KC-10 has three large fuel tanks under the cargo floor, one under the forward lower cargo compartment, one in the center wing area, and one under the rear compartment. Combined, the capacity of the six tanks totals more than 356,000 pounds of fuel. The aircraft's maximum payload is 170,900 pounds resulting in a 590,000-pound maximum takeoff weight. Using either an advanced aerial refueling boom, or a hose and drogue centerline refueling system, the KC-10 can refuel a wide variety of U.S. and allied military aircraft within the same mission. The aircraft is equipped with lighting for night operations.

KC-10 aircraft from the 305 AMW would use existing aerial refueling routes and FAA-approved jet/victor routes or operate using Visual Flight Rules (VFR) to transition to and from the proposed LZ locations. These routes are agreed to areas and altitudes between the USAF and the FAA. Only these routes can be used so as to not interfere or create an unsafe flying condition with civilian aircraft.

KC-10 tactical training requirements were not required prior to October 2004. Unlike the C-17, KC-10 tactical training requirements utilize the full length of the runway (minimum 7,000 feet). Therefore, KC-10 aircrews were able to conduct the majority of their required training at the home station. However, with the beddown of the C-17 and the constricted airspace at McGuire AFB, it has become very difficult to meet these requirements. In addition, the pilots need somewhere else to conduct KC-10 aircraft operations when weather at McGuire AFB is not conducive for training. Therefore, HQ AMC is proposing to establish interim training capabilities at another airfield until the number of total military

aircraft operations conducted at McGuire AFB is relieved. At that time, the KC-10 aircrews would revert back to utilizing McGuire AFB to conduct the majority of their training.

2.2.1 Interim KC-10 Tactical Training Location Evaluation Criteria

The following evaluation criteria were used to identify an interim location suitable for conducting KC-10 tactical training:

1. The airfield should be within 1 hour flying time from McGuire AFB.
2. The airfield should be enroute to established refueling areas used by the 305 AMW.
3. The airfield must be capable of providing the environment for KC-10 tactical maneuvers (i.e., sufficient weight-bearing capacity, length, and width to support KC-10 operations such as takeoffs, landings, and closed patterns). Military or Joint-Use airfields are preferable.
4. KC-10 tactical arrivals, departures, landings, and other training operations must not conflict with other aircraft traffic.
5. The airfield must have adequate fire/crash rescue services as specified in AMCI 11-208, *Tanker/Airlift Operations*.

Five locations were evaluated for possible KC-10 interim training sites. Based on the evaluation criteria listed above, the following airfields were eliminated from further consideration as potential KC-10 interim training locations:

- ***Griffiss AFB and Westover ARB.*** These two airfields have very high volume of civilian traffic and were eliminated from further discussion under criterion 4.
- ***Wright-Patterson AFB.*** Wright-Patterson AFB in Dayton, Ohio, has heavy civilian traffic and scheduled C-17 training traffic. The airfield is more than 1 hour flight from McGuire AFB. Wright-Patterson was eliminated from further discussion under criteria 1, 2, and 4.
- ***Kinston Regional Airport.*** Kinston airfield is near Seymour-Johnson AFB which has heavy F-15 training traffic and scheduled F-22 training traffic. The airfield is more than 1 hour flight from McGuire AFB. Kinston airfield was eliminated from further discussion under criteria 1, 2, and 4.

Based on the criteria listed above, the only airfield proposed for KC-10 interim training capabilities is Wheeler-Sack AAF. Table 2-5 summarizes the airfield locations that were considered but dismissed, and cites the reasons they were eliminated.

2.2.2 Proposed Interim KC-10 Tactical Training at Wheeler-Sack AAF

In July 2005, McGuire AFB received a write-in change to AFI 11-2KC-10, Volume 1, *KC-10 Aircrew Training,* which changed the KC-10 Pattern Proficiency Sortie and the KC-10 Basic Tactical Sortie to be 50 percent creditable in the Weapons System Trainer (i.e., Simulator). This effectively reduces the number of KC-10 tactical training events that must be accomplished in the aircraft by half. Tactical profiles have been incorporated into all KC-10 continuation training simulator profiles. It has been estimated that approximately 12.5 percent (5,200) of the annual KC-10 interim operations would need to occur at Wheeler-Sack AAF. However, it is likely that Wheeler-Sack AAF would not receive all 5,200 airfield operations due to bad weather days or scheduling conflicts. The proposed interim KC-10 tactical maneuvers are presented in Table 2-6.

Table 2-5. KC-10 Interim Locations Considered but Dismissed

Location Name	Criteria Not Met [a]	Reason Why Eliminated
Griffiss AFB	4	Aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace due to the amount of civilian and military air traffic.
Westover ARB	4	Aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace due to the amount of civilian and military air traffic.
Wright-Patterson AFB	1	Wright-Patterson AFB is more than 1 hour flying time.
	2	Wright-Patterson AFB does not provide a suitable location to enable KC-10 pilots to conduct aerial refueling training while enabling tactical arrivals and departures at a local airfield the same time.
	4	Aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace due to the amount of civilian and military air traffic.
Kinston Regional Airport	1	Kinston Regional Airport is more than 1 hour flying time.
	2	Wright-Patterson AFB does not provide a suitable location to enable KC-10 pilots to conduct aerial refueling training while enabling tactical arrivals and departures at a local airfield the same time.
	4	Aircraft operations personnel have found that it is difficult to provide adequate separation between aircraft operating within the airfield airspace due to the amount of civilian and military air traffic.

Note: [a] See Section 2.2.1 for Criteria

Table 2-6. Proposed Interim KC-10 Tactical Training Activities at Wheeler-Sack AAF

Activities	Weekly Maximum	Monthly Maximum	Annual Maximum
Total Sorties	5	21	260
Total Airfield Operations	**100**	**433**	**5,200**

Source: Bartholomew 2005

Note: Totals based on the training required to keep McGuire AFB KC-10 pilots proficient. Weekly and monthly activities calculated by dividing annual activities by 52 and 12, respectively.

The current and proposed total annual operations for all aircraft at Wheeler-Sack AAF are shown in Table 2-7. Table 2-7 incorporates the proposed C-17 interim LZ operations (Table 2-1) and the proposed interim KC-10 operations (Table 2-6).

Table 2-7. Current and Proposed Aircraft Operations at Wheeler-Sack AAF

Aircraft Operations	Current Annual Operations [a]	Proposed KC-10 Annual Operations [b]	Proposed C-17 Annual Operations [b]	Total Annual Operations
Military	146,000	5,200	24,960	176,160
Total Aircraft Operations	**146,000**	**5,200**	**24,960**	**176,160**

Sources: [a] US Army 2005, [b] Fehl 2005.

Note: It is estimated that approximately 9,000 of the current annual operations are fixed wing and that the remaining 137,000 operations are rotary wing.
Annual KC-10 and C-17 operations are based on 312 flying days per year.

2.3 No Action Alternative

Under the No Action Alternative, there would be no change to baseline conditions at McGuire AFB, Dover AFB, Wheeler-Sack AAF, or Richmond IAP. C-17 aircrews from the 305 AMW and the 436 AW would continue to attempt to find airspace time if available and train at airfields in other parts of the country until the permanent LZ is established at NAES Lakehurst. C-17 aircrews from McGuire AFB and Dover AFB might be unable to obtain initial C-17 certification or maintain mandatory assault proficiency resulting in decertification. Additionally, KC-10 aircraft assigned to the 305 AMW would continue not to meet requirements for tactical arrival and departure training due to the congested airspace at McGuire AFB.

2.4 Decision to be Made and Identification of the Preferred Alternative

Upon completion of the EA, HQ AMC will determine whether the Proposed Action would result in significant impacts. If such impacts are predicted, HQ AMC would provide mitigation to reduce impacts below the level of significance, undertake an EIS, or abandon the Proposed Action. The EA will also be used to guide HQ AMC, 305 AMW, and 436 AW in implementing the Proposed Action in a manner consistent with the USAF standards for environmental stewardship. The preferred alternative is the Proposed Action as set forth in Sections 2.1 and 2.2.

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3. Affected Environment

The Affected Environment section of this EA contains a description of the current environmental conditions of McGuire AFB, Dover AFB, Wheeler-Sack AAF, and Richmond IAP that would be affected if the Proposed Action or Alternatives were implemented. It represents the "as-is" or "before-the-action" conditions (sometimes referred to as "baseline conditions") at the installation. Only environmental resources and resource parameters that could be affected by the action, or that are of public concern, are discussed in detail in the Affected Environment section, and are analyzed under Environmental Consequences (Section 4.0 of this EA). An explanation is provided below for excluding particular resources from detailed discussion.

3.1 Resource Areas Not Examined in Detail

This is a "focused EA," consistent with guidance issued by the CEQ in Title 40 CFR 1501.7(a)(3) and set forth in USAF guidance 32 CFR 651.3432 CFR 989, as amended. The description of the affected environment focuses on those conditions and resource areas that are potentially subject to impacts. Some environmental resource areas and conditions that are often analyzed in an EA have been omitted from this analysis. All environmental documentation (e.g., Integrated Natural Resources Management Plan, Integrated Cultural Resources Management Plan) used to eliminate the following resource areas has been provided by the HQ AMC, 305 AMW and 436 AW. The following paragraphs detail omitted resource areas and the basis for such exclusions.

3.1.1 Safety

Safety impacts are assessed based on direct effects from construction activities, as well as secondary effects, such as environmental contamination. Implementation of the Proposed Action would not impact safety. The 305 AMW and 436 AW would follow all existing safety guidelines set forth by Department of Defense (DOD) and USAF. Accordingly, the USAF has omitted detailed examination of safety in this EA.

3.1.2 Geological Resources

The Proposed Action involves increased flying operation such as LTOs and TGOs, and does not involve any disturbances to subsurface soil, geology, or minerals; or alteration of topography. Accordingly, the USAF has omitted detailed examination of geological resources in this EA.

3.1.3 Water Resources

Evaluation criteria for impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. The Proposed Action would have no effect on surficial or regional aquifers. Implementation of the Proposed Action would not affect storm water or floodplains at Fort Drum or Richmond IAP. Accordingly, the USAF has omitted detailed examination of water resources in this EA.

3.1.4 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 Fort Drum or Richmond IAP.

Accordingly, the USAF has omitted detailed examination of biological resources in this EA. Correspondence from the U.S. Fish and Wildlife Service and the Virginia Department of Environmental Quality are attached in Appendix E.

3.1.5 Cultural Resources

For the purpose of this EA, the Area of Potential Effect (APE) for the Proposed Action is defined by the limits of each LZ on Fort Drum and Richmond IAP. There are no historic buildings within the APE and there would be no direct impact on potentially significant resources from the Proposed Action. The Proposed Action would not physically alter, damage, or destroy all or part of a resource; alter characteristics of the surrounding environment that contribute to the resource's significance; introduce visual or audible elements that are out of character with the property or alter its setting; neglect the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance. Accordingly, the USAF has omitted detailed examination of cultural resources in this EA.

3.1.6 Socioeconomics

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Also included with socioeconomics are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO directs Federal agencies to identify and assess environmental health and safety risks that might disproportionately affect children. The Proposed Action does not involve any activities that would contribute to changes in socioeconomic resources. There would be no change in the number of personnel assigned to Fort Drum or Richmond IAP; therefore, there would be no changes in area population or associated changes in demand for housing and services. Accordingly, the USAF has omitted detailed examination of socioeconomics in this EA.

3.1.7 Infrastructure

Infrastructure is defined to include transportation systems, utilities (electrical power, natural gas, and water supply), solid waste, and sanitary systems. Effects on infrastructure are evaluated based on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or 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. The Proposed Action would have no impact on Fort Drum's or Richmond IAP's infrastructure. Accordingly, the USAF has omitted detailed examination of infrastructure in this EA.

3.1.8 Hazardous Materials and Waste Management

No adverse effects concerning hazardous materials and wastes would be expected under the Proposed Action. The procurement of products containing hazardous materials would not increase or decrease, nor would the generation of hazardous wastes, as a result of the Proposed Action. All activities involving the handling and use of petroleum, oils, and lubricants during the operations on the LZs would also be conducted in accordance with hazardous material and waste management plans required by the Resource Conservation and Recovery Act. In addition, there would be no effect on Environmental Restoration

Program sites. Therefore, hazardous materials and waste management will not be discussed further in this EA.

3.2 Airspace Management

3.2.1 Definition of the Resource

The USAF describes airspace management as the coordination, integration, and regulation of the use of airspace of defined dimensions. The objective of airspace management is to meet military training requirements through the safe and efficient use of available navigable airspace. This is to be accomplished in a peacetime environment, while minimizing the impact on other aviation users and the public (AFI 13-201).

There are two categories of airspace, or airspace areas; regulatory and nonregulatory. Within these two categories, further classifications include controlled, uncontrolled, special use, and airspace for special use. The categories and types of airspace are dictated by the complexity or density of aircraft movement; nature of the operations conducted within the airspace; the level of safety required; and national and public interest in the airspace.

Controlled Airspace. Controlled airspace is a generic term that encompasses the different classifications (Class A, B, C, D, and E) of airspace and defines dimensions within which air traffic control service is provided to flights under instrument meteorological conditions (IMC), and to flights under visual meteorological conditions (VMC) (see Figure 3-1). All military and civilian aircraft are subject to Federal Aviation Regulations (FARs).

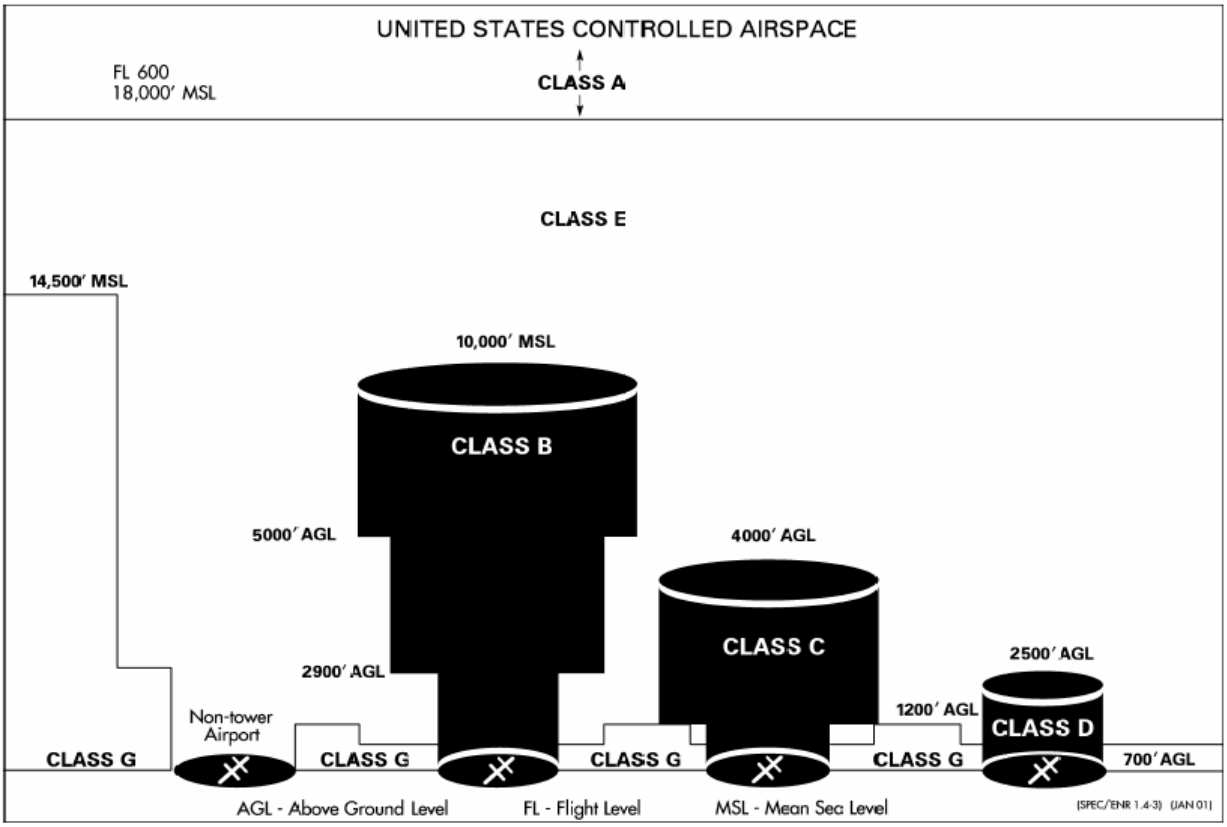
Class A Airspace includes all operating altitudes at or above 18,000 feet mean sea level (MSL). Class A airspace is most frequently utilized by commercial aircraft using altitudes between 18,000 and 45,000 feet above MSL.

Class B Airspace typically comprises contiguous cylinders of airspace, stacked one upon another and extending from the surface up to 10,000 feet above ground level (AGL). To operate in Class B airspace, pilots must contact appropriate controlling agencies and receive clearance to enter the airspace. Additionally, aircraft operating within Class B airspace must be equipped with specialized electronics that allow air traffic controllers to accurately track aircraft speed, altitude, and position. Class B airspace is typically associated with major airport complexes such as JFK International Airport, New York, and Baltimore-Washington International Airport, Maryland.

Class C Airspace can generally be described as controlled airspace that extends from the surface or a given altitude to a specified higher altitude. Class C airspace is designed and implemented to provide additional air traffic control into and out of primary airports where aircraft operations are periodically at high-density levels such as Richmond IAP, Richmond Virginia. All aircraft operating within Class C airspace are required to maintain two-way radio communication with local air traffic control (ATC) facilities.

Class D Airspace encompasses a 5 statute-mile radius of an operating ATC airport. It extends from the ground to 2,500 feet AGL or higher. All aircraft operating within Class D airspace must be in two-way communication with the ATC facility. McGuire AFB is an example of Class D airspace.

Class E Airspace can be described as general controlled airspace. It includes designated Federal airways consisting of the high altitude (J or "Jet" Route) system and low altitude (V or "Victor" Route) system.



Source: NIMA 2005

Figure 3-1. United States Controlled Airspace

Federal airways have a width of 4 statute miles on either side of the airway centerline and can be structured between the altitudes of 700 feet AGL and 18,000 feet above MSL. These airways frequently intersect approach and departure paths from both military and civilian airfields. Class E airspace can range from ground level at non-towered airfields up to 18,000 feet MSL. The majority of Class E airspace is where more stringent airspace control has not been established.

Class G Airspace (uncontrolled) is the portion of airspace that has not been designated as Class A, Class B, Class C, Class D, or Class E airspace.

Uncontrolled Airspace. Uncontrolled airspace (Class G) is not subject to restrictions that apply to controlled airspace. Limits of uncontrolled airspace typically extend from the surface to 700 feet AGL in urban areas, and from the surface to 1,200 feet AGL in rural areas. Uncontrolled airspace can extend above these altitudes to as high as 14,500 feet above MSL if no other types of controlled airspace have been assigned. ATC does not have authority to exercise control over aircraft operations within uncontrolled airspace. Primary users of uncontrolled airspace are general aviation aircraft operating under VMC.

Special Use Airspace. Special Use Airspace consists of airspace within which specific activities must be confined, or wherein limitations are imposed on aircraft not participating in those activities. With the exception of Controlled Firing Areas, special use airspace is depicted on aeronautical charts. Chart depictions include hours of operation, altitudes, and the agency controlling the airspace. All special use airspace descriptions are contained in Flight Information Publications (FLIP). Examples of special use

airspace in the local flying area of Dover AFB are restricted areas (R-4006), military operations areas (MOAs) (Hill MOA), prohibited areas (P-56), and warning areas (W-386).

Airspace for Special Use. Airspace for Special Use is defined as airspace areas that are used by military aircraft but do not put restrictions on non-participating aircraft. They are designated as such for informational purposes for general aviation. Examples of airspace for special use are military training routes (MTRs), slow routes (SRs), and air-to-air refueling tracks.

MTRs are flight paths that provide a corridor for low-altitude navigation and training. Low altitude navigation training is important because aircrews might be required to fly at low altitudes for tens or hundreds of miles to avoid detection in combat conditions. To train realistically and safely, the military and the FAA have developed MTRs. This allows the military to train for low-altitude navigation at airspeeds in excess of 250 knots indicated airspeed (KIAS) (approximately 285 miles per hour [mph]). There are two types of MTRs: instrument routes (IRs) and visual routes (VRs). Typical MTRs are from 4 to 10 NMs wide and have altitude structures from 100 feet AGL to 5,000 feet above MSL or higher. The centerlines of MTRs are depicted on aeronautical charts. Non-participating aircraft are not prohibited from flying within an MTR, however, extreme vigilance should be utilized when flying on or near these routes.

SRs are similar to MTRs in structure but are utilized by aircraft that normally operate at low-level airspeeds of less than 250 KIAS. Slower aircraft, such as the C-17, C-5, C-141, and C-130 aircraft, can fly safely in the same airspace environment with civilian or commercial air traffic by practicing see-and-avoid techniques under VMC. SRs are designated through military approval channels and do not require FAA coordination. The maximum altitude that can be flown in SRs is 1,500 feet AGL.

Air-to-Air Refueling Tracks/Anchors are designated airspace by the FAA for air-to-air refueling operations. Refueling tracks have designated entry points (initial points), altitude blocks, and exit points. Refueling tracks are normally flown from point A to point B, a straight line. Refueling anchors have the same restrictions as refueling tracks. Refueling anchors are flown using a racetrack pattern to remain within designated airspace. Anchor tracks also can be associated with other designated airspace, such as ATC Assigned Airspace or warning areas (over water).

The region of influence (ROI) for airspace management includes Wheeler-Sack AAF, New York and Richmond IAP, Virginia. C-17s would arrive at the proposed airfields utilizing Instrument Flight Rules and VFR clearances as well as utilizing special use airspace (Air-to-Air Refueling tracks and MTRs (to include SRs). Such special use activities conducted at or above 3,000 feet AGL are categorically excluded from environmental analysis in accordance with the USAF *EIAP*, 32 CFR Part 989, as amended. Specifically, 32 CFR Part 989, as amended, states that "Formal requests [approved by] the FAA, or host-nation equivalent agency, to establish or modify special use airspace (for example, restricted areas, warning areas, military operating areas) and MTRs for subsonic operations that have a base altitude of 3,000 feet above ground level or higher" are categorically excluded from environmental analysis. Air-to-Air Refueling tracks/anchors will not be discussed since their operations occur at or above 3,000 AGL. Likewise, established MTRs and Victor Airways are not addressed because they have been addressed in other studies and this document is focusing on the interim use of two airfields for C-17 and KC-10 training purposes.

3.2.2 Existing Conditions

Wheeler-Sack AAF

Wheeler-Sack AAF is on Fort Drum, Jefferson County, New York, 30 miles from the Canadian border. It consists of 107,265 acres and is a major training center for Active, Reserve and National Guard forces. It is a world-class facility with three runways, multiple hangers, control tower, and the ability to handle heavy aircraft like the C-17 and KC-10 for ground operations and movement. Runway 03/21 is the primary runway and its two other runways (08/26 and 15/33) provide for crosswinds to allow training should crosswinds be out of limits. Runway 15/33 is planned to be the primary runway used for LZ training. Although runway 15/33 is 150 feet wide, it has a waiver to allow aircrews to receive credit for LZ proficiency training. Wheeler-Sack AAF has instrument approaches (including radar approaches) to its primary Runway 03/21 and the planned LZ Runway 15/33. Wheeler-Sack AAF has protected airspace (Class D) and the vicinity of both Watertown International Airport and Wheeler-Sack AAF is protected by Class E Airspace. Airspace maps and airfield diagram related to Wheeler-Sack AAF are shown in Figures 3-2 and 3-3, respectively.

Richmond IAP

Richmond IAP is 7 miles from Richmond, Virginia. The airfield is a United States civil airport wherein a permit covers use by military transit aircraft. The Air Force and Army National Guard maintain units on the airfield (both fixed- and rotary-wing). Richmond IAP consists of 143 acres and is surrounded by residential areas to the north and northeast.

The primary runway is Runway 16/34 and Richmond IAP has two additional runways: Runway 2/20 and 7/25. Runway 7/25 is where C-17 planned LZ training would occur. This runway is ideal for this task because this area is less populated being southeast of the city proper. This runway is 5,326 feet which is 326 feet too long to qualify as an LZ, but this has been wavered to allow LZ training credit for aircrews. Richmond IAP has instrument approaches to every runway permitting Instrument Flight Rules training to include area navigation (RNAV) global positioning system (GPS) as well as VFR tactical proficiency. Figures 3-4 and 3-5 represent the airspace map and airfield diagram for Richmond IAP.

