

*Final*

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LANGLEY INTEGRATED TOTAL FORCE  
(L-ITF) BEDDOWN AND LOGISTICS  
SUPPORT CENTER (LSC)  
ENVIRONMENTAL ASSESSMENT

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**United States Air Force  
Air Combat Command**



May 2006

## Report Documentation Page

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14. ABSTRACT

The Air Force would implement two interrelated, but separate proposed actions. Proposed Action One would integrate the 192 FW of the Richmond Virginia ANG with the 1 FW of Langley AFB as directed by the Commander, Air Combat Command (COMACC). Under this proposal, 970 full- and part-time personnel and support equipment from the 192 FW would transfer and integrate with the 1 FW F-22A wing groups (1OG, 1MSG, 1MXG, and 1MDG) at Langley AFB; integration of the 192 FW pilots would not add to assessed baseline F-22A sorties as analyzed in the Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement. Additionally, the 192 FW aircrews would fly and train in F-22A aircraft as part of the 1 FW. In addition to sorties flown as integrated training with the 1 FW, the 192 FW pilots would also train during one weekend per month, flying a total of 28 sorties between 9:00 a.m. and 4:00 p.m. The Air Force would construct a 192 FW Headquarters (HQ) to support the 192 FW Commander and staff. The Air Force identified three sites in the southern portion of Langley AFB and analyzed them as three potential alternative locations (A, B, and C) for the proposed 192 FW HQ. For each of the alternative sites, the size of the building would remain the same. The building would have a ground footprint of approximately 13,500 square feet (0.3 acres) excluding parking areas. Ten operations and maintenance (O&M) projects would be implemented for each of the three action alternatives under the L-ITF beddown proposal. The Air Force also analyzed the no-action alternative (Alternative D) under which the L-ITF beddown proposal and associated construction and O&M projects would not be implemented. Proposed Action Two would construct a 166,000 gross square feet Logistics Support Center (LSC) in the north central portion of the base. Under the L-ITF beddown proposal, Building 330 (Langley AFB's logistics supply center) would be renovated and converted to storage and warehouse space. Administrative functions of the 1 Logistics Readiness Squadron (1 LRS) and 192 LRS would be moved to the proposed LSC facility. Recommendations of the 2005 Defense Base Closure and Realignment Commission (DBCRC) for the Air Force to establish a Combat Air Force (CAF) LSC at Langley AFB has extended the requirement for a larger LSC facility. To meet those requirements defined in the 2005 DBCRC report; the Air Force would construct a LSC facility sized to meet current and future known (Base Realignment and Closure [BRAC]) requirements. The Air Force also analyzed the no-action alternative under which construction of a LSC on Langley AFB would not be implemented.

15. SUBJECT TERMS

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## ACRONYMS AND ABBREVIATIONS

1 FW	1 <sup>st</sup> Fighter Wing	LFCU	Langley Federal Credit Union
192 FW	192 <sup>nd</sup> Fighter Wing	L-ITF	Langley Integrated Total Force
ACAM	Air Conformity Applicability Model	LRS	Logistics Readiness Squadron
ACM	Asbestos-Containing Materials	LSC	Logistics Support Center
AFB	Air Force Base	LTA	Lighter-than-Air
Air Force	United States Air Force	MDG	Medical Group
AFEO	Air Force Experimentation Office	MGD	Million Gallons per Day
AFI	Air Force Instruction	MILCON	Military Construction
AFTC	Air Force Transformation Center	MOU	Memorandum of Understanding
AMU	Aircraft Maintenance Unit	MSG	Mission Support Group
ANG	Air National Guard	MSL	Mean Sea Level
AQCR	Air Quality Control Region	MXG	Maintenance Group
BRAC	Base Realignment and Closure	NAAQS	National Ambient Air Quality Standards
BTS	Bureau of Transportation Statistics	NAS	Naval Air Station
CAA	Clean Air Act	NASA	National Aeronautics and Space Administration Langley Research Center
CAAA	Clean Air Act Amendments	NEPA	National Environmental Policy Act
CAF	Combat Air Force	NESHAPS	National Emissions Standards for Hazardous Air Pollutants
CBPA	Chesapeake Bay Preservation Act	NGB	National Guard Bureau
CEQ	Council on Environmental Quality	NGVD	National Geodetic Vertical Datum
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	NO <sub>2</sub>	Nitrogen Dioxide
CFR	Code of Federal Regulations	NO <sub>x</sub>	Nitrogen Oxide
CO	Carbon Monoxide	NPDES	National Pollutant Discharge Elimination System
CONOPS	Concept of Operations	O <sub>3</sub>	Ozone
COMACC	Commander, Air Combat Command	O&M	Operations and Maintenance
CWA	Clean Water Act	O&T	Operations and Training
CZMA	Coastal Zone Management Act	OG	Operations Group
dB	Decibel	OSHA	Occupational Safety and Health Act
DoD	Department of Defense	Pb	Lead
DEQ	Department of Environmental Quality	PM <sub>2.5</sub>	Particulate Matter less than 2.5 Microns
DHR	Department of Historic Resources	PM <sub>10</sub>	Particulate Matter less than 10 Microns
DNL	Day-Night Average Sound Level	Ppm	Parts Per Million
DBCRC	Defense Base Closure and Realignment Commission	PSD	Prevention of Significant Deterioration
EA	Environmental Assessment	RCRA	Resource Conservation and Recovery Act
EIAP	Environmental Impact Analysis Process	ROD	Record of Decision
EIS	Environmental Impact Statement	RSS	Regional Supply Squadron
ERP	Environmental Restoration Program	SAV	Submerged Aquatic Vegetation
ESA	Endangered Species Act	sf	Square Foot/Feet
ft	Foot/Feet	SHPO	State Historic Preservation Office
FEMA	Federal Emergency Management Agency	SIP	State Implementation Plan
FONPA	Finding of No Practicable Alternative	SO <sub>2</sub>	Sulfur Dioxide
FONSI	Finding of No Significant Impact	SMP	Stormwater Management Plan
FS	Fighter Squadron	TLF	Temporary Living Facility
FTF	Future Total Force	TSCA	Toxic Substance Control Act
FW	Fighter Wing	UFC	Unified Facilities Criteria
FY	Fiscal Year	U.S.	United States
GSF	Gross Square Feet	USACE	United States Army Corps of Engineers
H <sub>2</sub> S	Hydrogen Sulfide	USC	United States Code
HAZMAT	Hazardous Materials	USEPA	United States Environmental Protection Agency
HQ	Headquarters	USFWS	United States Fish and Wildlife Service
HQ ACC	Headquarters Air Combat Command	UTE	Utilization
HQ USAF	Headquarters United States Air Force	VCP	Virginia Coastal Program
HRSD	Hampton Roads Sanitation District	VCRMP	Virginia Coastal Resources Management Program
HTA	Heavier-than-Air	VDCR	Virginia Department of Conservation Resources
HWMP	Hazardous Waste Management Plan	VDEQ	Virginia Department of Environmental Quality
HWSA	Hazardous Waste Storage Area	VDGIF	Virginia Department of Game and Inland Fisheries
IDA	Intensely Developed Area	VDHR	Virginia Department of Historic Resources
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning	VMRC	Virginia Marine Resources Commission
LBP	Lead Based Paint	VPDES	Virginia Pollutant Discharge Elimination System
		VWPPP	Virginia Water Protection Permit Program

**FINAL**  
**FINDING OF NO SIGNIFICANT IMPACT/  
FINDING OF NO PRACTICABLE ALTERNATIVE**

**1.0 NAME OF THE PROPOSED ACTIONS**

Langley Integrated Total Force Beddown and Logistics Support Center.

**2.0 DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES**

The United States Air Force (Air Force) proposes to implement two interrelated, but separate proposed actions at Langley Air Force Base (AFB).

Proposed Action One would integrate the 192 Fighter Wing (FW) of the Virginia Air National Guard (ANG) with the 1 FW of Langley AFB as directed by the Commander, Air Combat Command (COMACC). Under this proposal, 970 full- and part-time personnel and support equipment from the 192 FW would transfer and integrate with the 1 FW F-22A wing groups (1OG, 1MSG, 1MXG, and 1MDG) at Langley AFB; integration of the 192 FW pilots would not add to assessed baseline F-22A sorties as analyzed in the *Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement*. Additionally, the 192 FW aircrews would fly and train in F-22A aircraft as part of the 1 FW. In addition to sorties flown as integrated training with the 1 FW, the 192 FW pilots would also train during one weekend per month, flying a total of 28 sorties between 9:00 a.m. and 4:00 p.m. The Air Force would construct a 192 FW Headquarters (HQ) to support the 192 FW Commander and staff. The Air Force identified three sites in the southern portion of Langley AFB and analyzed them as three potential alternative locations (A, B, and C) for the proposed 192 FW HQ. For each of the alternative sites, the size of the building would remain the same. The building would have a ground footprint of approximately 13,500 square feet (0.3 acres) excluding parking areas. Ten operations and maintenance (O&M) projects would be implemented for each of the three action alternatives under the L-ITF beddown proposal. The Air Force also analyzed the no-action alternative (Alternative D) under which the L-ITF beddown proposal and associated construction and O&M projects would not be implemented.

Proposed Action Two would construct a 166,000 gross square feet Logistics Support Center (LSC) in the north central portion of the base. Under the L-ITF beddown proposal (Proposed Action One), Building 330 (Langley AFB's logistics supply center) would be renovated and converted to storage and warehouse space. Administrative functions of the 1 Logistics Readiness Squadron (1 LRS) and 192 LRS would be moved to the proposed LSC facility. Recommendations of the 2005 Defense Base Closure and Realignment Commission (DBCRC) for the Air Force to establish a Combat Air Force LSC at Langley AFB has extended the requirement for a larger LSC facility. To meet those requirements defined in the 2005 DBCRC report; the Air Force would construct a LSC facility sized to meet current and future known (Base Realignment and Closure [BRAC]) requirements. The Air Force also analyzed the no-action alternative under which construction of a LSC on Langley AFB would not be implemented.

### 3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The Environmental Assessment (EA) provides an analysis of the potential environmental consequences resulting from implementing two proposed actions and alternatives. Nine resource categories were thoroughly analyzed to identify potential impacts. According to the analysis in this EA, implementation of the two proposed actions would not result in significant direct, indirect, or cumulative impacts to any resource category or significantly affect conditions at Langley AFB. Additionally, implementing the L-ITF beddown proposal individually or in combination with the LSC proposal would not result in significant adverse cumulative impacts to any resource category.

**Air Quality.** Individually and in combination, Proposed Action One and Proposed Action Two would result in minimal and temporary effects to regional air quality contributing less than 1 percent to regional air emissions. Under Proposed Action One, impacts to air quality associated with demolition and construction activities would be short-term and contribute less than 1 percent to the regional air emissions, thereby not presenting any adverse impacts to regional air quality. The largest contributor to regional CO pollutants (more than 550 tons/year in 2008 and 2009) emanates from commuting personnel, who would travel an average of 80 miles round trip due to the potential of 192 FW personnel coming from as far away as Richmond or as close as Hampton. No additional emissions from flight operations training would be expected since the number of sorties flown would not change. Under Proposed Action Two, contributions to regional CO pollutants (more than 165 tons/year in 2009) would be less than 1 percent with the largest contribution emanating from commuting personnel, who would travel an average of 60 miles round trip. For ozone precursors, VOCs and NO<sub>x</sub>, annual quantities would fall well below *de minimis* thresholds under both of the proposed actions, thereby ensuring conformity. Under the no-action alternative for each of the proposed actions, impacts to air quality would not be expected since baseline emissions would remain unchanged, therefore, implementing the no-action alternatives would not result in adverse effects to the regional air quality under either proposed action.

**Noise.** Increased noise levels during demolition and construction activities under both proposed actions would be noticeable but unlikely to cause an increase in DNL above current levels; increases would be minor, short-term, and temporary. Construction projects under both proposed actions would be within the Langley AFB 70 to 75 dB DNL noise contours generated by existing aircraft operations. Under Proposed Action One, the 192 FW would conduct drill operations one weekend each month with an average of 28 sorties flown between 9:00 a.m. and 4:00 p.m. The drill-weekend sorties would represent a shift from weekday to weekend – no additional sorties beyond the total number analyzed in the *Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement* (Air Force 2002) would be flown. The 192 FW drill weekend operations in a given year would utilize about 3 percent of total allocated F-22A sorties for Langley AFB as analyzed in the F-22 EIS. As such, no adverse impacts to this resource would be expected through implementing Proposed Action One. Implementing the two proposed actions individually or in combination would result in no significant adverse cumulative impacts. Baseline noise levels on the base would not be expected to change through implementation of the no-action alternative under the each of the proposed actions.

***Water Resources, Water Quality, and Soils.*** The amount of impervious surfaces at Langley AFB would increase under Proposed Action One Alternative C (1.5 acres); there would be no net increase under Alternatives A and B. Proposed Action Two would add 5.9 acres of impervious surface to Langley AFB; implementation of Proposed Action One Alternative A and Proposed Action Two would add 7.4 acres of impervious surface to Langley AFB. Stormwater retention ponds would be constructed in the vicinity of facility construction to retain stormwater from impervious surfaces; impacts to water resources would be negligible. Implementing stormwater management plans and adherence to construction permit requirements would minimize impacts to water quality and soils resulting in no adverse impact to either resource. Under the no-action alternative for each proposed action, no changes beyond baseline conditions would be expected.

***Coastal Zone, Floodplains, and Wetlands.*** Construction locations under both of the proposed actions are within the coastal zone and floodplain. Proposed facility footprints would need to be elevated approximately 4 to 5 feet to meet Virginia floodplain requirements. Standard construction practices would be applied to control sedimentation and erosion during construction to avoid disturbance to drainage ditches that run along the perimeter of the Proposed Action One Alternatives B and C; no adverse consequences are anticipated. Removal of approximately 0.10 acres of wetlands would occur under Proposed Action Two Alternative A. Permits for construction in the wetlands would be required. A wetland mitigation plan would be required within 90 days of a FONSI/FONPA signature (32 CFR 989.22(d)). No impacts to these resources would occur under the no-action alternative for each of the proposed actions.

***Biological Resources.*** Under Proposed Action One and Proposed Action Two action alternatives, no long-term impacts to vegetation or wildlife would be expected. It is expected that under Proposed Action Two, disturbance-tolerant species would relocate to adjacent wetlands or to the on-site stormwater retention basin. No special-status species are known to occur at Langley AFB although the potential exists for the state endangered canebrake rattlesnake. Should any canebrake rattlesnakes be encountered during demolition or construction activities under either proposed action appropriate measures to minimize impacts to the species would be taken. Under the no-action alternatives for each proposed action, no changes to existing biological resources would occur since construction activities would not be implemented. The overall impact to biological resources from implementing the proposed actions individually or in combination would not be adverse.

***Cultural, Traditional, and Visual Resources.*** No architectural, archaeological, or traditional resources would be affected under the two proposed actions, either individually or in combination. Architectural compatibility standards for construction in the Langley Field Historic District under Proposed Action One Alternative A would be applied; therefore, there would be no adverse impacts to this resource. Minor adverse impacts would be expected to visual resources during facility construction under either proposed actions, but the impacts would be short-term in duration. Visual resources would be improved under Proposed Action One Alternative A through replacement of a non-compatible facility with a compatible facility in the Langley Field Historic District; however, the visual impacts under Proposed Action Two Alternative A could be diminished by introducing facility construction on a largely undeveloped parcel of

land. Under the no-action alternative for each of the proposed actions, no changes to the existing conditions of cultural, traditional, or visual resources would occur.

***Socioeconomics and Infrastructure.*** Under Proposed Action One, the region would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact would not be adverse since most of the 192 FW personnel would travel before and after peak traffic periods. Drill weekend traffic volumes in the vicinity of and on Langley AFB would not result in adverse impacts to transportation resources due to the absence of most active duty and civilian personnel at the base on weekends. Under Proposed Action Two, the region would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact is not expected to be adverse. Individually and combined, the region would experience minor positive economic gains with no adverse impact to infrastructure resources. Under the no-action alternative for each of the two proposed actions, no changes would be expected.

***Land Management and Use.*** Land use designations under Proposed Action One Alternatives A and C would be compatible. The location of Alternative B would require a change in land use from commercial to administrative; however, the impact would not be adverse since this change has been addressed under the Langley AFB General Plan. Land use designation for construction of the LSC under Proposed Action Two would be compatible as the site is designated for administrative land use. Under the no-action alternative for each proposed action, the Air Force would not implement facility construction and/or building modifications. No impacts to land management and use would be expected with implementation of the no-action alternatives.

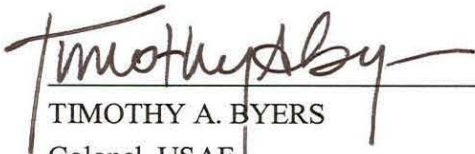
***Hazardous Materials, Hazardous Waste, and Solid Waste Management.*** No adverse impacts to this resource would be expected under either Proposed Action One or Proposed Action Two since no new waste streams would be created. Examination for asbestos-containing materials and lead based paint would occur prior to any facility demolition. Any such materials discovered would be disposed of according to regulations. Precautions would be taken when developing at Proposed Action One Alternatives B and C sites due to the ERP status. Under the no-action alternative under both proposed actions, the Air Force would not implement facility construction or building modifications; no changes to hazardous materials, hazardous waste, or solid waste resources would be expected with implementation of this alternative under each proposed action.



#### 4.0 FINDINGS

On the basis of the findings of the EA, conducted in accordance with the requirement of the National Environmental Policy Act, the Council on Environmental Quality regulations, and 32 Code of Federal Regulations Part 989, and after careful review of the potential environmental impacts of implementing the L-ITF beddown proposal, I find that there would be no significant impact on the quality of the human or natural environment, either individually or cumulatively with the LSC proposal. Therefore, I find there is no requirement to develop an Environmental Impact Statement.

Pursuant to Executive Order 11988, *Floodplain Management*, the authority delegated in Secretary of the Air Force 791.1, and the written redelegations accomplished pursuant to this order, and in taking the above information into account, I find there is no practicable alternative to implementing the proposed action within the floodplain. In accordance with Executive Order 11990, *Protection of Wetlands* authority delegated in the Secretary of the Air Force Order 791.1, and the written redelegations accomplished pursuant to the order, I find that there would be minimal to no impact on wetland environments from this construction.

  
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TIMOTHY A. BYERS  
Colonel, USAF  
Director of Installations and Mission Support (A7)

26 MAY 06  
\_\_\_\_\_  
Date



**COVER SHEET  
LANGLEY INTEGRATED TOTAL FORCE BEDDOWN  
AND LOGISTICS SUPPORT CENTER  
ENVIRONMENTAL ASSESSMENT**

**Responsible Agency:** United States Air Force, Air Combat Command

**Proposed Actions:** To implement two actions: 1) Integration of the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG) with the 1<sup>st</sup> FW (1 FW) of Langley Air Force Base (AFB) as directed by the Commander, Air Combat Command (COMACC). The proposal would require construction of a 192 FW Headquarters (HQ) and 10 operations and maintenance projects and 2) construction of a Logistics Support Center to meet current and future known (i.e., Base Realignment and Closure [BRAC]) requirements.

Written comments and inquiries regarding this document should be directed to:

HQ ACC/A7ZP  
129 Andrews St., Ste 102  
Langley AFB, VA 23665-2769  
ATTN: Mr. Don Calder

In addition, the document can be viewed on and downloaded from the World Wide Web at [www.az7pintegratedplanning.org](http://www.az7pintegratedplanning.org).

**Designation:** Final Environmental Assessment

**Abstract:** The Air Force would implement two interrelated, but separate proposed actions. Proposed Action One would integrate the 192 FW of the Richmond Virginia ANG with the 1 FW of Langley AFB as directed by the Commander, Air Combat Command (COMACC). Under this proposal, 970 full- and part-time personnel and support equipment from the 192 FW would transfer and integrate with the 1 FW F-22A wing groups (1OG, 1MSG, 1MXG, and 1MDG) at Langley AFB; integration of the 192 FW pilots would not add to assessed baseline F-22A sorties as analyzed in the *Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement*. Additionally, the 192 FW aircrews would fly and train in F-22A aircraft as part of the 1 FW. In addition to sorties flown as integrated training with the 1 FW, the 192 FW pilots would also train during one weekend per month, flying a total of 28 sorties between 9:00 a.m. and 4:00 p.m. The Air Force would construct a 192 FW Headquarters (HQ) to support the 192 FW Commander and staff. The Air Force identified three sites in the southern portion of Langley AFB and analyzed them as three potential alternative locations (A, B, and C) for the proposed 192 FW HQ. For each of the alternative sites, the size of the building would remain the same. The building would have a ground footprint of approximately 13,500 square feet (0.3 acres) excluding parking areas. Ten operations and maintenance (O&M) projects would be implemented for each of the three action alternatives under the L-ITF beddown proposal. The Air Force also analyzed the no-action alternative (Alternative D) under which the L-ITF beddown proposal and associated construction and O&M projects would not be implemented.