3.3 Noise

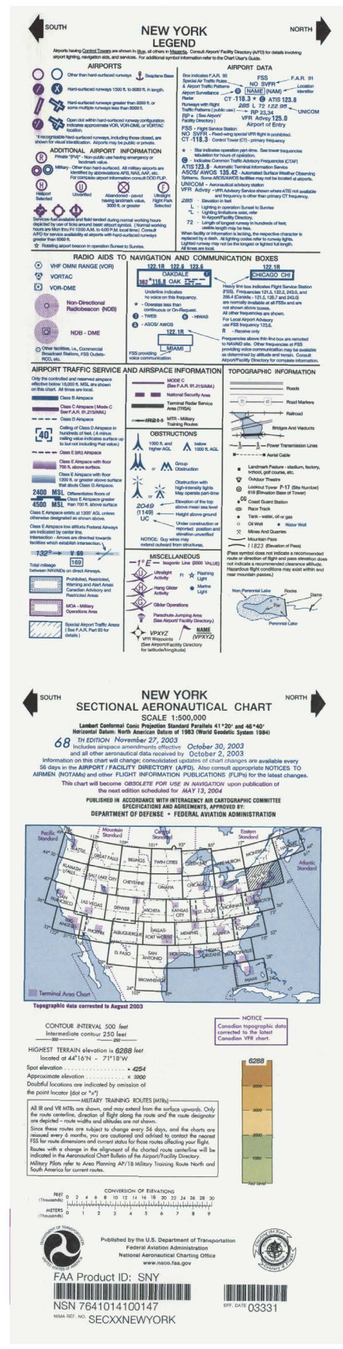
3.3.1 Definition of the Resource

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. 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

Figure 3-2. Local Controlled Airspace in Vicinity of Wheeler-Sack AAF



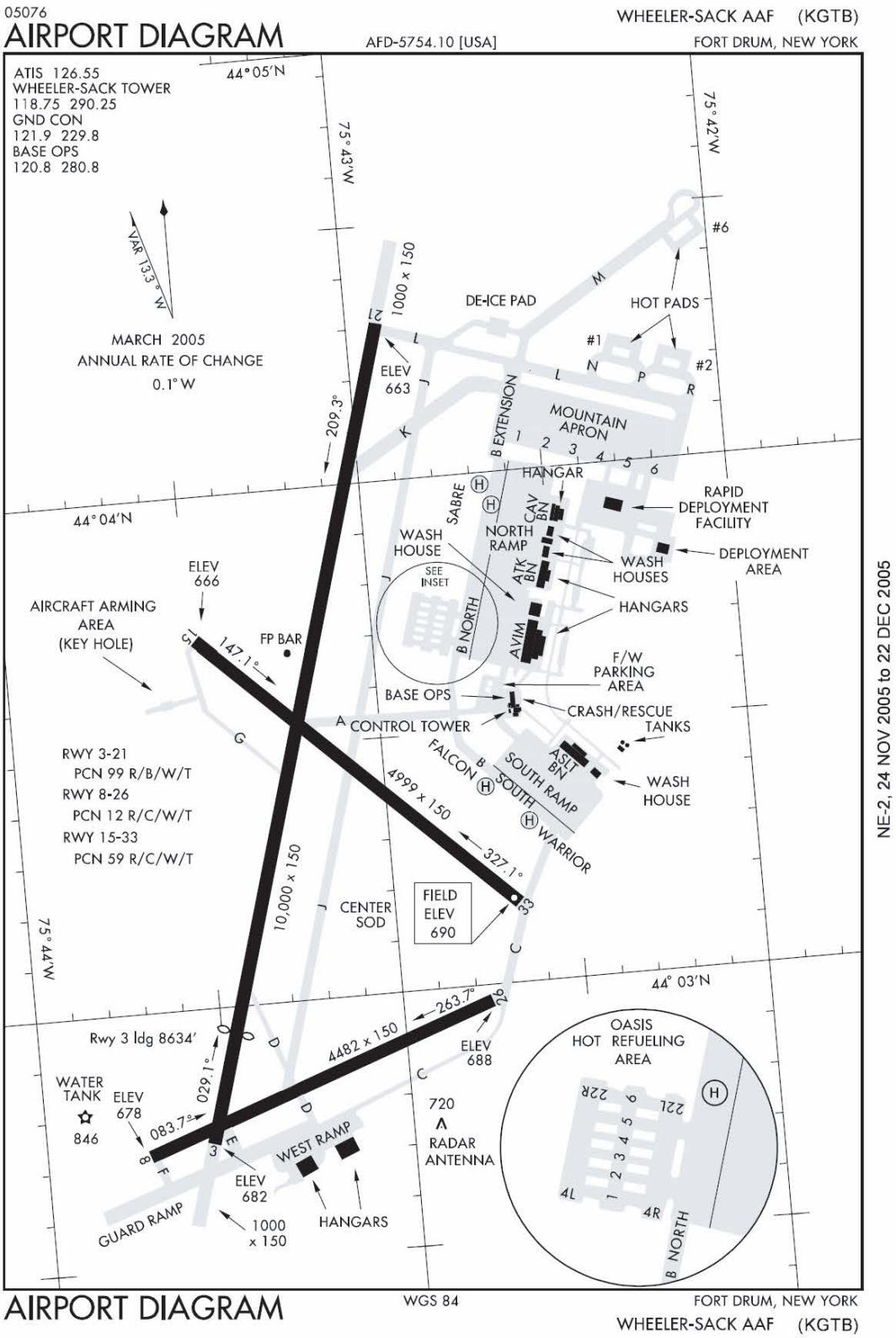
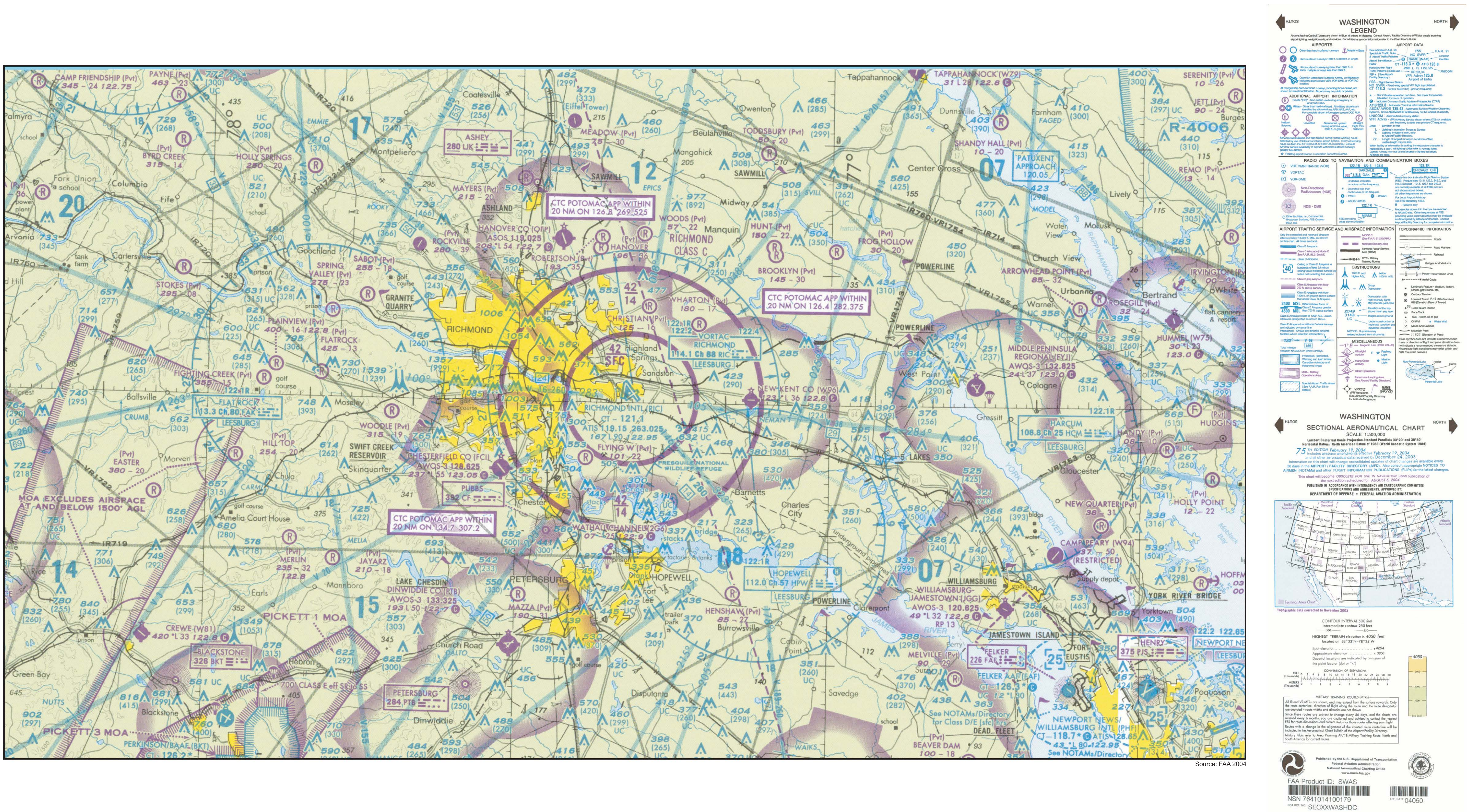


Figure 3-3. Wheeler-Sack AAF Airfield Diagram



Source: FAA 2004

Figure 3-4. Local Controlled Airspace in Vicinity of Richmond IAP

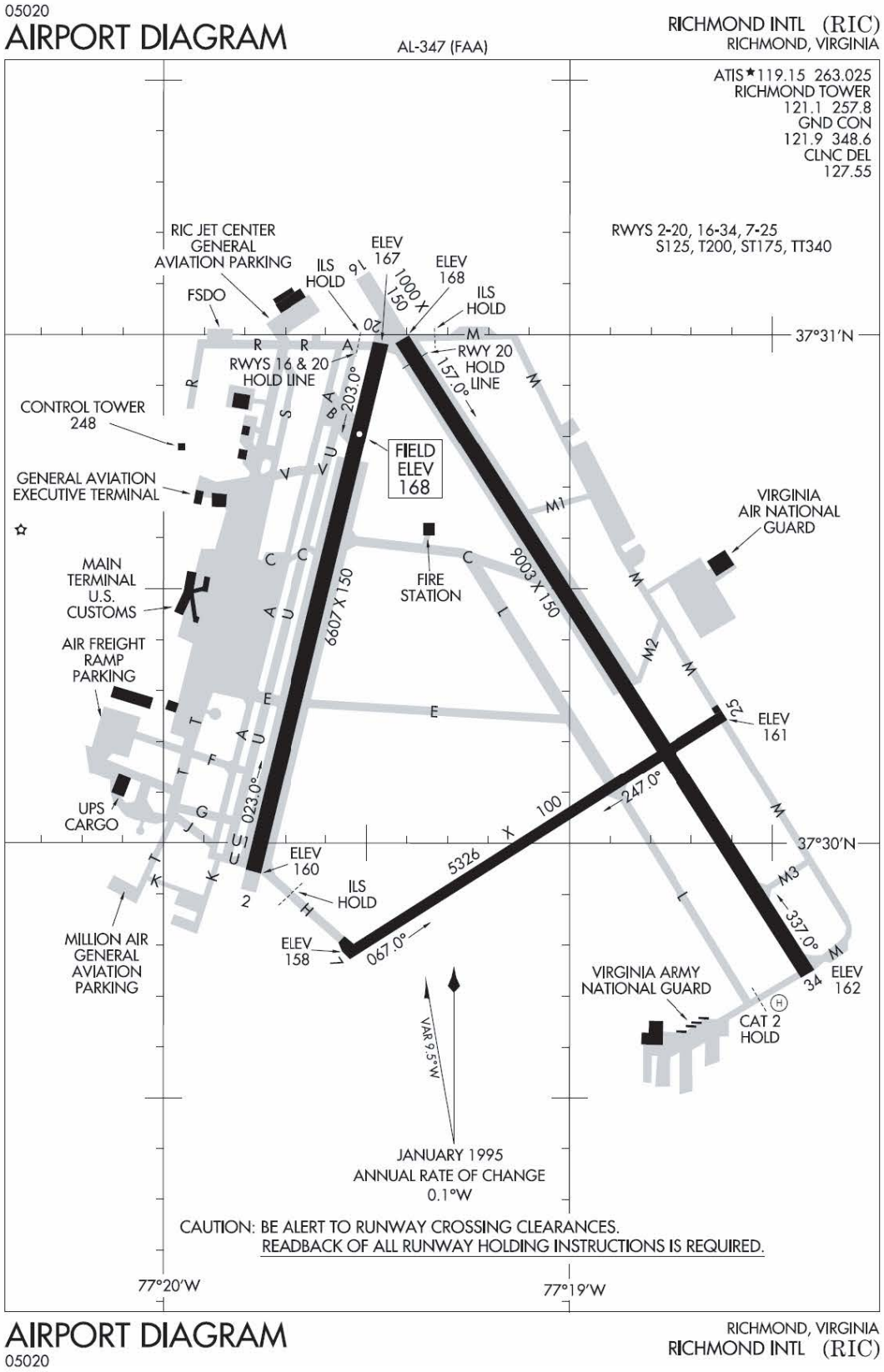


Figure 3-5. Richmond IAP Airfield Diagram

second, and a maximum weighting for sounds with a frequency of 2,000 to 5,000 cycles per second. All sound levels analyzed in this EA are A-weighted.

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, are measured in the Day-Night Average A-weighted Sound Level (DNL). This noise metric incorporates a "penalty" for nighttime noise events to account for the 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 Housing and Urban Development, FAA, 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. Noise levels in residential areas vary depending on the housing density and location. As shown on Table 3-1, a normal suburban area is about 55 dBA, which increases to 60 dBA for an urban residential area and 80 dBA in the downtown section of a city. 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 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, USEPA, and HUD 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).

The DNL metric is often applied to Noise Zones (NZs), which are used to estimate the percentage of a population impacted by airport noise levels. NZs are estimated from a computer modeling program and are described in the following section.

Noise Zone III. NZ III consists of the area around the source of the noise in which the DNL is greater than 75 dB. The noise levels within NZ III are considered so severe that noise-sensitive land uses should not be considered therein. Noise-sensitive land uses include residences, schools, medical facilities, and churches.

Noise Zone II. NZ II consists of an area where the DNL is between 65 and 75 dB. Exposure to noise within this area is considered significant and use of land within NZ II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in NZ II areas must be used for residential purposes, then noise level reduction features should be incorporated into the design and construction of the buildings.

Table 3-1. Typical Outdoor Noise Levels

Day-Night Noise Level (dBA)	Location
50	Residential area in a small town or quiet suburban area
55	Suburban residential area
60	Urban residential area
65	Noisy urban residential area
70	Very noisy urban residential area
80	City noise (downtown of major metropolitan area)
88	3rd floor apartment in a major city next to a freeway

Source: FHWA 1980

Noise Zone I. NZ I includes all areas around a noise source in which the DNL is equal to or less than 65 dB. This area is usually suitable for all types of land use activities.

3.3.2 Existing Conditions

Wheeler-Sack AAF

Fort Drum is in a rural area with numerous small towns scattered throughout the region. The city of Watertown is southwest of base property. Noise-producing activities in the region include aircraft operations and range activities at Fort Drum. Vehicle traffic can be an issue for those populations adjacent to major roadways.

The impact of aircraft and blast noise sources has been assessed regularly over the years. The last detailed aircraft noise analysis was conducted in 1999 when Runway 03/21 was extended. However, the increase in rotary wing aircraft was analyzed in the 2005 Transformation EA. The results as presented in the Transformation EA were such that noise generated by the helicopters occurs almost entirely on-post, with the exception of the village of Sprague ville. No incompatible land uses within the noise areas on or off-post were identified (US Army 2005).

Blast Noise Monitoring Reports are conducted on a quarterly basis to assess blast noise at the Fort Drum training facilities. There are noise monitors currently in Philadelphia, Antwerp, Sprague ville, and Natural Bridge. The on-going noise analyses enable Fort Drum to respond to complaints and evaluate noise impacts associated with large weapon and aircraft training activities on and off the base.

Major roadways through the area include Interstate 81, which traverses north-south adjacent to Lake Ontario. U.S. Route 11 runs north of base property and State Route 3 runs south of Fort Drum property. Both of these routes connect to Interstate 81 and traverse northeast-southwest. State Route 26 and County Route 29 run through Fort Drum property at the southwest end.

Richmond IAP

Richmond IAP is in a moderately populated suburban area in southeastern Virginia. Noise-producing activities in the region include vehicle transportation, railroad trains, and airport operations.

Major roadways adjacent to Richmond IAP include Interstate 295, which is east and south of the airport and Interstate 64, which is north of airport property. Interstate 295 connects to Interstate 95 which traverses north to Washington D.C., and south to Savannah, Georgia, and provides access to the airport via Interstate 64 and U.S. 60. The Chesapeake and Ohio Railroad track is situated directly south of airport property. The Southern Railroad line is north of airport property, near Interstate 64. Both railroad lines traverse east-west (192 FW 2005)

The noise contours from the Noise Data Update at Richmond IAP, 2004 show that residential populations north of the airport, as well as small sections of residences to the south and east, are impacted by airport noise from Richmond IAP operations. Additional information regarding the 2004 noise data is discussed in Section 4.2.2.

The noise that occurs on a regular basis from vehicle traffic, railroad trains, and airport operations undoubtedly impacts the ambient noise environment surrounding Richmond IAP.

3.4 Land Use

3.4.1 Definition of 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 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 site 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 matters such as 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."

3.4.2 Existing Conditions

Wheeler-Sack AAF

Land around Fort Drum consists mostly of rural and agricultural use. Agriculture accounts for 21 to 37 percent of the land use in the counties that are adjacent to Fort Drum. In Jefferson County approximately 37 percent of the land is used for agriculture, Lewis County has approximately 21 percent, and 23 percent of the land is used for agriculture in St. Lawrence County. The percentage of land classified as agricultural has been decreasing in the three counties surrounding the installation since 1978 (US Army 2002).

Small towns are scattered around Fort Drum including Black River, Deferiet, Herrings, Cartage, West Cartage, Natural Bridge, Harrisville, Sprague ville, Antwerp, Philadelphia, and Evans Mills. Watertown, southwest of the installation, is the closest city with a population of 26,705 (Census Bureau 2000).

Most of the residential and commercial land use immediately surrounding Fort Drum is west and south of the airfield. This includes the military housing which is on the southwest side of base property.

Major roadways through the area include Interstate 81 which traverses north-south and is adjacent to Lake Ontario. U.S. Route 11 is north of the base and State Route 3 is south of Fort Drum property. Both of these routes connect to Interstate 81 and traverse northeast-southwest. State Route 26 and County Route 29 run through Fort Drum property at the southwest end.

Richmond IAP

Richmond IAP comprises approximately 2,366 acres and is owned by the Richmond Capital Region Airport Commission. The Virginia Air National Guard and the Army Guard are tenants at the airport (192 FW 2005). Richmond IAP is in a moderately populated suburban area in southeastern Virginia. Residential areas surround the airport, with the most heavily populated region to the north. Land use adjacent to Richmond IAP consists of residential, industrial, and commercial north of airport; residential, industrial and undeveloped uses to the east; industrial and undeveloped areas south; and industrial, commercial and residential land to the west (192 FW 2005). Suburban areas north of Richmond IAP include Virginia Heights, Sanburne Park, Sandston, and Seven Pines. The Lewis Ginter Botanical Gardens, consisting of about 40 acres, is west of the airport.

Transportation facilities adjacent to Richmond IAP include the Chesapeake and Ohio Railroad, south of airport property, and the Southern Railroad line to the north. Major roadways include Interstate 295 which is located on the east and south sides of airport property and traverses north-south. Interstate 295 provides access to the airport and connects to Interstate 95 which heads north-south to Washington D.C. and Savannah, Georgia. Interstate 64 is north of Richmond IAP and traverses east-west connecting to Interstate 295. U.S. 60 is north of the airfield and connects to local roads around Richmond IAP.

3.5 Air Quality

3.5.1 Definition of the 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), milligrams per cubic meter (mg/m^3), or micrograms per cubic meter ($\mu g/m^3$). 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 [$PM_{2.5}$]), 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 3-2 presents the primary and secondary USEPA NAAQS (USEPA 2005a).

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_x.

Table 3-2. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
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
NO_2			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m^3)	Primary and Secondary
O_3			
8-hour Average[b]	0.08 ppm	(157 µg/m^3)	Primary and Secondary
Pb			
Quarterly Average		1.5 µg/m^3	Primary and Secondary
PM_{10}			
Annual Arithmetic Mean[c]		50 µg/m^3	Primary and Secondary
24-hour Average[a]		150 µg/m^3	Primary and Secondary
$PM_{2.5}$			
Annual Arithmetic Mean[d]		15 µg/m^3	Primary and Secondary
24-hour Average[a]		65 µg/m^3	Primary and Secondary
SO_2			
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	(1,300 µg/m^3)	Secondary

Source: USEPA 2005a

Notes: Parenthetical values are approximate equivalent concentrations.

[a] Not to be exceeded more than once per year.

[b] 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.

[c] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.

[d] 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/m^3.

[e] 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/m^3.

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," "nonattainment," "maintenance," 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 criteria pollutant levels exceed NAAQS, maintenance indicates that an area was previously designated nonattainment but is now attainment, and an unclassifiable air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. 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. 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.

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" O_3 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 $\mu g/m^3$ 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)].

3.5.2 Existing Conditions

Wheeler-Sack AAF

Fort Drum is in Jefferson County, New York. Fort Drum is in the Central New York Intrastate AQCR (CNYIAQCR), which comprises nine counties in central New York. Fort Drum is approximately 70 miles north of Syracuse, New York. The New York State Department of Environmental Conservation (NYSDEC), Air Resources Division, enforces air quality regulations in this region. Jefferson County is in a moderate nonattainment area for 8-hour ozone and in attainment for all criteria pollutants. Therefore, the General Conformity Rule applies to the Proposed Action (USEPA 2005b). Fort Drum is under the jurisdiction of the NYSDEC Region 6 office in Watertown. Compliance with the NAAQS is determined through the use of ambient air monitoring stations throughout the state, including monitoring stations in the vicinity of Fort Drum.

Fort Drum is not classified as a major source of air pollutant emissions that contribute to the nonattainment status of the region. Fort Drum is not required to have a Title V Operating Permit, but operates under a Synthetic Minors Permit. Fort Drum is not required to submit an annual Emission Statement to regulating authorities at present. Because the regulations and reporting requirements might change and require smaller-scale air pollution sources to begin reporting, Fort Drum has begun to conduct a periodic inventory. That inventory constitutes an Emission Statement, as defined in Title I of the Clean Air Act Amendments of 1990 (CAAA-90).

Richmond IAP

Richmond IAP is in the State Capital Intrastate AQCR (SCIAQCR), which comprises 12 counties in Virginia. Henrico County is in a marginal nonattainment area for 8-hour ozone and in attainment for all other criteria pollutants. Therefore, the General Conformity Rule applies to Richmond IAP under the Proposed Action (USEPA 2005b).

3.6 Environmental Justice

3.6.1 Definition of the Resource

There are no Federal regulations on socioeconomics, but there is one EO that pertains to environmental justice issues. This EO is included in the environmental justice section because it relates to various socioeconomic groups and the human health and environmental effects that could be imposed on them. On February 11, 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This EO requires that Federal agencies' actions, to the greatest extent possible, make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse effects of its program on minority and low-income populations. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

3.6.2 Existing Conditions

Wheeler-Sack AAF

Jefferson County, New York had a population of 111,738 in 2000 (Census Bureau 2000). Jefferson County is divided into 24 census tracts. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment. They average about 4,000 inhabitants (Census Bureau 2006a). Wheeler-Sack AAF is in one census tract, and the area around the base that would be affected by the Proposed Action represents an additional 2 census tracts. For the purposes of the environmental justice analysis for this EIS, the residents of these 3 census tracts, which compose the ROI, were evaluated. The population within the ROI was 21,063 in 2000 (Census Bureau 2000).

Residents living in the ROI have lower per capita incomes ($15,667) than in Jefferson County and in New York (see Figure 3-6) (Census Bureau 2000). The percentage of families in the ROI living below the poverty level (10.5 percent) is lower than the county percentage (14.9 percent) and the state percentage (16.9 percent). The median household income for county residents ($34,006) is lower than for residents of the ROI ($34,487) and state ($43,393) averages.

The percentage of residents who have obtained a high school diploma is higher in the ROI (72.3 percent) than in Jefferson County (66.9 percent), and the state of New York (51.7 percent) (see Figure 3-7). However, the percentages of residents in the ROI and Jefferson County that have achieved a college education are 16.6 and 16.0 percent, respectively, which are lower than the state percentage, 27.4 percent (Census Bureau 2000).

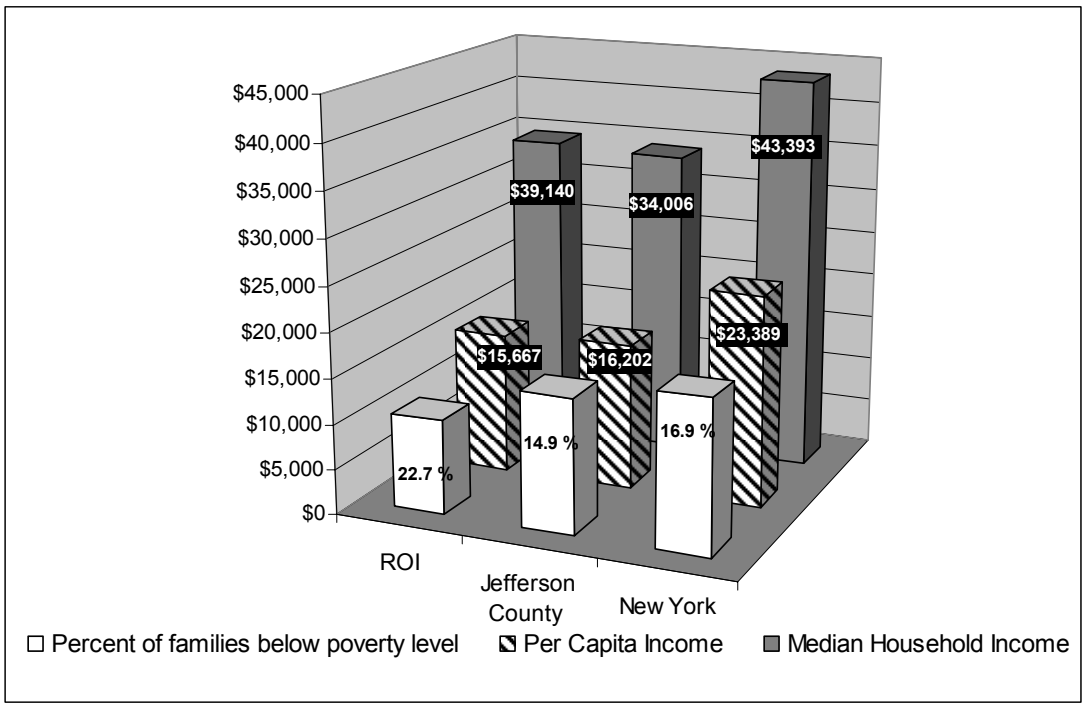


Figure 3-6. Income and Poverty Level of Residents in the ROI, Jefferson County, and the State of New York

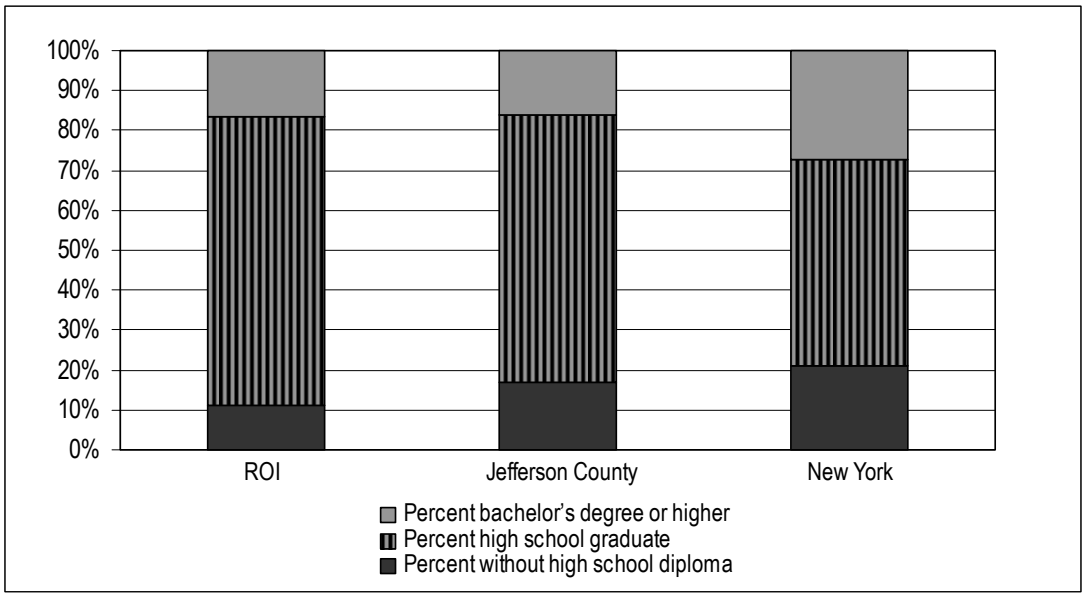


Figure 3-7. Educational Attainment of Residents in the ROI, Jefferson County, and the State of New York

Table 3-3 lists the industry of employment for residents within the ROI, Jefferson County, and New York in 2000. The largest percentage of the population in the ROI is employed in educational, health and social services. The lowest percentage of residents is employed in information; agriculture, forestry, fishing and hunting and mining; and wholesale trade (Census Bureau 2000).