Proposed Action Two would construct a 166,000 gross square feet Logistics Support Center (LSC) in the north central portion of the base. Under the L-ITF beddown proposal, Building 330 (Langley AFB's logistics supply center) would be renovated and converted to storage and warehouse space. Administrative functions of the 1 Logistics Readiness Squadron (1 LRS) and 192 LRS would be moved to the proposed LSC facility. Recommendations of the 2005 Defense Base Closure and Realignment Commission (DBCRC) for the Air Force to establish a Combat Air Force (CAF) LSC at Langley AFB has extended the requirement for a larger LSC facility. To meet those requirements defined in the 2005 DBCRC report; the Air Force would construct a LSC facility sized to meet current and future known (Base Realignment and Closure [BRAC]) requirements. The Air Force also analyzed the no-action alternative under which construction of a LSC on Langley AFB would not be implemented.



*Final*

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LANGLEY INTEGRATED TOTAL  
FORCE (L-ITF) BEDDOWN AND  
LOGISTICS SUPPORT CENTER (LSC)  
ENVIRONMENTAL ASSESSMENT

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**United States Air Force  
Air Combat Command**

May 2006



# **EXECUTIVE SUMMARY**

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## EXECUTIVE SUMMARY

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This Environmental Assessment (EA) analyzes the potential environmental consequences resulting from the United States Air Force (Air Force) proposal to implement two separate, but interrelated proposals at Langley AFB: 1) Integration of the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG) with the 1<sup>st</sup> FW (1 FW) of Langley Air Force Base (AFB) as directed by the Commander, Air Combat Command (COMACC). The Langley Integrated Total Force (L-ITF) beddown proposal would require construction of a 192 FW Headquarters (HQ) and 10 operations and maintenance projects; and 2) construction of a Logistics Support Center (LSC) to meet current and future known (i.e., Base Realignment and Closure [BRAC]) requirements.

This draft EA was prepared by the Air Force, Headquarters Air Combat Command (HQ ACC), in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 [Code of Federal Regulations] CFR 1500-1508), and 32 CFR Part 989.

### PURPOSE AND NEED FOR THE TWO PROPOSED ACTIONS

***Proposed Action One.*** In 2002, the President and Secretary of Defense directed all of the services to transform their planning operations to meet the new world challenges. In response, the Air Force developed Future Total Force (FTF) Initiatives strategies to positively respond to reductions in defense funding, reductions in weapons systems inventories, and low retention of experienced fighter pilots through development and integration of Active Duty, Reserve, and ANG personnel to meet worldwide mission requirements now and into the future. The purpose of the L-ITF beddown proposal (Proposed Action One) is to allow for joint training of the F-22A weapons system. Implementation of this proposal would allow HQ ACC to utilize the unique strengths of the 192 FW, increase the ratio of experienced F-22A pilots and maintainers, retain and conserve experienced weapons system personnel, and utilize ANG personnel to support routine ACC temporary duty assignments and Air Expeditionary Forces rotations. Implementation of the L-ITF beddown proposal would meet the challenges presented by the President and the Secretary of Defense which directed the services to positively respond to reductions in defense funding, reductions in weapons systems inventories, and low retention of experienced fighter pilots through development and integration of Active Duty, Reserve, and ANG personnel to meet worldwide mission requirements now and into the future.

To meet these challenges amidst additional budget cuts, such as the recent Secretary of Defense order to cut Air Force FY07 budget requests by \$2.1 billion, the Air Force needs to implement the FTF Initiative strategies developed by HQ ACC and Virginia ANG. Integrating the 192 FW personnel with the 1 FW personnel would allow the Air Force to capitalize on their combined experience to increase combat effectiveness in the world theater.

***Proposed Action Two.*** In 2003, the Office of the Secretary of Defense challenged all military services with objectives for transforming current business practices that capitalize on elimination of excess infrastructure; reduction of operating costs while optimizing support to the warfighter. In response, the Air Force developed a transformation strategy, Expeditionary Logistics for the 21<sup>st</sup> Century, or eLog21 that in concert with FTF Initiatives would enhance the capabilities and processes by which the Air Force would conduct business through centralized, streamlined, and cost-effective logistics operations.

The purpose for constructing an 800-person LSC at Langley is to fulfill recommendations of the 2005 BRAC commission and directives of the Secretary of Defense (Defense Base Closure and Realignment Commission [DBCRC] 2005). The Secretary of Defense's justification for directing the establishment of the Combat Air Force (CAF) LSC at Langley AFB is that realigning LSC/ Regional Supply Squadron (RSS) positions from three major commands into one facility would be consistent with eLog21 initiative strategies developed by the Air Force. Recommendations presented in the 2005 DBCRC for the Air Force to establish a CSF LSC has extended the requirement beyond that for a new base level LSC. In order to fulfill the recommendations of the 2005 BRAC committee and directives of the Secretary of Defense, the Air Force needs to construct a LSC at Langley AFB sized to meet current and future known (i.e., BRAC) requirements.

## **PROPOSED ACTIONS AND ALTERNATIVES**

The Air Force would implement two interrelated, but separate proposed actions. Proposed Action One would integrate the 192 FW of the Richmond Virginia ANG with the 1 FW of Langley AFB as directed by the Commander, Air Combat Command (COMACC). Numerous construction and O&M projects would be implemented to support the personnel and equipment associated with the integration. Proposed Action Two would construct a large LSC on Langley AFB.

Under Proposed Action One, the Air Force identified four alternatives – three action alternatives (A, B, and C) that differ by location and the no-action alternative (D). The size of the 192 FW HQ building would be the same under each of the action alternatives. Under Alternative A, a branch of the Langley Federal Credit Union (LFCU) would be demolished and rebuilt in the base's Community Center.

Proposed Action Two (LSC) consists of the proposed action (Alternative A) and no-action (Alternative B) under which the Air Force would not construct a LSC on Langley AFB at this time.

## **MITIGATION MEASURES**

In accordance with 32 CFR Part 989.22, the Air Force must indicate if any mitigation measures would be needed to implement either of the two proposed actions at Langley AFB. For purposes of this EA, to integrate the 192 FW with the 1 FW and to construct and/or modify facilities in support of any

alternatives under Proposed Action One at Langley AFB, no mitigation measures will be needed to arrive at a FONSI/FONPA. None of these alternatives would affect wetlands or surface waters. In contrast, wetland mitigation measures or permits will be needed to arrive at a FONSI/FONPA in order to implement Proposed Action Two (Alternative A). A permit from the U.S. Army Corps of Engineers (USACE) Norfolk District and a permit under the Virginia Water Protection Permit Program (VWPPP) would be required. Both permits would require compensatory mitigation measures designed to prevent net loss of existing wetland acreage and function. A wetland mitigation plan would be required within 90 days of a FONSI/FONPA (32 Code of Federal Regulations Part 989.22(d)). Mitigation may be achieved through restoration, creation, or enhancement of wetlands, usually on-site or at a selected off-site location. Regulations require a minimum compensation ratio of one to one, or one unit of wetland mitigation for each unit of impact, based on the functional value of the impacted wetland. The steps for implementing a mitigation plan include the following: 1) a site selection and feasibility analysis; 2) development of a conceptual design for USACE review and approval; 3) negotiations with the USACE regarding details of the plan; 4) preparation of the design specifications; 5) contractor selection; 6) construction implementation and oversight; 7) as-built reports; 8) annual monitoring reports issued to the USACE for a three to five year period; 9) post-construction maintenance and corrective measures; and 10) a final delineation report to demonstrate permit compliance. Similarly, to satisfy Virginia Administrative Code 9 VAC 25-210-115, Langley AFB would need to coordinate with the Virginia Department of Environmental Quality, the City of Hampton, and the Virginia Marine Resources Commission on the Joint Permit Application Review process.

## **SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS**

According to the analysis in this EA, implementation of the two proposed actions would not result in significant direct, indirect, or cumulative impacts to any resource category. Proposed Action One would transfer personnel and support equipment of the 192 FW to 1 FW; numerous construction and O&M projects would be required; however, the result would be no adverse impacts to any resource category. Proposed Action Two would construct a new 800-person LSC to meet current and future known (BRAC) requirements; implementing Proposed Action Two would not significantly affect existing conditions at Langley AFB. A summary of the potential impacts under the two proposed actions are summarized below.

***Air Quality.*** Individually and in combination, Proposed Action One and Proposed Action Two would result in minimal and temporary effects to regional air quality contributing less than 1 percent to regional air emissions. Under Proposed Action One, impacts to air quality associated with demolition and construction activities would be short-term and contribute less than 1 percent to the regional air emissions, thereby not presenting any adverse impacts to regional air quality. The largest contributor to regional CO pollutants (more than 550 tons/year in 2008 and 2009) emanates from commuting personnel, who would travel an average of 80 miles round trip due to the potential of 192 FW personnel coming

from as far away as Richmond or as close as Hampton. No additional emissions from flight operations training would be expected since the number of sorties flown would not change. Under Proposed Action Two, contributions to regional CO pollutants (more than 165 tons/year in 2009) would be less than 1 percent with the largest contribution emanating from commuting personnel, who would travel an average of 60 miles round trip. For ozone precursors, VOCs and NO<sub>x</sub>, annual quantities would fall well below *de minimis* thresholds under both of the proposed actions, thereby ensuring conformity. Under the no-action alternative for each of the proposed actions, impacts to air quality would not be expected since baseline emissions would remain unchanged, therefore, implementing the no-action alternatives would not result in adverse effects to the regional air quality under either proposed action.

**Noise.** Increased noise levels during demolition and construction activities under both proposed actions would be noticeable but unlikely to cause an increase in DNL above current levels; increases would be minor, short-term, and temporary. Construction projects under both proposed actions would be within the Langley AFB 70 to 75 dB DNL noise contours generated by existing aircraft operations. Under Proposed Action One, the 192 FW would conduct drill operations one weekend each month with an average of 28 sorties flown between 9:00 a.m. and 4:00 p.m. The drill-weekend sorties would represent a shift from weekday to weekend – no additional sorties beyond the total number analyzed in the *Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement* (Air Force 2002) would be flown. The 192 FW drill weekend operations in a given year would utilize about 3 percent of total allocated F-22A sorties for Langley AFB as analyzed in the F-22 EIS. As such, no adverse impacts to this resource would be expected through implementing Proposed Action One. Implementing the two proposed actions individually or in combination would result in no significant adverse cumulative impacts. Baseline noise levels on the base would not be expected to change through implementation of the no-action alternative under the each of the proposed actions.

**Water Resources, Water Quality, and Soils.** The amount of impervious surfaces at Langley AFB would increase under Proposed Action One Alternative C (1.5 acres); there would be no net increase under Alternatives A and B. Proposed Action Two would add 5.9 acres of impervious surface to Langley AFB; implementation of Proposed Action One Alternative A and Proposed Action Two would add 7.4 acres of impervious surface to Langley AFB. Stormwater retention ponds would be constructed in the vicinity of facility construction to retain stormwater from impervious surfaces; impacts to water resources would be negligible. Implementing stormwater management plans and adherence to construction permit requirements would minimize impacts to water quality and soils resulting in no adverse impact to either resource. Under the no-action alternative for each proposed action, no changes beyond baseline conditions would be expected.

**Coastal Zone, Floodplains, and Wetlands.** Construction locations under both of the proposed actions are within the coastal zone and floodplain. Proposed facility footprints would need to be elevated approximately 4 to 5 feet to meet Virginia floodplain requirements. Standard construction practices

would be applied to control sedimentation and erosion during construction to avoid disturbance to drainage ditches that run along the perimeter of the Proposed Action One Alternatives B and C; no adverse consequences are anticipated. Removal of approximately 0.10 acres of wetlands would occur under Proposed Action Two Alternative A. Permits for construction in the wetlands would be required. A wetland mitigation plan would be required within 90 days of a FONSI/FONPA signature (32 CFR 989.22(d)). No impacts to these resources would occur under the no-action alternative for each of the proposed actions.

**Biological Resources.** Under Proposed Action One and Proposed Action Two action alternatives, no long-term impacts to vegetation or wildlife would be expected. It is expected that under Proposed Action Two, disturbance-tolerant species would relocate to adjacent wetlands or to the on-site stormwater retention basin. No special-status species are known to occur at Langley AFB although the potential exists for the state endangered canebrake rattlesnake. Should any canebrake rattlesnakes be encountered during demolition or construction activities under either proposed action appropriate measures to minimize impacts to the species would be taken. Under the no-action alternatives for each proposed action, no changes to existing biological resources would occur since construction activities would not be implemented. The overall impact to biological resources from implementing the proposed actions individually or in combination would not be adverse.

**Cultural, Traditional, and Visual Resource.** No architectural, archaeological, or traditional resources would be affected under the two proposed actions, either individually or in combination. Architectural compatibility standards for construction in the Langley Field Historic District under Proposed Action One Alternative A would be applied; therefore, there would be no adverse impacts to this resource. Minor adverse impacts would be expected to visual resources during facility construction under either proposed actions, but the impacts would be short-term in duration. Visual resources would be improved under Proposed Action One Alternative A through replacement of a non-compatible facility with a compatible facility in the Langley Field Historic District; however, the visual impacts under Proposed Action Two Alternative A could be diminished by introducing facility construction on a largely undeveloped parcel of land. Under the no-action alternative for each of the proposed actions, no changes to the existing conditions of cultural, traditional, or visual resources would occur.

**Socioeconomics and Infrastructure.** Under Proposed Action One, the region would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact would not be adverse since most of the 192 FW personnel would travel before and after peak traffic periods. Drill weekend traffic volumes in the vicinity of and on Langley AFB would not result in adverse impacts to transportation resources due to the absence of most active duty and civilian personnel at the base on weekends. Under Proposed Action Two, the region

would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact is not expected to be adverse. Individually and combined, the region would experience minor positive economic gains with no adverse impact to infrastructure resources. Under the no-action alternative for each of the two proposed actions, no changes would be expected.

***Land Management and Use.*** Land use designations under Proposed Action One Alternatives A and C would be compatible. The location of Alternative B would require a change in land use from commercial to administrative; however, the impact would not be adverse since this change has been addressed under the Langley AFB General Plan. Land use designation for construction of the LSC under Proposed Action Two would be compatible as the site is designated for administrative land use. Under the no-action alternative for each proposed action, the Air Force would not implement facility construction and/or building modifications. No impacts to land management and use would be expected with implementation of the no-action alternatives.

***Hazardous Materials, Hazardous Waste, and Solid Waste Management.*** No adverse impacts to this resource would be expected under either Proposed Action One or Proposed Action Two since no new waste streams would be created. Examination for asbestos-containing materials and lead based paint would occur prior to any facility demolition. Any such materials discovered would be disposed of according to regulations. Precautions would be taken when developing at Proposed Action One Alternatives B and C sites due to the ERP status. Under the no-action alternative under both proposed actions, the Air Force would not implement facility construction or building modifications; no changes to hazardous materials, hazardous waste, or solid waste resources would be expected with implementation of this alternative under each proposed action.

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# **CHAPTER 1**

## **PURPOSE AND NEED FOR THE PROPOSED ACTIONS**

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# CHAPTER 1

## PURPOSE AND NEED FOR THE PROPOSED ACTIONS

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### 1.1 INTRODUCTION

The United States Air Force (Air Force) proposes to undertake two separate, but interrelated actions. Proposed Action One involves integration of the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG) with the 1<sup>st</sup> FW (1 FW) of Langley Air Force Base (AFB). The integration is one of the Chief of Staff of the Air Forces' Future Total Force (FTF) Initiatives. FTF Initiatives were developed in response to directives of the President and Secretary of Defense presented in *Air Force Strategic Planning Directives for Fiscal Years 2006-2023* which instructs Air Force leaders to develop innovative programs to support Department of Defense (DoD) transformation strategies. The objectives of FTF Initiatives are to positively respond to reductions in defense funding, reductions in weapons systems inventories, and low retention of experienced fighter pilots through development and integration of Active Duty, Reserve, and ANG personnel to meet worldwide mission requirements now and into the future. The Langley Integrated Total Force (L-ITF) beddown would implement FTF Initiatives.

Proposed Action Two would construct a new Logistics Support Center (LSC) in the north central portion of the base. Current LSC functions extend into two on-base facilities (Buildings 330 and 647) and one off-base facility in Newport News. Under the L-ITF beddown proposal, Building 330 would be renovated and converted to storage and warehouse space. Administrative functions of the 1 Logistics Readiness Squadron (1 LRS) and 192 LRS would be moved to the proposed LSC facility.

Recommendations of the 2005 Defense Base Closure and Realignment Commission (DBCRC) for the Air Force to establish a Combat Air Force (CAF) LSC at Langley AFB has extended the requirement for a larger LSC. To meet those requirements defined in the 2005 DBCRC report, the Air Force would construct a LSC facility sized to meet current and future known Base Realignment and Closure (BRAC) requirements.

This environmental assessment (EA) has been prepared by the Air Force, HQ ACC, in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations (CFR) Part 1500-1508), and 32 CFR Part 989. The Air Force is conducting this analysis to determine potential environmental impacts of two proposed actions: Proposed Action One (L-ITF Beddown) and Proposed Action Two (LSC).

### Proposed Action One

The Commander, Air Combat Command (COMACC) directed implementation of FTF Initiatives at Langley AFB. The L-ITF beddown proposal developed by Headquarters (HQ) Air Combat Command (ACC) and supported by HQ USAF, the Adjutant General of Virginia, and the National Guard Bureau

(NGB) would implement FTF Initiative strategies. Under the L-ITF beddown proposal, the location of Virginia ANG 192 FW personnel and support equipment would be transferred to Langley AFB's 1 FW. Guardsmen of the 192 FW would train alongside 1 FW active duty personnel in all F-22A wing groups. Pilots from the 192 FW would fly F-22A aircraft based at Langley AFB, conducting a small share (3 percent) of the total available sorties during Virginia Air National Guard drill weekends. Through this arrangement, total sorties would not increase over baseline levels.

This unique proposal would require coordination on many levels. The Virginia ANG is governed by the Commonwealth of Virginia and are to perform only Virginia missions under United States Code (USC) Title 32, *National Guard*, unless mobilized (voluntarily or involuntarily) to support USC Title 10, *Armed Forces* missions. Due to legal constraints defined by Titles 32 and 10, very specific and well defined memorandums of understanding (MOU) would need to be developed at the Adjutant General of Virginia/COMMAC/ANG level, the 1 FW/192 FW level, and Group Commander level to ensure personnel and equipment would not be improperly used. In early 2005, an MOU between ACC, the NGB, and the Virginia ANG Adjutant General, authorized the standup of a detached unit of the 192 FW at Langley AFB for L-ITF planning and integration purposes (Air Force 2005a).

The proposed L-ITF beddown proposal would implement a three-phase approach for integrating personnel and support equipment of the 192 FW into the 1 FW F-22A wing groups. Integration of 192 FW personnel would occur in conjunction with: 1) F-22A construction and weapons system scheduled operations; and 2) proposed facility construction and modification projects. F-16 aircraft currently assigned to the 192 FW would be transferred (i.e., beddown) to other F-16 units per recommendations of the 2005 BRAC Committee and presented in the 2005 DBCRC Final Report (DBCRC 2005). The F-16 aircraft would not beddown at Langley AFB. If the 2005 BRAC Committee recommendations regarding the F-16 aircraft are implemented, separate environmental analysis would be required and prepared.

Under the L-ITF beddown proposal, a total of 300 full-time and 670 part-time (i.e., weekend) ANG personnel would integrate with:

- 1 FW Operations Group (1 OG) whose responsibilities are to direct the training and employment of the F-15C and F-22A squadrons/personnel;
- 1 FW Mission Support Group (1 MSG) which provides combat-ready support operations, engineering, maintenance, security and communications computer services;
- 1 FW Maintenance Group (1 MXG) responsible for logistics support functions; and
- 1 FW Medical Group (1 MDG) which provides inpatient, outpatient, and 24-hour emergency care to the 1 FW personnel and families in addition to maintaining a maximum state of readiness for any contingency.