The community of comparison for the environmental justice analysis is Jefferson County. Tables from the 2000 Census of Population and Housing were used to extract the data on low-income and minority populations within the ROI. Minority populations included in the census are identified as Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, and Other Race. Poverty status was determined by using the 1999 Poverty Thresholds table (Census Bureau 2006b). A family of four with related children under the age of 18 that has an income less than $17,029 is considered to be living below the poverty level. Jefferson County has a population of 111,738; of that 16,649 families (14.9 percent) with related children under the age of 18 are considered to be living below the poverty level and 12,626 persons (11.3 percent) are considered minority (Census Bureau 2000). Table 3-4 presents the percent of population that is minority or low-income within the ROI, Jefferson County, New York, and the United States. A census tract is considered to have a disproportionately high percentage of low-income or minority residents under either of two conditions: (1) the percentage of low-income or minority populations within the tract is greater than Jefferson County's minority percentage (11.3 percent) or low-income percentage (16.0 percent), or (2) the percentage of persons in low-income or minority populations within the tract is greater than 50 percent. Of the 3 census tracts affected, 1 tract has a disproportionately higher proportion of minority or low-income residents compared to Jefferson County (see Table 3-4).

Figure 3-8 shows the race of individuals living in the ROI, Jefferson County, and New York, as reported by the U.S. Census Bureau. The percentage of Black or African American (8.6 percent) and other race or combination of races (8.2 percent) is higher in the ROI than Jefferson County (5.8 percent and 5.5 percent, respectively), but lower than the state of New York (15.9 percent and 16.2 percent, respectively).

Table 3-3. Employment of Residents in the ROI, Jefferson County, and the State of New York

Industry of Employment (Percent of Employed Persons)	ROI	Jefferson County	State of New York
Armed Forces	28.0%	11.7%	0.2%
Civilian Employment			
Agriculture, forestry, fishing and hunting, and mining	2.8%	3.4%	0.6%
Construction	3.5%	5.8%	5.2%
Manufacturing	9.7%	9.6%	10.0%
Wholesale trade	3.1%	2.7%	3.4%
Retail trade	14.6%	14.2%	10.5%
Transportation and warehousing, and utilities	3.2%	4.5%	5.5%
Information	2.0%	2.7%	4.1%
Finance, insurance, real estate, and rental and leasing	3.9%	3.4%	8.8%
Professional, scientific, management, administrative, and waste management services	5.1%	4.6%	10.1%
Educational, health, and social services	25.3%	24.4%	24.3%
Arts, entertainment, recreation, accommodation, and food services	9.8%	9.1%	7.3%
Other services (except public administration)	6.6%	5.1%	5.1%
Public administration	10.2%	10.4%	5.2%

Source: Census Bureau 2000

Table 3-4. Percentage of Minority and Low-Income Populations, by Census Tract, Affected by the Proposed Action at Wheeler-Sack AAF

Defined Area[a]	Percent Minority	Percent Low-Income	Disproportionately High[b]	
			Minority	Low-Income[c]
United States	24.9	9.2	--	--
New York	32.1	16.9	--	--
Jefferson County	11.3	14.9	--	--
Entire ROI	11.3	10.5	--	--
608	35.8	6.4	Yes	No
609	7.2	59.4	No	Yes
610	7.9	12.6	No	No
611	6.8	12.4	No	No

Sources: Census Bureau 2000, Census Bureau 2006b

Notes:

[a] Numbers indicate census tract in the ROI.

[b] A census tract is considered to have a disproportionately high percentage of low-income or minority residents if the percentage of low-income or minority populations within the tract is greater than Jefferson County's low-income or minority percentage or greater than 50 percent.

[c] A low-income population is defined as below poverty level if the income for a family of four (with related children under the age of 18 years) in 1999, was less than $17,029.

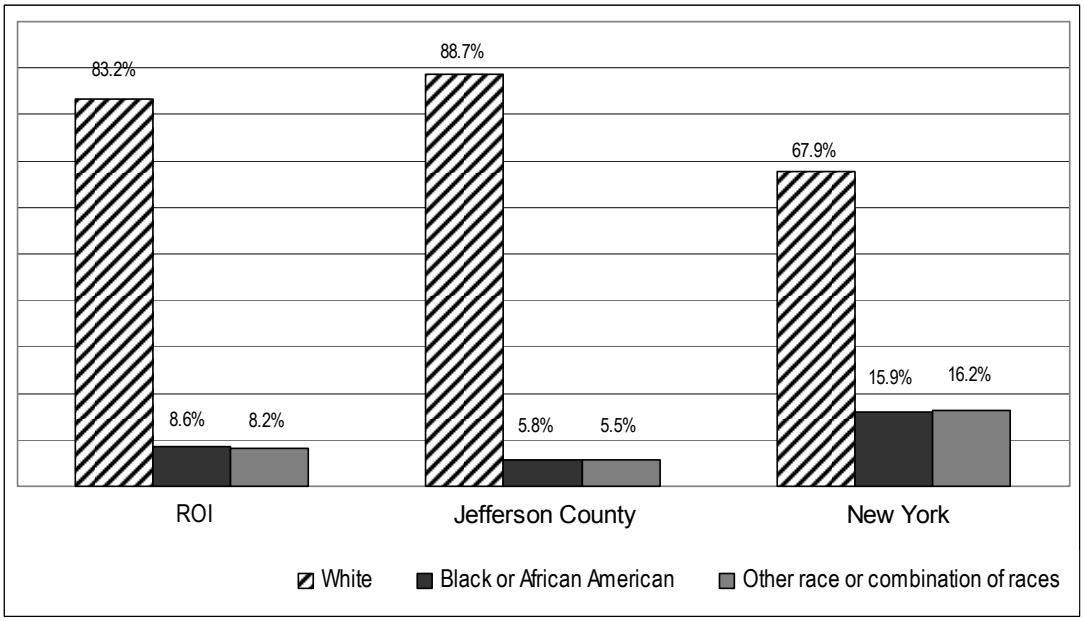


Figure 3-8. Race of Residents in the ROI, Jefferson County, and the State of New York

Richmond IAP

Henrico County, Virginia had a population of 262,300 in 2000 (Census Bureau 2000). Henrico County is divided into 60 census tracts. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment. They average about 4,000 inhabitants (Census Bureau 2006a). Richmond IAP is in one census tract, and the area around the base that would be affected by the Proposed Action represents an additional 7 census tracts. For the purposes of the environmental justice analysis for this EIS, the residents of these 8 census tracts, which compose the ROI, were evaluated. The population within the ROI was 28,159 in 2000 (Census Bureau 2000).

Residents living in the ROI have lower per capita incomes ($21,211) than in Henrico County and in Virginia (see Figure 3-9). The percent of families living below the poverty level (6.1 percent) is higher than the county percentage (4.5 percent), but lower than the state percentage (7.0 percent). The median household income ($47,039) for residents of the ROI is lower than the county average ($49,185) but higher than the state average ($46,677) (Census Bureau 2000).

The percentage of residents who have obtained a high school diploma is higher in the ROI (66.4 percent) than in Henrico County (51.7 percent), and the state of Virginia (52.0 percent) (see Figure 3-10). However, the percentages of residents in the ROI and Virginia that have achieved a college education are 13.6 and 29.5 percent, respectively, which are lower than the county percentage, 34.9 percent (Census Bureau 2000).

Table 3-5 lists the industry of employment for residents within the ROI, Henrico County, and Virginia in 2000. The largest percentage of the population in the ROI is employed in manufacturing; and educational, health, and social services. The lowest percentage of residents is employed in agriculture, forestry, fishing and hunting, and mining; and information (Census Bureau 2000).

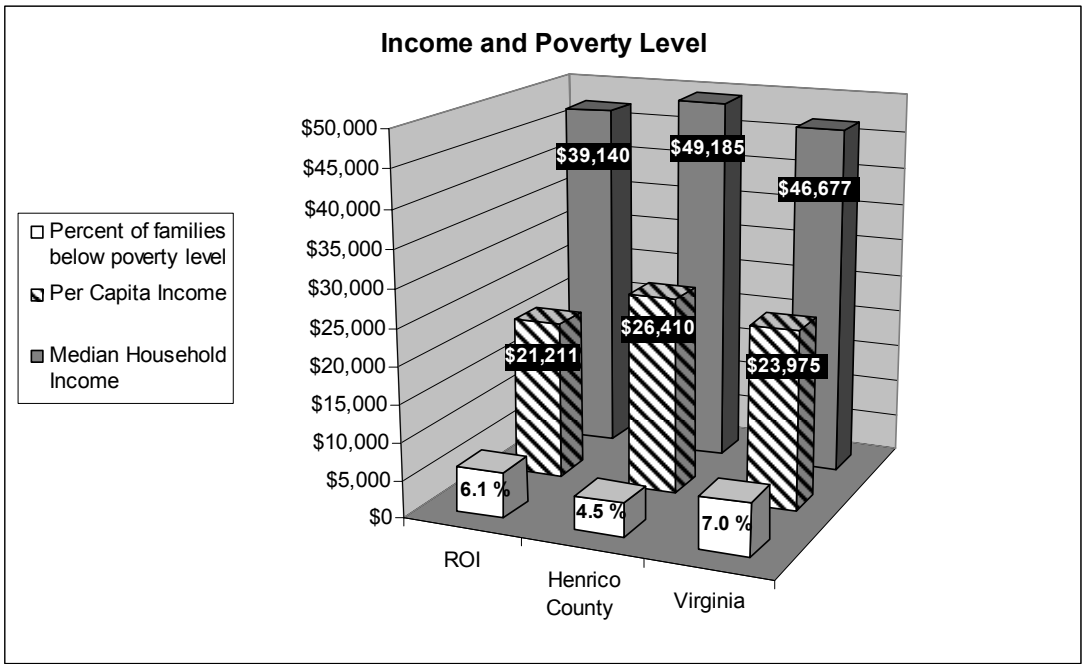


Figure 3-9. Income and Poverty Level of Residents in the ROI, Henrico County, and the State of Virginia

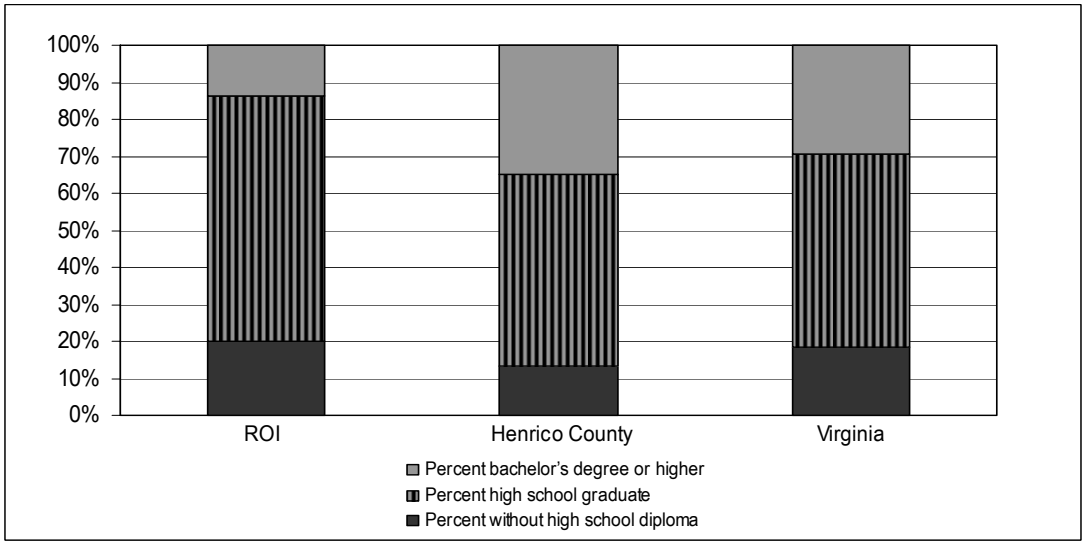


Figure 3-10. Educational Attainment of Residents in the ROI, Henrico County, and the State of Virginia

The community of comparison for the environmental justice analysis is Henrico County. Tables from the 2000 Census of Population and Housing were used to extract the data on low-income and minority populations within the ROI. Minority populations included in the census are identified as Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, and Other Race. Poverty status was determined by using the 1999 Poverty Thresholds table

Table 3-5. Employment of Residents in the ROI, Henrico County, and the State of Virginia

Industry of Employment (Percent of Employed Persons)	ROI	Henrico County	State of Virginia
Armed Forces	0.3%	0.1%	2.4%
Civilian Employment			
Agriculture, forestry, fishing and hunting, and mining	0.4%	0.3%	1.3%
Construction	9.0%	5.7%	7.3%
Manufacturing	17.2%	9.6%	11.3%
Wholesale trade	4.7%	4.2%	2.7%
Retail trade	9.7%	12.5%	11.4%
Transportation and warehousing, and utilities	6.4%	4.6%	4.6%
Information	2.8%	3.8%	3.3%
Finance, insurance, real estate, and rental and leasing	11.1%	6.6%	14.2%
Professional, scientific, management, administrative, and waste management services	5.9%	11.6%	10.2%
Educational, health, and social services	14.7%	18.3%	18.1%
Arts, entertainment, recreation, accommodation, and food services	5.8%	7.2%	6.3%
Other services (except public administration)	5.2%	5.4%	4.9%
Public administration	7.4%	8.3%	6.1%

Source: Census Bureau 2000

(Census Bureau 2006b). A family of four with related children under the age of 18 that has an income less than $17,029 is considered to be living below the poverty level. Henrico County has a population of 262,300; of that 9,804 families (4.5 percent) with related children under the age of 18 are considered to be living below the poverty level and 67,761 persons (31.1 percent) are considered minority (Census Bureau 2000). Table 3-6 presents the percent of population that is minority or low-income within the ROI, Henrico County, Virginia, and the United States. A census tract is considered to have a disproportionately high percentage of low-income or minority residents under either of two conditions: (1) the percentage of low-income or minority populations within the tract is greater than Henrico County's minority percentage (31.1 percent) or low-income percentage (18.0 percent), or (2) the percentage of persons in low-income or minority populations within the tract is greater than 50 percent. Of the 8 census tracts affected, 3 have a disproportionately higher proportion of minority or low-income residents compared to Henrico County (see Table 3-6).

Figure 3-11 shows the race of individuals living in the ROI, Henrico County, and Virginia, as reported by the U.S. Census Bureau.

Table 3-6. Percentage of Minority and Low-Income Populations, by Census Tract, Affected by the Proposed Action at Richmond IAP

Defined Area[a]	Percent Minority	Percent Low-Income	Disproportionately High[b]	
			Minority	Low-Income[c]
United States	24.9	9.2	--	--
Virginia	27.7	7.0	--	--
Henrico County	31.1	4.5	--	--
Entire ROI	32.4	6.1	--	--
2012.02	62.5	7.8	Yes	Yes
2013	7.2	3.9	No	No
2014.01	57.8	15.2	Yes	Yes
2014.03	49.2	7.8	Yes	No
2014.04	16.0	5.9	No	No
2014.05	33.0	4.1	No	No
2015.02	16.3	1.1	No	No
2016.01	17.5	3.0	No	No

Sources: Census Bureau 2000, Census Bureau 2006b

Notes:

[a] Numbers indicate census tract in the ROI.

[b] A census tract is considered to have a disproportionately high percentage of low-income or minority residents if the percentage of low-income or minority populations within the tract is greater than Henrico County's low-income or minority percentage or greater than 50 percent.

[c] A low-income population is defined as below poverty level if the income for a family of four (with related children under the age of 18 years) in 1999, was less than $17,029.

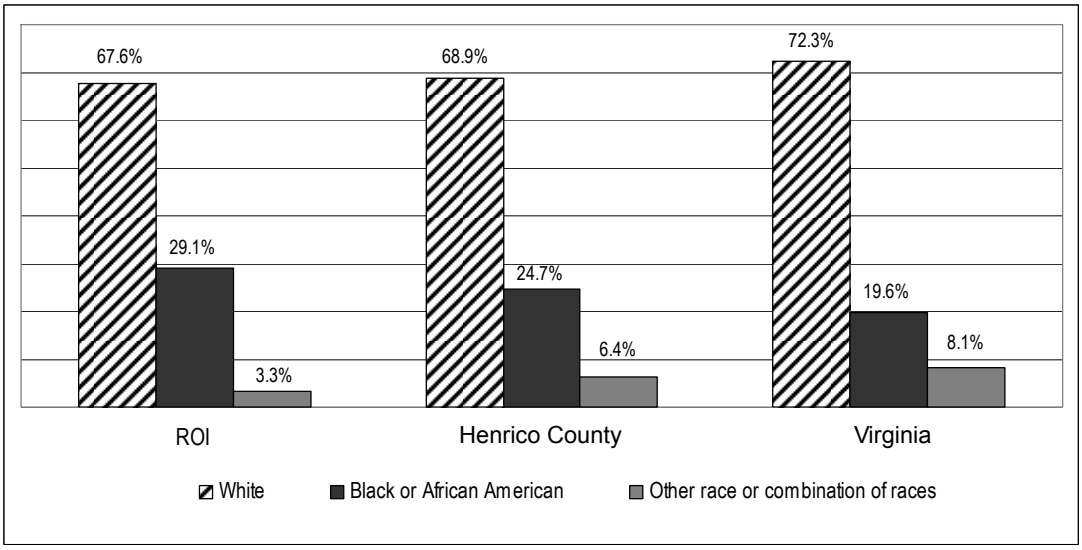


Figure 3-11. Race of Residents in the ROI, Henrico County, and the State of Virginia

4. Environmental Consequences

Section 4 presents an evaluation of the environmental impacts that could result from implementing the Proposed Action or the No Action Alternative. This chapter focuses on impacts considered potentially significant. The general approach followed throughout this section is to describe briefly the range of impacts that would occur and then provide a discussion of impacts that are considered significant.

The specific criteria for determining the significance of impacts and assumptions for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from standard criteria; Federal, state, or local agency guidelines and requirements; or legislative criteria. Long-term implications of the Proposed Action are also presented in this section.

The significance of an action is measured in terms of its context and intensity. The extent to which a proposed action might affect an environmental resource depends on many factors. In some cases, environmental resources can be affected directly, in others, they can be affected indirectly, or not at all.

The significance of an action is analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance might vary with the setting of a proposed action.

Intensity refers to the severity of impact. Impacts might be beneficial or adverse. Consideration must be given to whether an impact affects public health or safety and whether it affects areas having unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. The significance of impacts might also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance can be found where an action sets a precedent for future actions having significant effects, as well as in cases involving cumulative impacts. In considering intensity, consideration must be given to the degree to which the action might adversely affect animal or plant species listed as endangered or threatened or their habitat. Finally, in evaluating intensity, consideration must be given to whether an action threatens a violation of a law or regulation imposed for the protection of the environment.

4.1 Airspace Management

4.1.1 Significance Criteria

Impacts on airspace use were assessed by comparing the projected military flight operations with existing conditions and with forecasted civil aviation activities in the defined ROI. This assessment included analyzing the capability of affected airspace elements to accommodate projected military activities, and determining whether such increases would have any adverse impacts on overall airspace use in the area. Also included are considerations of such factors as the interaction of the proposed use of specific airspace with adjacent controlled, uncontrolled, or other military training airspace; possible impacts on other non-participating civil and military aircraft operations; and possible impacts on civil airports that underlie or are proximate to the airspace involved in the proposal.

Upon analysis of the 5 criteria discussed in Section 2.1.1 Wheeler-Sack AAF and Richmond IAP each meet the requirements to support C-17 (to include KC-10 at Wheeler-Sack AAF) proficiency training. The total daily airfield operations increase under the Proposed Action (see Table 2-1) is an increase of 24,960 C-17 aircraft operations, if all proposed aircraft operations were to occur at Wheeler-Sack AAF. This is the maximum number estimated for the entire year and is valid if all proficiency sorties went to one airfield. It is more likely the sorties would be apportioned to each location based on the specific

training needs, weather, aircraft sortie length, and airfield availability. Because of these factors, both Wheeler-Sack AAF and Richmond IAP would receive less than the total 24,960 aircraft operations. Based on 260 training days per year, there would be an average of 96 operations per day (average of 4.9 sorties per day) flown off station per day for C-17 proficiency training. An aircraft can be expected to make more than 1 aircraft operation per training visit. For KC-10 operations at Wheeler-Sack AAF, this same analysis yields 20 aircraft operations (1.0 sorties) per day. Both aircraft operations and sortie numbers are the annual maximum planned however, the actual aircraft operations and sorties could be less than the numbers referenced above. The 24,960 aircraft operations and 1,248 sorties for C-17 operations would be shared by Wheeler-Sack AAF and Richmond IAP.

Both McGuire AFB and Dover AFB crews could experience occasional airspace problems as they fly north to Wheeler-Sack AAF because of the Terminal Area around Philadelphia Class B Airspace. Utilizing aerial refueling (AR) Tracks at higher altitudes in the northeastern United States provides a manner to enhance training, and complete additional training requirements and proficiency training for crews as they transit between Wheeler-Sack AAF and McGuire AFB or Dover AFB. Figure 4-1 shows the AR Tracks in the northeastern United States and can see how the AR tracks complement the location of Wheeler-Sack AAF.

To assist aircrews in planning when AR is not possible or scheduled, utilization of the MTRs (SR/IR/VR routes) provide other methods of increasing proficiency training enroute to Wheeler-Sack AAF. At times, this may increase the transit time from McGuire AFB and Dover AFBs to Wheeler-Sack AAF past one hour. However, the training gained is increased versus flying directly from McGuire/Dover AFBs to Wheeler-Sack AAF and not accomplishing other required training requirements. The airspace infrastructure supports these activities.

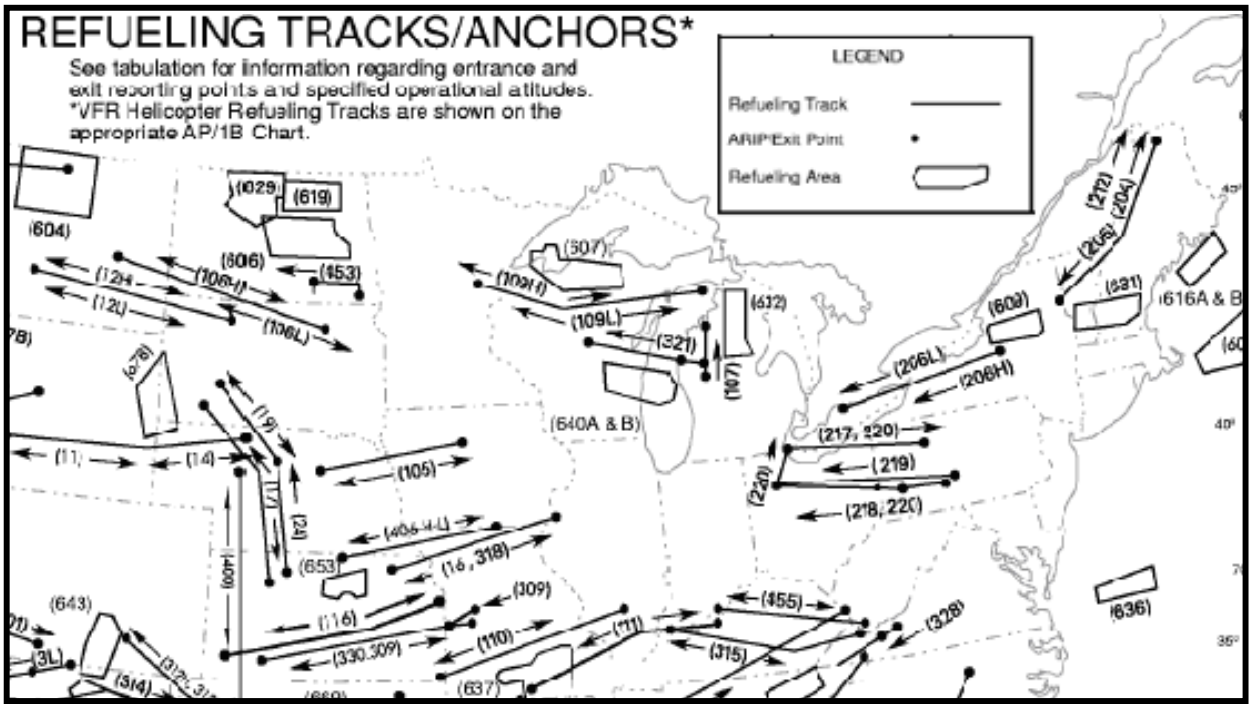


Figure 4-1. Aerial Refueling Tracks/Anchors

Neither McGuire AFB nor Dover AFB has full-time permanent civilian personnel who coordinate actions with the FAA. As the interim flying continues till Lakehurst NAES is ready for C-17 and KC-10 utilization, persons in this capacity would help to mitigate potential FAA airspace problems and could assist in the development of MOAs between HQ AMC bases and the Wheeler-Sack AAF and Richmond IAP.

4.1.2 Proposed Action

No adverse effects on airspace would be expected as a result of the Proposed Action at Wheeler-Sack AAF and Richmond IAP.

Wheeler-Sack AAF

Impacts on airspace management are predicated to the extent which the Proposed Action would affect air traffic in the vicinity of Wheeler-Sack AAF and the navigable airspace in an enroute environment. For additional information regarding Airspace Management, see Section 3.1.1.