To accommodate the people, equipment, and resources needed to accomplish the L-ITF beddown proposal, new facility construction and numerous facility upgrades at Langley AFB would be required.



The Air Force would construct a 192 FW HQ to support the 192 FW Commander, staff, and wing functions with space to accommodate up to 90 personnel. The Air Force identified three sites in the southern portion of Langley AFB and analyzed them as three potential alternative locations for the proposed 192 FW HQ. A branch of the Langley Federal Credit Union (LFCU), currently located at one of the three alternative sites, would be demolished and rebuilt in the Community Center of the base. In addition, a total of 10 operations and maintenance (O&M) projects to include renovation and expansion of 8 existing facilities and construction of a Fire Operations Training Facility and Fire Operations Vehicle Bay would be implemented as part of the L-ITF beddown proposal.

### **Proposed Action Two (LSC)**

Under Proposed Action Two, the Air Force would construct a new LSC facility. The LSC would provide administrative office space for 1 LRS, 192 LRS, and up to 800 Regional Supply Squadron (RSS) personnel whose sole mission would be sustaining a 24-hour computer-based operation of ordering and distribution of weapons system parts and supplies. The LSC at Langley AFB would become the lead organization and single point of contact for warfighter supplies for CAFs worldwide. The Air Force would construct the LSC on Langley AFB in the north portion of the base.

### **No Action**

In addition to these proposed actions, the Air Force analyzes the no-action alternative for each of two Proposed Actions. Under the no-action alternative for Proposed Action One, the L-ITF beddown proposal would not occur. The transfer of 192 FW personnel and support equipment to Langley AFB would not occur. No new facility construction or modification of existing facilities related to the L-ITF beddown proposal would be implemented at this time. Under the no-action alternative for Proposed Action Two, the Air Force would not construct a LSC at Langley AFB at this time.

## **1.2 BACKGROUND**

Langley AFB consists of 2,883 acres within Hampton, Virginia near the southern extremity of the lower Virginia Peninsula on the northwest and southwest branches of the Back River (Figure 1-1). The base is occupied jointly with National Aeronautics and Space Administration (NASA) Langley Research Center along the western portion of the base (Figure 1-2).

Langley AFB is the oldest, continuously active air installation in the Air Force. The base hosts the 1 FW, which supports the 27<sup>th</sup> Fighter Squadron (27 FS), 71 FS, and 94 FS. The 27 FS has the distinction of being both the oldest fighter squadron in the Air Force and the first squadron to operate and maintain the combat capable F-22A weapons system. In addition, Langley AFB is headquarters for ACC. The primary mission of Langley AFB is to provide superior combat air support to quickly and decisively

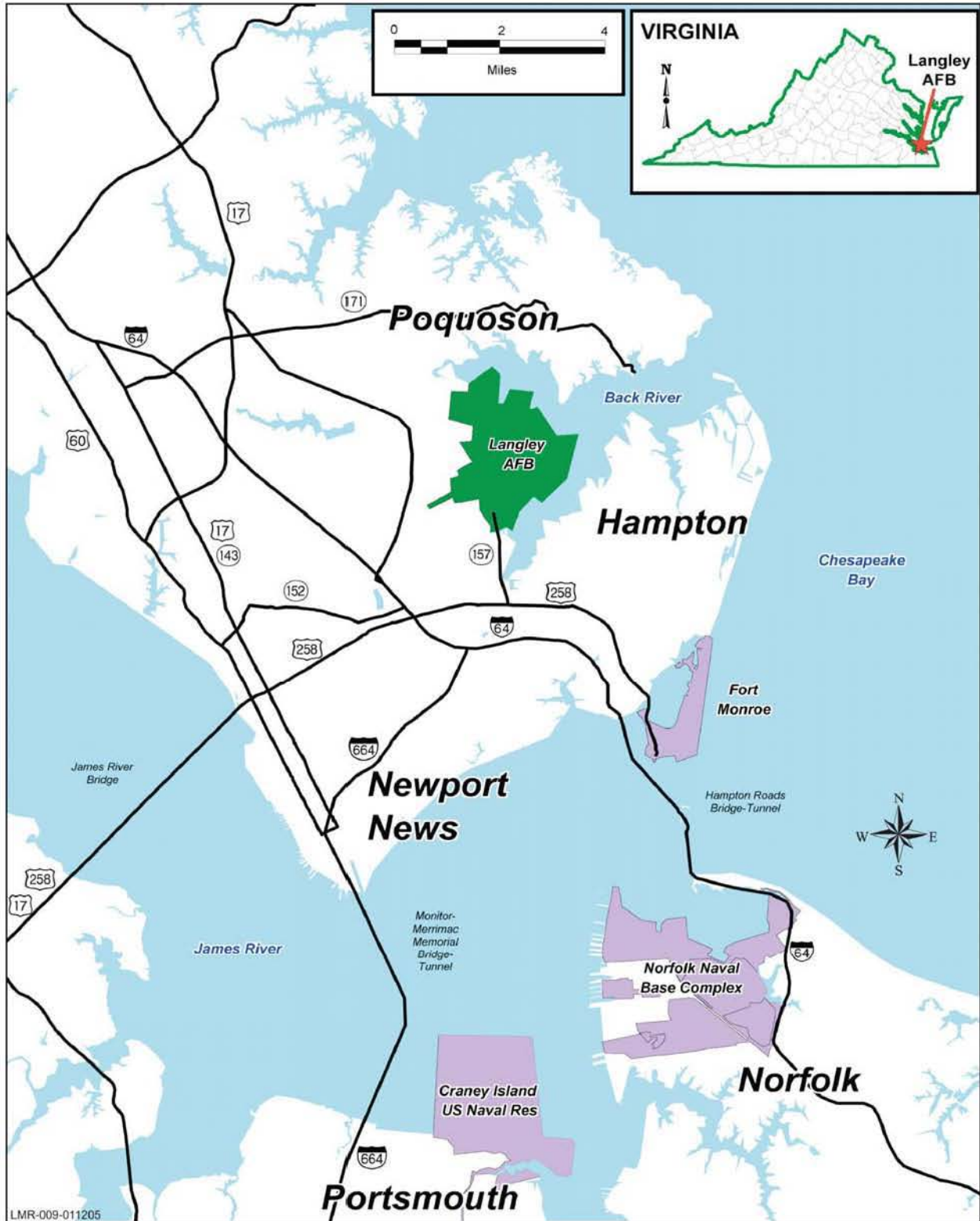
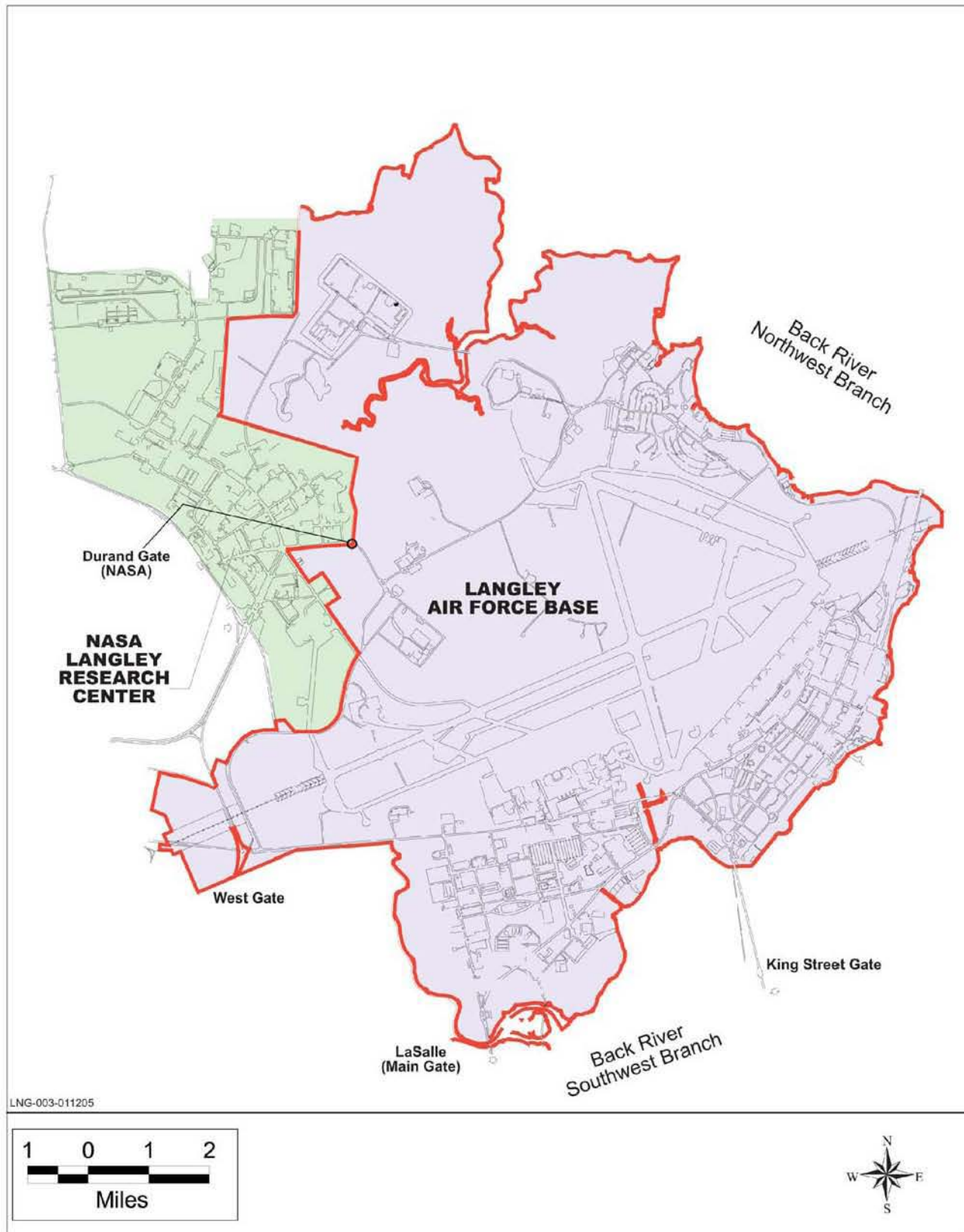


Figure 1-1 Regional Location



**Figure 1-2 Langley AFB and NASA Langley Research Center**

defeat America's adversaries. Langley AFB is also the location of one of the Air Force's logistics supply centers. The mission of the Air Force logistics supply center, also known as the Regional Supply Squadron (RSS) is to provide weapons system parts and supplies to CAFs around the world.

In 1975, Langley AFB established the 1 FW with the first combat operational F-15C aircraft having arrived in 1976. In 1985, the United States Congress determined a need existed for the development of the Air Force's next generation air superiority aircraft to replace and supplement the aging inventory of F-15C. The F-22A was developed to meet that need. In 2002, Langley AFB was selected to receive the first operational wing of F-22A aircraft. The F-22A beddown is currently underway and scheduled for completion in FY07.

### **1.3 PURPOSE AND NEED FOR THE PROPOSED ACTIONS**

The overall mission of the Air Force is defense of the United States and fulfillment of directives of the President and Secretary of Defense.

#### **Proposed Action One**

In 2002, the President and Secretary of Defense directed all of the services to transform their planning operations to meet the new world challenges. In response, the Air Force developed Future Total Force Initiatives strategies to positively respond to reductions in defense funding, reductions in weapons systems inventories, and low retention of experienced fighter pilots through development and integration of Active Duty, Reserve, and ANG personnel to meet worldwide mission requirements now and into the future. HQ Air Force initiated a study to integrate the Virginia ANG 192 FW with the 1 FW of Langley AFB. The Virginia ANG presented both HQ Air Force and HQ ACC with an integration concept in early 2003. In 2004, after being briefed on the L-ITF concept, COMACC requested HQ ACC to develop a concept of operations (CONOPS) that outlined the details of the proposed integration. The HQ ACC CONOPS was approved by HQ USAF, the Adjutant General of Virginia, and the NGB in April 2005 (Air Force 2005b).

The purpose of the L-ITF beddown proposal is to allow for joint training of the F-22A weapons system. Implementation of this proposal would allow HQ ACC to utilize the unique strengths of the 192 FW, increase the ratio of experienced F-22A pilots and maintainers, retain and conserve experienced weapons system personnel, and utilize ANG personnel to support routine ACC temporary duty assignments and Air Expeditionary Forces rotations. Implementation of the L-ITF beddown proposal would meet the challenges presented by the President and the Secretary of Defense which directed the services to positively respond to reductions in defense funding, reductions in weapons systems inventories, and low retention of experienced fighter pilots through development and integration of Active Duty, Reserve, and ANG personnel to meet worldwide mission requirements now and into the future.

To meet these challenges amidst additional budget cuts, such as the recent Secretary of Defense order to cut Air Force FY07 budget requests by \$2.1 billion, the Air Force needs to implement the FTF Initiative strategies developed by HQ ACC and Virginia ANG. Integrating the 192 FW personnel with the 1 FW personnel would allow the Air Force to capitalize on their combined experience to increase combat effectiveness in the world theater.

### **Proposed Action Two**

In 2003, the Office of the Secretary of Defense challenged all military services with objectives for transforming current business practices that capitalize on elimination of excess infrastructure; reduction of operating costs while optimizing support to the warfighter. In response, the Air Force developed a transformation strategy, Expeditionary Logistics for the 21<sup>st</sup> Century, or eLog21 that in concert with FTF Initiatives would enhance the capabilities and processes by which the Air Force would conduct business through centralized, streamlined, and cost-effective logistics operations.

The purpose for constructing a LSC at Langley is to fulfill recommendations of the 2005 BRAC commission and directives of the Secretary of Defense (DBCRC 2005). The Secretary of Defense's justification for directing the establishment of the CAF LSC at Langley AFB is that realigning LSC/RSS positions from three major commands into one facility would be consistent with eLog21 initiative strategies developed by the Air Force. Recommendations presented in the 2005 DBCRC for the Air Force to establish a CSF LSC have extended the requirement beyond that for a new base level LSC.

In order to fulfill the recommendations of the 2005 BRAC committee and directives of the Secretary of Defense, the Air Force needs to construct a LSC at Langley AFB sized to meet current and future known (i.e., BRAC) requirements. Furthermore, the proposed action must meet the logistic support requirements of Langley AFB and an integrated Air National Guard wing. In defining the need, the Base Development Office first examined existing facilities and functions to determine if the L-ITF requirements and future BRAC requirements could be accommodated without new construction. This approach would avoid environmental impacts altogether. However, since logistic support personnel and functions are currently geographically separated in multiple facilities, they cannot achieve the efficiency and synergy possible if all functions occupied the same facility. In addition, the total amount of available facility space cannot accommodate current and future requirements, nor do they offer the capacity to be expanded within their existing footprints. As such, to achieve these objectives, Langley AFB needs to adopt a long-term solution by constructing a new LSC, and consolidating all functions in a single complex. This approach would also make the vacated facilities available for other incoming functions.



## **CHAPTER 2**

# **DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES**

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## **CHAPTER 2**

### **DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES**

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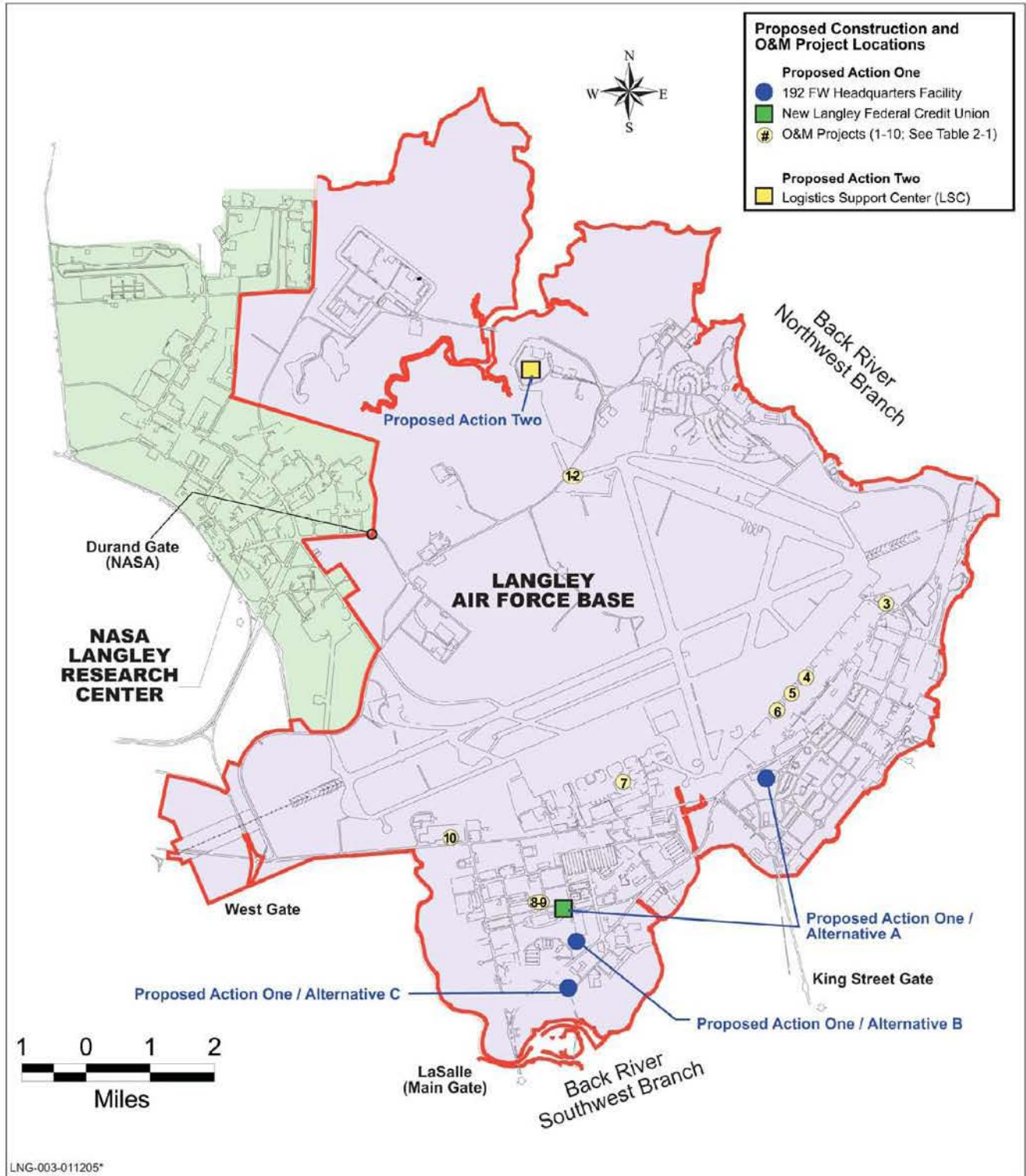
This chapter describes two separate proposed actions. Proposed Action One (L-ITF) would transfer support equipment and 970 full- and part-time Guardsmen of the Virginia ANG 192 FW to Langley AFB's 1 FW. Guardsmen of the 192 FW would train alongside 1 FW active duty personnel in all F-22A wing groups. Langley AFB is the only active Air Force installation in Virginia where Virginia ANG could integrate and conduct their mission training as such; only Langley AFB was considered for transfer and integration of the 192 FW personnel and equipment. HQ ACC developed a CONOPS to provide guidance for Air Force and ANG leaders to use throughout the integration process (Air Force 2005b). The L-ITF CONOPS mandates a three-phased approach for integrating the 192 FW personnel with 1 FW F-22A wing groups. Phase I spans the years FY05 to FY07. During this phase, approximately 565 personnel, to include 31 pilots and 534 aircraft maintainers would be assigned to Langley AFB. Phase II (FY07 to FY08) would see the complete transfer of remaining 192 FW personnel to Langley AFB. Facility construction and O&M projects would begin during this period. Interim facilities (i.e., trailers) with approximately 12,000 square feet of interior space would be provided for 192 FW personnel during the facility construction period. Phase III (FY08 to FY10) would see the 192 FW fully integrated with the 1 FW at Langley AFB.

Proposed Action Two would construct a LSC on Langley AFB. The LSC would provide office space for up to 800 RSS personnel. The 2005 DBCRC directed the Air Force to establish a Combat Air Force (CAF) LSC at Langley AFB, as such only Langley AFB was considered for construction and operation of the LSC, a 24-hour computer-based operation of ordering and distribution of weapons system parts and warfighter supplies for CAFs. In addition, administrative functions of the 1 LRS and 192 LRS would be moved to the proposed LSC.

The following describes at the alternative identification process for construction projects under each proposed action. Figure 2-1 provides construction locations for Proposed Action One (including O&M projects) and Proposed Action Two.

#### **2.1 ALTERNATIVE IDENTIFICATION PROCESS**

For identification of alternative construction project locations for each of the proposed actions, the Air Force reviewed the requirements of the base as well as the purpose and need for the proposed actions. Due to the unique requirements for both proposed actions, only Langley AFB was considered for all proposed construction projects. To meet the purpose and need for construction under each of the proposed actions, the Air Force would apply the following set of design principals for construction and/or modification of facilities on Langley AFB:



**Figure 2-1**  
**Proposed Construction Locations on Langley AFB**

- Antiterrorism Construction Standards – the new facility construction would incorporate Unified Facilities Criteria (UFC) 4-010-01 (*Department of Defense Minimum Antiterrorism Standards for Buildings*) which require 82-foot minimum standoff distance from adjacent roads and parking;
- Architectural Design Standards – the new facilities would reflect modern design standardization with an emphasis on sustainability and would conform to criteria in and technical guidance of Military Handbook 1190 (*Facility Planning and Design Guide*); Air Force Instruction 32-1023 (*Design and Construction Standards and Execution of Facility Construction Projects*); Air Force Handbook 32-1084 (*Facilities Requirements*); UFC 3-600-1 (*Fire Protection Engineering for Facilities*); and UFC 3-210-10 (*Low Impact Development*). Objectives include low environmental impact, optimal and efficient use and reuse of materials and resources using the Leadership in Energy and Environmental Design Green Building Rating System;
- Architectural Compatibility – the new facilities would reflect architecture, functional design, and quality and would be in conformance with the architectural compatibility standards for Langley AFB; and
- Parking lot design and construction would be in accordance with UFC 3-250-01FA, *Pavement Design for Roads, Streets, Walks and Open Storage Areas*. Concrete curb and gutter would be installed along the pavement edges and around the parking area islands and along the perimeter of parking areas.

Site preparation for each of the proposed construction alternatives and/or locations would require building footprints to be elevated. The Federal Emergency Management Agency (FEMA) has set the 100-year floodplain at Langley AFB at 8.5 ft on the National Geodetic Vertical Datum (NGVD) 29. The Air Force would need to raise the concrete slab of proposed buildings to 9.0 ft NGVD 29 putting the raised floor of buildings at 11.0 ft NGVD 29. Currently, each of the sites proposed for construction would require approximately 4 to 5 feet of fill material to achieve 9.0 ft NGVD 29.

### **2.1.1 Proposed Action One (L-ITF) Alternative Identification Process**

Identification of alternative locations for facility construction and proposed O&M projects associated with the L-ITF beddown proposal relied on the *L-ITF Joint ACC/NGB Facilities Site Survey* (Air Force 2005c) and the results of the L-ITF Site Activation Task Force meetings (Air Force 2005d). The L-ITF Joint Site Survey team used the personnel phasing approach identified in the HQ ACC CONOPS to determine facility space requirements for beddown of the 192 FW at Langley AFB. The team reviewed the number of full time requirements and new position requirements needed to support normal weekday and weekend operations across the four wing groups (i.e., 1 OG, 1 MSG, 1 MXG, and 1 MDG). The facility requirements list was then compared with the existing Langley AFB mission support facilities to determine what type of facility construction or building modifications would be necessary to implement

the proposed action. All military construction (MILCON) and modification (i.e., operations and maintenance [O&M]) projects would occur within the boundaries of Langley AFB.

### **2.1.2 Proposed Action One Alternatives**

Transfer of equipment and personnel from the 192 FW to the 1 FW at Langley AFB would be an integral part of Alternatives A, B, and C under Proposed Action One. Additionally, the 192 FW aircrews would fly and train in F-22A aircraft as part of the 1 FW. In addition to sorties flown as integrated training with the 1 FW, the 192 FW pilots would also train during one weekend per month, flying a total of 28 sorties between 9:00 a.m. and 4:00 p.m. Under previous environmental documentation concerning the beddown of F-22A aircraft at Langley AFB (Air Force 2002), a total of 11,187 F-22A sorties would be flown annually. In accordance with the FTF initiative, 192 FW pilots would utilize a proportion of these total sorties for their training. Proposed Action One would not require additional sorties beyond those assessed for the F-22A beddown (Air Force 2002).

The *L-ITF Joint ACC/NGB Facilities Site Survey* provides guidance on facility requirements and on-base facility modifications and/or additions necessary to support the L-ITF proposal (Air Force 2005c). The Air Force identified three sites (Figure 2-1) in the southern portion of the base and analyzed them as three potential alternative locations for the proposed 192 FW HQ. For each of the alternative sites (i.e., A, B, or C), the size of the building would remain the same. The building would have a ground footprint of approximately 13,500 square feet (0.3 acres) excluding parking areas. The interior space would be about 24,900 square feet. The building would be constructed on a ground level, reinforced concrete floor slab with supported steel beams and columns. The roof construction would consist of a metal deck supported on steel joists, beams, and columns. Additional features would include interior fire detection/protection systems and exterior landscaping. The proposed footprint for the approximate 65-vehicle parking area (includes building and road access and parking lot) would be about 25,200 square feet (0.6 acres). A stormwater retention area (dry basin) would also be constructed to retain stormwater generated from impervious surfaces, such as the building and parking lot.

Under any of the Proposed Action One alternatives, 10 O&M projects would be implemented. The Air Force would construct a 3,000 square foot Fire Operations Training facility, 3,000 square foot Fire Operations Vehicle Bay, and associated parking areas approximately .3 miles south of the proposed LSC in the north central portion of the base. The training facility would include office space, training room, bathrooms, storage, and locker space. The vehicle bay would have 3 drive-thru bays and would house a major crash vehicle, rescue vehicle, and crew vehicle. The Air Force would also implement modifications and upgrades to 8 existing facilities. These include expansion and modification of 3 recently constructed aircraft maintenance unit (AMU) buildings and a fuels facility; repair of 2 services facilities and a mobility hangar; and repair and modification of a base supply building. Table 2-1 presents the O&M projects analyzed in this EA and Figure 2-1 indicates the location of each of the project areas.

<b>Table 2-1 Proposed Action One O&amp;M Projects</b>			
	<i>Description</i>	<i>Action</i>	<i>Affected Area In Square Feet</i>
1	Fire Operations Training Facility and Parking Area	Construct	9,000
2	Fire Operations Vehicle Bay and Parking Area	Construct	9,000
3	Fuel Facility (Building [Bldg] 747)	Expansion/Modification	1,100
4	27 FS AMU (Bldg 789)	Expansion/Modification	2,400
5	71 FS AMU (Bldg 790)	Expansion/Modification	2,400
6	94 FS AMU (Bldg 791)	Expansion/Modification	2,400
7	Mobility Hangar (Bldg 371)	Repair	0
8	Services Facility (Bldg 147)	Repair	0
9	Services Facility (Bldg 148)	Repair	0
10	Base Supply (Bldg 330)	Repair/Modification	0
	Total		26,300

The following describes each of the alternatives under Proposed Action One. The Air Force anticipates that construction of the 192 FW HQ would begin in FY08 and require approximately 30 months for completion.

**Alternative A – “Credit Union Site”** is the preferred alternative under Proposed Action One. The site is adjacent to the residential/industrial area of the base and across the street from the 1 FW HQ building. The site is bound between Sweeney Avenue to the north, Cook Avenue to the west, Wright Avenue to the south, and Glover to the east. A branch of the Langley Federal Credit Union (LFCU) currently exists on the site. The



LFCU building and a portion of the existing parking lot would be demolished for construction of the 192 FW HQ. The remaining parking area would provide adequate parking for assigned personnel. Because this site is located within the Langley Field Historic District, new construction would be required to meet



Langley AFB architectural design standards. The building footprint would need to be elevated approximately 4 feet – requiring approximately 2,000 cubic yards of fill.

The Air Force would construct a new LFCU in the Community Center area of the base to replace that demolished under this alternative. The new LFCU would be a two-story building with approximately

18,000 square feet of interior space (9,000 square feet ground footprint) to support administrative offices and banking personnel. The building would be constructed on a ground level, reinforced concrete floor slab with supported steel beams and columns. The roof construction would consist of a metal deck supported on steel joists, beams, and columns. The LFCU design would be compatible with Langley AFB architectural standards. Additional features would include interior fire detection/protection systems and exterior landscaping. Construction is proposed for FY07. The location for the new LFCU is an open parking lot currently used to stage construction equipment. A portion of the parking lot would be demolished for construction of the new LFCU.

**Alternative B – “Dorm Site”** is located adjacent in the Shellbank/Community Center area of the base. The site is bound between Nealy Avenue to the south, Dogwood Avenue to the north, Tuskegee Airmen Boulevard to the east, and the Mission Support Group (MSG) building parking lot and existing dorms to the west. Dorms 37 and 38 would be demolished and the existing parking lot, which would provide adequate parking for assigned personnel, would be resurfaced. The 192 FW HQ would be sited in the open area due south of the Dorms 37 and 38. The building footprint would need to be elevated approximately 4 feet – requiring approximately 2,000 cubic yards of fill.



**Alternative C – “South TLF Site”** is located in the Shellbank area nearly adjacent to the “Dorm Site” and across from the MSG building. The site is bound by Nealy Avenue to the north, Burrell Street to the south and west, and the Housing Management Office to the east. Several temporary living facilities (TLF) were once located at this site. Under this alternative, two small picnic shelters would be demolished. The building footprint would need to be elevated approximately 4 feet – requiring approximately 2,000 cubic yards of fill. In addition to facility construction, a new 65-vehicle parking area would be required.



**Alternative D – “No-Action Alternative”** represents baseline conditions. Under the no-action alternative, Proposed Action One (L-ITF) would not be implemented. 192 FW personnel and support equipment would not be transferred to Langley AFB and no F-22A sorties would be flown by 192 FW pilots. No

new facility construction or modification of existing facilities related to the L-ITF beddown proposal would be implemented at this time. This alternative would not meet the Air Force goal to implement FTF Initiatives developed in response to orders given by the President and Secretary of Defense directing armed forces to develop programs that would maximize asset utilization in support of DoD transformation strategies.

### **2.1.3 Proposed Action Two (LSC) Alternative Identification Process**

After reviewing the Purpose and Need outlined in Section 1.3, Langley AFB determined that a new LSC facility would require a ground footprint of 76,000 square feet and incorporate 500 parking spaces. In order to identify a suitable construction site for the proposed LSC, the Base Development Office employed the Langley AFB General Plan (Langley AFB 2003a). Chapter 4 of the plan outlines constraints to and opportunities for development on the base, and is subdivided according to three categories: Cultural, Natural, and Environmental Constraints; Operational and Built Constraints; and Opportunities. These constraints included: wetlands, historic/archeological sites, 50 and 100-year floodplains, surface water bodies, forested areas, hunting areas, deer/fox habitat, waterfowl management areas, recreation areas, roosting management areas, Environmental Restoration Program sites, airfield clear zone/primary surfaces/accident potential zones, Explosive Quantity - Distance safety arcs, aircraft noise contours, and future/projected base mission infrastructure requirements. Review of the constraints defined in the Base General Plan clearly shows that the majority of developable open space and undeveloped parcels are located north of the flight line apron and near to the existing developments and roads. Given the size and functions of the proposed LSC, the base determined there is no parcel in this portion of the base that could accommodate the LSC without encountering some constraints, environmental or otherwise. However, the base identified the open horse pasture in the north central portion of the base as the only undeveloped site large enough to accommodate the facility yet affected by few constraints.

### **2.1.4 Proposed Action Two Alternatives**

*Alternative A – “Horse Pasture”* located in the north central portion of the base is the site selected under Proposed Action Two. The site is comprised primarily of a horse pasture and stable but also includes kennels and K-span buildings. The Air Force would construct a LSC building with a ground footprint of nearly 76,000 square feet (166,000 gross square feet) with an approximate 500-vehicle parking area. The building footprint would need to be elevated approximately 5 feet – requiring approximately 14,074 cubic yards of fill.



Construction is proposed for FY07.

**Alternative B – “No-Action Alternative”** represents baseline conditions. Under the no-action alternative, the Air Force would not construct a new LSC at Langley AFB at this time. Implementation of this alternative would be in direct conflict with recommendations given by the Secretary of Defense for the Air Force to establish a CAF LSC at Langley AFB (DBCRC 2005).

## **2.2 ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

This EA examines the affected environment for components of two proposed actions (L-ITF and LSC) at Langley AFB. It considers the current conditions of the affected environment and compares those to the no-action alternative. It also examines the cumulative impacts within the affected environment for each of the proposed actions and alternatives as well as past, present, and reasonably foreseeable actions of the Air Force and other federal, state, and local agencies. The steps involved in the environmental impact analysis process (EIAP) used to prepare this EA are outlined below.

1. *Conduct Interagency and Intergovernmental Coordination for Environmental Planning (IICEP).* IICEP requires comments to be solicited from local governments as well as federal and state agencies to ensure their concerns and issues about the two proposed actions are included in the analysis. It also requires that the public in the region local to the proposed actions be solicited for their comments as well. In December 2005, HQ ACC sent IICEP letters to these agencies requesting their input on the Air Force proposals. Comments were received from the following Virginia Department of Environmental Quality offices: Department of Game and Inland Fisheries, Department of Historic Resources, Marine Resources Commission, and Department of Conservation and Recreation. Chapter 6 provides the list of people and agencies contacted and Appendix A provides copies of IICEP correspondence.
2. *Prepare a draft EA and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA).* The first comprehensive document for public and agency review is the draft EA and FONSI/FONPA. For this EA, a FONSI/FONPAs was prepared that included both the L-ITF and LSC proposed actions. This draft EA examines the environmental impacts of the proposed action and no-action alternative for each of the two proposals.
3. *Announce that the draft EA and FONSI/FONPA have been prepared.* Advertisements in the *Virginian Pilot and Daily Press* newspapers notifying the public as to the availability of the draft EA and FONSI/FONPA for review in local libraries and on the World Wide Web ([www.cevp.com](http://www.cevp.com)) were published March 23, 2006 and March 26, 2006. An advertisement was also published in *The Flyer*, the Langley AFB newspaper March 31, 2006. The period of the 30-day public comment period was March 23, 2006 through April 21, 2006.



4. *Provide a public comment period.* The goal during this process is to solicit comments concerning the analysis presented in the draft EA and FONSI/FONPA. Comments were received from the Virginia Department of Environmental Quality (VDEQ).
5. *Prepare a final EA.* Following the public comment period, a final EA is prepared. This document is a revision (if necessary) of the draft EA, includes consideration of public and agency comments, and provides the decisionmaker with a comprehensive review of the proposed action and the potential environmental impacts. This Final EA reflects changes made due to substantive comments received from the VDEQ.
6. *Issue a Finding of No Significant Impact (FONSI/Finding of No Practicable Alternative (FONPA)).* The final step in the process is either a signed FONSI/FONPA, if the analysis supports this conclusion, or a determination that an environmental impact statement (EIS) would be required for the proposal.

### **2.3 OTHER REGULATORY AND PERMIT REQUIREMENTS**

This EA has been prepared in compliance with NEPA, other federal statutes, such as the Clean Air Act (CAA), the Clean Water Act (CWA), Endangered Species Act (ESA), the National Historic Preservation Act, Executive Orders, City of Hampton’s Chesapeake Bay Preservation Act (CBPA), and other applicable statutes and regulations. HQ ACC has initiated informal consultation with the U.S. Fish and Wildlife Service (USFWS) and the Virginia Department of Historic Resources (VDHR). Table 2-2 lists the applicable federal, state, and local regulatory requirements and potential for permit requirements if the alternatives under the proposed action were undertaken. The Air Force would also acquire appropriate construction permits.

**Table 2-2 Review and Permit Requirements**

<i>Type of Permit or Regulatory Requirement</i>	<i>Issue</i>	<i>Administering Agency</i>
Clean Air Act	Synthetic Minor Operating permit	Virginia Department of Environmental Quality
Section 404 Permit	Required for authorizing fill within wetlands or waters of the United States	U.S. Army Corps of Engineers, Norfolk District
Virginia Water Protection Permit	Wetlands and Surface Waters	Virginia Water Protection Permit Program, Commonwealth of Virginia Department of Environmental Quality
Endangered Species Act	Required to consult on impacts of project implementation on federally listed or proposed threatened and endangered species	U.S. Fish and Wildlife Service
State Endangered Species Act	Rare, threatened, and endangered plant and animal species	Virginia Department of Game and Inland Fisheries
Clean Water Act	Virginia Pollutant Discharge Elimination System stormwater permit	Commonwealth of Virginia Department of Conservation and Recreation

Chesapeake Bay Preservation Act	Economic development and water quality protection in Chesapeake Bay Preservation Areas	Chesapeake Bay Local Assistance Department
Virginia Stormwater Management Act and Regulations	Stormwater, Best Management Practices	Virginia Department of Conservation and Recreation; Chesapeake Bay Local Assistance Department
Virginia Erosion and Sediment Control Law	Sediment Control	Virginia Department of Conservation and Recreation; Chesapeake Bay Local Assistance Department
Section 106 Approval Historical/Archaeological	Archaeology, historical sites, cultural resources	Virginia Department of Historic Resources/Virginia State Historic Preservation Office
Virginia Coastal Resources Management Program; Coastal Zone Management Act of 1972	Coastal Zone Federal Consistency Review	Commonwealth of Virginia Department of Environmental Quality

## **2.4 MITIGATION MEASURES**

In accordance with 32 CFR Part 989.22, the Air Force must indicate if any mitigation measures would be needed to implement the two proposed actions at Langley AFB. For purposes of this EA, to integrate the 192 FW with the 1 FW and to construct and/or modify facilities in support of Proposed Action One at Langley AFB, no mitigation measures will be needed to arrive at a FONSI/FONPA.

Wetland mitigation measures will be needed to arrive at a FONSI/FONPA if Proposed Action Two were implemented. These measures would include obtaining a permit from the U.S. Army Corps of Engineers (USACE) Norfolk District and a permit under the Virginia Water Protection Permit Program (VWPPP). Both permits would require compensatory mitigation measures designed to prevent net loss of existing wetland acreage and function. On the federal side, a wetland mitigation plan would be required within 90 days of a FONSI/FONPA (32 Code of Federal Regulations Part 989.22(d)). Mitigation may be achieved through restoration, creation, or enhancement of wetlands, usually on-site or at a selected off-site location. Regulations require a minimum compensation ratio of one to one, or one unit of wetland mitigation for each unit of impact, based on the functional value of the impacted wetland. The steps for implementing a mitigation plan include the following: 1) a site selection and feasibility analysis; 2) development of a conceptual design for USACE review and approval; 3) negotiations with the USACE regarding details of the plan; 4) preparation of the design specifications; 5) contractor selection; 6) construction implementation and oversight; 7) as-built reports; 8) annual monitoring reports issued to the USACE for a three to five year period; 9) post-construction maintenance and corrective measures; and 10) a final delineation report to demonstrate permit compliance. Similarly, to satisfy Virginia Administrative Code 9 VAC 25-210-115, Langley AFB would need to coordinate with the VDEQ, the City of Hampton, and the Virginia Marine Resources Commission on the Joint Permit Application Review process.

## **2.5 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS**

According to the analysis in this EA, implementation of the two proposed actions would not result in significant impacts to any resource category. Proposed Action One would transfer personnel and support equipment of the 192 FW to 1 FW; numerous construction and O&M projects would be required; however, the result would be no adverse impacts to any resource category. Proposed Action Two would construct a new 800-person LSC to meet current and future known (BRAC) requirements; implementing Proposed Action Two would not significantly affect existing conditions at Langley AFB. A summary of the potential impacts under the two proposed actions are summarized below.