Wheeler-Sack AAF operates both the tower and approach control. This facilitates the arrival and departure flight plan requests of aircrews desiring to utilize Wheeler-Sack AAF for proficiency training. There currently exists MOAs with McGuire AFB to outline procedures to allow tactical and proficiency training for C-17 and proficiency training for KC-10 aircrews. Per Mr. Joe White at Wheeler Sack AAF, they foresee no problems with the increased traffic as an interim measure for both the C-17 and KC-10 training. Wheeler-Sack AAF has the capacity to permit the training for both aircraft as proposed (White 2005).

Wheeler-Sack AAF provides an outstanding facility to provide for NVG training. The airfield authorities have established MOAs outlining procedures for C-17 aircrews having the need to train with NVGs. The Army bases helicopters at Wheeler-Sack AAF, and tower personnel are very familiar with the limitations of NVGs.

With its multiple runways, instrument approaches to multiple runways, and a runway meeting LZ requirements, the interim use of Wheeler-Sack AAF for both C-17 and KC-10 proficiency training would not have an adverse effect on airfield operations.

Richmond IAP

Impacts on airspace management are predicated to the extent which the Proposed Action would affect air traffic in the vicinity of Richmond IAP and the navigable airspace in an enroute environment. For additional information regarding Airspace Management, see Section 3.1.1.

Richmond IAP does not operate both the tower and approach control facilities. Per Mr. Doug Auerbach, at Potomac Radar, there would be no potential problems with C-17s utilizing Richmond IAP based on the forecasted increase in aircraft operations from the approach radar control perspective (Auerbach 2005).

The Richmond IAP tower personnel agreed the airspace system would incur no adverse affects with the C-17 interim utilization of the airfield (Nilo 2005). Table 4-1 illustrates the number of aircraft operations occurring at Richmond IAP.

Table 4-1. Annual Richmond IAP Tower Aircraft Operations

Year	Civilian Operations	Military Operations	Total Operations
2001	132,528	12,374	144,902
2002	120,628	12,641	133,269
2003	115,437	12,123	127,560
2004	119,958	13,336	133,264
2005[a]	113,206	11,280	124,486

Source: FAA 2005

Note: [a] 2005 numbers are year to date (12/27/2005).

Table 2-4 shows total annual aircraft operations to be 133,206 if all interim C-17 sorties were flown to the Richmond IAP. Richmond has supported close to this number as seen in the 2001 total operations (144,902) and per both the tower and approach control the increase in interim operations should not adversely affect the airspace management of the Richmond IAP. To add capacity, the movement of the

Virginia Air National Guard's flying operations (F-16 fighter jets) to Langley AFB, Virginia will aid in ensuring the airfield is not overtasked. Coordination to ensure deconfliction from civilian air carrier departures and arrivals at peak times will be required to mitigate risk and disruption to air carrier operations. No MOAs exists between Richmond IAP and AMC with specifics to interim C-17 training. This type of agreement will permit both parties to mitigate any potential coordination/problem areas and this technique has been implemented successfully with Wheeler-Sack AAF.

Richmond IAP supports the proposed training requirements. Although Runway 7/25 is 100 feet wide (10 more than the minimum permitted), it allows crews the ability to train at near combat requirement allowing aircrews to complete training requirements. The 305 AMW highlighted the importance of this runway width for proficiency training over the width of runways at Wheeler-Sack AAF (all three runways are 150 feet wide) (Rafferty 2005). Most training at Richmond IAP would occur utilizing the southeastern portion of the airfield to minimize noise and to avoid the dense population to the north and west of the airfield. There would be no night flights planed for Richmond IAP.

Overall, the interim use of Richmond IAP for C-17 proficiency training would not have an adverse effect on airfield operations.

4.2 Noise

4.2.1 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.

4.2.2 Proposed Action

Short-term intermittent adverse effects on noise levels would be expected as a result of the Proposed Action at Wheeler-Sack AAF and Richmond IAP.

Wheeler-Sack AAF

Aircraft Operations. Current base operations and proposed C-17 aircraft operations at Wheeler-Sack AAF are shown in Table 2-3. Under the Proposed Action, 24,960 C-17 operations and 5,200 KC-10 operations are estimated to occur annually at Wheeler-Sack AAF. The Proposed Action estimates include all of the C-17 aircraft from two squadrons at McGuire AFB and two squadrons at Dover AFB. It is not likely that all of the aircraft from both squadrons at McGuire AFB and Dover AFB would operate at Wheeler-Sack AAF on a daily basis. Therefore, the Proposed Action is a conservative estimate for noise impacts.

Aircraft operations for the Proposed Action were modeled in Baseops Version 7.299, which is part of the NOISEMAP software program. NOISEMAP is a DOD approved noise modeling program that is used to develop noise contours for civilian and military aircraft operations. Details of the noise analysis are available in Appendix C.

An increase in helicopter operations at Fort Drum was analyzed in the Transformation EA. As noted in Section 3.3.2, noise generated by helicopter operations within the training areas occurs almost entirely on-post except for a small area south of the village of Sprague ville. As a result, there are no incompatible land uses within these noise areas either on or off Fort Drum (US Army 2005). Helicopter operations were not included in this noise contour analysis due to the fact that this analysis is concentrating on the effective change of the additional fixed wing (i.e., C-17 and KC-10) aircraft operations. Therefore, the noise contours analysis presented below only analyzes the increase in fixed wing aircraft.

Noise Contours. The Proposed Action was compared to the 1999 Fort Drum Fighter Study. The 1999 Study will be referred to as the Baseline Scenario. Figures 4-2 and 4-3 show the noise contours from the Baseline Scenario and the Proposed Action in 5-dB increments ranging from 65 to 80 dB DNL.

As discussed in Section 3.3.1, the 65 DNL is considered to be the threshold of significance. The 65 dB DNL contour under the Baseline Scenario extends beyond airport property to the north and south of Wheeler-Sack AAF. To the east and west, the 65 dB DNL contour remains largely on airport property. Under the Proposed Action, the 65 dB DNL contour extends north and south beyond the Baseline contours by a modest amount. However, as shown on Figures 4-2 and 4-3, the 65 dB DNL contour extends to the southeast and northwest beyond the Baseline contours by a more significant amount.

Land Use. Land use in each NZ is shown for the Wheeler-Sack AAF Baseline Scenario and the Proposed Action on Table 4-2. As shown, airfield and military uses have the greatest number of acres in all of the NZs. In addition to airfield and military uses, land inside of the 65–69 DNL NZ contains a large amount of agricultural and vacant land. Land surrounding Fort Drum with the greatest sensitivity to noise is residential use. Inside of the 65–69 DNL NZ there are 11.22 acres of residential property in the Baseline Scenario. There is no residential land in the 70 dB and above NZs.

As shown in Table 4-2, the total number of acres increases by a significant amount under the Proposed Action as compared to the Baseline Scenario. However, the number of residential acres increases by a modest amount from 11.22 acres under the Baseline Scenario to 12.90 acres under the Proposed Action in the 65–69 DNL NZ. Like the Baseline Scenario, there is no residential land in the 70 dB and above NZs under the Proposed Action.

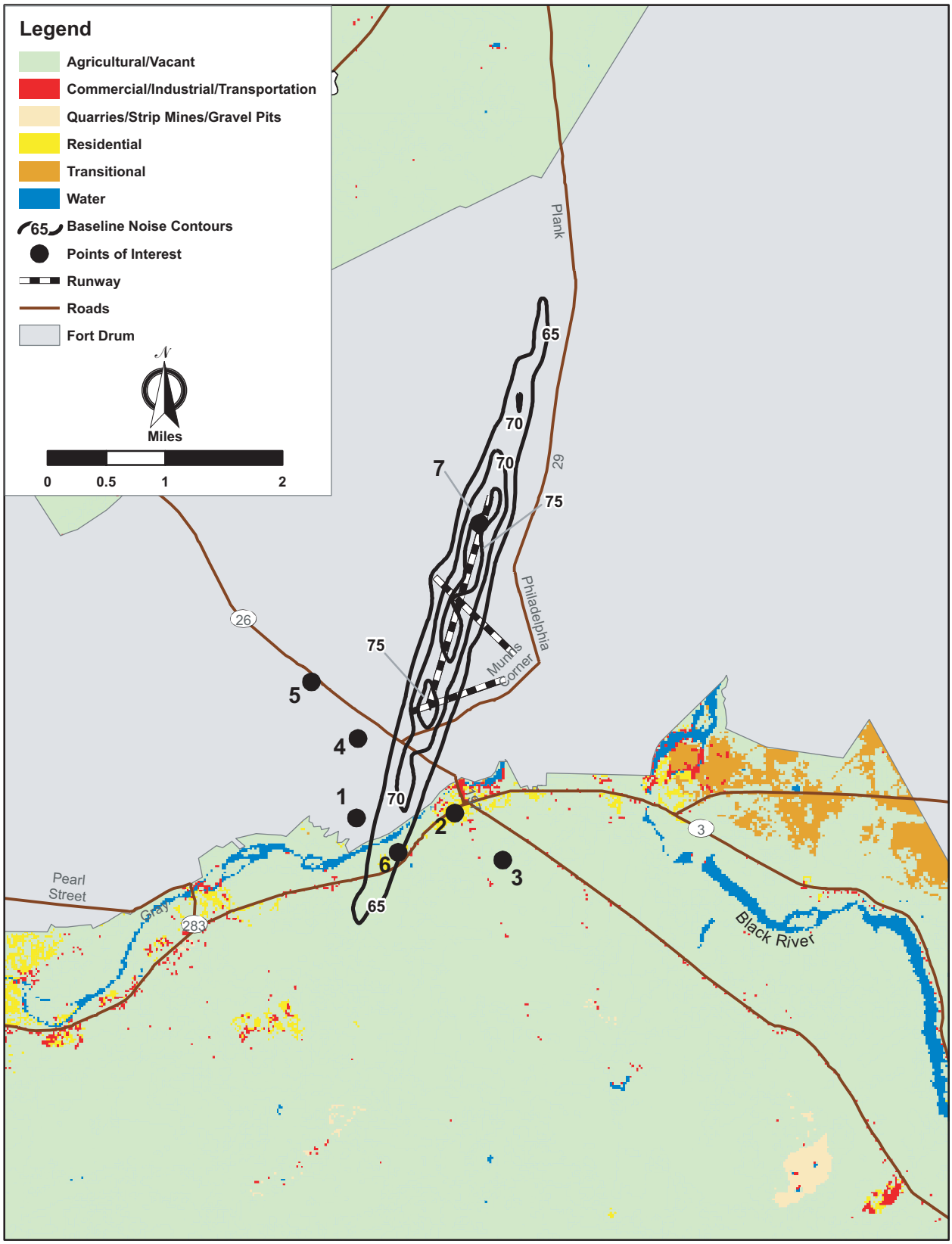


Figure 4-2. Wheeler-Sack AAF Noise Contours-Baseline Scenario

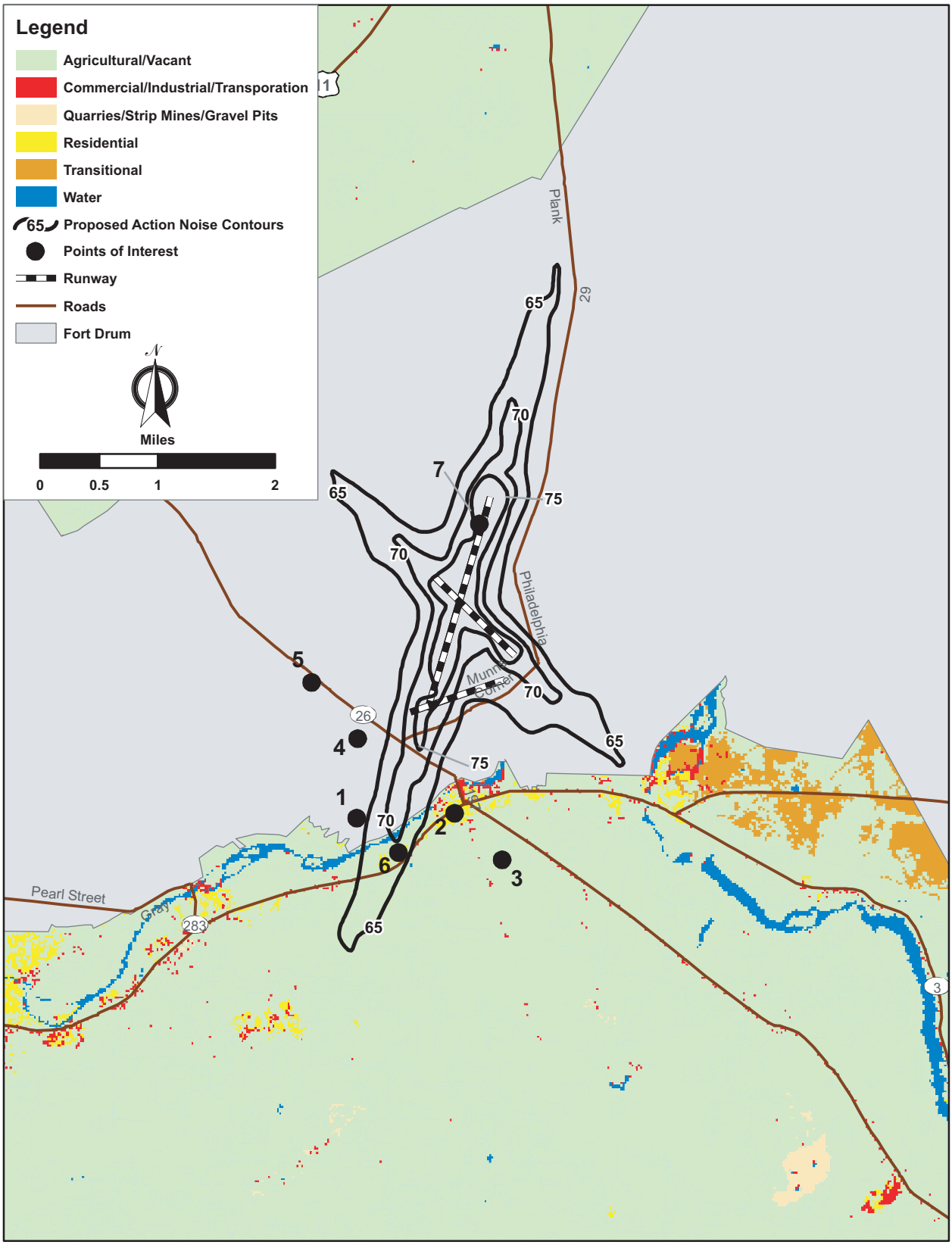


Figure 4-3. Wheeler-Sack AAF Noise Contours-Proposed Action

Table 4-2. Wheeler-Sack AAF Land Use Acreage

Contour Value (DNL)	Land Use Category	Baseline Scenario (acres)	Proposed Action (acres)
65–69 NZ	Wheeler-Sack AAF	282.80	364.31
	Military Admin and Services	101.06	124.69
	Ranges/Training Areas	131.98	663.40
	Agricultural/Vacant	95.21	184.16
	Open Water	8.67	8.50
	Low-Intensity Residential	7.90	9.12
	High-Intensity Residential	3.32	3.78
	Commercial, Industrial, Transportation	12.17	42.55
	ND	36.23	29.71
	Subtotal	679.33	1,430.22
70–74 NZ	Wheeler-Sack AAF	292.08	390.34
	Military Admin and Services	36.13	72.99
	Ranges/Training Areas	1.79	64.92
	Agricultural/Vacant	0	2.62
	Open Water	0	3.18
	Commercial, Industrial, Transportation	0.77	1.63
	ND	0	17.27
	Subtotal	330.77	552.95
75+ NZ	Wheeler-Sack AAF	132.59	363.43
	Subtotal	132.59	363.43
	Total	**1,142.70**	**2,346.60**

Note: ND: No Data Available

Land use compatibility is determined from the noise criteria and regulations presented in Section 3.3.1. As previously discussed, according to USAF, FAA, and HUD 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. Table 4-3 illustrates that potentially incompatible land use at Fort Drum increases from 11.22 acres under the Baseline Scenario to 12.89 acres under the Proposed Action. This is an increase of 1.67 acres.

Location Points. Location points were chosen around Wheeler-Sack AAF to estimate noise levels at noise-sensitive receptors around the airfield under the Baseline Scenario and the Proposed Action. Location points are shown on Figures 4-2 and 4-3 and Table 4-4. Most of these points were placed in residential areas and public facilities south and west of Wheeler-Sack AAF. Table 4-4 describes the land use and the noise levels at each point.

The noise level at all of the location points increased under the Proposed Action. The amount that these levels increased varied depending on their position to runway ends. Location Point 5 showed the largest increase with 10.7 dB DNL and Location Point 6 showed the smallest increase at 1.8 dB DNL. This is presumably because the majority of aircraft patterns are preformed to the west to avoid the restricted airspace R-5201 east of Wheeler-Sack AAF.

Table 4-3. Wheeler-Sack AAF Land Use Compatibility

Contour Value (DNL)	USAF Land Use Recommendation	Baseline Scenario (acres)	Proposed Action (acres)
65–69 NZ	Fort Drum	564.01	1,223.86
	Compatible	104.10	193.47
	Potentially Incompatible	11.22	12.89
	Subtotal	679.33	1,430.22
70–74 NZ	Fort Drum	292.08	547.15
	Compatible	38.69	5.80
	Subtotal	330.77	552.95
75+ NZ	Fort Drum	132.59	363.43
	Total	**1,142.70**	**2,346.60**

Note: Military housing is included in the potentially incompatible land use calculations, not in Fort Drum land use.

Table 4-4. Wheeler-Sack AAF Location Point Noise Levels

Location Points	Description	Baseline Scenario (dB DNL)	Proposed Action (dB DNL)
Point 1	Hospital, south	59.1	62.7
Point 2	School No 9, south	55.3	61.4
Point 3	FW Woolworth Memorial Cemetery, south	46.5	54.7
Point 4	Residential, west	55.4	60.2
Point 5	Residential, west	46.8	57.5
Point 6	Residential, south	66.1	67.9
Point 7	Open space, north	80.7	83.2

Richmond IAP

Aircraft Operations. Current and Proposed C-17 Aircraft Operations at Richmond IAP are shown in Table 2-4. Under the Proposed Action, 24,960 C-17 operations would occur annually at Richmond IAP. As previously mentioned, the Proposed Action includes aircraft from two squadrons at McGuire AFB and two squadrons at Dover AFB. It is not likely that this scenario would occur on a daily basis. Details of the noise analysis are available in Appendix C.

Noise Contours. The Proposed Action was compared to the Baseline Noise Data Update at Richmond International Airport, 2004. Figures 4-4 and 4-5 show the noise contours from each scenario in 5-dB increments ranging from 65 to 80 dB DNL.

Under the Baseline Scenario the 65 dB DNL contour, which is considered to be the threshold of significance, extends beyond airport property to the north, south, and southeast of Richmond IAP. To the east and west the 65 dB DNL contour remains largely on airport property. Under the Proposed Action, the 65 dB DNL contour remains in the same basic track as the Baseline Scenario to the north and south.

However, east and southwest of Richmond IAP the 65 dB DNL contour extends beyond airport boundaries and the Baseline Scenario by a more significant amount.

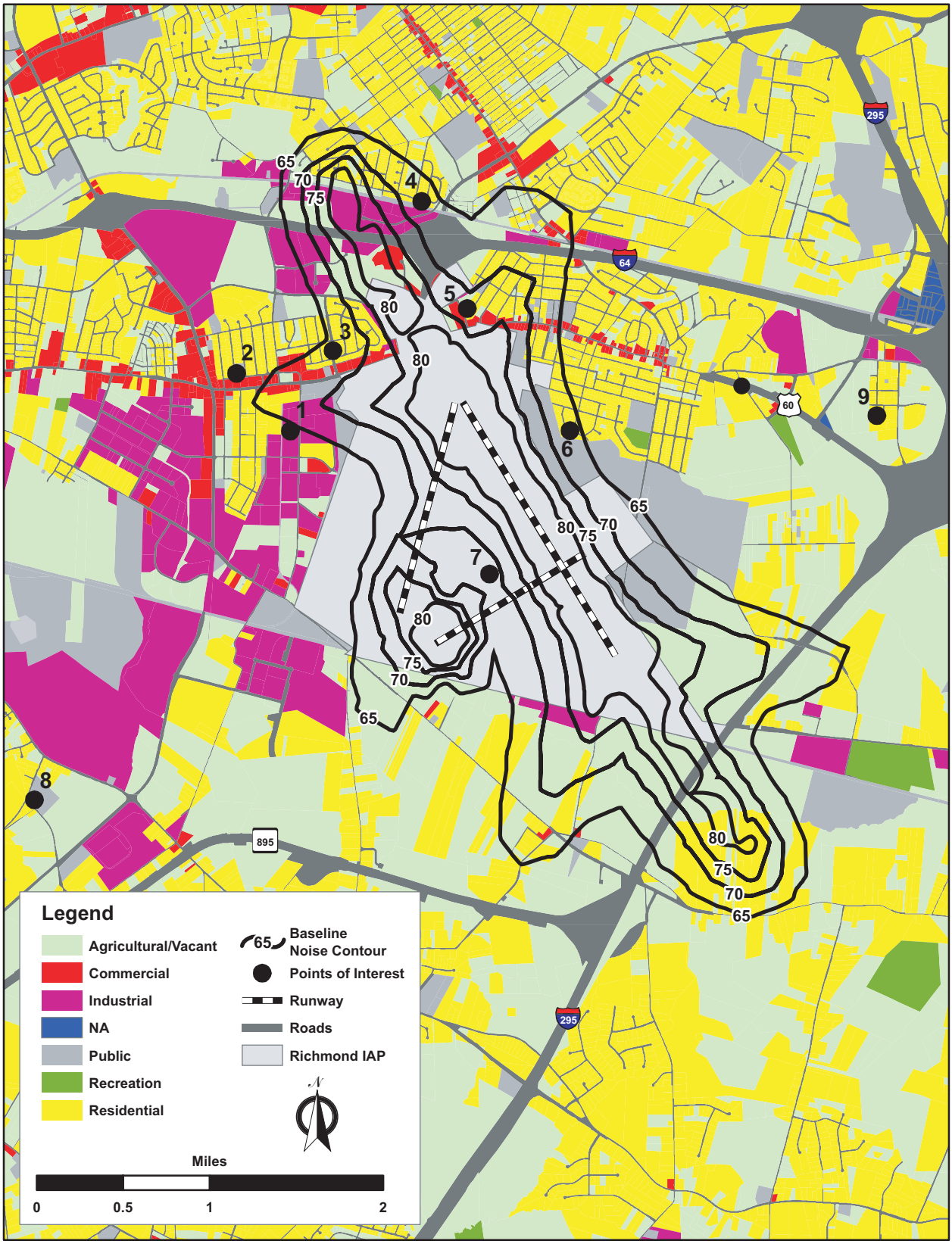


Figure 4-4. Richmond IAP Noise Contours-Baseline Scenario

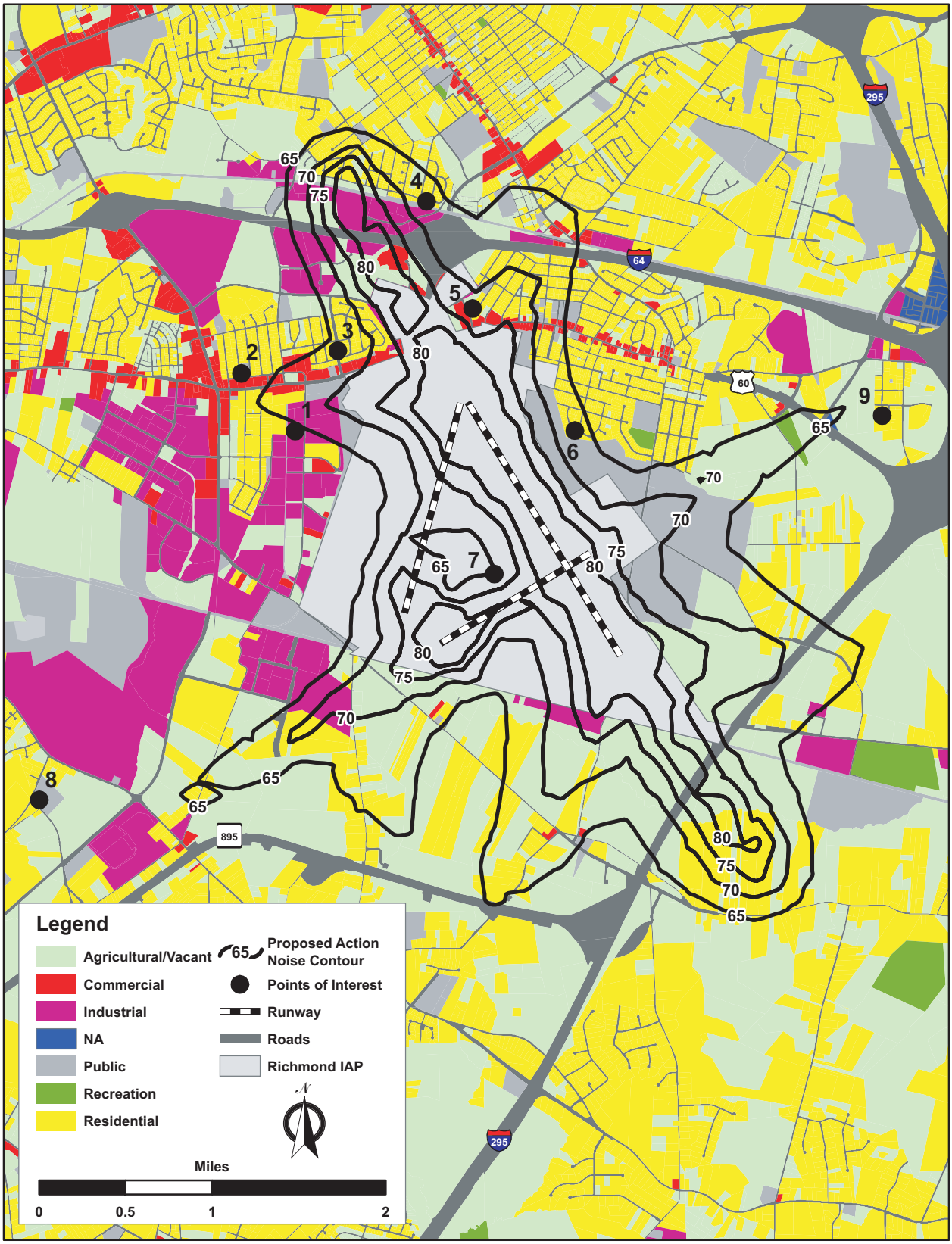


Figure 4-5. Richmond IAP Noise Contours-Proposed Action

Table 4-5. Richmond IAP Land Use Acreage

Contour Value (DNL)	Land Use Category	Baseline Scenario (acres)	Proposed Action (acres)
65–69 NZ	Richmond IAP	421.14	307.13
	Commercial	38.09	41.83
	Industrial	89.49	121.92
	Public	171.27	287.26
	Recreation	0	9.80
	Residential	410.92	669.58
	Roads	205.29	215.01
	Vacant	546.75	906.64
	ND	0.57	2.33
	Subtotal	1,883.53	2,561.51
70–74 NZ	Richmond IAP	443.42	484.16
	Commercial	21.41	21.59
	Industrial	43.45	61.09
	Public	104.45	160.57
	Residential	131.78	149.58
	Roads	60.19	67.00
	Vacant	309.22	388.10
	Subtotal	1,113.93	1,332.09
75+ NZ	Richmond IAP	1,043.92	1,143.30
	Commercial	18.06	18.16
	Industrial	64.64	65.47
	Public	19.94	21.97
	Residential	74.47	76.01
	Roads	37.90	38.43
	Vacant	220.79	233.69
	Subtotal	1,479.72	1,597.03
Total		**4,477.18**	**5,490.63**

Note: ND: No data available

Land Use. Land use in each NZ is shown for the Baseline Scenario and Proposed Action in Table 4-5. Airport, residential, public, and vacant land comprise of the largest number of acres inside the NZs under both scenarios. In all of the NZs, a significant portion of the land under both the Baseline Scenario and the Proposed Action includes residential property, which is considered to be noise-sensitive.