**Air Quality.** Individually and in combination, Proposed Action One and Proposed Action Two would result in minimal and temporary effects to regional air quality contributing less than 1 percent to regional air emissions. Under Proposed Action One, impacts to air quality associated with demolition and construction activities would be short-term and contribute less than 1 percent to the regional air emissions, thereby not presenting any adverse impacts to regional air quality. The largest contributor to regional CO pollutants (more than 550 tons/year in 2008 and 2009) emanates from commuting personnel, who would travel an average of 80 miles round trip due to the potential of 192 FW personnel coming from as far away as Richmond or as close as Hampton. No additional emissions from flight operations training would be expected since the number of sorties flown would not change. Under Proposed Action Two, contributions to regional CO pollutants (more than 165 tons/year in 2009) would be less than 1 percent with the largest contribution emanating from commuting personnel, who would travel an average of 60 miles round trip. For ozone precursors, VOCs and NO<sub>x</sub>, annual quantities would fall well below *de minimis* thresholds under both of the proposed actions, thereby ensuring conformity. Under the no-action alternative for each of the proposed actions, impacts to air quality would not be expected since baseline emissions would remain unchanged, therefore, implementing the no-action alternatives would not result in adverse effects to the regional air quality under either proposed action.

**Noise.** Increased noise levels during demolition and construction activities under both proposed actions would be noticeable but unlikely to cause an increase in DNL above current levels; increases would be minor, short-term, and temporary. Construction projects under both proposed actions would be within the Langley AFB 70 to 75 dB DNL noise contours generated by existing aircraft operations. Under Proposed Action One, the 192 FW would conduct drill operations one weekend each month with an average of 28 sorties flown between 9:00 a.m. and 4:00 p.m. The drill-weekend sorties would represent a shift from weekday to weekend – no additional sorties beyond the total number analyzed in the *Initial F-22 Operational Wing Beddown Draft Environmental Impact Statement* (Air Force 2002) would be flown. The 192 FW drill weekend operations in a given year would utilize about 3 percent of total allocated F-22A sorties for Langley AFB as analyzed in the F-22 EIS. As such, no adverse impacts to this resource would be expected through implementing Proposed Action One. Implementing the two proposed actions individually or in combination would result in no significant adverse cumulative impacts. Baseline noise

levels on the base would not be expected to change through implementation of the no-action alternative under the each of the proposed actions.

***Water Resources, Water Quality, and Soils.*** The amount of impervious surfaces at Langley AFB would increase under Proposed Action One Alternative C (1.5 acres); there would be no net increase under Alternatives A and B. Proposed Action Two would add 5.9 acres of impervious surface to Langley AFB; implementation of Proposed Action One Alternative A and Proposed Action Two would add 7.4 acres of impervious surface to Langley AFB. Stormwater retention ponds would be constructed in the vicinity of facility construction to retain stormwater from impervious surfaces; impacts to water resources would be negligible. Implementing stormwater management plans and adherence to construction permit requirements would minimize impacts to water quality and soils resulting in no adverse impact to either resource. Under the no-action alternative for each proposed action, no changes beyond baseline conditions would be expected.

***Coastal Zone, Floodplains, and Wetlands.*** Construction locations under both of the proposed actions are within the coastal zone and floodplain. Proposed facility footprints would need to be elevated approximately 4 to 5 feet to meet Virginia floodplain requirements. Standard construction practices would be applied to control sedimentation and erosion during construction to avoid disturbance to drainage ditches that run along the perimeter of the Proposed Action One Alternatives B and C; no adverse consequences are anticipated. Removal of approximately 0.10 acres of wetlands would occur under Proposed Action Two Alternative A. Permits for construction in the wetlands would be required; therefore, consultation with the USACE and VWP Program would be conducted and a Joint Permit Application Review Process initiated. A wetland mitigation plan would be required within 90 days of a FONSI/FONPA signature (32 CFR 989.22(d)). No impacts to these resources would occur under the no-action alternative for each of the proposed actions.

***Biological Resources.*** Under Proposed Action One and Proposed Action Two action alternatives, no long-term impacts to vegetation or wildlife would be expected. It is expected that under Proposed Action Two, disturbance-tolerant species would relocate to adjacent wetlands or to the on-site stormwater retention basin. No special-status species are known to occur at Langley AFB although the potential exists for the state endangered canebrake rattlesnake. Should any canebrake rattlesnakes be encountered during demolition or construction activities under either proposed action appropriate measures to minimize impacts to the species would be taken. Under the no-action alternatives for each proposed action, no changes to existing biological resources would occur since construction activities would not be implemented. The overall impact to biological resources from implementing the proposed actions individually or in combination would not be adverse.

***Cultural, Traditional, and Visual Resources.*** No architectural, archaeological, or traditional resources would be affected under the two proposed actions, either individually or in combination. Architectural

compatibility standards for construction in the Langley Field Historic District under Proposed Action One Alternative A would be applied; therefore, there would be no adverse impacts to this resource. Minor adverse impacts would be expected to visual resources during facility construction under either proposed actions, but the impacts would be short-term in duration. Visual resources would be improved under Proposed Action One Alternative A through replacement of a non-compatible facility with a compatible facility in the Langley Field Historic District; however, the visual impacts under Proposed Action Two Alternative A could be diminished by introducing facility construction on a largely undeveloped parcel of land. Under the no-action alternative for each of the proposed actions, no changes to the existing conditions of cultural, traditional, or visual resources would occur.

***Socioeconomics and Infrastructure.*** Under Proposed Action One, the region would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact would not be adverse since most of the 192 FW personnel would travel before and after peak traffic periods. Drill weekend traffic volumes in the vicinity of and on Langley AFB would not result in adverse impacts to transportation resources due to the absence of most active duty and civilian personnel at the base on weekends. Under Proposed Action Two, the region would experience a short-term, positive impacts to the regional economy from construction spending and longer-term positive impacts from personnel spending. An increase in housing and utility demand would be expected; the region would not be adversely affected. Traffic volumes in the vicinity of and on the base would increase; however, the overall impact is not expected to be adverse. Individually and combined, the region would experience minor positive economic gains with no adverse impact to infrastructure resources. Under the no-action alternative for each of the two proposed actions, no changes would be expected.

***Land Management and Use.*** Land use designations under Proposed Action One Alternatives A and C would be compatible. The location of Alternative B would require a change in land use from commercial to administrative; however, the impact would not be adverse since this change has been addressed under the Langley AFB General Plan. Land use designation for construction of the LSC under Proposed Action Two would be compatible as the site is designated for administrative land use. Under the no-action alternative for each proposed action, the Air Force would not implement facility construction and/or building modifications. No impacts to land management and use would be expected with implementation of the no-action alternatives.

***Hazardous Materials, Hazardous Waste, and Solid Waste Management.*** No adverse impacts to this resource would be expected under either Proposed Action One or Proposed Action Two since no new waste streams would be created. Examination for asbestos-containing materials and lead based paint would occur prior to any facility demolition. Any such materials discovered would be disposed of

according to regulations. Precautions would be taken when developing at Proposed Action One Alternatives B and C sites due to the ERP status. Under the no-action alternative under both proposed actions, the Air Force would not implement facility construction or building modifications; no changes to hazardous materials, hazardous waste, or solid waste resources would be expected with implementation of this alternative under each proposed action.

## **CHAPTER 3**

# **DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

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## **CHAPTER 3**

# **DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

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### **3.1 ANALYSIS APPROACH**

NEPA requires focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that an EA should consider, but not analyze in detail, those areas or resources not potentially affected by the proposal. Therefore, an EA should not be encyclopedic; rather, it should be succinct. NEPA also requires a comparative analysis that allows decisionmakers and the public to differentiate among the alternatives. This EA therefore, focuses on those resources that would be affected by two proposed actions: Proposed Action One which involves the integration of 970 full- and part-time personnel of the Virginia ANG 192 FW with the 1 FW of Langley AFB, Virginia, integrated training by 192 FW pilots, and demolition/constructions projects associated with the integration proposal. Proposed Action Two would construct a new Logistics Support Center at Langley AFB.

CEQ regulations (40 CFR Parts 1500-1508) for NEPA also require an EA to discuss impacts in proportion to their significance and present only enough discussion of other than significant issues to show why more study is not warranted. The analysis in this EA considers the current conditions of the affected environment and compares those to conditions that might occur should the Air Force implement the proposed actions or alternatives.

#### ***Affected Environment***

The proposed actions includes components that affect Langley AFB and the local community which includes the cities and counties of Hampton, James City County, Newport News, Norfolk, Poquoson, Virginia Beach, Williamsburg, and York County. Some components, such as facility construction projects, essentially affect only the base due to their limited scope. Changes in traffic volumes and personnel increases would not only affect the base, but would extend out into the local community. With the exception of air quality and socioeconomics and infrastructure, the potentially affected environment for this EA centers on Langley AFB.

#### ***Resources Analyzed***

Table 3-1 presents the results of the process of identifying resources to be analyzed in this EA. This assessment evaluates air quality; noise; water resources, water quality, and soils; coastal zone, floodplains, and wetlands; biological resources; cultural, traditional, and visual resources; socioeconomics and infrastructure; land management and use; and hazardous materials, hazardous waste, and solid waste management. These resources are analyzed in detail because they may be potentially affected by implementation of two proposed actions at Langley AFB.

<b>Table 3-1 Resources Analyzed in the Environmental Impact Analysis Process</b>		
<i>Resource</i>	<i>Potentially Affected by Implementation of Either Proposed Action</i>	<i>Analyzed in this EA</i>
Air Quality	Yes	Yes
Noise	Yes	Yes
Water Resources, Water Quality, and Soils	Yes	Yes
Coastal Zone, Floodplains, and Wetlands	Yes	Yes
Biological Resources	Yes	Yes
Cultural, Traditional, and Visual Resources	Yes	Yes
Socioeconomics and Infrastructure	Yes	Yes
Land Management and Use	Yes	Yes
Hazardous Materials, Hazardous Waste, and Solid Waste Management	Yes	Yes
Airspace Management and Use	No	No
Health and Safety	No	No
Environmental Justice and Protection of Children	No	No
Recreational Resources	No	No

***Resources Eliminated from Further Analysis***

The Air Force assessed numerous resources (refer to Table 3-1) that, in accordance with CEQ regulations, warrant no further examination in this EA. The following provides these resources and describes the rationale for this approach.

***Airspace Management and Use.*** Airspace management and use would not be affected by Proposed Action One. No part of the Air Force to integrate the 192 FW with 1 FW would alter airspace operations or air traffic management. Total annual aircraft sorties and F-22A utilization rate (UTE) as analyzed in the *Initial F-22 Operational Wing Beddown Environmental Impact Statement* (Air Force 2002) would remain unchanged under this proposal. Pertinent excerpts from the F-22 EIS on sortie-operations at Langley AFB are provided in Appendix D. A sortie is the flight of a single aircraft from takeoff through landing. The UTE is the number of sorties per authorized aircraft per month. For the F-22A, the UTE is 20. The F-22 EIS analyzed the total number of sorties the base will support when the full complement of F-22As are in inventory. The addition of 31 ANG pilots would not alter the UTE for the F-22A but it would increase the ratio of experienced F-22A pilots at Langley AFB. Construction of a new LSC under Proposed Action Two would not have any impact to this resource. For these reasons, airspace management and use was eliminated from further analysis under Proposed Action One and Proposed Action Two.

***Health and Safety.*** Effects to health and safety in relation to demolition and construction activities would be minimal and no different from standard, on-going activities occurring at Langley AFB. During demolition and construction under both proposed actions, prescribed industrial safety standards would be followed. There are no specific aspects of demolition or construction operations under either proposal

that would create any unique or extraordinary safety issues. All of the proposed construction locations are located outside of the explosive safety quantity distance clear zone and the inhabited building distance clear zones. Standards for implementation of safe distances between non-explosive related facilities and personnel from weapons-loaded aircraft are found in DoD 6055.9-Std, *DoD Ammunition and Explosives Safety Standards* and Air Force Manual 91-201, *Explosive Safety Standards*. Since no aspect of either project proposal would alter the health and safety conditions to persons on the base for any of the proposed construction locations, this resource has been eliminated from further analysis.

***Environmental Justice and Protection of Children.*** Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. Executive Order (EO)12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* ensures 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. Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires the identification and assessment of environmental health risks and safety risks that may affect children, and ensures that federal agency policy, programs, activities, and standards address environmental risks and safety risks to children.

The two proposed actions would not pose a risk to communities or population centers nor disproportionately impact low income or minority populations. In addition, the two proposed actions would not pose environmental and safety risks to children due to the fact that construction and O&M projects would be limited to Langley AFB. Therefore, since no minority, low-income groups, or children would be affected disproportionately or placed at risk by implementation of the two proposed actions or no-action alternatives, environmental justice and protection of children resources were eliminated from further analysis.

***Recreational Resources.*** Recreational resources include primarily outdoor recreational activities such as swimming, boating, hiking, and fishing and the lands that support these activities that occur away from a participant's residence. Two small picnic shelters would be lost on the base under Proposed Action One Alternative C; however, the loss of the shelters would not adversely impact recreational opportunities on the base because other picnic areas would be able to support the additional full-time and part-time Guardsmen. A horse pasture and stables, located in the north portion of the base coincides with the LSC construction under Proposed Action Two; however, the lease on the property will expire in April 2006 and Langley AFB has indicated development will occur in the north portion of the base to include the horse pasture area (Langley AFB 2003a). No other impacts to recreational resources would be expected through implementation of either proposed action or no-action alternative; therefore, this resource is not analyzed further in this EA.

## **3.2 AIR QUALITY**

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

The 1970 Clean Air Act (CAA) and its subsequent amendments (CAAA) established the National Ambient Air Quality Standards (NAAQS) for seven "criteria" pollutants: ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter equal to or less than 10 and 2.5 microns (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead (Pb). These standards, presented in Table 3-2, represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects.

Based on measured ambient criteria pollutant data, the U.S. Environmental Protection Agency (USEPA) designates all areas of the U.S. as having air quality better than (attainment) or worse than (nonattainment) the National Ambient Air Quality Standards (NAAQS). The CAA requires each state to develop a State Implementation Plan (SIP) that is its primary mechanism for ensuring that the NAAQS are achieved and maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in nonattainment and maintenance areas will not hinder future attainment with the NAAQS and must conform to the applicable SIP (i.e., Commonwealth of Virginia SIP).

The CAA also establishes a national goal of preventing degradation or impairment in federally-designated Class I areas. Class I areas are defined as those areas where any appreciable degradation in air quality or associated visibility impairment is considered significant. As a part of the Prevention of Significant Deterioration (PSD) Program, Congress assigned mandatory Class I status to all national parks, national wilderness areas (excluding wilderness study areas or wild and scenic rivers), and memorial parks greater than 5,000 acres. In Class I areas, visibility impairment is defined as atmospheric discoloration (such as from an industrial smokestack) and a reduction in regional visual range. Visibility impairment or haze results from smoke, dust, moisture, and vapor suspended in the air. Very small particles are either formed from gases (sulfates, nitrates) or are emitted directly into the atmosphere from sources like electric utilities, industrial fuel burning processes, and vehicle emissions.

Stationary sources, such as industrial areas, are typically the issue with visibility impairment in Class I areas, so the permitting process under the PSD program requires a review of all Class I areas within a 62-

mile (100-kilometer) radius of a proposed industrial facility. This analysis evaluated emissions from demolition, construction, and personnel realignment for reviewing potential visibility impacts.

Pollutants considered in the analysis for this EA include the criteria pollutants measured by state and federal standards. These include volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>), which are precursors (indicators of) ozone (O<sub>3</sub>), and other compounds such as CO, SO<sub>2</sub>, and PM<sub>10</sub>. Airborne emissions of PM<sub>2.5</sub>, lead (Pb), and hydrogen sulfide (H<sub>2</sub>S) are not addressed because the affected environment (i.e., Langley AFB) neither contains significant sources of these criteria pollutants, comprises part of a nonattainment area for these pollutants (PM<sub>2.5</sub>, Pb, and H<sub>2</sub>S), nor would the proposed construction activities and no-action alternative generate these pollutants.

POLLUTANT	<i>Virginia Standards</i>			<i>National Standards</i>	
	AVERAGING TIME	PRIMARY	SECONDARY	PRIMARY	SECONDARY
Ozone (O <sub>3</sub> ) <sup>A</sup>	1 Hour <sup>B</sup>	235 µg/m <sup>3</sup> (0.12 ppm)	Same as Primary	235 µg/m <sup>3</sup> (0.12 ppm)	Same as Primary
	8 Hour	0.08 ppm	Same as Primary	0.08 ppm	Same as Primary
Carbon Monoxide (CO)	1 Hour	40 mg/m <sup>3</sup> (35 ppm)	--	40 mg/m <sup>3</sup> (35 ppm)	--
	8 Hour	10 mg/m <sup>3</sup> (9.0 ppm)	--	10 mg/m <sup>3</sup> (9.0 ppm)	--
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Average	100 µg/m <sup>3</sup> (0.053 ppm)	Same as Primary	100 µg/m <sup>3</sup> (0.053ppm)	Same as Primary
	24 Hour	--	--	--	--
Sulfur Dioxide (SO <sub>2</sub> )	Annual Average	80 µg/m <sup>3</sup> (0.03 ppm)	--	80 µg/m <sup>3</sup> (0.03 ppm)	--
	24 Hour	365 µg/m <sup>3</sup> (0.14 ppm)	--	365 µg/m <sup>3</sup> (0.14 ppm)	--
	3 Hour	--	0.5 ppm	--	0.5 ppm
Particulate Matter PM <sub>10</sub>	Annual Arithmetic Mean	50 µg/m <sup>3</sup>	Same as Primary	50 µg/m <sup>3</sup>	Same as Primary
	24 Hour	150 µg/m <sup>3</sup>	Same as Primary	150 µg/m <sup>3</sup>	Same as Primary
Particulate Matter PM <sub>2.5</sub>	Annual Arithmetic Mean	15 µg/m <sup>3</sup>	Same as Primary	15 µg/m <sup>3</sup>	Same as Primary
	24 Hour	65 µg/m <sup>3</sup>	Same as Primary	65 µg/m <sup>3</sup>	Same as Primary
Lead (Pb)	Calendar Quarter	1.5 µg/m <sup>3</sup>	Same as Primary	1.5 µg/m <sup>3</sup>	Same as Primary
Total Suspended Particulates (TSP)	Annual Geometric Mean	75 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	--	--
	30 Day	--	--	--	--
	7 Day	--	--	--	--
	24 Hour	260 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	--	--

<sup>A</sup> USEPA promulgated federal 8-hour ozone standards on April 15, 2004.  
<sup>B</sup> Federal 1-hour standards were revoked as of April 2005.

### 3.2.1 Affected Environment

The affected environment varies according to pollutant. For pollutants that do not undergo a chemical reaction after being emitted from a source (PM<sub>10</sub>, CO, and SO<sub>2</sub>), the affected area is generally restricted to

a region in the immediate vicinity of the base. However, the region of concern for O<sub>3</sub> and its precursors (NO<sub>x</sub> and VOCs) is a larger regional area (i.e., the Hampton Roads Air Quality Control Region [AQCR]) because they undergo a chemical reaction and change as they disperse from the source. This change can take hours, so depending upon weather conditions, the pollutants could be some distance from the source. Impacts of the proposed actions can be evaluated in the context of the existing local air quality, the baseline emissions for the base and region, and the relative contribution of the proposed actions to regional emissions.

*Base Environment.* The Virginia Department of Environmental Quality (DEQ) has primary jurisdiction over air quality and sources of stationary source emissions at Langley AFB. Stationary source emissions at Langley AFB under baseline conditions (and under no-action) include external combustion units (e.g., boilers and water heaters), aircraft jet engine testing, degreasing, storage tanks, fueling operations, heavy construction operation, solvent use, and surface coating; mobile emissions include those from aerospace ground equipment and government-owned vehicles (Langley AFB 2005a). Table 3-3 provides the Langley AFB calendar year (CY) 2004 inventoried emissions; the base is considered a major source under Title V of the CAA, however, since the base has accepted limits on fuel usage, Langley AFB is classified as a synthetic minor (Langley AFB 2005a).

<b>Table 3-3 2004 Baseline Emissions for Langley AFB Affected Environment</b>					
	<i>Pollutants (Tons/Year)</i>				
<i>Base Emissions Source Category</i>	<i>CO</i>	<i>VOCs</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>
Stationary Sources	20.4	51.2	35.2	1.89	9.80
Mobile Sources	55.7	5.78	10.7	0.46	7.79
TOTAL Base Emissions	76.1	56.98	45.9	2.35	17.59

Source: Langley AFB 2005a.

*Regional Environment.* Langley AFB is located in the Hampton Roads Intrastate AQCR. This AQCR includes four counties (Isle of Wright, James City, Southampton, and York) as well as nine independent cities (Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg). This area includes substantial industry, Interstate 64 (I-64), several military and commercial airfields, and a large population that generates emissions. Table 3-4 summarizes the regional emissions (stationary and mobile) of criteria pollutants and precursor emissions for the Hampton Roads Intrastate AQCR.

<b>Table 3-4 Regional Emissions for Langley AFB Affected Environment</b>					
<i>Emissions</i>	<i>Pollutants (Tons/Year)</i>				
	<i>CO</i>	<i>VOCs</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>
Hampton Roads AQCR	240,122.33	31,035.74	65,095.57	91,032.42	4,059.50
Langley AFB Emissions	76.1	56.98	45.9	2.35	17.59
Base Percent Contribution to AQCR	0.03	0.18	0.07	0.003	0.4

\*2001 Annual Point Source and 1996 Annual Mobile Emissions (Virginia DEQ 2005a and 2005b).

The Hampton Roads AQCR inventory of point source emissions for all criteria pollutants was obtained from the Virginia DEQ website and includes the 2001 emissions inventory (Virginia DEQ 2005a). For mobile sources, the Virginia DEQ measures VOCs, CO, and NO<sub>x</sub>; the most recent inventory available is the 1996 inventory (Virginia DEQ 2005b). Air quality in this AQCR has been designated as either in “attainment” or “unclassifiable/attainment” with the NAAQS for all pollutants except the 8-hour ozone standard. USEPA, in its April 2004, determination found the Hampton Roads AQCR to be in nonattainment for the 8-hour ozone (USEPA 2003) effective June 15, 2004. Hampton Roads AQCR has until June 2007 to reach attainment (USEPA 2004). The USEPA has established *de minimis* thresholds for criteria pollutants in nonattainment. For ozone, the precursor pollutants VOCs and NO<sub>x</sub>, have USEPA-established *de minimis* levels of 100 tons per year for each of the pollutants, for any new project.

### **3.2.2 Environmental Consequences**

The CAA prohibits federal agencies from supporting activities that do not conform to a SIP that has been approved by the USEPA. To assess the affects of the two proposed actions, analysis must include direct and indirect emissions from all activities that would affect the regional air quality. Emissions from proposed actions are either “presumed to conform” (based on emissions levels which are considered insignificant in the context of overall regional emissions) or must demonstrate conformity with approved SIP provisions.

For conservative evaluation, added acreage for ground-surface disturbance activities was adopted for calculation purposes for both proposed actions; this acreage subsumes the demolition/construction footprint, ingress/egress/staging sites for construction equipment, stormwater dry basin placement, and sidewalk/access areas.

The emissions associated with both proposed actions include: fugitive dust (PM<sub>10</sub>) from any demolition, fill, and grading; combustion (primarily CO and NO<sub>x</sub>, and smaller amounts of VOCs, SO<sub>x</sub>, and PM<sub>10</sub>) from heavy-duty diesel construction equipment exhaust (e.g., trucks, dozers, cranes, and rollers); and increase in commuters due to personnel realignment. For both proposed actions, applicable demolition, construction, and commuting emissions were calculated using the Air Force Air Conformity Applicability Model (ACAM) version 4.2.2 software (AFCEE 2005). Appendix B provides screenshots of the ACAM input data used to calculate these emissions.

### **Proposed Action One**

#### *Alternatives A, B, and C*

The air quality analysis for Proposed Action One at Langley AFB quantifies the changes (increases and decreases) due to activities associated with the demolition, construction, and personnel realignment to support the L-ITF beddown proposal. In addition, 10 O&M projects (refer to Table 2-1) were evaluated

under each of the Proposed Action One alternatives. The approach used under air quality analysis was to evaluate facility demolition under each alternative location for the 192 FW HQ (Alternatives A, B, and C), followed by construction activities (grading; filling; and building, parking, and stormwater basin construction), construction of the new LFCU under Alternative A, realignment of personnel, and implementing 10 O&M construction/expansion/repair/modification projects. Under Proposed Action Two, air quality from the LSC construction and personnel additions from BRAC were evaluated. Table 3-5 provides the demolition, construction, O&M projects, and personnel realignment that would occur under Proposed Action One Alternatives A, B, or C; Appendix B provides specific assumptions used for calculating potential emissions.

Under Proposed Action One (Alternatives A, B, and C) demolition and construction and O&M projects, it was assumed that trucks hauling materials would be covered and travel on paved roads, and that exposed surfaces and soil piles would be watered to minimize fugitive dust. Demolition would start during the Fourth Quarter FY07; facility construction (buildings, additions, building access, parking areas, and stormwater dry basins) would follow from First Quarter FY08 through FY10; and personnel would be fully realigned by Second Quarter FY07. Commuting distances for the 970 used 40 miles each way as an average due to the potential of Guardsmen coming from as far away as Richmond or as close as Hampton.

<b>Table 3-5 Proposed Demolition, Construction, and O&amp;M Projects under Proposed Action One</b>			
<b><i>Proposed Action One</i></b>			
<b><i>Alternative A</i></b>	<b><i>Demolition</i></b>		
<b><i>Year</i></b>	<b><i>Building footprint (Length x width x height)</i></b>	<b><i>Parking Footprint (sf)</i></b>	
LFCU-1st Q/FY08	25x55x16 (main)	3,000	
LFCU-1st Q/FY08	16x36x16 (addition)	0	
<b><i>Construction</i></b>			
<b><i>Facility (year)</i></b>	<b><i>Building footprint (sf)</i></b>	<b><i>Parking Footprint (sf)</i></b>	<b><i>Total</i></b>
LFCU (1 <sup>st</sup> Q/FY08)	9,000	Resurface	9,000
192 FW HQ Facility (2 <sup>nd</sup> Q/FY08)	13,500	Resurface	13,500
O&M Projects (4 <sup>th</sup> Q/FY07)	14,300	12,000	26,300
<b><i>Personnel</i></b>			
	<b><i>Full-Time</i></b>	<b><i>Part-Time</i></b>	
<b><i>Personnel</i></b>	300	670	970



<b>Table 3-5 Proposed Demolition, Construction, and O&amp;M Projects under Proposed Action One (continued)</b>			
<b>Proposed Action One</b>			
<b>Alternative B</b>	<b>Demolition</b>		
<i>Facility (year)</i>	<i>Building footprint (Length x width x height)</i>	<i>Parking Footprint (sf)</i>	
Dorm 37-1 <sup>st</sup> Q/FY08	37x220x48	0	
Dorm 38-1 <sup>st</sup> Q/FY08	37x220x48	0	
<b>Construction</b>			
<i>Facility (year)</i>	<i>Building footprint (sf)</i>	<i>Parking Footprint (sf)</i>	<i>Total</i>
192 FW HQ Facility (2 <sup>nd</sup> Q/FY08)	13,500	Resurface	13,500
O&M Projects (4 <sup>th</sup> Q/FY07)	14,300	12,000	26,300
<i>Personnel</i>	300	670	970
<b>Alternative C</b>	<b>Construction</b>		
<i>Facility (year)</i>	<i>Building footprint (sf)</i>	<i>Parking Footprint (sf)</i>	<i>Total</i>
192 FW HQ Facility (2 <sup>nd</sup> Q/FY08)	13,500	25,200	38,700
O&M Projects (4 <sup>th</sup> Q/FY07)	14,300	12,000	26,300
	<i>Full-Time</i>	<i>Part-Time</i>	
<i>Personnel</i>	300	670	970

Tables 3-6 to 3-9 summarize emissions for Proposed Action One during the applicable demolition and construction phases, as well as personnel realignment from 2007 through 2010.

The largest contributor to regional CO pollutants under Proposed Action One (the highest levels reaches 282 tons per year in 2008) emanates from commuting personnel, who it is estimated would travel an average of 80 miles round trip for the L-ITF beddown proposal.

Impacts to air quality associated with demolition and construction activities would be short-term and contribute less than 1 percent to the regional air emissions, thereby not presenting any significant adverse impacts to regional air quality. During demolition and construction, fugitive dust would be minimized through implementation of dust control measures (i.e., water application on soil) as outlined in Code of Virginia regulations 9 VAC 5-50-60 *et seq.* of the regulations for the *Control and Abatement of Air Pollution*. While it is not anticipated that there will be open burning, Langley AFB would follow the requirements for permitting found under 9 VAC 5-40-5600 *et seq.* Impacts to air quality due to commuting personnel would be long-term, but would not present a significant adverse impact to the regional air quality due to its less than 1 percent increased contribution to the region.

<b>Table 3-6 Projected Pollutant Emissions Proposed Action One Alternative A</b>					
	<i>Pollutants (Tons/Year)</i>				
	<i>CO</i>	<i>VOCs</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>
<b>2007</b>					
Mobile Sources (Personnel)	147.73	9.69	8.69	0.03	0.05
Stationary Sources (Construction)	2.7	0.18	0.87	0.1	0.07
<i>Annual Total</i>	<i>150.43</i>	<i>9.87</i>	<i>9.56</i>	<i>0.13</i>	<i>0.12</i>
Percent Regional Contribution	0.063	0.032	0.015	0.000	0.003
<b>2008</b>					
Mobile Sources (Personnel)	282.07	17.66	15.69	0.04	0.06
Stationary Sources (Construction)	31.07	2.09	10.12	1.19	1.34
<i>Annual Total</i>	<i>313.14</i>	<i>19.75</i>	<i>25.81</i>	<i>1.23</i>	<i>1.4</i>
Percent Regional Contribution	0.130	0.064	0.040	0.001	0.034
<b>2009</b>					
Mobile Sources (Personnel)	272.51	16.26	14.48	0.04	0.06
Stationary Sources (Construction)	7.79	0.53	2.63	0.29	0.2
<i>Annual Total</i>	<i>280.3</i>	<i>16.79</i>	<i>17.11</i>	<i>0.33</i>	<i>0.26</i>
Percent Regional Contribution	0.117	0.054	0.026	0.000	0.006
<b>2010</b>					
Mobile Sources (Personnel)	262.7	14.89	13.3	0.04	0.06
Stationary Sources (Construction)	0.13	0.01	0.16	0	0.01
<i>Annual Total</i>	<i>262.83</i>	<i>14.9</i>	<i>13.46</i>	<i>0.04</i>	<i>0.07</i>
Percent Regional Contribution	0.109	0.048	0.021	0.000	0.002
<b>De Minimis Threshold</b>	<b>N/A</b>	<b>100</b>	<b>100</b>	<b>N/A</b>	<b>N/A</b>

<b>Table 3-7 Projected Pollutant Emissions Proposed Action One Alternative B</b>					
	<i>Pollutants (Tons/Year)</i>				
	<i>CO</i>	<i>VOCs</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>
<b>2007</b>					
Mobile Sources (Personnel)	147.73	9.69	8.71	0.03	0.05
Stationary Sources (Construction)	2.7	0.18	0.9	0.11	0.55
<i>Annual Total</i>	<i>150.43</i>	<i>9.87</i>	<i>9.61</i>	<i>0.14</i>	<i>0.6</i>
Percent Regional Contribution	0.063	0.032	0.015	0.000	0.015
<b>2008</b>					
Mobile Sources (Personnel)	282.12	17.67	15.71	0.04	0.06
Stationary Sources (Construction)	23.59	1.58	7.69	0.91	1.23
<i>Annual Total</i>	<i>305.71</i>	<i>19.25</i>	<i>23.4</i>	<i>0.95</i>	<i>1.29</i>
Percent Regional Contribution	0.127	0.062	0.036	0.001	0.032
<b>2009</b>					
Mobile Sources (Personnel)	272.55	16.27	14.49	0.04	0.06
Stationary Sources (Construction)	5.1	0.34	1.73	0.19	0.14
<i>Annual Total</i>	<i>277.65</i>	<i>16.61</i>	<i>16.22</i>	<i>0.23</i>	<i>0.2</i>
Percent Regional Contribution	0.116	0.054	0.025	0.000	0.005
<b>2010</b>					
Mobile Sources (Personnel)	262.74	14.89	13.32	0.04	0.06
Stationary Sources (Construction)	0.1	0.01	0.12	0	0.01
<i>Annual Total</i>	<i>262.84</i>	<i>14.90</i>	<i>13.44</i>	<i>0.04</i>	<i>0.07</i>
Percent Regional Contribution	0.109	0.048	0.021	0.000	0.002
<b>De Minimis Threshold</b>	<b>N/A</b>	<b>100</b>	<b>100</b>	<b>N/A</b>	<b>N/A</b>

<b>Table 3-8 Projected Pollutant Emissions Proposed Action One Alternative C</b>					
	<i>Pollutants (Tons/Year)</i>				
	<i>CO</i>	<i>VOCs</i>	<i>NOx</i>	<i>SO2</i>	<i>PM10</i>
<b>2007</b>					
Mobile Sources (Personnel)	147.73	9.69	8.71	0.03	0.05
Stationary Sources (Construction)	2.7	0.18	0.87	0.1	0.07
<i>Annual Total</i>	<i>150.43</i>	<i>9.87</i>	<i>9.58</i>	<i>0.13</i>	<i>0.12</i>
Percent Regional Contribution	0.063	0.032	0.015	0.000	0.003
<b>2008</b>					
Mobile Sources (Personnel)	282.12	17.67	15.71	0.04	0.06
Stationary Sources (Construction)	23.59	1.58	7.69	0.91	1.07
<i>Annual Total</i>	<i>305.71</i>	<i>19.25</i>	<i>23.4</i>	<i>0.95</i>	<i>1.13</i>
Percent Regional Contribution	0.127	0.062	0.036	0.001	0.028
<b>2009</b>					
Mobile Sources (Personnel)	272.55	16.27	14.49	0.04	0.06
Stationary Sources (Construction)	5.1	0.34	1.73	0.19	0.14
<i>Annual Total</i>	<i>277.65</i>	<i>16.61</i>	<i>16.22</i>	<i>0.23</i>	<i>0.2</i>
Percent Regional Contribution	0.116	0.054	0.025	0.000	0.005
<b>2010</b>					
Mobile Sources (Personnel)	262.74	14.89	13.32	0.04	0.06
Stationary Sources (Construction)	0.1	0.01	0.12	0	0.01
<i>Annual Total</i>	<i>262.84</i>	<i>14.9</i>	<i>13.44</i>	<i>0.04</i>	<i>0.07</i>
Percent Regional Contribution	0.109	0.048	0.021	0.000	0.002
<b>De Minimis Threshold</b>	<b>N/A</b>	<b>100</b>	<b>100</b>	<b>N/A</b>	<b>N/A</b>

**Alternative D (No-Action)**

Under the no-action alternative for Proposed Action One, the Air Force would not implement the L-ITF beddown proposal at Langley AFB at this time. Construction, demolition, or O&M projects associated with Proposed Action One would not be implemented. Impacts to this resource would not be expected since baseline emissions (as described under the affected environment, Table 3-3) would remain unchanged, therefore, implementing the no-action alternative would not result in adverse effects to the regional air quality. Implementation of the no-action alternative under Proposed Action Two would not be expected to affect regional air quality since baseline conditions would remain unchanged.

**Proposed Action Two**

**Alternative A**

The air quality analysis for Proposed Action Two at Langley AFB quantifies the construction and personnel additions from BRAC. The approach used under air quality analysis was to evaluate construction activities (grading; filling; and building, parking, and stormwater basin construction), construction of the LSC. Table 3-9 provides the construction and personnel additions that would occur under Proposed Action Two; Appendix B provides specific assumptions used for calculating potential emissions.

<b>Table 3-9 Proposed Demolition, Construction, and O&amp;M Projects under Proposed Action Two</b>			
<i>Proposed Action Two</i>			
<i>Alternative A</i>	<i>Construction</i>		
<i>Facility (year)</i>	<i>Building footprint (sf)</i>	<i>Parking Footprint (sf)</i>	<i>Total</i>
LSC (2nd Q/FY07)	76,000	180,000	256,000
	<i>Full-Time</i>	<i>Part-Time</i>	
<i>Personnel</i>	800	0	800

Under Proposed Action Two, construction would begin in Second Quarter FY07 and be completed by FY09; similar construction assumptions described under Proposed Action One were applied for this action. Commuting distances used 30 miles as an average because it is assumed that many of the active-duty personnel would move to the region under this proposal. Table 3-10 summarize emissions for Proposed Action Two during the applicable demolition and construction phases, as well as personnel additions from 2007 through 2009.

<b>Table 3-10 Projected Pollutant Emissions Proposed Action Two</b>					
	<i>Pollutants (Tons/Year)</i>				
	<i>CO</i>	<i>VOCs</i>	<i>NOx</i>	<i>SO2</i>	<i>PM10</i>
<b>2007</b>					
Stationary Sources (Construction)	33.47	2.2	11.11	1.31	6.59
<i>Annual Total</i>	<i>33.47</i>	<i>2.2</i>	<i>11.11</i>	<i>1.31</i>	<i>6.59</i>
Percent Regional Contribution	0.014	0.007	0.017	0.001	0.162
<b>2008</b>					
Mobile Sources (Personnel)	86.57	5.48	5.51	0.07	0.1
Stationary Sources (Construction)	23.53	1.52	7.69	0.89	0.59
<i>Annual Total</i>	<i>110.1</i>	<i>7</i>	<i>13.2</i>	<i>0.96</i>	<i>0.69</i>
Percent Regional Contribution	0.046	0.023	0.020	0.001	0.017
<b>2009</b>					
Mobile Sources (Personnel)	165.81	9.97	9.64	0.1	0.14
Stationary Sources (Construction)	0.28	0.02	0.34	0	0.02
<i>Annual Total</i>	<i>166.09</i>	<i>9.99</i>	<i>9.98</i>	<i>0.1</i>	<i>0.16</i>
Percent Regional Contribution	0.069	0.032	0.015	0.000	0.004
<b>De Minimis Threshold</b>	<b>N/A</b>	<b>100</b>	<b>100</b>	<b>N/A</b>	<b>N/A</b>

Impacts to air quality associated with demolition and construction activities would be short-term and contribute less than 1 percent to the regional air quality under either proposed action (and alternatives), thereby not presenting any significant adverse impacts to regional air quality. During demolition and construction, fugitive dust would be minimized through implementation of dust control measures (i.e., water application on soil) as outlined in Code of Virginia regulations 9 VAC 5-50-60 *et seq.* of the regulations for the *Control and Abatement of Air Pollution*. While it is not anticipated that there will be open burning, Langley AFB would follow the requirements for permitting found under 9 VAC 5-40-5600 *et seq.* Impacts to air quality due to commuting personnel would be long-term, but would not present a

significant adverse impact to the regional air quality due to its less than 1 percent increased contribution to the region.

**Alternative B (No-Action)**

Under the no-action alternative for Proposed Action Two, the Air Force would not construct a LSC at Langley AFB at this time. Impacts to this resource would not be expected since baseline emissions (as described under the affected environment, Table 3-3) would remain unchanged, therefore, implementing the no-action alternative would not result in any adverse effects to the regional air quality.

**Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

During FY07 through FY08, construction for both proposed actions would overlap. Maximum combined contributions, stemming mostly from personnel commuting, would occur in FY09; however the overall contribution to regional emissions would be well below 1 percent. Table 3-11 provides cumulative emissions for Proposed Action One Alternative A (greatest of the three alternatives) and Proposed Action Two.