Land use compatibility at Richmond IAP is shown in Table 4-6. In the 65–69 DNL NZ, potentially incompatible land increases from 582.76 to 959.17 acres; this is an addition of approximately 377 acres. In the 70–74 DNL NZ, potentially incompatible land increases by about 92 acres under the Proposed Action. However, in the 75+ DNL NZ potentially incompatible land only increases by 0.66 acres and incompatible land use increases by just 3.84 acres.

Table 4-6. Richmond IAP Land Use Compatibility

Contour Value (DNL)	USAF Land Use Recommendation	Baseline Scenario (acres)	Proposed Action (acres)
65–69 NZ	Richmond IAP	421.14	307.13
	Compatible	879.63	1,295.21
	Potentially Incompatible	582.76	959.17
	Subtotal	1,883.53	2,561.51
70–74 NZ	Richmond IAP	443.42	484.16
	Compatible	369.41	455.10
	Potentially Incompatible	301.09	392.84
	Subtotal	1,113.93	1,332.09
75+ NZ	Richmond IAP	1,043.92	1,143.30
	Compatible	258.69	272.12
	Potentially Incompatible	102.64	103.30
	Incompatible	74.47	78.31
	Subtotal	1,479.72	1,597.03
	Total	**4,477.18**	**5,490.63**

Location Points. Location points were chosen around Richmond IAP and are shown on Figures 4-4 and 4-5 and Table 4-7. Most of the location points were placed in residential areas and public facilities. Table 4-7 describes the land use and the noise levels at each point.

Table 4-7. Richmond IAP Location Point Noise Levels

Location Points	Description	Baseline Scenario (dB DNL)	Proposed Action (dB DNL)
Point 1	Lewis Ginter Botanical Gardens, west	64.3	64.4
Point 2	Virginia Heights, residential northwest	62.9	63.0
Point 3	Sanburne Park, residential northwest	65.4	65.6
Point 4	Residential, north	66.1	66.2
Point 5	Sandston, residential north	70.0	70.1
Point 6	Seven Pine, residential northeast	65.6	65.9
Point 7	Richmond IAP Property	66.4	68.7
Point 8	Rolfe Middle School, west	42.2	53.2
Point 9	Residential, east	51.1	60.9

As previously mentioned, the noise contours north and south of the airport increase slightly under the Proposed Action. As anticipated, noise levels at the locations points show the same pattern. The noise level at Location Point 2, the Virginia Heights suburb, northwest of the airfield, increased by 0.1 dB DNL.

However, points east and west of Richmond IAP show larger increases. Location Point 8, Rolfe Middle School, west of Richmond IAP, increased by 11 dB DNL. Location Point 9, a residential area, east of the airfield, increased by 9.8 dB DNL.

In summary, under the Proposed Action noise levels would increase east and west of Richmond IAP property. As a result, potentially incompatible land may be impacted by the increased noise levels. However, the Proposed Action is an interim project which will end in FY 2010 and, as previously mentioned, is not likely to occur on a regular basis. Additionally, a Base Realignment and Closure (BRAC) 05 action will result in the F-16 aircraft at Richmond IAP transferring to another military base out of the state. The F-16 transfer is scheduled to happen before the end of 2006. This will result in a noticeable decrease in aircraft noise from Richmond IAP.

4.3 Land Use

4.3.1 Significance 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.

4.3.2 Proposed Action

Wheeler-Sack AAF

The Proposed Action would have no effect on property ownership or easements nor would it change property usage on or off the base. Although the Proposed Action is compatible with adjacent uses, noise levels would increase southeast and west of Wheeler-Sack AAF. As discussed in Section 4.3, an additional 10.34 acres of residential land would be impacted by aircraft noise under the Proposed Action.

Richmond IAP

Under the Proposed Action, there would be no effect on land use at Richmond IAP or adjacent to it. Property ownership and easements would remain the same. However, as discussed in Section 4.3, noise levels around the airfield would increase in some areas.

Given the potential increase in noise levels around Richmond IAP, land use compatibility was analyzed. Potentially incompatible land under the Proposed Action would increase by approximately 470 acres. Land use considered to be incompatible would increase by approximately 4 acres.

As previously mentioned, the Proposed Action was analyzed conservatively. Therefore, is not likely that the noise impacts would occur on a daily basis. In addition, this is an interim project which is scheduled to end FY 2010.

Given the large residential population around Richmond IAP, the airport has an informal noise-abatement program in place. This program notifies pilots of noise-sensitive land uses adjacent to the airfield.

As discussed in Section 4.1.2, the F-16 aircraft that are currently based at Richmond IAP will be transferred to an out-of-state military base as a result of a BRAC 05 action. The F-16 transfer is scheduled to happen before the end of 2006. This will result in a noticeable decrease in aircraft noise from Richmond IAP.

4.4 Air Quality

4.4.1 Significance Criteria

The environmental consequences on 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.

The *de minimis* threshold emissions rates were established by USEPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to have "significant" air quality impacts. Table 4-1 presents these thresholds, by regulated pollutant. These *de minimis* thresholds are similar, in most cases, to the definitions for major stationary sources of criteria and precursors to criteria

pollutants under the CAA's New Source Review (NSR) Program (CAA Title I). As shown in Table 4-8, *de minimis* thresholds vary depending upon the severity of the nonattainment area classification. No *de minimis* threshold emissions rate has been established by USEPA for $PM_{2.5}$; regardless, the Proposed Action is not expected to cause a significant increase in fine particulate emissions.

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 $\mu g/m^3$ or more (40 CFR 52.21(b)(23)(iii)).

Table 4-8. Conformity *de minimis* Emission Thresholds

Pollutant	Status	Classification	*de minimis* Limit (tpy)
O_3 (measured as NO_x or VOCs)	Nonattainment	Extreme Severe Serious Moderate/marginal (inside ozone transport region) All others	10 25 50 50 (VOCs)/100 (NO_x) 100
	Maintenance	Inside ozone transport region Outside ozone transport region	50 (VOCs)/100 (NO_x) 100
CO	Nonattainment/ maintenance	All	100
PM_{10}	Nonattainment/ maintenance	Serious Moderate Not Applicable	70 100 100
SO_2	Nonattainment/ maintenance	Not Applicable	100
NO_x	Nonattainment/ maintenance	Not Applicable	100

Source: 40 CFR 93.153

4.4.2 Proposed Action

The Proposed Action would have short-term minor adverse effects on air quality at both Wheeler-Sack AAF and Richmond IAP but would not violate an NAAQS or any other CAA regulation.

Wheeler-Sack AAF

As discussed in Section 3.1, Fort Drum is designated as moderate nonattainment for 8-hour O_3 and attainment for all other criteria pollutants. The Proposed Action consists of C-17 and KC-10 aircraft operations, which would result in a temporary increase in criteria emissions. Aircraft-specific data and emissions factors from the *AF IERA Air Emissions Inventory Guidance for Mobile Sources* were used to estimate emissions (IERA 2001). For purposes of emissions calculations, all missions or sorties were assumed to consist of 20 airfield operations. As discussed in Section 2, approximately 1,248 sorties

would be conducted by C-17 aircraft and 260 sorties would be conducted by KC-10 aircraft each year from 2006 to 2010 in the vicinity of Fort Drum. Since emissions mission operations would be the same each calendar year, proposed aircraft emissions estimates were done for 1 representative year and are included in the proposed emissions estimates presented in Table 4-9.

The Proposed Action at Fort Drum does not include a net increase in personnel or commuter vehicles. Therefore, the Proposed Action's emissions from existing personnel and commuter vehicles would not result in an adverse impact on regional air quality.

Since the CNYIAQCR, including Wheeler-Sack AAF, is in a nonattainment area for O_3, General Conformity Rule requirements are applicable to the Proposed Action. The Proposed Action would generate emissions well below the *de minimus* threshold and 10 percent of the emissions inventory for the CNYIAQCR (see Table 4-9). Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS. Therefore, the Proposed Action is considered to have an insignificant effect on air quality with the CNYIAQCR and vicinity of Fort Drum. In summary, no significant impact on regional or local air quality would result from implementation of the Proposed Action. Appendix D details the emissions factors, calculations, and estimates of emissions for the Proposed Action.

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

Table 4-9. Total Proposed Aircraft Emissions Estimates at Wheeler-Sack AAF

Description	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)
C-17 Aircraft Emissions	39.06	1.96	18.85	ND	14.50
KC-10 Aircraft Emissions	7.80	4.13	11.73	ND	0.86
Total Emissions	**46.86**	**6.09**	**30.58**	**ND**	**15.36**
Inventory Threshold (10% of Regional Emissions Inventory)	107,831	79,883	523,216	33,916	69,832

Note: ND: No data available

Richmond IAP

As discussed in Section 3.1, Richmond is in a marginal nonattainment for 8-hour O3 and in attainment for all other criteria pollutants. The Proposed Action consists of C-17 aircraft operations, which would result in a temporary increase in criteria emissions. Aircraft-specific data and emissions factors from the AF IERA Air Emissions Inventory Guidance for Mobile Sources were used to estimate emissions (IERA 2001). For purposes of emissions calculations, all missions or sorties were assumed to consist of 20 airfield operations. As discussed in Section 2, approximately 1,248 sorties would be conducted by C-17 aircraft each year from 2006 to 2010 in the vicinity of Richmond IAP. Since emissions mission operations would be the same each calendar year, proposed aircraft emissions estimates were done for 1 representative year and are included in the proposed emissions estimates presented in Table 4-10.

The Proposed Action at Richmond IAP does not include a net increase in personnel or commuter vehicles. Therefore, the Proposed Action's emissions from existing personnel and commuter vehicles would not result in an adverse impact on regional air quality.

Since the SCIAQCR, including Richmond IAP, is in a nonattainment area for O_3, General Conformity Rule requirements are applicable to the Proposed Action. The Proposed Action would generate emissions well below the *de minimus* threshold and 10 percent of the emissions inventory for the SCIAQCR (see Table 4-10). Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS. Therefore, the Proposed Action is considered to have an insignificant effect on air quality with the SCIAQCR and vicinity of Richmond IAP. In summary, no significant impact on regional or local air quality would result from implementation of the Proposed Action. Appendix D details the emissions factors, calculations, and estimates of emissions for the Proposed Action. According to 40 CFR Part 81, there are no Class I areas in the vicinity of the Proposed Action. Therefore, Federal PSD regulations would not apply to the Proposed Action.

Table 4-10. Total Proposed Aircraft Emissions Estimates at Richmond IAP

Description	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)
C-17 Aircraft Emissions	**39.06**	**1.96**	**18.85**	**ND**	**14.50**
Inventory Threshold (10% of Regional Emissions Inventory)	57,125	42,267	335,485	72,752	36,808

Note: ND: No data available

4.5 Environmental Justice

4.5.1 Significance Criteria

A Proposed Action would have a significant effect with respect to environmental justice in the surrounding ROI if it were to disproportionately impact minority populations or low-income populations.

4.5.2 Proposed Action

The USAF complies with EO 12898 and includes environmental justice in its EIAP via a *Guide for Environmental Justice with EIAP* (USAF 1997). To comply with EO 12898, ethnicity and poverty status in the study area have been examined and compared to state and national statistics to determine if minority or low-income groups could be disproportionately affected by the Proposed Action. The Proposed Action would have short-term minor adverse effects on Environmental Justice at both Wheeler-Sack AAF and Richmond IAP.

Wheeler-Sack AAF

As discussed in Section 4.2, noise levels would increase in the vicinity of Wheeler-Sack AAF under the Proposed Action. Increased aircraft activity would increase the size of the area exposed to noise levels of a DNL of 65 dBA and above. The area impacted by the Proposed Action would impact minority residents in one census tract around Wheeler-Sack AAF.

Figure 4-6 and Table 4-11 show the noise location points at Wheeler-Sack AAF (discussed in Section 4.2.2) and the census tract that they are in. Each of the 3 census tracts was evaluated to determine if it was a disproportionately high minority or low-income population (see Table 3-4). There are no location points outside of the ROI. Of the 7 noise location points, 4 locations (numbers 1, 4, 5, and 7) did not have a disproportionately high low-income population but did have a disproportionately high minority

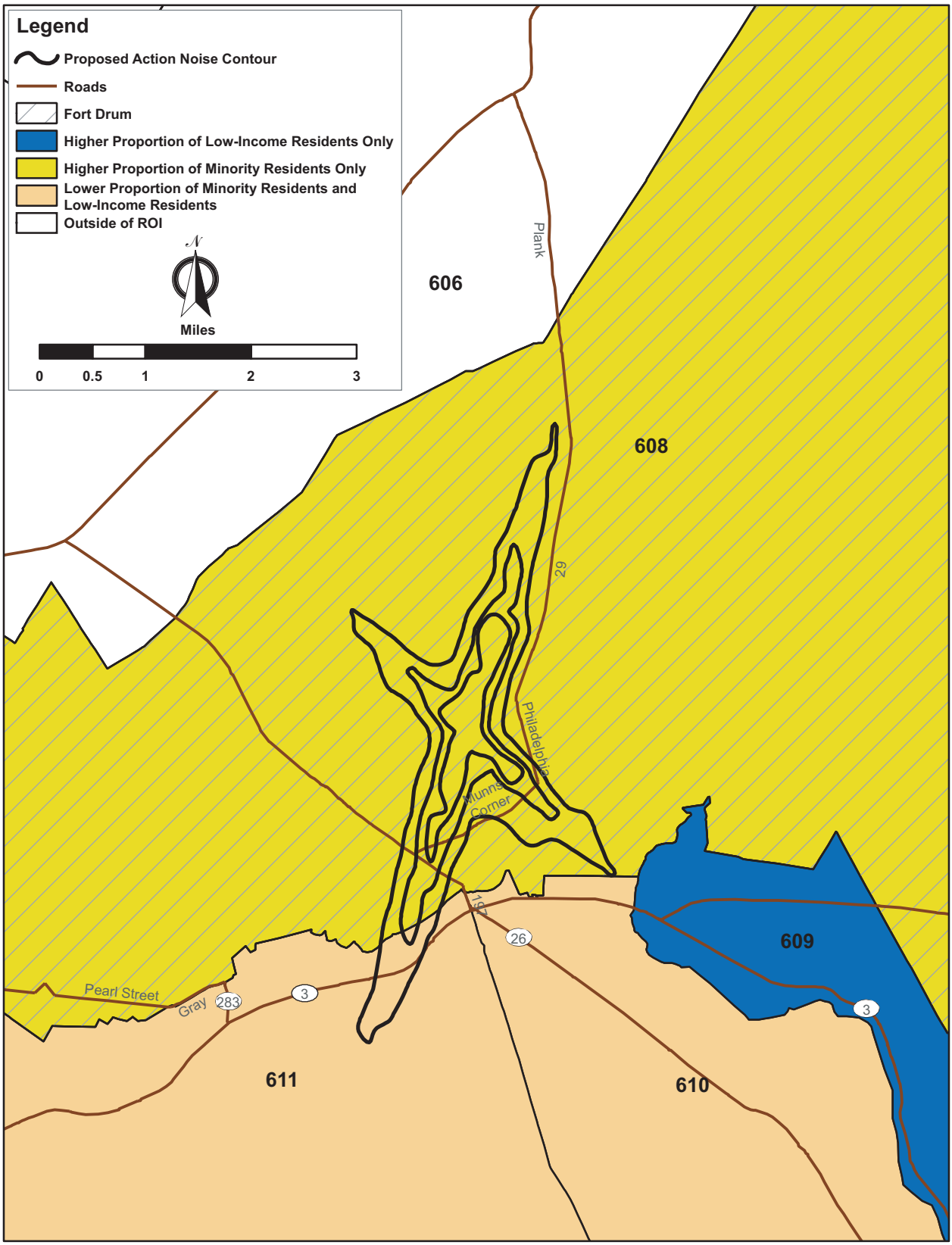


Figure 4-6. Noise Contours and Census Tracts with Minority and Low-Income Residents in the Environmental Justice ROI at Wheeler-Sack AAF

Table 4-11. Disproportionately Affected Census Tracts and Location Points at Wheeler-Sack AAF

Location Points	Description	Census Tract	Disproportionately Affected
Point 1	Hospital, south	608	Yes
Point 2	School No 9, south	611	No
Point 3	FW Woolworth Memorial Cemetery, south	610	No
Point 4	Residential, west	608	Yes
Point 5	Residential, west	608	Yes
Point 6	Residential, south	611	No
Point 7	Open space, north	608	Yes

population. School No. 9, south (number 2); FW Woolworth Memorial Cemetery, south (number 3); and Residential, south (number 6) did not have either a disproportionately high minority or low-income population.

One of the 3 census tracts (608) in the ROI would have disproportionate effects on minority and low-income populations as a result of the Proposed Action (see Table 3-4 and Figure 4-6).

To lessen the effects of its operations on the surrounding community, Wheeler-Sack AAF has noise-abatement procedures in place (see Section 4.2). Each of these tracts contains a greater percentage of minority residents, low-income residents, or both in comparison to Jefferson County. Census tract 608 has a greater percentage of minority (35.8 percent) residents in comparison to Jefferson County (11.3 percent).

Richmond IAP

As discussed in Section 4.2, noise levels would increase in the vicinity of Richmond IAP under the Proposed Action. Increased aircraft activity would increase the size of the area exposed to noise levels of a DNL of 65 dBA and above. The area impacted by the Proposed Action would impact both minority and low-income residents around Richmond IAP.

Figure 4-7 and Table 4-12 show the 9 noise location points at Richmond IAP (discussed in Section 4.2.2) and the census tract that they are in. Each of the 8 census tracts was evaluated to determine if it was a disproportionately high minority or low-income population (see Table 3-6). One location point, number 8, is outside of the ROI. Of the remaining 8 noise location points, 2 locations (points 2 and 3) have a disproportionately high low-income population and a disproportionately high minority population. Point 4, Residential, north, has a disproportionately high minority population but does not have a disproportionately high low-income population. The remaining 5 location points do not have a disproportionately minority or low-income population.

Three of the 8 census tracts (2012.02, 2014.01, and 2014.03) that compose the ROI would have disproportionate effects on minority and low-income populations as a result of the Proposed Action (see Table 3-6 and Figure 4-7). To lessen the effects of its operations on the surrounding community, Richmond IAP has noise-abatement procedures in place (see Section 4.2). Each of these tracts contains a greater percentage of minority residents, low-income residents, or both in comparison to Henrico County. Census tract 2012.02 and 2014.01 have greater percentages of minority (62.5 and 57.8 percent, respectively) and low-income (7.8 and 15.2 percent, respectively) residents in comparison to Henrico County (31.1 and 4.5 percent, respectively). Tract 2014.03 has a greater percentage of minority (49.2 percent) residents in comparison to Henrico County (31.1 percent) (Census Bureau 2000).

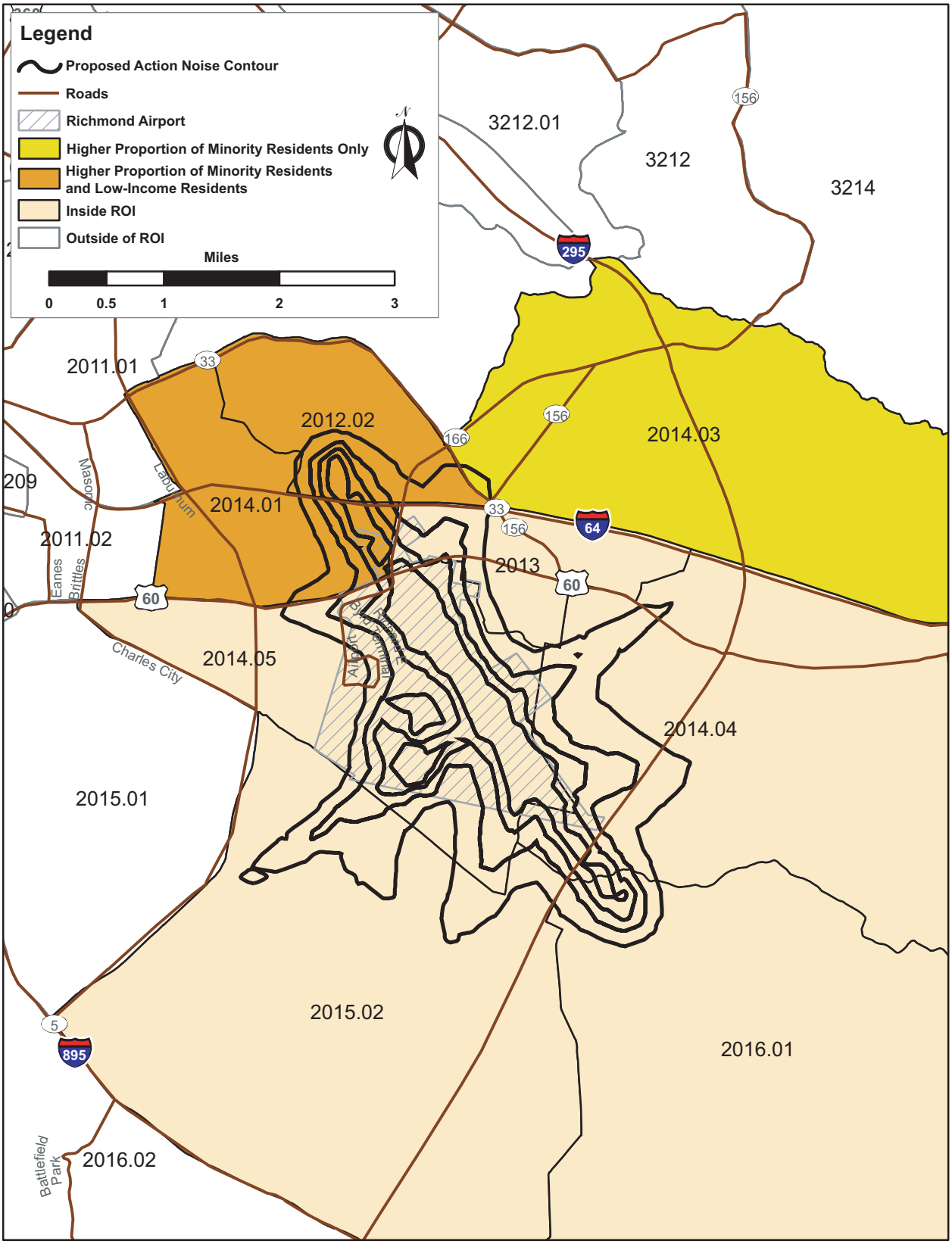


Figure 4-7. Noise Contours and Census Tracts with Minority and Low-Income Residents in the Environmental Justice ROI at Richmond IAP

Table 4-12. Disproportionately Affected Census Tracts and Location Points at Richmond IAP

Location Points	Description	Census Tract	Disproportionately Affected
Point 1	Lewis Ginter Botanical Gardens, west	2014.05	No
Point 2	Virginia Heights, residential northwest	2014.01	Yes
Point 3	Sanburne Park, residential northwest	2014.01	Yes
Point 4	Residential, north	2012.02	Yes
Point 5	Sandston, residential north	2013	No
Point 6	Seven Pine, residential northeast	2013	No
Point 7	Richmond IAP Property	2014.05	No
Point 8	Rolfe Middle School, west	Not in ROI	--
Point 9	Residential, east	2014.04	No

5. Cumulative Effects

CEQ implementing guidelines for NEPA require that the direct, indirect, and cumulative effects of an action be evaluated and published. Cumulative effects (impacts) are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. In other words, an EA must determine if nonsignificant direct effects caused by implementation of the Proposed Action or any of the alternatives would become significant if considered in concert with other actions occurring within the area of interest, defined both geographically and temporally. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for an incremental impact than those more geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

To identify cumulative effects, the analysis needs to address two fundamental questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, then does an EA reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur, as well as a description of what resources could potentially be cumulatively affected. Of all the issues and concerns presented and analyzed in this document, the only two resources with the potential to be affected cumulatively were determined to be wetlands and waters of the United States and noise quality.

When addressing cumulative impacts on wetlands and waters of the United States, the geographic extent for the cumulative effects analysis is the watershed in which the Proposed Action and alternatives have the potential to impact, primarily concentrating on past, present, and reasonably foreseeable actions on and within Wheeler-Sack AAF and Richmond IAP and the surrounding ecosystems.

When addressing cumulative impacts on noise quality, the geographic extent for the cumulative effects analysis is the ROI in which the Proposed Action and alternatives have the potential to impact, primarily concentrating on past, present, and reasonably foreseeable actions near the southwestern boundary of Fort Drum and Richmond IAP. The time frame for cumulative effects analysis center on the timing of the Proposed Action would continue into the foreseeable future; additionally, actions with the potential to impact wetlands and waters of the United States that were implemented within the past 4 years were included for analysis.

For the purposes of this analysis, the temporal span of the Proposed Action is 5 years. For most resources, the spatial area for consideration of cumulative effects is Fort Drum and Richmond IAP with the exception of impacts on air quality which considers the counties of Jefferson and Henrico as the respective ROI. Similarly, impacts on resources and conditions of activities attributable to other actions within the ROI would not augment the direct and indirect effects of the installation development at Fort Drum and Richmond IAP that they would significantly increase their effect.