<b>Table 3-11 Cumulative Proposed Action One Alternative A and Proposed Action Two</b>					
	<i>CO</i>	<i>VOCs</i>	<i>NOx</i>	<i>SO2</i>	<i>PM10</i>
2007					
Proposed Action One: Alternative A	150.43	9.87	9.56	0.13	0.12
Proposed Action Two	33.47	2.2	11.11	1.31	6.59
<i>Annual Total</i>	183.9	12.07	20.67	1.44	6.71
Percent Regional Contribution	0.077	0.039	0.032	0.002	0.165
2008					
Proposed Action One: Alternative A	313.14	19.75	25.81	1.23	1.4
Proposed Action Two	110.1	7	13.2	0.96	0.69
<i>Annual Total</i>	423.24	26.75	39.01	2.19	2.09
Percent Regional Contribution	0.176	0.086	0.060	0.002	0.051
2009					
Proposed Action One: Alternative A	280.3	16.79	17.11	0.33	0.26
Proposed Action Two	166.09	9.99	9.98	0.1	0.16
<i>Annual Total</i>	446.39	26.78	27.09	0.43	0.42
Percent Regional Contribution	0.186	0.086	0.042	0.000	0.010

Emissions (demolition, construction, O&M, and personnel realignment) under Proposed Action One alternatives (A, B, or C) and Proposed Action Two, alone and when combined, would remain far below the *de minimis* levels in any year for VOCs and NO<sub>x</sub> (precursors to ozone). Percent contribution to regional emissions would also be less than 1 percent for any of the five criteria pollutants for both Proposed Action One (all three alternatives) and Proposed Action Two. Even when Proposed Action Two emissions are combined with Alternative A (the greatest emissions of the three location alternatives), the overall contribution to regional emissions is still far below 1 percent.

### **3.3 NOISE**

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Human response to noise varies by the type and characteristics of the noise source, distance from the source, receptor sensitivity, and time of day. Noise can be intermittent or continuous, steady or impulsive, and it may be generated by stationary or mobile sources. Sound levels are expressed in decibels (dB), usually weighted for human hearing (dBA). To present “average” day-night sound levels, the Day-Night Average Sound Level (DNL) metric is used. The DNL provides a single measure of overall noise impact and is the accepted single measure for determining human annoyance. The DNL is generated using specific information on the number of aircraft noise events and their respective sound levels. It averages aircraft sound levels at a location over a complete 24-hour period, with a 10-dB penalty added to noise events that take place at night (10:00 p.m. to 7:00 a.m.) to account for the increased annoyance. Noise contributions from aircraft operations and ground engine run-ups at the airfield are calculated using the NOISEMAP model, the standard noise estimation methodology used for military airfields.

#### **3.3.1 Affected Environment**

F-15 and F-22A aircraft operations and maintenance activities dominate the noise environment on Langley AFB. The noise levels on and in the vicinity of Langley AFB range between 65 and 85 DNL (Air Force 2001, 2002). The daily operation of motor vehicles in and around Langley AFB is considered a minor source of noise. Typically, the noise level for vehicle operations would range from 50 dB (for light traffic) to 80 dB for diesel trucks. Noise due to construction and maintenance equipment is a common, ongoing occurrence on Langley AFB. Trucks as well as heavy equipment are usually found in the base environment on a daily basis to support numerous construction projects as well as upgrades to existing infrastructure and facilities.

Langley AFB is currently updating its Air Installation Compatibility Use Zone (AICUZ) as required following the beddown of the F-22A at the base. The AICUZ is a land use planning program used by the Air Force to protect the integrity of military operations at airfields, and to protect the safety, health and welfare of the affected public through source and operational controls and the use of land use compatibility measures. Preparation of the AICUZ involves gathering data through F22-A pilot interviews to include current information on flight procedures which have been being adjusted since the arrival of the first F-22A at Langley AFB. The updated AICUZ is expected to be complete in late 2006.

### **3.3.2 Environmental Consequences**

The threshold for significance under noise analysis is the determination if potential increase in noise, due to the proposed actions and/or alternatives, would adversely impact the human and/or natural environment. Analysis, therefore, focuses on the noise due to demolition and construction operations—those activities that are major noise sources under this proposal.

#### **Proposed Action One**

##### *Alternatives A, B, and C*

No long-term adverse impacts due to noise would result from implementing demolition and construction activities at any of the alternative sites or at the location of O&M projects found in Table 2-1; each of the sites is within the Langley AFB 70 to 75 dB DNL noise contours (Air Force 2002, 2001). Noise generated from construction activities would be short-term and intermittent, resulting in no measurable effect to the adjacent facilities. Aircraft would continue to generate average noise levels of 70 dB to 85 dB from takeoffs and landings overshadowing noise from construction activities. For noise attenuation and to ensure a safe working environment for base personnel, new building construction would employ modern construction methods and materials that commonly reduces interior noise levels by 20 dB (NAS 2005). Construction activities would occur during normal working hours (e.g., 7 A.M. to 6 P.M.) minimizing the potential to disturb persons in adjacent facilities. The additive noise during demolition and construction activities would be noticeable but unlikely to cause an increase in DNL above current levels, which include daily aircraft overflights. These increases would be minor, short-term, and temporary.

The 192 FW would conduct drill operations at Langley AFB one weekend each month. During a drill weekend (i.e., Saturday and Sunday), an average of 28 sorties would be flown between 9:00 A.M. and 4:00 P.M. (personnel communication, Barker 2006).

*Area residents may experience aircraft overflight noise during drill weekends.*

Sorties flown on a weekend would represent a shift in sorties normally flown during the week - no additional sorties beyond the total annual number of sorties analyzed in the *Initial F-22 Operational Wing Beddown Environmental Impact Statement* would be conducted. Pertinent excerpts from the F-22 EIS noise analysis for Langley AFB are provided in Appendix D. Weekend sorties would be conducted only during daytime hours, would be conducted once a month, and the total of weekend sorties (approximately 336 annually) represents 3 percent of the total number of F22-A sorties authorized at Langley AFB (i.e., 11,187). The noise impact to area residents under this proposal would be adverse, but not significant.

##### *Alternative D (No-Action)*

No adverse effects would be expected under implementation of the no-action alternative since the Air Force would not integrate 192 FW personnel with 1 FW personnel at Langley AFB; no new facility

construction associated with the L-ITF integration proposal would be implemented and weekend sorties associated with Air National Guard drill weekends would not occur.

## **Proposed Action Two**

### *Alternative A*

No long-term impacts due to noise would result from implementing construction activities under Proposed Action Two. The proposed construction site is within the Langley AFB 70 to 75 dB DNL noise contours (Air Force 2002, 2001). Noise generated from construction activities would be short-term and intermittent, resulting in no measurable impact to persons in the vicinity. Aircraft would continue to generate average noise levels of 70 dB to 85 dB from takeoffs and landings overshadowing noise from construction activities. For noise attenuation and to ensure a safe working environment for base personnel, new building construction would employ modern construction methods and materials that commonly reduces interior noise levels by 20 dB (NAS 2005). Construction activities would occur during normal working hours (e.g., 7 A.M. to 6 P.M.) minimizing the potential to disturb adjacent facilities. The increased noise levels during demolition and construction activities would be noticeable but unlikely to cause an increase in DNL above current levels, which include daily aircraft overflights. These increases would be minor, short-term, and temporary.

### *Alternative B (No-Action)*

Under the no-action alternative, the Air Force would not construct a new LSC at Langley AFB. Baseline noise levels on the base would not be expected to change through implementation of the no-action alternative.

## **Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

Short-term construction noise would occur under both proposed actions; however the noise is not expected to adversely affect persons in the vicinity of construction activities. Under Proposed Action One, aircraft overflights during drill weekends may annoy some residents; however, the overall impact would not be long term or significant. In summary, the combined environmental consequences of undertaking both Proposed Action One and Proposed Action Two would not result in significant adverse impacts to the noise environment on and around Langley AFB if either proposed action were implemented.

## **3.4 WATER RESOURCES, WATER QUALITY, AND SOILS**

Water resources refer to surface and subsurface water, including lakes, ponds, rivers, and streams within a watershed affected by existing and potential soil erosion and runoff from the base. Subsurface water, commonly referred to as groundwater, is typically found in areas known as aquifers. Groundwater is



typically recharged during precipitation events and is withdrawn for domestic, agricultural, and industrial purposes. The CWA of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, aquifers, and coastal areas. The primary objective of the CWA is to restore and maintain the integrity of the nation's waters.

### **3.4.1 Affected Environment**

Langley AFB is located entirely within the Chesapeake Bay watershed (refer to Figure 1-1). The base occupies a flat lowland peninsula with a gentle eastward slope of 1 foot per mile and elevations of 5 to 11 feet above mean sea level (MSL) within the Atlantic Coastal Plain physiographic province. The hydrogeologic units at Langley AFB occur in the following descending order: the Water Table Aquifer; the Yorktown Confining Unit; the Yorktown-Eastover Aquifer; the Eastover-Calvert Confining Unit; and the Chickahominy Point Aquifer. Langley AFB is bordered to the northeast by the Northwest Branch of the Back River, and to the southeast by the Southwest Branch of the Back River (refer to Figure 1-2). The Back River is estuarine and primarily saline in nature.

Langley AFB is serviced by a stormwater drainage system that discharges to the Back River and its tributaries: Brown Creek, Tides Mill Creek, Kiln Creek, and Tabbs Creek. Surface water also may drain directly to these water bodies. The closest surface water to Proposed Action One Alternatives A, B, and C is the Southwest Branch of the Back River, which is approximately 1.35 miles southeast of Alternative A; alternatives B and C are located 0.5 miles and 0.8 miles north and northeast of the Back River's southwest branch, respectively. All three alternative sites under Proposed Action One drain to the Southwest Branch of the Back River; the proposed site for the new LFCU under Proposed Action One Alternative A is nearly 1.0 miles west of the Back River's southwest branch. The Northwest Branch of the Back River is approximately 0.25 miles north of the Proposed Action Two LSC construction site.

Stormwater drainage on Langley AFB is carried by a series of pipes, box culverts and open ditches to 57 outfalls with 22 outfalls associated with areas that contain industrial operations (personal communication, Nguyen 2006). Due to the flat relief of the area, standing water accumulates during heavy storm events. Stormwater runoff from parking lots and aircraft parking aprons has the potential to carry spilled oil, grease, hydraulic fluid, and jet fuel to outfalls that discharge into the Southwest Branch and Northwest Branch of the Back River.

The USEPA has granted local National Pollutant Discharge Elimination System (NPDES) permitting authority to the Virginia Department of Environmental Quality (VDEQ) under the Virginia Pollutant Discharge Elimination System (VPDES). The base is currently under VPDES Permit No. VA0083194, which expires on May 1, 2010. The VPDES permit identifies effluent limitations and requires semi-annual sampling and management of runoff and sediment and erosion control. This permit requires that releases be monitored by ten outfalls for effluent discharge under the installation's VPDES permit and

tracked and reported to the appropriate regulatory agencies as they occur (personal communication, Goss 2005).

Soils in this region are mostly unconsolidated fluvial, marine, and estuarine deposits underlain by beach sands, sandy clays, and gravels from the Tabb and Lynnhaven formations. Land moving and filling activities at Langley AFB have altered soil profiles to the extent that site soils profiles do not concur with local soil surveys from adjacent counties (Langley AFB 1998). However, the presumed dominant soil of the area encompassing the sites under each of the proposed actions is the Tomotley soil series (Langley AFB 1998, 2001). These soils consist of moderate to poorly drained, dark gray fine sandy loam soils that formed in alluvium derived from limestone and sandstone.

### **3.4.2 Environmental Consequences**

The threshold level of significance for water quality is the violation of applicable Federal or state laws and regulations, such as the Clean Water Act and the Virginia DEQ State Water Quality Control Law, and the potential for Notices of Violation for the failure to receive applicable Federal and state permits, such as a NPDES permit (required for all land disturbance projects 1 acre or more in size), prior to initiating site development activities. Impacts to soils are considered significant if any ground disturbance or other activities would violate applicable Federal or state laws and regulations, such as the Virginia Erosion and Sediment Control Law (administered by the Virginia Department of Conservation and Recreation/Heritage Division; Chesapeake Bay Local Assistance Department), and the potential for Notices of Violation for the failure to receive applicable state permits, such as a National Pollutant Discharge Elimination System (NPDES) construction permits, prior to initiating either proposed action. Potential adverse effects to soils could result from ground disturbance leading to soil erosion, fugitive dust propagation, sedimentation, and pollutants such as hazardous materials and/or waste.

#### **Proposed Action One**

There would be negligible impacts on surface water features at Langley AFB from Proposed Action One under any of the alternatives or at the location of O&M projects found in Table 2-1. Because upland development activities at any of the proposed construction locations under the alternatives would disturb more than 2,500 square feet, the Air Force would prepare an Erosion and Sediment Control Plan required for a Virginia Coastal Resources Management Program (VCRMP) Resource Protection Area. Measures would also be taken to minimize the amount of erosion and sediment transport off site in accordance with Virginia's Erosion and Sediment Control Law (Virginia Code 10.1-567) and Regulations (4 VAC 50-30-30 *et seq.*). Furthermore, because development at any of the proposed construction locations under the alternatives would disturb more than 1 acre of land, the Air Force would prepare a Stormwater Management Plan (SMP) in accordance with Virginia's Stormwater Management Law (Virginia Code 10.1-603.5) and Regulations (4 VAC 3-20-20 *et seq.*) and applicable federal nonpoint source pollution

mandates. Langley AFB currently operates under and is in compliance with its VPDES permit. A stormwater basin at each of the proposed construction locations under the alternatives would capture runoff and protect surface waters. Operations would not involve a point source emission or affect the status of Langley AFB's permit.

***Alternative A***

Overall, the amount of impervious surfaces at Langley AFB would not increase as a result of the proposed action to construct the 192 FW HQ building at this location. The existing LFCU building and a portion of the parking lot would be demolished for construction of the 192 FW HQ. To elevate the building footprint (13,500 square feet) approximately 4 feet to meet Virginia floodplain requirements would require approximately 2,000 cubic yards of fill. A stormwater retention pond (i.e., dry basin) would be constructed in the vicinity of the building to retain stormwater generated from the impervious surfaces. Impacts on water quality from erosion and sedimentation would be minimized during site development by implementing the SMP and adhering to construction permit requirements. There would be no adverse impacts to water resources from point source or non-point sources with implementation of the proposed 192 FW HQ at the Alternative A location.

Construction of a new LFCU to replace that demolished under this alternative would not increase the impervious surface at Langley AFB. The building would be constructed on a site that is currently an asphalt parking lot used to stage construction equipment. A portion of the parking lot would be demolished for construction of the new facility and the remaining would be resurfaced for the LFCU parking area. Impacts on water quality from erosion and sedimentation would be minimized during site development by implementing the SMP and adhering to construction permit requirements. There would be no impacts to water resources from point source or non-point sources with implementation of the proposed LFCU building at this location.

***Alternative B***

The amount of impervious surfaces at Langley AFB would not increase as a result of the proposed action to develop at this alternative site. The 13,500 square feet building footprint would add about 0.3 acres of impervious surface to the base; however demolition of Dorms 37 and 38 would decrease the base's impervious surfaces by nearly 0.4 acres resulting in a net gain of 0.1 acres of pervious surface. An adjacent parking lot would be resurfaced and utilized by occupants of the 192 FW HQ building. To elevate the building footprint approximately 4 feet to meet Virginia floodplain requirements would require approximately 2,000 cubic yards of fill. A stormwater retention pond (i.e., dry basin) would be constructed in the vicinity of the building to retain stormwater generated from the impervious surfaces. Impacts on water quality from erosion and sedimentation would be minimized during site development by implementing the SMP and adhering to construction permit requirements. There would be no impacts to water resources from point source or non-point sources with implementation of the proposal to construct the 192 FW HQ building at the Alternative B location.

*Alternative C*

The amount of impervious surfaces at Langley AFB would increase as a result of the proposed action to develop at this location. The 13,500 square feet building footprint and an approximate 25,200 square feet of pavement for parking would add about 65,000 square feet (1.5 acres) of impervious surface to the base. To elevate the building footprint approximately 4 feet to meet Virginia floodplain requirements would require approximately 2,000 cubic yards of fill. A stormwater retention pond (i.e., dry basin) would be constructed in the vicinity of the building to retain stormwater generated from the impervious surfaces. Impacts on water quality from erosion and sedimentation would be minimized during site development by implementing the SMP and adhering to construction permit requirements. There would be no impacts to water resources from point source or non-point sources with construction of the 192 FW HQ building at the Alternative C location.

*Alternative D (No-Action)*

Under the no-action alternative, existing conditions (as described under the affected environment in section 3.4.1) would remain unchanged. As a result, there would be no impacts to ground water, surface water, or soil resources at Langley AFB through implementation of this alternative. The Air Force would not implement the L-ITF integration proposal nor would construction activities associated with the proposal occur.

**Proposed Action Two**

*Alternative A*

The amount of impervious surfaces at Langley AFB would increase as a result of the proposed action to construct the LSC at this largely undeveloped site. The 76,000-square foot building footprint and an approximate 180,000 square feet of pavement would add approximately 5.9 acres of impervious surface to the base. To elevate the building footprint approximately 5 feet to meet Virginia floodplain requirements would require approximately 14,074 cubic yards of fill. A stormwater retention pond would be constructed in the vicinity of the building to retain stormwater generated from impervious surfaces. Impacts on water quality from erosion and sedimentation would be minimized during site development by implementing the SMP and adhering to construction permit requirements. There would be no impacts to water resources from point source or non-point sources with implementation of Proposed Action Two at this location.

*Alternative B (No-Action)*

Under the no-action alternative, existing conditions (as described under the affected environment under section 3.4.1) would remain unchanged. As a result, there would be no impacts to ground water, surface water, or soil resources at Langley AFB.

### **Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

If Alternative C of Proposed Action One and Alternative A of Proposed Action Two were both implemented, the amount of impervious surface on Langley AFB would increase by approximately 7.4 acres. Proper construction measures would be undertaken to limit the amount of soil erosion; the impacts to soil and water resources would be negligible. No impacts to point source or non-point sources would occur if the proposed actions were implemented either individually or in combination.

### **3.5 COASTAL ZONE, FLOODPLAINS, AND WETLANDS**

The *Coastal Zone* includes those lands governed by the VCRMP, pursuant to the Coastal Zone Management Act (CZMA) of 1972. The federal Coastal Zone Management Act (CZMA) requires that “federal agency activity within or outside the coastal zone that affects land, water use, or natural resources of the coastal zone shall be carried out in a manner consistent with approved state management programs” (16 U.S.C. 1456(c)(1)(A)). The VCRMP outlines land and water use programs within Virginia’s coastal zone which includes all of the jurisdictions, counties, and cities within eastern Virginia. The Chesapeake Bay Preservation Act, adopted by the General Assembly in 1988, provides for the protection and improvement of water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effects of human activity upon these waters. Virginia’s coastal zone also includes its coastal waters of the United States territorial sea, extending to the 3-mile (4.8-kilometer) limit of Virginia sovereignty.

Federal lands such as Langley AFB are statutorily excluded from Virginia’s coastal zone. However, federal approval of the VCRMP triggers Section 307 of the CZMA and mandates that activities on federal lands that have the potential to affect coastal resources or uses on non-federal lands comply to the maximum extent practicable with the enforceable policies of the VCRMP. Virginia’s requirements applicable to actions in the coastal zone, wetlands and floodplains are managed under the Virginia Coastal Program (VCP). The VCP goals include prevention of damage to the Commonwealth’s natural resource base, the protection of public and private investment in the coastal zone, and the promotion of resources development and public recreation opportunities. Enforceable regulatory programs outlined in the VCRMP for which the Air Force would comply to the maximum extent practicable include: fisheries management, sub-aqueous lands management, wetlands management, dunes management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management (i.e., Chesapeake Bay Preservation Act).