5.1 Wheeler-Sack AAF

The Fort Drum Installation Environmental Noise Management Plan update, to be completed in the next two to three years, will address compatibility issues that may have arisen since the last noise management

plan. This will take into consideration the increase of rotary wing increases as a result of the Transformation EA and fixed wing increases as a result of this EA. At this time, no compatibility issues are expected as a result of the increased use in aircraft operations.

As a result of the final proceedings of the BRAC Committee, Fort Drum will be a gaining installation from other military units. At this time it is undetermined what military activities Fort Drum will be receiving. However, we can be certain that this gain of personnel or missions would include projections for capital improvement and other projects at the installation within the next five years. Due to the fact that these projected actions are not fully developed or analyzed at this time, the cumulative impacts related to Fort Drum and Wheeler-Sack AAF are unknown and can not be determined. As more details are identified and specific projects are determined, cumulative impacts will be analyzed and included in the next EA revision as apart of the NEPA documentation developed at that time.

5.2 Richmond IAP

A BRAC action has resulted in nine Virginia Air National Guard F-16 aircraft being removed from Richmond IAP within the next couple of years. The F-16 aircraft are the major contributor of noise at Richmond IAP. The removal of these aircraft would have a positive impact on the air quality, noise, and land use in the vicinity of Richmond IAP. This positive impact would outweigh any adverse impacts resulting from implementation of this Proposed Action. Therefore, the Proposed Action and the removal of Virginia Air National Guard F-16 aircraft at Richmond IAP would result in an overall beneficial cumulative impact on noise, air quality, safety, airspace, and land use.

6. Preparers

This EA has been prepared under the direction of the HQ AMC, the 305 AMW at McGuire AFB, and 436 AW at Dover AFB by engineering-environmental Management, Inc (e²M). The individual preparers of this document are listed below.

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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, 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 Assessments (EAs) and Environmental Impact Statements (EISs). 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 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) recommend acceptable levels of noise exposure for land use.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990 recognize 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 (NAAQS) 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 USEPA as being in attainment or nonattainment for pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCRs). 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 USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action might 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 might 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 AFPD 91-3, Occupational Safety and Health. 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. Compliance with Occupational Safety and Health Administration and other applicable laws and regulations for the protection of employees is exclusively the obligation of the commercial contractor. Government employees must comply with AFOSH.

Water Resources

The Clean Water Act (CWA) of 1977, an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires 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 dredged 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 which 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.

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, including those around 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 support 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 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 the 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 threatened or endangered, 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's 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 of 1918, amended in 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989, 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 Act makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The Act 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 Act.

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. The EO provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. The EO provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). The EO will be coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. The EO 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 and 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 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 Officer (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 Act 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 of 1990 establishes rights of 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 first the property of lineal descendants if they can be determined, and second, the tribe owning the land where the items were discovered, of 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 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 1159,3 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 might 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 Indian religious practitioners' access to and ceremonial use of 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 the Federal government 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. The EO established new accountability for agencies with respect 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 adverse human health and environmental effects their 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 this EO lies with each Federal agency.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes 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 cleanup of sites where potentially responsible parties cannot be identified, 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 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 clean-up standards, and authorizes 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 the cleanup 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 may claim the "innocent purchaser" defense under CERCLA. According to Title 42 U.S. Code (U.S.C.) 9601(35), to use this defense, the current owner/operator must show that 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.

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 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

biphenyls (PCBs) for regulation, and as a result PCBs are being phased out. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, cleanup, and release reporting requirements for numerous chemicals like PCBs. 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 can cause adverse health effects in humans. 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 U.S. buildings 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

PUBLIC INVOLVEMENT

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND

MEMORANDUM FOR DISTRIBUTION [INSERT DATE]
FROM: HQ AMC/A75
507 Symington Drive
Scott AFB IL 62225-5022

SUBJECT: Description of Proposed Action and Alternatives (DOPAA) for Interim Flight Training Authority at Multiple Airfields in the Northeast

1. Headquarters Air Mobility Command (HQ AMC) is preparing an Environmental Assessment (EA) for *Interim Flight Training Authority at Multiple Airfields in the Northeast*. A permanent C-17 landing zone (LZ) is proposed for completion by Fiscal Year 2010 at Naval Air Engineering Station (NAES) Lakehurst, New Jersey, to serve as the primary northeast C-17 aircraft training airfield for use by both the 305th Air Mobility Wing (305 AMW) from McGuire Air Force Base (AFB) and the 436th Airlift Wing (436 AW) from Dover AFB. In the interim, there is a need to establish temporary LZ capabilities at one or more airfields in the northeast.

The proposed interim C-17 LZs would be in close proximity to McGuire AFB and Dover AFB to allow day and night assault training and tactical approaches and departures for C-17 aircrews. Two locations (Wheeler-Sack Army Airfield and Richmond International Airport) meet the C-17 LZ criteria.

In addition, requirements for tactical arrival and departure training for the KC-10 aircraft assigned to the 305 AMW are currently not being met due to congestion of the airspace around McGuire AFB. Therefore, HQ AMC is proposing to establish interim KC-10 training capabilities at Wheeler-Sack Army Airfield. The DOPAA is included with this correspondence.

2. The environmental impact analysis process for the Proposed Action and the No Action Alternative is being conducted by HQ AMC 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 DOPAA and solicit your comments concerning the proposal and any potential environmental consequences. Also enclosed is the distribution list of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.

3. Please provide any comments or information directly to HQ AMC/A75, 507 Symington Dr., Scott AFB, IL 62225-5022 by [INSERT DATE].

4. If members of your staff have any questions, our point of contact is Mr. Doug Allbright, HQ AMC/A75C, (618) 779-0846, or e-mail to *doug.allbright@scott.af.mil*.

MICHAEL W. HUTCHISON, Colonel, USAF
Chief, Plans and Programs Division
Directorate of Installations & Mission Support

Attachment:
DOPAA

DISTRIBUTION: (listed on next page)

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The Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) were made available for public review at the Burlington County Library, Dover Public Library, Flower Memorial Library, and the Richmond Public Library from 28 April to 02 June 2006. The below Notice of Availability was published in the *Burlington County Times*, the *Richmond Times-Dispatch*, and the *Watertown Daily Times* on 28 April 2006. The NOA was published in the *Dover Post* on 03 May 2006. Copies of the affidavit of publications are included below.

PUBLIC NOTICE

Notice of Availability
Draft Finding of No Significant Impact for
Environmental Assessment

Headquarters Air Mobility Command is proposing to issue a Finding of No Significant Impact (FONSI) based on an Environmental Assessment (EA) of the Interim Flight Training Authority at Airfields in the Northeast.

The analysis considered in detail the potential effects of the Proposed Action and other reasonable alternatives including the No Action Alternative on the following resources: airspace, noise, land use, air quality, and environmental justice. 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 following libraries: Flower Memorial Library in Watertown, New York; Richmond Public Library in Richmond, VA; Burlington County Library in Westampton, NJ; and Dover Public Library in Dover, DE.

Public comments on the Draft FONSI and EA will be accepted through June 2, 2006. Please contact Doug Albright, Headquarters Air Mobility Command at (618) 229-0846 to submit comments.

In addition, the following privacy advisory was published as part of the Cover Sheet to the published EA.

Privacy Advisory.

Your comments on this EA are Requested. 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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State of New Jersey
County of Burlington } SS.

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Adv. Fee: $32.04
BCT: April 28, 2006
Aff. Chg.: $20.00

PATRICIA VIGNEAU being duly sworn or affirmed according to law, deposes and says that she is the BILLING MANAGER (Manager or designated Agent) of the BURLINGTON TIMES, INC. Publisher of the "Burlington County Times" a daily newspaper of general circulation, printed in the state of New Jersey and published and having its publication office at 4284 Route 130 N., Willingboro, Burlington County, New Jersey, and entered as second-class mail matter under the postal laws and regulations of the United States in the Post Office at Willingboro, N.J.; that said newspaper was established on October 6, 1958 under the name "Burlington County Times," that since January 15, 1968 said newspaper has been regularly printed and published and entered in said county, and that a facsimile of the notice appears hereto, exactly as published in said newspaper.

April 28, 2006

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The affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

Sworn or Affirmed according to law and subscribed to before me this 28th day of April 2006 A.D.

Ann Clark

Ann Clark
My Commission expires on
May 04, 2010

P. Vigneau

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HERE

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THE RICHMOND TIMES-DISPATCH

This is to certify that the attached PUBLIC NOTICENOTICE OF **was published by Richmond Times-Dispatch, Inc. in the City of Richmond, State of Virginia, on the following dates:**

04/28/2006

The first insertion being given. . . . 04/28/2006

Newspaper reference: 2385400

Sworn to and subscribed before

me this 5/4/06

Beverly Forsythe
Notary Public

Supervisor

State of Virginia
City of Richmond
My Commission expires 1/31/10

THIS IS NOT A BILL. PLEASE PAY FROM INVOICE. THANK YOU

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AFFIDAVIT OF PUBLICATION

STATE OF NEW YORK
COUNTY OF JEFFERSON

WATERTOWN DAILY TIMES

ENGINEERING-ENVIRONMENTAL MGT, INC.
111 PRESIDENTIAL BLVD SUITE 234
BALA CYNWYD PA 19004

REFERENCE: 5042966
20034155 PUBLIC NOTICE Notice

Jan M. Hardter, of the City of Watertown, Jefferson County, New York, being duly sworn, says that she is the Classified Supervisor of the Johnson Newspaper Corp., a corporation duly organized and existing under the laws of the State of New York, and having its principal place of business in the City of Watertown, New York, and that said corporation is the publisher of the WATERTOWN DAILY TIMES, a Newspaper published in the City of Watertown, Jefferson County, and State of New York, and that a Notice, of which the annexed is a printed copy, has been published regularly in the said Newspaper.

Jan Hardter

JAN M. HARDTER, LEGAL REPRESENTATIVE

PUBLISHED ON: 04/28

TOTAL COST: 24.42 AD SPACE: 44 LINE
FILED ON: 04/29/06

PUBLIC NOTICE
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Sworn to before me this

1st day of May, 2006

Nancy Datoush
Notary Public

NANCY DATOUSH
Notary Public in the State of New York
Qualified in Jefferson Co. No. 5006647
My Commission Expires Jan. 4, 2007

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PUBLIC HEARING

Notice of Availability

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APPENDIX C

NOISE MANAGEMENT REPORT

Appendix C

Noise Management Report

This Noise Management Report details the noise analysis that was completed for Wheeler-Sack AAF, Fort Drum and Richmond IAP in the *Environmental Assessment of Interim Flight Training Authority at Airfields in the Northeast*.

Aircraft Operations

As mentioned in the *Environmental Assessment of Interim Flight Training Authority at Airfields in the Northeast*, under the Proposed Action C-17 aircraft from the 305 AMW at McGuire AFB and the 436 AW from Dover AFB would temporarily perform tactical maneuvers at Wheeler-Sack AAF and Richmond IAP. In addition, KC-10 aircraft would train at Wheeler-Sack AAF. The Proposed Action would add a maximum of 24,960 C-17 landing zone-related operations at each airfield and a maximum of 5,200 KC-10 operations at Wheeler-Sack AAF.

Aircraft operations for the Proposed Action were modeled in Baseops Version 7.299, which is part of the NOISEMAP software program. NOISEMAP is a Department of Defense-approved noise-modeling program that is used to develop noise contours for civilian and military aircraft operations.

Flight tracks for the C-17 aircraft include straight in arrivals and departures, tactical maneuvers, and closed patterns. Ten percent of the operations were modeled as straight in arrivals and departures and 90 percent were modeled as tactical maneuvers or closed patterns.

C-17 tactical maneuvers include the following:

- High-speed straight-in
- High-altitude straight-in
- Spiral-down approach
- Teardrop approach
- 90/270 maneuver
- Beam approach
- Acceleration departure
- Spiral-up departure

KC-10 operations include straight in arrivals and departures and tactical maneuvers. KC-10 tactical maneuvers include:

- High-speed, low-altitude arrival
- Random shallow approach-opposite direction arrival

- Random shallow approach-perpendicular entry
- Random steep approach
- Low-altitude, acceleration departure
- Spiral-up departure

Wheeler Sack AAF

The operations under the Proposed Action were added to the current operations at Wheeler-Sack AAF and are shown in Table C-1.

Table C-1. Current and Proposed Aircraft Operations at Wheeler-Sack AAF

Aircraft Operations	Current Annual Operations [a]	Proposed KC-10 Annual Operations [b]	Proposed C-17 Annual Operations [b]	Total Annual Operations
Military	146,000	5,200	24,960	176,160
Total Aircraft Operations	**146,000**	**5,200**	**24,960**	**176,160**

Sources: [a] US Army 2005, [b] Fehl 2005.

Note: It is estimated that approximately 9,000 of the current annual operations are fixed wing and that the remaining 137,000 operations are rotary wing. Annual KC-10 and C-17 operations are based on 312 flying days per year.

Helicopter operations were not included in this noise analysis due to the fact that this analysis is concentrating on the effective change of the additional fixed wing (i.e., C-17 and KC-10) aircraft operations. Therefore, this noise analysis analyzes only the increase in fixed wing aircraft.

C-17 Operations

Operations for C-17 aircraft under the Proposed Action were modeled on Runways 15/33 and 03/21 at Wheeler-Sack AAF. Runway 08/26 was not utilized since it is not in suitable condition for aircraft operations. Flight tracks were modeled west of R-5201 as stated in the *MOA between Fort Drum, New York and Operations Group Commander McGuire AFB* (DA 2005). The following sections detail the split in operations between the runways for straight in and out operations, tactical maneuvers, and closed patterns.

Straight in and out operations
Runway 03/21: 90% of operations

- 75% of Runway 03/21 operations would occur on Runway end 03
- 25% of Runway 03/21 operations would occur on Runway end 21

Runway 15/33: 10% of operations

- 20% of Runway 15/33 operations would occur on Runway end 15
- 80% of Runway 15/33 operations would occur on Runway end 33

Tactical Maneuvers

Runway 03/21: 25% of operations

- 30% of Runway 03/21 operations would occur on Runway end 03
- 70% of Runway 03/21 operations would occur on Runway end 21

Runway 15/33: 75% of operations

- 50% of Runway 15/33 operations would occur on Runway end 15
- 50% of Runway 15/33 operations would occur on Runway end 33

Closed Patterns

Runway 03/21: 66% of operations

- 30% of Runway 03/21 operations would occur on Runway end 03
- 70% of Runway 03/21 operations would occur on Runway end 21

Runway 15/33: 33% of operations

- 50% of Runway 15/33 operations would occur on Runway end 15
- 50% of Runway 15/33 operations would occur on Runway end 33

KC-10 Operations

All of the KC-10 operations will occur on Runway 03/21.

Runway 03/21:

- 20% of Runway 03/21 operations would occur on Runway end 03
- 80% of Runway 03/21 operations would occur on Runway end 21

Table C-2 shows the breakdown of operations at Wheeler-Sack AAF.

Flight profile maps have been included at the end of this Appendix. These maps contain information regarding the flight track, speed, power setting, elevation, and distance to the runway for each type of maneuver that the transient C-17 and KC-10 complete.

Table C-2. Aircraft Operations under the Proposed Action at Wheeler-Sack AAF

Aircraft	Average Daily Operations													Total Annual Operations
	Arrivals				Departures				Closed Patterns				Total Operations	
C-17 Aircraft	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**		
Standard														
Straight-in Arrival	0.30	0.10	0.72	2.88									4.00	1,248
Straight-out Departure					0.30	0.10	0.72	2.88					4.00	1,248
Subtotal													8.00	
Tactical Maneuvers														
High-Speed Straight-in	2.70	2.70	0.54	1.26									7.20	2,246
High-Altitude Straight-in	2.70	2.70	0.54	1.26									7.20	2,246
Spiral-Down Approach	2.70	2.70	0.54	1.26									7.20	2,246
Teardrop Approach	2.70	2.70	0.54	1.26									7.20	2,246
90/270 Maneuver	2.70	2.70	0.54	1.26									7.20	2,246
Beam Approach	2.70	2.70	0.54	1.26									7.20	2,246
Acceleration Departure					2.70	2.70	0.54	1.26					7.20	2,246
Spiral-Up Departure					2.70	2.70	0.54	1.26					7.20	2,246
Subtotal													57.60	
Closed Patterns														
Closed Pattern 1									0.6	0.6	0.72	1.68	3.60	1,123
Closed Pattern 2									0.6	0.6	0.72	1.68	3.60	1,123
Closed Pattern 3									0.6	0.6	0.72	1.68	3.60	1,123
Closed Pattern 4									0.6	0.6	0.72	1.68	3.60	1,123
Subtotal													14.40	
C-17 Total													**80**	**24,960**
KC-10 Aircraft														
Straight-in														
Straight-in Arrival			0.17	0.67									0.84	262
Straight-out Departure							0.17	0.67					0.84	262
Subtotal													1.68	524

Table C-2. Aircraft Operations under the Proposed Action at Wheeler-Sack AAF (continued)

Aircraft	Average Daily Operations													Total Annual Operations
	Arrivals				Departures				Closed Patterns				Total Operations	
KC-10 Aircraft (continued)	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**	**Rw 15**	**Rw 33**	**Rw 03**	**Rw 21**		
Tactical Maneuvers														
HighSpeed, Low Altitude Arrival			0.6	2.4									3.00	936
Random Shallow Approach			0.6	2.4									3.00	936
Random Steep Approach			0.6	2.4									3.00	936
Low-Altitude, Acceleration Departure							0.6	2.4					3.00	936
Spiral-Up Departure							0.6	2.4					3.00	936
Subtotal													15.00	4,680
KC-10 Total													**16.68**	**5,204**
Total Operations													**96.68**	**30,164**

Richmond IAP

The operations under the Proposed Action were added to the current operations at Richmond IAP and are shown on Table C-3.

Table C-3. Current and Proposed C-17 Aircraft Operations at Richmond IAP

Aircraft Operations	Current Annual Operations [a]	Proposed Annual Operations [b]	Total Annual Operations
Military	11,318	24,960	36,278
Other Aircraft	96,928	0	96,928
Total Aircraft Operations	**108,246**	**24,960**	**133,206**

Source: [a] Richmond International Airport Noise Analysis, May 2004, [b] Captain Fehl, Daniel, 305 OSS/OSO. 2005. Memo from Captain Fehl, *Predicted Assault Zone Usage for Richmond and Ft. Drum.* 28 June 2005.

Note: The number of flying days is mixed for military aircraft and is 365 days per year for other aircraft.

C-17 operations at Richmond IAP were modeled on Runway 07/25 as shown on Table C-4. The operations were evenly split between Runway ends 07 and 25. Flight tracks for tactical maneuvers and closed patterns were modeled to avoid the residential suburbs north of the airfield.

Table C-4. Aircraft Operations under the Proposed Action at Richmond IAP

C-17 Aircraft	Average Daily Operations							Total Annual Operations
	Arrivals		Departures		Closed Patterns		Total Daily Operations	
	Rw 07	Rw 25	Rw 07	Rw 25	Rw 07	Rw 25		
Standard								
Straight-in Arrival	2.00	2.00					4.00	1,248
Straight-out Departure			2.00	2.00			4.00	1,248
Tactical Maneuvers								
High-Speed Straight-in	3.60	3.60					7.20	2,246

Table C-4. Aircraft Operations under the Proposed Action at Richmond IAP (continued)

C-17 Aircraft	Average Daily Operations							Total Annual Operations
	Arrivals		Departures		Closed Patterns		Total Daily Operations	
	Rw 07	Rw 25	Rw 07	Rw 25	Rw 07	Rw 25		
High-Altitude Straight-in	3.60	3.60					7.20	2,246
Spiral-Down Approach	3.60	3.60					7.20	2,246
Teardrop Approach	3.60	3.60					7.20	2,246
90/270 Maneuver	3.60	3.60					7.20	2,246
Beam Approach	3.60	3.60					7.20	2,246
Acceleration Departure			3.60	3.60			7.20	2,246
Spiral-Up Departure			3.60	3.60			7.20	2,246
Closed Patterns								
Closed Pattern 1					1.8	1.8	3.60	1,123
Closed Pattern 2					1.8	1.8	3.60	1,123
Closed Pattern 3					1.8	1.8	3.60	1,123
Closed Pattern 4					1.8	1.8	3.60	1,123
Total							**80**	**24,960**

Flight profile maps for transient C-17 aircraft have been included at the end of this Appendix. As previously described, these maps contain specific information regarding the flight profile for each maneuver that the transient C-17 complete.

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APPENDIX D

AIR QUALITY EMISSIONS CALCULATIONS SPREADSHEETS

INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

Summary Summarizes total emissions by calendar year.
Pages D-1 and D-2

Aircraft Fort Drum Estimates emissions from C-17 and KC-10 aircraft exhaust at Fort Drum, New York.
Pages D-3 and D-4

Aircraft Richmond IAP Estimates emissions from C-17 aircraft exhaust at Richmond International Airport, Virginia.
Page D-5

CNYI AQCR Tier Report Annual Area and Source Emissions within Central New York Intrastate AQCR.
Page D-6

SCI AQCR Tier Report Annual Area and Source Emissions within State Capital Intrastate AQCR.
Page D-7

CY2006 and Beyond Fort Drum, NY

	NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
C-17 Aircraft Operations	39.06	1.96	18.85	ND	14.50
KC-10 Aircraft Operations	7.80	4.13	11.73	ND	0.86
TOTAL	46.86	6.10	30.58	ND	15.37

ND - No data available.

CY2006 and Beyond Richmond IAP, VA

	NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
C-17 Aircraft Operations	39.06	1.96	18.85	ND	14.50
KC-10 Aircraft Operations	0.00	0.00	0.00	ND	0.00
TOTAL	39.06	1.96	18.85	ND	14.50

ND - No data available.

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.

Central New York Intrastate AQCR

	Point and Area Sources Combined				
Year	**NOx (tpy)**	**VOC (tpy)**	**CO (tpy)**	**SO2 (tpy)**	**PM10 (tpy)**
1999	107,831	79,883	523,216	33,916	69,832

Source: USEPA-AirData NET Tier Report (http://www.epa.gov/air/data/nettier.html). Site visited 11/30/05

State Capital Intrastate AQCR

	Point and Area Sources Combined				
Year	**NOx (tpy)**	**VOC (tpy)**	**CO (tpy)**	**SO2 (tpy)**	**PM10 (tpy)**
1999	57,125	42,267	335,485	72,752	36,808

Source: USEPA-AirData NET Tier Report (http://www.epa.gov/air/data/nettier.html). Site visited 11/30/05

	Point and Area Sources Combined				
	NOx (tpy)	**VOC (tpy)**	**CO (tpy)**	**SO2 (tpy)**	**PM10 (tpy)**
Minimum -1999	107,831	79,883	523,216	33,916	69,832
Fort Drum Emissions	46.86	6.10	30.58	ND	15.37
Proposed Action %	**0.0435%**	**0.0076%**	**0.0058%**	**ND**	**0.0220%**

Determination Significance (Significance Threshold = 10%)

	Point and Area Sources Combined				
	NOx (tpy)	**VOC (tpy)**	**CO (tpy)**	**SO2 (tpy)**	**PM10 (tpy)**
Minimum -1999	57,125	42,267	335,485	72,752	36,808
Richmond IAP Emissions	39.06	1.96	18.85	ND	14.50
Proposed Action %	**0.0684%**	**0.0046%**	**0.0056%**	**ND**	**0.0394%**

Determination Significance (Significance Threshold = 10%)

INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST
Fort Drum, New York

Aircraft	Engine	Time in Mode (minutes)				Fuel Flow (lb/hr)			
		T/O	C/O	App	Idle	T/O	C/O	App	Idle
C-17	F117-PW-100	0.40	1.20	5.10	15.90	13976	10919	4279	1104
Number of Engines:	4								

	VOC Emission Index (lb/1000 lb)				CO Emission Index (lb/1000 lb)				NOx Emission Index (lb/1000 lb)				PM10 Emission Index (lb/1000 lb)			
	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle
	0.03	0.21	0.30	2.15	0.40	0.36	1.25	23.86	34.30	30.02	13.03	3.96	2.31	2.31	5.52	10.54
Emissions (lb/Sortie)	0.011	0.18	0.44	2.52	0.15	0.31	1.82	27.92	12.78	26.22	18.96	4.63	0.86	2.02	8.03	12.33

Notes: EPCpol,mode = (TIM/60)* (FFR/1000) *EF* NE
EPCpol,mode = Emissions per cycle for a particular pollutant during a particular mode (lb/cycle)
TIM = Time in Mode (min/cycle)
60 = Factor for converting minutes to hours (min/hr)
FFR = Fuel Flow Rate per engine (lb/hr)
1000 = Factor for converting lb/hr to 1000 lb/hr
EF = Emission Factor (lb/1000 lb)
NE = Number of Engines on the aircraft

Example: NOx emissons for T/O = (0.40 min/(60 min/hr))*(13,976.00 lb/hr)*(34.30 lb/1000 lb)*(4 engines) = 12.78 lbs/sortie

Aircraft	Engine	Total Emissions per LTO (lb)			
		VOC	CO	NOx	PM10
C-17	F117-PW-100	3.15	30.20	62.60	23.24

Notes: Total emissions per LTO for a particular pollutant are totaled by adding emissions from each TIM cycle.

Example: NOx emissions per Sortie = T/O (12.78)+C/O (26.22)+App(18.96)+Idle(4.63) = 62.60 lb

Aircraft	Airfield Operations	Sorties	Emissions (tons per year)			
			VOC	CO	NOx	PM10
C-17	24,960	1,248	1.96	18.85	39.06	14.50

Notes: NOx emissions (tons per year) = (Total Airfield Operations/(Airfield Operations/Sortie))*(lb/sortie/(2000 lb/ton))
Estimates emissions from C-17 aircraft exhaust.
Fuel flow and emissions data are from USAF IERA "Air Emissions Inventory Guidance", July 2001, Table 3-3 for Criteria Pollutant Emission Factors for Aircraft Engine
A maximum of 24,960 aircraft operations would be conducted each calendar year from 2006 until 2010.
All missions or sorties are assumed to consist of 20 airfield operations.
Criteria emission factors are per engine.

Example: NOx emissions (tons per year) = (24,960 airfield operations/(20 airfield operations/sortie))*(62.60 lb/sortie)/(2000 lb/ton)) = 39.06 tons per year

Aircraft	Engine	Time in Mode (minutes)				Fuel Flow (lb/hr)			
		Idle	App	Int	Mil	Idle	App	Int	Mil
KC-10	F103-GE-100	15.90	5.10	1.20	0.40	1706	5238	15675	19738
Number of Engines:	3								

	VOC Emission Index (lb/1000 lb)				CO Emission Index (lb/1000 lb)				NOx Emission Index (lb/1000 lb)				PM10 Emission Index (lb/1000 lb)			
	Idle	App	Int	Mil	Idle	App	Int	Mil	Idle	App	Int	Mil	Idle	App	Int	Mil
	21.80	1.00	0.70	0.60	61.79	4.30	0.50	0.50	3.60	9.50	29.79	36.54	2.75	1.19	0.89	1.18
Emissions (lb/Sortie)	29.57	1.34	0.66	0.24	83.80	5.74	0.47	0.20	4.88	12.69	28.02	14.42	3.73	1.59	0.84	0.47

Notes: EPCpol,mode = (TIM/60)* (FFR/1000) *EF* NE
EPCpol,mode = Emissions per cycle for a particular pollutant during a particular mode (lb/cycle)
TIM = Time in Mode (min/cycle)
60 = Factor for converting minutes to hours (min/hr)
FFR = Fuel Flow Rate per engine (lb/hr)
1000 = Factor for converting lb/hr to 1000 lb/hr
EF = Emission Factor (lb/1000 lb)
NE = Number of Engines on the aircraft

Example: NOx emissons for Idle = (15.90 min/(60 min/hr))*(1,706 lb/hr)*(3.60 lb/1000 lb)*(3 engines) = 4.88 lbs/sortie

Aircraft	Engine	Total Emissions per LTO (lb)			
		VOC	CO	NOx	PM10
KC-10	F103-GE-100	31.80	90.22	60.01	6.62

Notes: Total emissions per LTO for a particular pollutant are totaled by adding emissions from each TIM cycle.

Example: NOx emissions per Sortie = Idle (4.88)+App (12.69)+Int(28.02)+Mil(14.42) = 60.01 lb

Aircraft	Airfield Operations	Sorties	Emissions (tons per year)			
			VOC	CO	NOx	PM10
KC-10	5,200	260	4.13	11.73	7.80	0.86

Notes: NOx emissions (tons per year) = (Total Airfield Operations/(Airfield Operations/Sortie))*(lb/sortie/(2000 lb/ton))
Estimates emissions from KC-10 aircraft exhaust.
Fuel flow and emissions data are from USAF IERA "Air Emissions Inventory Guidance", July 2001, Table 3-3 for Criteria Pollutant Emission Factors for Aircraft Engine
A maximum of 10,400 aircraft operations would be conducted each calendar year from 2006 until 2010.
All missions or sorties are assumed to consist of 20 airfield operations.
Criteria emission factors are per engine.

Example: NOx emissions (tons per year) = (5,200 airfield operations/(20 airfield operations/sortie))*(60.01 lb/sortie)/(2000 lb/ton)) = 7.80 tons per year

INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST
Richmond IAP, Virginia

Aircraft	Engine	Time in Mode (minutes)				Fuel Flow (lb/hr)			
		T/O	C/O	App	Idle	T/O	C/O	App	Idle
C-17	F117-PW-100	0.40	1.20	5.10	15.90	13976	10919	4279	1104
ımber of Engin	4								

	VOC Emission Index (lb/1000 lb)				CO Emission Index (lb/1000 lb)				NOx Emission Index (lb/1000 lb)				PM10 Emission Index (lb/1000 lb)			
	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle	T/O	C/O	App	Idle
	0.03	0.21	0.30	2.15	0.40	0.36	1.25	23.86	34.30	30.02	13.03	3.96	2.31	2.31	5.52	10.54
Emissions (lb/Sortie)	0.011	0.18	0.44	2.52	0.15	0.31	1.82	27.92	12.78	26.22	18.96	4.63	0.86	2.02	8.03	12.33

Notes: EPCpol,mode = (TIM/60)* (FFR/1000) *EF* NE
EPCpol,mode = Emissions per cycle for a particular pollutant during a particular mode (lb/cycle)
TIM = Time in Mode (min/cycle)
60 = Factor for converting minutes to hours (min/hr)
FFR = Fuel Flow Rate per engine (lb/hr)
1000 = Factor for converting lb/hr to 1000 lb/hr
EF = Emission Factor (lb/1000 lb)
NE = Number of Engines on the aircraft

Example: NOx emissons for T/O = (0.40 min/(60 min/hr))*(13,976.00 lb/hr)*(34.30 lb/1000 lb)*(4 engines) = 12.78 lbs/sortie

Aircraft	Engine	Total Emissions per LTO (lb)			
		VOC	CO	NOx	PM10
C-17	F117-PW-100	3.15	30.20	62.60	23.24

Notes: Total emissions per LTO for a particular pollutant are totaled by adding emissions from each TIM cycle.

Example: NOx emissions per Sortie = T/O (12.78)+C/O (26.22)+App(18.96)+Idle(4.63) = 62.60 lb

Aircraft	ırfield Operation	Sorties	Emissions (tons per year)			
			VOC	CO	NOx	PM10
C-17	24,960	1,248	1.96	18.85	39.06	14.50

Notes: NOx emissions (tons per year) = (Total Airfield Operations/(Airfield Operations/Sortie))*(lb/sortie/(2000 lb/ton))
Estimates emissions from C-17 aircraft exhaust.
Fuel flow and emissions data are from USAF IERA "Air Emissions Inventory Guidance", July 2001, Table 3-3 for Criteria Pollutant Emission Factors for Aircraft Engi
A maximum of 24,960 aircraft operations would be conducted each calendar year from 2006 until 2010.
All missions or sorties are assumed to consist of 20 airfield operations.
Criteria emission factors are per engine.

INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

Central New York Intrastate (CNYI) Air Quality Control Region

			Area Source Emissions						Point Source Emissions					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	NY	Cayuga Co	31,995	4,513	6,884	1,875	773	5,075	309	615	84.5	80.8	295	131
2	NY	Cortland Co	22,181	2,665	3,399	956	707	3,169	7.32	8.87	0.51	0.5	0.1	9.84
3	NY	Herkimer Co	27,376	3,954	4,325	1,320	804	4,220	253	384	9.98	8.43	0.46	51.8
4	NY	Co	59,967	7,039	7,383	2,302	1,112	10,284	268	1,046	168	84.4	2,886	254
5	NY	Lewis Co	13,970	1,418	3,060	942	283	2,352	982	143	139	119	484	61
6	NY	Madison Co	28,256	3,743	5,096	1,435	539	3,828	0	0	0	0	0	0
7	NY	Oneida Co	98,491	51,955	13,625	4,995	8,826	14,829	214	115	33.7	30.3	121	28.3
8	NY	Onondaga Co	179,632	18,945	16,871	5,589	5,581	25,816	975	2,132	71.9	66.9	2,274	337
9	NY	Oswego Co	55,243	6,097	8,335	2,486	1,181	9,286	3,098	3,057	347	333	8,049	152
Grand Total			517,111	100,330	68,978	21,898	19,806	78,859	6,105	7,501	854	723	14,110	1,024

Point and Area Sources Combined				
NOx tons	**VOC tons**	**CO tons**	**SO2 tons**	**PM10 tons**
107,831	79,883	523,216	33,916	69,832

SOURCE:
http://www.epa.gov/air/data/nettier.html
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (1999)
Site visited on November 30, 2005

INTERIM FLIGHT TRAINING AUTHORITY AT AIRFIELDS IN THE NORTHEAST

State Capital Intrastate (SCI) Air Quality Control Region

			Area Source Emissions						Point Source Emissions					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	VA	Charles City Co	3,102	504	1,027	253	50.2	483	42.8	26.8	14.3	9.13	0.87	12.7
2	VA	Chesterfield Co	94,722	8,685	7,291	2,714	701	10,864	1,345	20,192	4,115	3,688	68,481	2,292
3	VA	Dinwiddie Co	13,878	1,707	2,664	753	156	1,571	279	258	50.6	43.9	165	78.4
4	VA	Goochland Co	16,755	1,611	1,436	434	127	1,465	102	224	12.8	7.72	119	45.9
5	VA	Greensville Co	8,779	1,207	1,299	346	91.5	988	955	399	518	378	423	1,285
6	VA	Hanover Co	54,726	5,512	4,207	1,443	414	5,530	1,101	540	424	328	400	408
7	VA	Henrico Co	91,302	9,953	5,981	2,213	1,043	10,298	151	276	39.2	38.1	32.8	1,103
8	VA	New Kent Co	11,725	1,281	1,167	324	94.1	1,137	0	0	0	0	0	0
9	VA	Powhatan Co	9,036	713	1,367	405	59.2	1,051	2.94	5.39	6.55	5.46	16.5	3.61
10	VA	Prince George Co	14,911	1,858	2,314	627	136	1,751	19.9	89.5	3.45	3.3	2.1	19.7
11	VA	Surry Co	2,725	366	985	264	38.1	515	14	137	6.43	6.42	69.6	3.96
12	VA	Sussex Co	9,761	1,314	1,664	458	115	1,056	50.5	266	216	166	17.3	306
Grand Total			331,422	34,711	31,402	10,234	3,025	36,709	4,063	22,414	5,406	4,674	69,727	5,558

Point and Area Sources Combined				
NOx tons	**VOC tons**	**CO tons**	**SO2 tons**	**PM10 tons**
57,125	42,267	335,485	72,752	36,808

SOURCE:
http://www.epa.gov/air/data/nettier.html
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (1999)
Site visited on November 30, 2005

APPENDIX E

AGENCY CORRESPONDENCE

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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Preston Bryant
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

January 26, 2006

Colonel Michael W. Hutchison, USAF MWH (30) 2 A75C
Chief, Plans and Programs Division
Directorate of Installations and Mission Support
HQ AMC/A75
507 Symington Drive
Scott Air Force Base, Illinois 62225

Tony OTY. MWH

RE: Description of Proposed Action and Alternatives (DOPAA) for Interim Flight Training Authority at Multiple Airfields in the Northeast

Dear Colonel Hutchison:

Thank you for your January 18, 2006 memorandum on the above subject, indicating that the Air Force is preparing an environmental assessment (EA). You state that the EA is for the purpose of evaluating two candidate airfields, including the Richmond International Airport, for service as interim landing zones for C-17 aircraft pending the development of a permanent landing zone at the Naval Air Engineering Station in Lakehurst, New Jersey. The interim landing zones would be used for day and night assault training and tactical approaches and departures for C-17 aircraft. That training capability for another aircraft, the KC-10, is proposed at another airfield.

The roles of the Virginia Department of Environmental Quality (DEQ) in relation to the project involving the Richmond International Airport are as follows. First, DEQ's Office of Environmental Impact Review (this Office) will coordinate Virginia's review of any environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and comment to the Air Force on behalf of the Commonwealth. A similar review process will pertain to the federal consistency determination that must be provided pursuant to the Coastal Zone Management Act (CZMA). If the federal consistency determination is included as part of the EA or EIS, there can be a single review.

Environmental Review and Scoping

We are sharing your memo with selected state and local Virginia agencies, which are likely to include the following (note: starred (*) agencies administer one or more of the Enforceable Policies of the Virginia Coastal Resources Management Program; see "Federal Consistency...," below):

Department of Environmental Quality:
- Office of Environmental Impact Review
- Piedmont Regional Office*
- Air Division*
- Waste Division
- Water Division*

Department of Game and Inland Fisheries*
Department of Conservation and Recreation:
- Division of Chesapeake Bay Local Assistance*
- Division of Soil and Water Conservation*
- Division of Planning and Recreation Resources

Department of Health*
Marine Resources Commission*
Department of Historic Resources
Department of Aviation
Richmond Regional Planning District Commission
Henrico County.

In order to ensure an effective coordinated review of the Environmental Impact Statement or Environmental Assessment and the consistency determination, we will require 18 copies of the document when it is published. The document should include a U.S. Geological Survey topographic map as part of its information. We recommend, as well, that project details unfamiliar to people outside the Air Force be adequately described. While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA documents for the proposed project.

Federal Consistency under the Coastal Zone Management Act

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources or coastal uses must be consistent with the Virginia Coastal Resources Management Program (VCP) (see section 307(c)(1) of the Act and the Federal Consistency Regulations, 15 CFR Part 930, sub-part C). The Air Force must provide a consistency determination which involves an analysis of the activities in light of the Enforceable Policies of the VCP (first enclosure), and a commitment to comply with the Enforceable Policies. In addition, we invite your attention to the Advisory Policies of the VCP (second enclosure). The federal consistency determination may be provided as part of the NEPA documentation or independently, depending on your agency's preference; we recommend, in the interests of efficiency for all concerned, that it be provided together with the NEPA document and that 60 days be allowed for review in keeping with the Federal Consistency Regulations (see section 930.41(a)). Section 930.39 of the Federal Consistency Regulations and Virginia's Federal Consistency Information Package (see below) give content requirements for the consistency determination.

The Federal Consistency Information Package is available on DEQ's web site, http://www.deq.state.va.us. Select "Programs" on the left, then scroll to

"Environmental Impact Review/Federal consistency" and select this heading. Select "federal consistency reviews" on the left. This gives you access to the document. If you have questions about the environmental review process or the federal consistency review process, please feel free to call me (telephone (804) 698-4325) or Charles Ellis of this Office (telephone (804) 698-4488).

I hope this information is helpful to you.

Sincerely,

Ellie L. Irons
Program Manager
Office of Environmental Impact Review

enclosures

cc: Susan A. Ridout, DEQ-PRO
Kotur S. Narasimhan, DEQ-Air
Allen Brockman, DEQ-Waste
Catherine M. Harold, DEQ-Water
Andrew K. Zadnik, DGIF
Scott Bedwell, DCR
Susan E. Douglas, VDH
Tony Watkinson, MRC
Ethel R. Eaton, DHR
Alice R. T. Baird, DCR-DCBLA
R. Scott Denny, VDA
Paul E. Fisher, Richmond Regional PDC
Virgil R. Hazelett, Henrico County

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Attachment 1

Enforceable Regulatory Programs comprising Virginia's Coastal Resources Management Program (VCP)

a. Fisheries Management - The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (VMRC); Virginia Code sections 28.2-200 to 28.2-713 and the Department of Game and Inland Fisheries (DGIF); Virginia Code sections 29.1-100 to 29.1-570.

The State Tributyltin (TBT) Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing TBT. The use of TBT in boat paint constitutes a serious threat to important marine animal species. The TBT program monitors boating activities and boat painting activities to ensure compliance with TBT regulations promulgated pursuant to the amendment. The VMRC, DGIF, and Virginia Department of Agriculture Consumer Services (VDACS) share enforcement responsibilities; Virginia Code sections 3.1-249.59 to 3.1-249.62.

b. Subaqueous Lands Management - The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, tidal wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality (DEQ). The program is administered by the Marine Resources Commission; Virginia Code sections 28.2-1200 to 28.2-1213.

c. Wetlands Management - The purpose of the wetlands management program is to preserve wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation.

(1) The tidal wetlands program is administered by the Marine Resources Commission; Virginia Code sections 28.2-1301 through 28.2-1320.

(2) The Virginia Water Protection Permit program administered by DEQ includes protection of wetlands --both tidal and non-tidal; Virginia Code section 62.1-44.15:5 and Water Quality Certification pursuant to section 401 of the Clean Water Act.

d. Dunes Management - Dune protection is carried out pursuant to The Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission; Virginia Code sections 28.2-1400 through 28.2-1420.

e. Non-point Source Pollution Control – (1) Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation; Virginia Code sections 10.1-560 et.seq.).

(2) Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater (see i) Virginia; Virginia Code sections 10.1-2100 through 10.1-2114 and 9 VAC10-20 et seq.

f. Point Source Pollution Control - The point source program is administered by the State Water Control Board (DEQ) pursuant to Virginia Code section 62.1-44.15. Point source pollution control is accomplished through the implementation of:

(1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program.

(2) The Virginia Water Protection Permit (VWPP) program administered by DEQ; Virginia Code section 62.1-44.15:5 and Water Quality Certification pursuant to section 401 of the Clean Water Act.

g. Shoreline Sanitation - The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Virginia Code sections 32.1-164 through 32.1-165).

h. Air Pollution Control - The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Virginia Code sections 10-1.1300 through 10.1-1320).

(i) Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Virginia Code sections 10.1-2100 through 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 et seq.

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

a) Wetlands
b) Aquatic Spawning, Nursery, and Feeding Grounds
c) Coastal Primary Sand Dunes
d) Barrier Islands
e) Significant Wildlife Habitat Areas
f) Public Recreation Areas
g) Sand and Gravel Resources
h) Underwater Historic Sites.

b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:

i) Highly Erodible Areas
ii) Coastal High Hazard Areas, including flood plains.

c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:

i) Commercial Ports
ii) Commercial Fishing Piers
iii) Community Waterfronts

Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCRMP is encouraged. Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCRMP recognizes two broad classes of priority uses for waterfront development APC:

i) water access-dependent activities;
ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches - Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to allow public access to recreational resources.

b. Virginia Outdoors Plan - Planning for coastal access is provided by the Department of Conservation and Recreation in cooperation with other state and local government agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to identify future needs of the Commonwealth in relation to the provision of recreational opportunities and shoreline access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

c. Parks, Natural Areas, and Wildlife Management Areas - Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the citizens of the Commonwealth and the nation by local, state, and federal agencies. The recreational values of these areas should be protected and maintained.

d. Waterfront Recreational Land Acquisition - It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

e. Waterfront Recreational Facilities - This policy applies to the provision of boat ramps, public landings, and bridges which provide water access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and maintained to provide points of water access when and where practicable.

f. Waterfront Historic Properties - The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures, and sites of historical, architectural, and/or archaeological interest are significant resources for the citizens of the Commonwealth. It is the policy of the Commonwealth and the VCRMP to enhance the protection of buildings, structures, and sites of historical, architectural, and archaeological significance from damage or destruction when practicable.

MH (13) A75C –

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

Date: February 1, 2006

Project name: Interim Flight Training for Air Mobility Command

Project number: 9433 City/County, VA Henrico

The U.S. Fish and Wildlife Service (Service) has reviewed your request for information on federally listed or proposed endangered or threatened species and designated critical habitat for the above referenced project. The following comments are provided under provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

✓ We have reviewed the information you have provided and believe that the proposed action will not adversely affect federally listed species or federally designated critical habitat because no federally listed species are known to occur in the project area. Should project plans change or if additional information on listed and proposed species becomes available, this determination may be reconsidered.

_____ We recommend that you contact **both** of the following State agencies for site specific information on listed species in Virginia. Each agency maintains a different database and has differing expertise and/or regulatory responsibility:

Virginia Dept. of Game & Inland Fisheries
Environmental Services Section
P.O. Box 11104
Richmond, VA 23230
(804) 367-1000

Virginia Dept. of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 2nd Floor
Richmond, VA 23219
(804) 786-7951

If either agency indicates a federally listed species **is present,** please resubmit your project description with letters from both agencies attached.

_____ If **appropriate habitat may be present**, we recommend surveys within appropriate habitat by a qualified surveyor. Enclosed are county lists with fact sheets that contain information the species' habitat requirements and lists of qualified surveyors. If this project involves a Federal agency (Federal permit, funding, or land), we encourage the Federal agency to contact this office if appropriate habitat is present and if they determine their proposed action may affect federally listed species or critical habitat.

_____ Determinations of the presence of waters of the United States, including wetlands, and the need for permits are made by the U.S. Army Corps of Engineers. They may be contacted at: Regulatory Branch, U.S. Army Corps of Engineers, Norfolk District, 803 Front Street, Norfolk, Virginia 23510, telephone (757) 441-7652.

Our website http://virginiafieldoffice.fws.gov contains many resources that may assist with project reviews. Point of contact is Eric Davis at (804) 693-6694, ext. 104.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://njfieldoffice.fws.gov

In Reply Refer To:
SP-06/05

FEB 0 8 2006

Mr. Douglas Allbright
HQ AMC/A75C
507 Symington Drive
Scott AFB, Illinois 62225-5022

Dear Mr. Allbright:

The U.S. Fish and Wildlife Service (Service), New Jersey Field Office (NJFO) has reviewed the *Description of Proposed Action and Alternatives for Interim Flight Training Authority at Multiple Airfields in the Northeast*, to: (1) determine whether federally listed endangered and threatened species would be adversely affected by the proposed action at Naval Air Engineering Station (NAES) Lakehurst, and (2) provide comments on the proposed action as requested in the letter by Colonel Michael Hutchinson dated January 18, 2006. The NJFO understands that the Purpose and Need of the proposed project is to maintain proficiency in flying the C-17 aircraft, which would require the construction of a permanent landing zone (LZ) at NAES Lakehurst, Jackson and Manchester Townships, Ocean County, New Jersey.

AUTHORITY

The following comments on the proposed action are provided pursuant to Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA), and the National Environmental Policy Act (83 Stat. 852; 42 U.S.C. 4321 *et seq.*) (NEPA). These comments do not preclude future comments on any further NEPA documentation or comments to the New Jersey Department of Environmental Protection (NJDEP) if any future activities require authorization pursuant to the State's Freshwater Wetland Protection Act (N.J.S.A. 13:9-1 *et seq.)*.

FEDERALLY LISTED SPECIES

Bog Turtle

The NJFO notes that an active core and habitat of the federally listed (threatened) bog turtle (*Clemmys muhlenbergii*) is within the boundary of NAES Lakehurst. Bog turtles inhabit open, wet meadows and bogs with standing or slow-moving, shallow water over a mucky substrate (Bourg, 1992). Bog turtles also occur in emergent and shrub/scrub wetlands and spring-fed fens.

The NJFO has not received sufficient information, including project design and plans, to determine whether the bog turtle would be adversely affected by project activities. Therefore, the NJFO recommends a survey (Phase I Survey) be conducted for the presence of bog turtle habitat at the project site. The survey should be conducted by a recognized, qualified bog turtle surveyor according to Service survey guidelines (see enclosures). Surveyors must avoid stepping on the tops of hummocks because this can destroy turtle nests and eggs. Both positive and negative results of any surveys must be forwarded to this office to determine if further review is necessary. The survey method used and the qualifications of the surveyor should be included along with project specifications and details. The NJFO must be contacted for additional coordination to ensure that project activities will not adversely affect the bog turtle.

Bald Eagle

The federally listed (threatened) bald eagle *(Haliaeetus leucocephalus)* nests throughout New Jersey. Active nest sites are located within 5 to 10 miles from NAES Lakehurst. Bald eagles occur in New Jersey throughout the year. They are opportunistic feeders and will eat carrion or live prey, primarily fish, but also small mammals, reptiles, and waterfowl. Bald eagles prefer forested or open habitats with little human disturbance near large bodies of water, such as lakes, large rivers, reservoirs, and seacoasts. Eagles are often attracted to a water body as they search for food, and frequently roost in dead or mature trees adjacent to water. In winter, bald eagles gather in large numbers near coasts and inland water bodies that remain ice-free, allowing access to fish and other prey. Threats to the bald eagle include environmental contaminants, habitat destruction and degradation, and disturbance of nesting and feeding birds.

The NJFO recommends that flights maintain a minimum vertical distance of 1,500 feet above ground level in the vicinity of nest sites or at least 1.0 nautical mile lateral distance from an occupied bald eagle nest site. Please be advised that the minimum lateral flying distance from a nest site was changed from 0.5 mile to the more stringent 1.0 mile, based on observations by the New Jersey Department of Environmental Protection. These flight restrictions are to remain in effect from January 1 through July 30 each year. Any low flying aircraft that may occur within the recommended restricted air space would be likely to adversely affect the bald eagle and should be addressed in your final Environmental Assessment.

Except for the bog turtle and bald eagle, no other federally listed or proposed threatened or endangered flora or fauna are known to occur in the vicinity of the project site. If additional information on federally listed endangered or threatened species becomes available, this determination may be reconsidered.

PROPOSED ALTERNATIVES

Two feasible alternatives are under consideration:

- Alternative 1 (Preferred Alternative) – construct and operate a permanent C-17 LZ at NAES Lakehurst by Fiscal Year 2010 and

- Alternative 2 (No-Action Alternative) – no change in baseline condition (training would continue to occur at currently established LZs).

NJFO COMMENTS

The NJFO has reviewed the portion of the proposed action and alternatives pertaining to NAES Lakehurst (LZ and air space for the C-17 only). Additional comments on the subject report will be provided by other pertinent Service field offices in the Northeast Region that have geographic responsibility over the project's impact area. The NJFO has not received enough information to determine whether the proposed plan has the potential to adversely affect federally listed species (bog turtle and bald eagle). The NJFO is available to provide additional Section 7 consultation pursuant to the ESA and technical review of developing proposals by the United States Air Force pertaining to the subject project.

Please refer to our web site at http://www.fws.gov/northeast/njfieldoffice/Endangered/eslist.htm for a current list of federally listed species or candidate species in New Jersey. The above web site also provides contacts for obtaining the most up-to-date information on State-listed plant species in New Jersey from the New Jersey Natural Heritage Program and information on State-listed wildlife species from the New Jersey Endangered and Nongame Species Program. The Service recommends that you also incorporate protection measures for State-listed species in project planning.

Information contained in this letter and additional information obtained from the aforementioned sources represents the public interest for fish and wildlife resources and should warrant full consideration in project planning. Thank you for the opportunity to comment on the subject report. Please contact Carlo Popolizio of my staff at (609) 646-9310, extension 32, if you have any questions or require further assistance regarding federally listed threatened or endangered species in New Jersey.

Sincerely,

Clifford G. Day
Supervisor

Enclosures

REFERENCE

Bourg, N.A. 1992. Status of the bog turtle (*Clemmys muhlenbergii*) in North America. Eastern Heritage Task Force of the Nature Conservancy, Middletown, Pennsylvania. Report to the U.S. Fish and Wildlife Service. 33 pp.

GUIDELINES FOR BOG TURTLE SURVEYS[1]

(revised May 2001)

RATIONALE

A bog turtle survey (when conducted according to these guidelines) is an attempt to determine presence or probable absence of the species; it does not provide sufficient data to determine population size or structure. Following these guidelines will standardize survey procedures. It will help maximize the potential for detection of bog turtles at previously undocumented sites at a minimum acceptable level of effort. Although the detection of bog turtles confirms their presence, failure to detect them does not absolutely confirm their absence (likewise, bog turtles do not occur in all appropriate habitats and many seemingly suitable sites are devoid of the species). Surveys as extensive as outlined below are usually sufficient to detect bog turtles; however, there have been instances in which additional effort was necessary to detect bog turtles, especially when habitat was less than optimum, survey conditions were less than ideal, or turtle densities were low.

PRIOR TO CONDUCTING ANY SURVEYS

If a project is proposed to occur in a county of known bog turtle occurrence (see attachment 1), contact the U.S. Fish and Wildlife Service (Service) and/or the appropriate State wildlife agency (see attachment 2). They will determine whether or not any known bog turtle sites occur in or near the project area, and will determine the need for surveys.

- If a wetland in or near the project area is *known* to support bog turtles, measures must be taken to avoid impacts to the species. The Service and State wildlife agency will work with federal, state and local regulatory agencies, permit applicants, and project proponents to ensure that adverse effects to bog turtles are avoided or minimized.

- If wetlands in or adjacent to the project area are *not* known bog turtle habitat, conduct a bog turtle habitat survey (Phase 1 survey) if:

  1. The wetland(s) have an emergent and/or scrub-shrub wetland component, *and*

  2. Direct and indirect adverse effects to the wetland(s) cannot be avoided.

See *Bog Turtle Conservation Zones* for guidance regarding activities likely to affect bog turtles and their habitat. In addition, consult with the Fish and Wildlife Service and/or appropriate State wildlife agency to definitively determine whether or not a Phase 1 survey will be necessary.

BOG TURTLE HABITAT SURVEY (= Phase 1 survey)

The purpose of this survey is to determine whether or not the wetland(s) are *potential* bog turtle habitat. These surveys are usually performed by someone who is either: (1) qualified to conduct bog turtle surveys (i.e., Phase 2 surveys), or (2) qualified to identify and delineate wetlands. The following conditions and information apply to habitat surveys.

- Surveys can be performed any month of the year (except when significant snow cover is present). This flexibility in conducting Phase 1 surveys allows efforts during the Phase 2 survey window to be spent on wetlands most likely to support bog turtles (i.e., those that meet the criteria below).

- Potential bog turtle habitat is recognized by three criteria *(not all of which may occur in the same portion of a particular wetland)*:

1. **Suitable hydrology**. Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet area(s) may be restricted to near spring head(s). Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 10 cm deep) or pseudo-rivulets are often present.

2. **Suitable soils**. Usually - a bottom substrate of soft muck or mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles or deeper in muck, although in summers of dry years this may be limited to areas near spring heads. In some portions of the species' range, the soft substrate consists of scattered pockets of peat (6+ inches deep) instead of muck. Suitable soils are the critical criterion.

3. **Suitable vegetation**. Dominant vegetation of low grasses and sedges (emergent wetland), often with a scrub-shrub wetland component. Common emergent vegetation includes: tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*), rice cut grass (*Leersia oryzoides*), sensitive fern (*Onoclea sensibilis*), tearthumbs (*Polygonum* spp.), jewelweeds (*Impatiens* spp.), arrowheads (*Sagittaria* spp.), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum* spp.), other sedges (*Carex* spp.), spike rushes (*Eleocharis* spp.), grass-of-Parnassus (*Parnassia glauca*), sweet-flag (*Acorus calamus*), and in disturbed sites, reed canary grass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*). Common scrub-shrub and tree species include alder (*Alnus spp.*), red maple (*Acer rubrum*), willow (*Salix spp.*), shrubby cinquefoil (*Potentilla fruticosa*), tamarack (*Larix laricina*), and in disturbed sites, multiflora rose (*Rosa multiflora*).

- Suitable hydrology, soils and vegetation are necessary to provide the critical wintering sites (soft muck, peat, burrows, root systems of woody vegetation) and nesting habitats (open areas with tussocky or hummocky vegetation) for this species. It is very important to note, however, that one or more of these criteria may be absent from portions of a wetland or wetland complex supporting bog turtles. Absence of one or more criteria does not preclude bog turtle use of these areas to meet important life functions, including foraging, shelter and dispersal.

- If these criteria (suitable soils, vegetation and hydrology) are present in the *wetland*, then the *wetland* is considered to be potential bog turtle habitat, regardless of whether or not that portion of the wetland occurring within the project boundaries contains all three criteria. If the *wetland* is determined to be potential habitat and the project will directly or indirectly impact *any portion* of the wetland, then either:

  - Completely avoid all direct and indirect effects to the wetland, in consultation with the Service and appropriate State wildlife agency, OR

- ▹ Conduct a Phase 2 survey to determine the presence of bog turtles.

- ▹ The Service and appropriate State agency (see list) should be sent a copy of survey results for review and comment including: a USGS topographic map indicating location of site; project design map, including location of wetlands and streams; color photographs of the site; surveyor's name; date of visit; opinion on potential/not potential habitat; a description of the hydrology, soils, and vegetation.

BOG TURTLE SURVEY (= Phase 2 survey)

If the wetland(s) are identified as potential bog turtle habitat (see Phase 1 survey), and direct and indirect adverse effects cannot be avoided, conduct a bog turtle survey in accordance with the specifications below. Note that this is *not* a survey to estimate population size or structure; a long-term mark/recapture study would be required for that.

Prior to conducting the survey, contact the appropriate State agency (see attached list) to determine whether or not a scientific collector's permit valid for the location and period of the survey will be required.

1. Surveys should only be performed during the period from April 15-June 15. This coincides with the period of greatest annual turtle activity (spring emergence and breeding) and before vegetation gets too dense to accurately survey. While turtles may be found outside of these dates, a result of no turtles would be considered inconclusive. Surveys beyond June also have a higher likelihood of disruption or destruction of nests or newly hatched young.

2. Air and water temperatures should be a minimum of 55° F.

3. Surveys should be done during the day, at least one hour after sunrise and no later than one hour before sunset.

4. Cloud cover should be <50 percent, and surveys should not be done during or immediately following rain events, unless it clears rapidly and is sunny.

5. One (1) to three (3) people should survey each wetland together. At least one (1) of these must be a recognized qualified bog turtle surveyor[2], and the others should have at least some previous experience conducting bog turtle surveys. To maintain survey effort consistency and increase the probability of encountering turtles, the same surveyors should be used for each wetland.

6. A minimum of four (4) surveys per wetland site are needed to adequately assess the site for presence of bog turtles. At least two of these surveys must be performed in May. From mid-April to mid-May, surveys should be separated by six or more days. From mid-May to mid-June, surveys should be separated by three or more days. The shorter period between surveys during late May and June is needed to ensure that surveys are carried out during the optimum window of time (i.e., before wetland vegetation becomes too thick).

   Note that bog turtles are more likely to be encountered by spreading the surveys out over a longer period. For example, erroneous survey results could be obtained if surveys were

conducted on four successive days in late April due to possible late spring emergence, or during periods of extreme weather because turtles may be buried in mud and difficult to find. If bog turtles are found on the first, second or third visit, the site does not need to be revisited. Because this is solely a presence/absence survey, survey efforts at a particular wetland may cease once a bog turtle has been found.

7. Survey time should be three (3) to six (6) person-hours per acre of wetland per visit. Both random opportunistic searching and transect surveys should be used at each wetland.

8. Walk quietly through the wetland. Bog turtles will bask on sedge tussocks and mossy hummocks, or be half-buried in shallow water or rivulets. Walking noisily through the wetland will often cause the turtles to submerge before they can be observed. Be sure to search areas where turtles may not be visible, including shallow pools, underground springs, open mud areas, vole runways and under tussocks. Do not step on the tops of tussocks or hummocks because turtle nests, eggs and nesting microhabitat may be destroyed.

9. Photo-documentation of each bog turtle located will be required; a macro lens is highly recommended. The photos should be in color and of sufficient detail and clarity to identify the bog turtle to species and individual. Therefore, photographs of the carapace, plastron, and face/neck markings should be taken of each individual turtle. Do not harass the turtle in an attempt to get photos of the face/neck markings; if gently placed on the ground, most turtles will slowly extend their necks if not harassed. If shell notching is conducted, do the photo-documentation after the notching is done.

10. The following information should be collected for each bog turtle: sex, carapace length-straight line, carapace width, weight, and details about scars/injuries. Plastron length-straight line information should also be collected to differentiate juveniles from adults (>70 mm; Ernst 1977) as well as to obtain additional information on recruitment, growth, and demography.

11. Each bog turtle should be marked (e.g., notched, PIT tagged) in a manner consistent with the requirements of the appropriate State agency and/or Service. Contact the appropriate State agency prior to conducting the survey to determine what type of marking system, if any, should be used.

12. All bog turtles must be returned to the point of capture as soon as possible on the same day as capture. They should only be held long enough to identify, measure, weigh, and photograph them, during which time their exposure to high temperatures must be avoided. No bog turtles may be removed from the wetland without permission from the Service and appropriate State agency.

13. The Fish and Wildlife Service and appropriate State agency should be sent a copy of survey results for review and concurrence, including the following: dates of site visits; time spent per wetland per visit; names of surveyors; a site map; a description of the wetlands within the project area (e.g., acreage, vegetation, soils, hydrology); an explanation of which wetlands or portions of wetlands were or were not surveyed, and why; survey methodology; weather per visit at beginning and end of survey (air temperature, water temperature, percent cloud cover,

wind, and precipitation); presence or absence of bog turtles, including number of turtles found and date, and age/sex of turtles found; and other reptile and amphibian species found and date.

ADDITIONAL SURVEYS / STUDIES

Proper implementation of the Phase 2 survey protocol is usually adequate to determine species presence or probable absence. Additional surveys, however, may be necessary to determine whether or not bog turtles are using a particular wetland, especially if the Phase 2 survey results are negative but the quality and quantity of habitat are good and in a watershed of known occurrence. In this case, additional surveys (Phase 2 and/or trapping surveys), possibly extending into the following field season, may be recommended by the Service or appropriate State agency.

If bog turtles are documented to occur at a site, additional surveys/studies may be necessary to characterize the population (e.g., number, density, population structure, recruitment), identify nesting and hibernating areas, and/or identify and assess adverse impacts to the species and its habitat, particularly if project activities are proposed to occur in, or within 300 feet of, wetlands occupied by the species.

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[1] These guidelines are taken directly from the final "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001). As additional information becomes available regarding survey techniques and effectiveness, these survey guidelines may be updated and revised. Contact the Fish and Wildlife Service or one of the state agencies listed below for the most recent version of these guidelines.

[2] Searching for bog turtles and recognizing their habitat is a skill that can take many months or years of field work to develop. This level of expertise is necessary when conducting searches in order to ensure that surveys are effective and turtles are not harmed during the survey (e.g., by stepping on nests). Many individuals that have been recognized as qualified to conduct bog turtle surveys obtained their experience through graduate degree research or employment by a state wildlife agency.

Attachment 1

CONTACT AGENCIES - BY STATE

(Revised May 2001)

STATE	FISH AND WILDLIFE SERVICE	STATE AGENCY
Connecticut	U.S. Fish and Wildlife Service New England Field Office 22 Bridge Street, Unit #1 Concord, NH 03301	Department of Environmental Protection Env. & Geographic Information Center 79 Elm Street, Store Floor, Hartford, CT 06106 *(info about presence of bog turtles in or near a project area)* Department of Environmental Protection Wildlife Division, Sixth Floor 79 Elm Street, Store Floor, Hartford, CT 06106 *(to get a Scientific Collectors Permit or determine what type of marking system to use)*
Delaware	U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401	Nongame & Endangered Species Program Delaware Division of Fish and Wildlife 4876 Hay Point Landing Road Smyrna, DE 19977
Maryland	U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401	Maryland Department of Natural Resources Wildlife & Heritage Division PO Box 68, Main Street Wye Mills, MD 21679
Massachusetts	U.S. Fish and Wildlife Service New England Field Office 22 Bridge Street, Unit #1 Concord, NH 03301	Division of Fisheries and Wildlife Dept. Fisheries, Wildlife and Env Law Enforcement Rt. 135 Westboro, MA 01581
New Jersey	U.S. Fish and Wildlife Service New Jersey Field Office 927 North Main Street, Bldg. D-1 Pleasantville, NJ 08232	Endangered & Nongame Species Program Division of Fish, Game & Wildlife Northern Region Office 26 Route 173W, Hampton, NJ 08827
New York	U.S. Fish and Wildlife Service 3817 Luker Road Cortland, NY 13045	New York Natural Heritage Program Department of Environmental Conservation 700 Troy-Schenectady Road Latham, NY 12110-2400 *(info about presence of bog turtles in or near a project area)* NY Department of Environmental Conservation Special Licenses Unit 50 Wolf Road, Albany, NY 12233 *(for endangered species permit applications)*

STATE	FISH AND WILDLIFE SERVICE	STATE AGENCY
Pennsylvania	U.S. Fish and Wildlife Service Pennsylvania Field Office 315 South Allen Street, Suite 322 State College, PA 16801	Endangered Species & Herpetology Coordinator Pennsylvania Fish and Boat Commission Bureau of Fisheries and Engineering 450 Robinson Lane Bellefonte, PA 16823

Attachment 2

BOG TURTLE COUNTIES OF OCCURRENCE OR LIKELY OCCURRENCE[1]

(Revised May 2001)

STATE	COUNTY	
Connecticut	Fairfield	Litchfield
Delaware	New Castle	
Maryland	Baltimore Carroll	Cecil Harford
Massachusetts	Berkshire	
New Jersey	Atlantic Burlington Camden Gloucester Hunterdon Mercer Middlesex Monmouth	Morris Ocean Passaic Salem Somerset Sussex Union Warren
New York	Albany Columbia Dutchess Genesee Orange Oswego Putnam	Seneca Sullivan Ulster Warren Wayne Westchester
Pennsylvania	Adams Berks Bucks Chester Cumberland Delaware Franklin	Lancaster Lebanon Lehigh Monroe Montgomery Northampton York

[1] *This list is valid for one year from the date indicated. It may, however, be revised more frequently if new counties of occurrence are documented. Updates to this list are available from the Service upon request.*

BOG TURTLE CONSERVATION ZONES[1]

(revised April 18, 2001)

Projects in and adjacent to bog turtle habitat can cause habitat destruction, degradation and fragmentation. Of critical importance is evaluating the potential direct and indirect effects of activities that occur in or are proposed for upland areas adjacent to bog turtle habitat. Even if the wetland impacts from an activity are avoided (i.e., the activity does not result in encroachment into the wetland), activities in adjacent upland areas can seriously compromise wetland habitat quality, fragment travel corridors, and alter wetland hydrology, thereby adversely affecting bog turtles.

The following bog turtle conservation zones have been designated with the intent of protecting and recovering known bog turtle populations within the northern range of this species. The conservation suggestions for each zone are meant to guide the evaluation of activities that may affect high-potential bog turtle habitat, potential travel corridors, and adjacent upland habitat that may serve to buffer bog turtles from indirect effects. *Nevertheless, it is important to recognize that consultations and project reviews will continue to be conducted on a case-by-case basis, taking into account site- and project-specific characteristics.*

Zone 1

This zone includes the wetland and visible spring seeps occupied by bog turtles. Bog turtles rely upon different portions of the wetland at different times of year to fulfill various needs; therefore, this zone includes the entire wetland (the delineation of which will be scientifically based), not just those portions that have been identified as, or appear to be, optimal for nesting, basking or hibernating. In this zone, bog turtles and their habitat are most vulnerable to disturbance, therefore, the greatest degree of protection is necessary.

Within this zone, the following activities are likely to result in habitat destruction or degradation and should be avoided. These activities (not in priority order) include:

- development (e.g., roads, sewer lines, utility lines, storm water or sedimentation basins, residences, driveways, parking lots, and other structures)
- wetland draining, ditching, tiling, filling, excavation, stream diversion and construction of impoundments
- heavy grazing
- herbicide, pesticide or fertilizer application[2]
- mowing or cutting of vegetation[2]
- mining
- delineation of lot lines (e.g., for development, even if the proposed building or structure will not be in the wetland)

Some activities within this zone may be compatible with bog turtle conservation but warrant careful evaluation on a case-by-case basis:

- light to moderate grazing
- non-motorized recreational use (e.g., hiking, hunting, fishing)

Zone 2

The boundary of this zone extends *at least 300 feet* from the edge of Zone 1 and includes upland areas adjacent to Zone 1. Activities in this zone could indirectly destroy or degrade wetland habitat over the short or long-term, thereby adversely affecting bog turtles. In addition, activities in this zone have the potential to cut off travel corridors between wetlands occupied or likely to be occupied by bog turtles, thereby isolating or dividing populations and increasing the risk of turtles being killed while attempting to disperse. Some of the indirect effects to wetlands resulting from activities in the adjacent uplands include: changes in hydrology (e.g., from roads, detention basins, irrigation, increases in impervious surfaces, sand and gravel mining); degradation of water quality (e.g., due to herbicides, pesticides, oil and salt from various sources including roads, agricultural fields, parking lots and residential developments); acceleration of succession (e.g., from fertilizer runoff); and introduction of exotic plants (e.g., due to soil disturbance and roads). This zone acts as a filter and buffer, preventing or minimizing the effects of land-use activities on bog turtles and their habitat. This zone is also likely to include at least a portion of the groundwater recharge/supply area for the wetland.

Activities that should be avoided in this zone due to their potential for adverse effects to bog turtles and their habitat include:

- development (e.g., roads, sewer lines, utility lines, storm water or sedimentation basins, residences, driveways, parking lots, and other structures)
- mining
- herbicide application[2]
- pesticide or fertilizer application
- farming (with the exception of light to moderate grazing - see below)
- certain types of stream-bank stabilization techniques (e.g., rip-rapping)
- delineation of lot lines (e.g., for development, even if the proposed building or structure will not be in the wetland)

Careful evaluation of proposed activities on a case-by-case basis will reveal the manner in which, and degree to which activities in this zone would affect bog turtles and their habitat. Assuming impacts within Zone 1 have been avoided, evaluation of proposed activities within Zone 2 will often require an assessment of anticipated impacts on wetland hydrology, water quality, and habitat continuity.

Activities that are likely to be compatible with bog turtle conservation, but that should be evaluated on a case-by-case basis within this zone include:

- light to moderate grazing
- non-motorized recreational use (e.g., hiking, hunting, fishing)
- mowing or cutting of vegetation

Zone 3

This zone includes upland, wetland, and riparian areas extending either to the geomorphic edge of the drainage basin or at least one-half mile beyond the boundary of Zone 2. Despite the distance from Zone 1, activities in these areas have the potential to adversely affect bog turtles and their habitat. This particularly applies to activities affecting wetlands or streams connected to or contiguous with Zone 1, because these

areas may support undocumented occurrences of bog turtles and/or provide travel corridors. In addition, some activities (e.g., roads, groundwater withdrawal, water/stream diversions, mining, impoundments, dams, "pump-and-treat" activities) far beyond Zone 1 have the potential to alter the hydrology of bog turtle habitat, therefore, another purpose of Zone 3 is to protect the ground and surface water recharge zones for bog turtle wetlands. Where the integrity of Zone 2 has been compromised (e.g., through increases in impervious surfaces, heavy grazing, channelization of stormwater runoff), there is also a higher risk of activities in Zone 3 altering the water chemistry of bog turtle wetlands (e.g., via nutrient loading, sedimentation, and contaminants).

Activities occurring in this zone should be carefully assessed in consultation with the Fish and Wildlife Service and/or appropriate State wildlife agency to determine their potential for adverse effects to bog turtles and their habitat. Prior to conducting activities that may directly or indirectly affect wetlands, bog turtles and/or bog turtle habitat surveys should be conducted in accordance with accepted survey guidelines.

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[1] These guidelines are taken directly from the final "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001).

[2] Except when conducted as part of a bog turtle habitat management plan approved by the Fish and Wildlife Service or State wildlife agency

RECOGNIZED QUALIFIED BOG TURTLE SURVEYORS

The following list includes individuals experienced in field herpetology that the U.S. Fish and Wildlife Service, New Jersey Field Office, and the New Jersey Endangered and Nongame Species Program currently recognize as qualified to identify bog turtle habitat and survey for the presence of bog turtles. This list may not include all individuals qualified to survey for this species. This list will be updated periodically. Inclusion of names on this list does not constitute endorsement by the Service or any other U.S. Government agency or State agency.

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Work: (410) 462-4398

27 February 2006

Mr. Carlo Popolizio
USFWS-NJFO
927 North Main Street
Building D
Pleasantville, New Jersey 08232

Reference: Transmittal of the Final Description of Proposed Action and Alternatives (DOPAA) and Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) for *Interim Flight Training Authority at Multiple Airfields in the Northeast*

Subject: SP-06/05, Response to Description of Proposed Action and Alternatives for Interim Flight Training Authority at Multiple Airfields in the Northeast

Dear Mr. Popolizio,

Thank you for your guidance relative to the U.S. Fish and Wildlife Service – New Jersey Field Office's (USFWS-NJFO) response to the above reference document entitled Description of Proposed Action and Alternatives for Interim Flight Training Authority at Multiple Airfields in the Northeast. As discussed, that document proposes interim use of Landing Zones (LZs) at two established and fully operation airfields; Wheeler-Sack Army Airfield (AAF) located on Fort Drum Army Installation, New York and Richmond International Airport (IAP), Virginia. These LZs would be used for training purposes by C-17s and KC-10s based at McGuire AFB, New Jersey.

The proposed use of the LZs at Wheeler-Sack AAF and Richmond IAP is designed to alleviate congestion of the airspace around McGuire AFB and allow the C-17 and KC-10 crews to train more effectively and safely. The Proposed Action does not include any new construction or activities at McGuire AFB or elsewhere in New Jersey. Therefore, the U.S. Air Force has determined that the Proposed Action does not have the potential to affect federally-listed threatened, endangered, or candidate species or their critical habitats in New Jersey.

This letter is a request for concurrence from the USFWS-NJFO with the conclusion that the Proposed Action, as described in Description of Proposed Action and Alternatives for Interim Flight Training Authority at Multiple Airfields in the Northeast, would be anticipated to have no effect on federally-listed threatened, endangered, or candidate species or their critical habitats in New Jersey. Should you have any questions or need any further information, please contact me at (210) 348-6000. Thank you.

Sincerely,

Gustin L. Hare
Project Manager
engineering-environmental Management, Inc.

cc: Mr. Doug Allbright (HQ AMC/A75C)
Mr. Glen Turney (e^2M)
Mr. Chewy Johnston (e^2M)
Mr. Brian Hoppy (e^2M)
Dr. Mike Moran (e^2M)
Ms. Cheryl Schmidt, (e^2M)
e^2M Project File: 3099-048

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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http://njfieldoffice.fws.gov

In Reply Refer To:
SP-06/05a

MAR 0 8 2006

Gustin L. Hare, Project Manager
engineering-environmental Management, Incorporated
510 East Ramsey, Suite 5
San Antonio, Texas 78216

Dear Mr. Hare:

This is in response to your letter of February 27, 2006 requesting that the U.S. Fish and Wildlife Service (Service), New Jersey Field Office (NJFO) update the information provided to Mr. Douglas Allbright of Scott Air Force Base, Illinois, on February 8, 2006 (our Control Number SP-06/05) regarding the *Description of Proposed Action and Alternatives for Interim Flight Training Authority at Multiple Airfields in the Northeast*. This update follows identification of an *erratum* in the subject proposed action document on page 1-2: "In order to satisfy the United States Air Force (USAF) requirement, a permanent LZ for C-17 training is being proposed at NAES Lakehurst" should have read ". . . was approved separately and covered under another Environmental Assessment."

AUTHORITY

The following comments on the proposed action are provided pursuant to Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA), and the National Environmental Policy Act (83 Stat. 852; 42 U.S.C. 4321 *et seq.*) (NEPA). These comments do not preclude future comments on any further NEPA documentation or comments to the New Jersey Department of Environmental Protection (NJDEP) if any future activities require authorization pursuant to the State's Freshwater Wetland Protection Act (N.J.S.A. 13:9-1 *et seq.)*.

FEDERALLY LISTED SPECIES

As explained in your February 27 letter, there will be no new constructions or activities in New Jersey associated with the interim flight training; therefore, the NJFO has determined that the proposed action has no potential to adversely affect federally listed or proposed threatened or endangered flora or fauna in New Jersey. If project plans change or additional information on federally listed endangered or threatened species becomes available, this determination may be reconsidered.

Please refer to our web site at http://www.fws.gov/northeast/njfieldoffice/Endangered/eslist.htm for a current list of federally listed species or candidate species in New Jersey. The above web site also provides contacts for obtaining the most up-to-date information on State-listed plant species in New Jersey from the New Jersey Natural Heritage Program and information on State-listed wildlife species from the New Jersey Endangered and Nongame Species Program. The Service recommends that you also incorporate protection measures for State-listed species in project planning.

Thank you for the opportunity to further comment on the subject report. Please contact Carlo Popolizio of my staff at (609) 646-9310, extension 32, if you have any questions or require further assistance regarding federally listed threatened or endangered species in New Jersey.

Sincerely,

John C. Staples
Assistant Supervisor

FAA
Airports Division

Eastern Region

Washington Airports District Office
23723 Air Freight Lane, Suite 210
Dulles, Virginia 20166
(703) 661-1354

March 16, 2006

Michael W. Hutchinson, Colonel USAF
Chief, Plans and Program Division
Directorate of Installations and Mission Support
HQ AMC/A75
507 Symington Drive
Scott AFB, IL 62225-5022

Dear Colonel Hutchinson:

We have received and reviewed the Description of Proposed Action and Alternatives (DOPAA) for interim flight training, dated January 18, 2006. The only airport discussed in this document within our office's jurisdiction is Richmond International Airport (RIC). Therefore, we have reviewed the document with respect to proposed training operations at RIC. We offer the following comments for your consideration.

1. The use of an existing civil airport for additional military training operations does not trigger a formal federal action by the Federal Aviation Administration, and therefore we do not anticipate preparing a NEPA document for this proposal. However, if the final adopted alternative(s) require any change in the RIC Airport Layout Plan or any construction at the airport to facilitate the training mission, the airport owner will be required to also prepare an environmental document for FAA review and a federal finding before the change is enacted.

2. The DOPAA proposes Runway 7/25 as the principal training runway at RIC. The current Airport Layout Plan for RIC shows that this runway will be closed and abandoned in the future. Therefore, Federal Aviation Administration grant funds will not be available to repair or rehabilitate this runway. It is doubtful that the airport owner (Capital Region Airport Commission) will invest in prolonging the life of this runway pavement. If the use of the runway for C-17 training shortens the remaining runway pavement life, an alternate funding source to keep the pavement in usable condition may be necessary.

3. We have forwarded this DOPAA directly to the Richmond International Airport for their review and comment. Since they are the owner of the facility, they may provide additional comments directly to your office.

Please do not hesitate to call us if you have any questions on the above comments.

Sincerely,

Terry J. Page, Manager
Washington Airports District Office

cc: Mr. Mathiasen, President and CEO, CRAC
DOAV