*Floodplains* are, in general, those lands most subject to recurring floods, situated adjacent to rivers and streams, and coastal areas. As a topographic category, a floodplain is quite flat and lies adjacent to the stream or river; geomorphologically, it is a landform composed primarily of unconsolidated depositional material derived from sediments being transported by the related stream or river; hydrologically, it is best defined as a landform subject to periodic flooding by a parent stream or river. Floods are usually described in terms of their statistical frequency. A "100-year flood" or "100-year floodplain" describes an

event or an area subject to a percent probability of a certain size flood occurring in any given year. Because floodplains can be mapped, the boundary of the 100-year flood is commonly used in floodplain mitigation programs to identify areas where the risk of flooding is significant. Executive Order 11988, *Floodplain Management*, requires that each federal agency “shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”

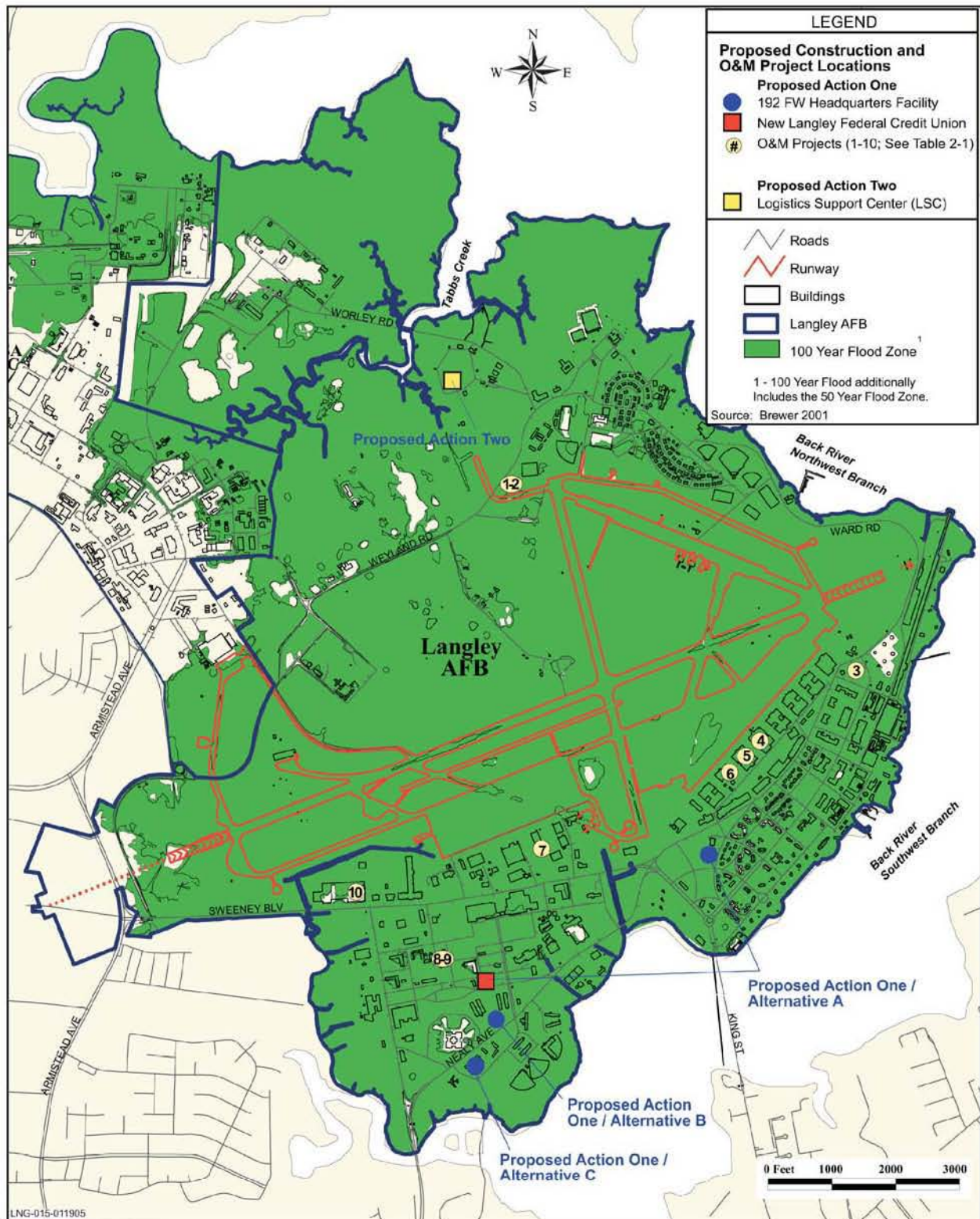
*Wetlands* are considered special category sensitive habitats and are subject to regulatory authority under Section 404 of the CWA and Executive Order 11990 *Protection of Wetlands* which requires that each federal agency “shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands”. They include jurisdictional and non-jurisdictional wetlands. Jurisdictional wetlands are those defined by the USACE and USEPA as those areas that meet all the criteria defined in the USACE’s 1987 *Wetlands Delineation Manual* and under the jurisdiction of the USACE (USACE 1987). The State of Virginia also regulates impacts to state waters, including wetlands, under the Virginia Water Protection Permit Program (VWPPP). The VWPPP is administered by the DEQ’s Division of Water Quality, Office of Wetlands and Water Protection/Compliance. Activities requiring a permit include dredging, filling, or discharging any pollutant into or adjacent to surface waters, or otherwise altering the physical, chemical or biological properties of surface waters, excavating in wetlands, or conducting the following activities in a wetland: 1) new activities to cause draining that significantly alters or degrades existing wetland acreage or functions, 2) filling or dumping, 3) permanent flooding or impounding, or 4) new activities that cause significant alteration or degradation of existing wetland acreage or functions.

Federal, state, and local wetland construction permits are required for any construction within the wetland and coastal zone management areas prior to commencing with any proposed construction project.

### **3.5.1 Affected Environment**

***Coastal Zone.*** All locations proposed for construction activities under Proposed Action One and Proposed Action Two would occur within Virginia’s Coastal Zone (as defined by the VCP).

***Floodplains.*** The majority of Langley AFB lies within 100-year floodplain (Figure 3-1). Flooding can sometimes be severe on the base, particularly during major thunderstorms and hurricanes. Areas below 9 feet MSL, along the base’s perimeter and closest to the water bodies surrounding the installation, are more prone to flooding (Langley AFB 1998). Figure 3-1 illustrates the locations of proposed construction within the 100-year floodplain. All locations proposed for construction lie within the floodplain.



**Figure 3-1 Langley AFB Floodplain and Location of Proposed Construction and O&M Projects**

**Wetlands.** Wetlands at Langley AFB encompass approximately 652 acres, 462 acres of which are non-freshwater estuarine wetlands. Salt and freshwater marshes of the northwest and southwest branches of the Back River, New Market Creek, Brick Kiln Creek, Tabbs Creek, and Tides Mill Creek surround the base on three sides. Tidal flow from the Chesapeake Bay is substantial along these margins; however, most inland freshwater wetlands have been filled, drained to ditches, or converted into golf course features (Langley AFB 1998). Most wetlands at Langley AFB are located at the northern boundary of the base along the Northwest Branch of the Back River. Figures 3-2 and 3-3 illustrates the location of wetlands and associated drainage ditches in proximity to or potentially affected by proposed construction locations. These wetlands, classified as palustrine, primarily emergent, are typically dominated by fall panic grass, dallies grass, rough barnyard grass, sedges, rushes, and other plants that can tolerate mowing (Langley AFB 2001).

Freshwater wetlands on base include palustrine forested, emergent, and scrub-shrub wetlands. Forest and scrub-shrub wetlands occur in low-lying upland areas with nutrient-poor sandy soils and are dominated by bottomland hardwood trees and shrubs. Emergent wetlands primarily occur as small remnant patches, along drainage ditches, and as tidal marsh (Langley AFB 1998). A summary of the wetland types occurring at Langley AFB is provided in Table 3-12.

<i>Wetland Type</i>	<i>Acreage</i>
Estuarine Unconsolidated Bottom	72.76
Estuarine Emergent	343.78
Estuarine Scrub/Shrub	39.00
Estuarine Unconsolidated Shoreline	6.33
Palustrine Emergent	76.22
Palustrine Forested	97.33
Palustrine Scrub/Shrub	16.48
<b>Total Wetland Acreage</b>	<b>651.90</b>
<b>Total Upland Acreage</b>	<b>2608.76</b>
<b>Total Acreage Delineated</b>	<b>3260.66*</b>

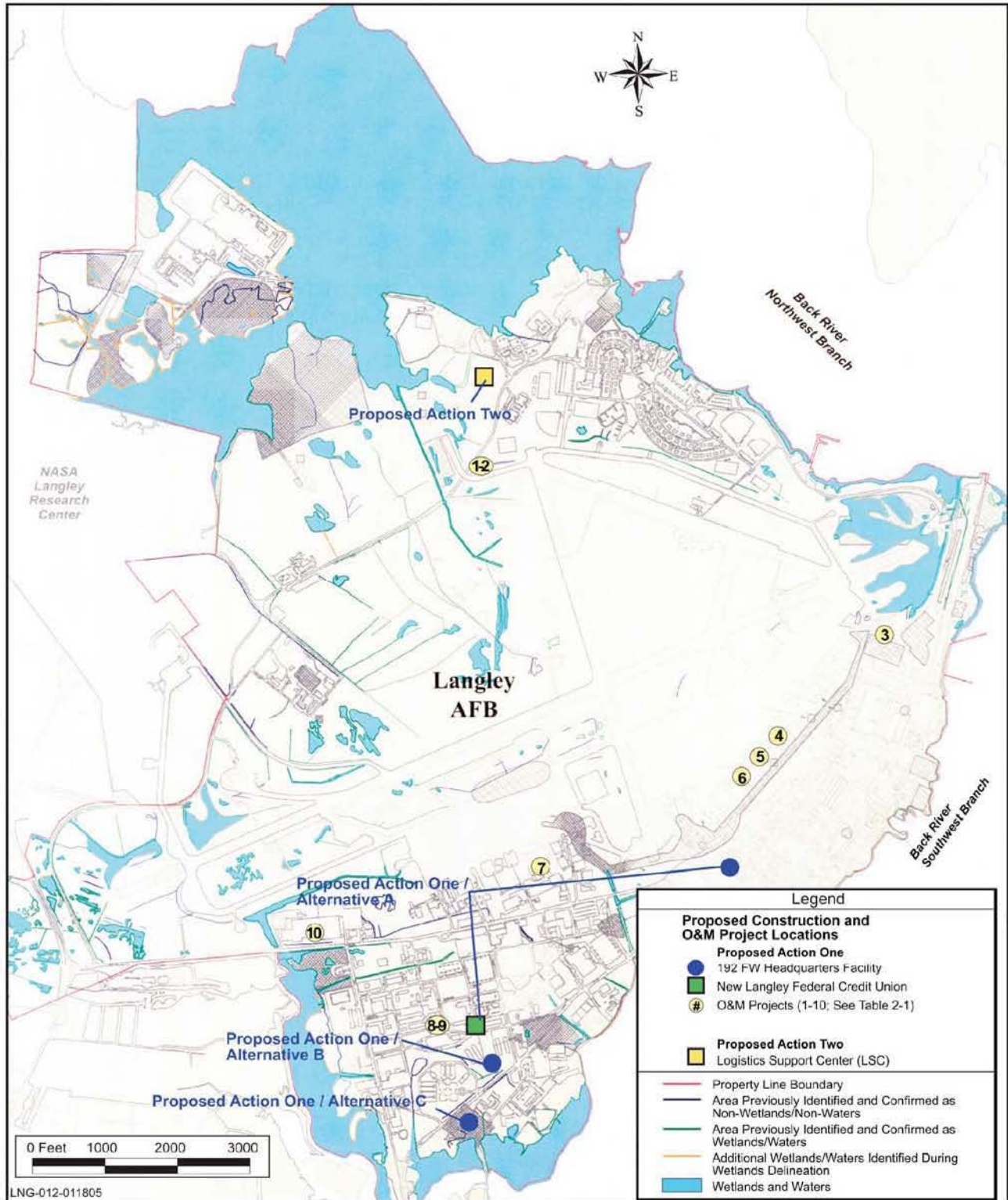
Source: Langley AFB 1998

\* Figure disagrees slightly with Langley AFB Real Estate total of 3,167 due to inclusion of the seaward extent of wetlands in the determination of acreages by the USFWS.

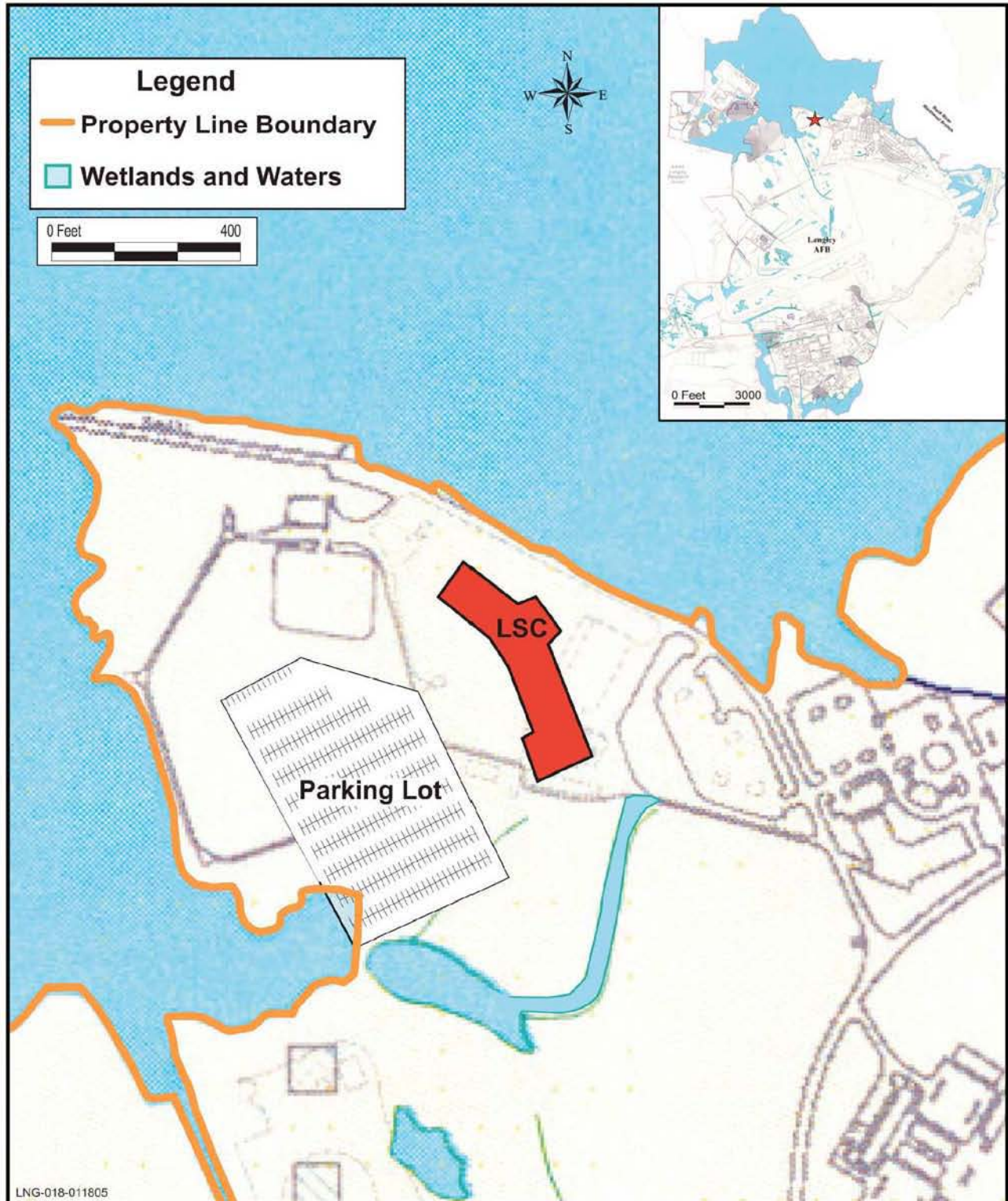
### **3.5.2 Environmental Consequences**

The enforcement policies outlined in the VCRMP for which the Air Force would comply to the maximum extent practicable include: fisheries management, sub-aqueous lands management, wetlands management, dunes management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management (i.e., Chesapeake Bay Preservation Act). Work associated with each of the proposed actions would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Preservation Act. Appendix C provides the





**Figure 3-2 Langley AFB Wetlands and Waters and Location of Proposed Construction and O&M Projects**



**Figure 3-3 Location of Proposed LSC Construction and Affected Wetlands and Waters on Langley AFB**

Commonwealth of Virginia with the U.S. Air Force's Consistency Determination required under CZMA Section 307 and 15 CFR Part 930 (C).

### **Proposed Action One**

#### *Alternative A*

Construction activities under this alternative would occur within Virginia's Coastal Zone (as defined by the VCP); however, there would be no adverse impacts. The site for the 192 FW HQ and new LFCU are located within the 100-year floodplain and all construction activities would occur within the floodplain. Design of the building at this location would be in accordance with Virginia's requirements. There would be no real change in the risk of flood loss and its associated impacts on human health, safety, and welfare; therefore, there would be no impacts. No wetlands are located at the site for the 192 FW HQ or the location for the new LFCU. No adverse impacts to wetlands would be expected from proposed construction under this alternative.

#### *Alternative B*

Construction activities at this alternative site would occur within Virginia's Coastal Zone (as defined by the VCP); however, there would be no adverse impacts. The site is located within the 100-year floodplain and all construction activities would occur within the floodplain. Design of the building at this location would be in accordance with Virginia's requirements. There would be no real change in the risk of flood loss and its associated impacts on human health, safety, and welfare; therefore, there would be no impacts. A drainage ditch currently runs along the perimeter of the site along Nealy Avenue. This drainage ditch has been identified and confirmed to be a wetland (refer to Figure 3-2). Standard construction practices would be applied to control sedimentation and erosion during construction, thereby avoiding impacts to wetlands. With the implementation of these practices during construction, no adverse impacts are anticipated.

#### *Alternative C*

Construction activities at this site would occur within Virginia's Coastal Zone (as defined by the VCP); however, there would be no adverse impacts. The site is located within the 100-year floodplain and all construction activities would occur within the floodplain. Design of the building at this location would be in accordance with Virginia's requirements. There would be no real change in the risk of flood loss and its associated impacts on human health, safety, and welfare; therefore, there would be no impacts. A drainage ditch currently runs along the perimeter of the site next to Burrell Street. This drainage ditch has been identified and confirmed to be a wetland (refer to Figure 3-2). Standard construction practices would be applied to control sedimentation and erosion during construction, thereby avoiding impacts to wetlands. With the implementation of these practices during construction, no adverse consequences are anticipated.

***Alternative D (No-Action)***

Under the no-action alternative, there would be no change to the existing conditions at Langley AFB in relation to the coastal zone, floodplains, or wetlands. Therefore, no impacts to these resources would be expected.

**Proposed Action Two**

***Alternative A***

Proposed construction at this site was previously analyzed in the *Air Force Command and Control Intelligence, Surveillance, Reconnaissance Center Environmental Assessment* (Air Force 2005e). Potential impacts to wetlands under this proposal would be similar to those previously analyzed. Construction of the LSC at this site would occur within Virginia's Coastal Zone (as defined by the VCP); however, no adverse impacts would be anticipated under this program. The site is located within the 100-year floodplain and all construction activities would occur within the floodplain. Design of the building (e.g., elevated 5 feet) and parking/access area associated with the proposed action would be in accordance with Virginia's requirements. There would be no real change in the risk of flood loss and its associated impacts on human health, safety, and welfare.

Less than 0.10 acres of palustrine emergent wetlands would be filled to accommodate the proposed action. The Air Force would obtain the proper permits and conduct consultation, as appropriate, with the administering agencies (e.g., U.S. Army Corps of Engineers, VWP, VDEQ, VMRC, and the City of Hampton) to prevent net loss of existing wetland acreage and function. A potential mitigation site previously identified by the USACE is at the abandoned bridge east of LaSalle Avenue gate. Approximately 0.5 acres (538.2 sf) could be restored by removing the abandoned bridge structure from the waterway. Selection of this alternative would require a wetland mitigation plan within 90 days of FONSI/FONPA signature (32 Code of Federal Regulations Part 989.22(d)). Other tidal marsh mitigation sites have been identified as well in the area and could be used to prevent net loss of wetland acreage and function (USACE 2004). Standard construction practices would be applied to control sedimentation and erosion during construction, thereby avoiding secondary impacts to wetlands. With the implementation of these practices during construction and the mitigation of the affected wetlands, no significant adverse consequences would be anticipated.

***Alternative B (No-Action)***

Under the no-action alternative, there would be no change to the existing conditions at Langley AFB in relation to the coastal zone, floodplains, or wetlands. Therefore, no impacts to these resources would be expected.

## **Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

Both proposed actions would occur in the coastal zone and within the floodplain; however the impacts to these resources would not be adverse. Wetlands occur in the vicinity of construction under both proposed actions; however, only wetlands under Proposed Action Two would be adversely affected provided proper measures are taken to prevent impacts to drainage ditches found along the perimeter of Alternatives B and C under Proposed Action One. Overall, implementation of the proposed actions would not result in significant adverse impacts to the coastal zone, floodplain, or wetlands either individually or in combination.

### **3.6 BIOLOGICAL RESOURCES**

Biological resources encompass plant and animal species and the habitats within which they occur. Plant species are often referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the area or environment where the resources and conditions are present that cause or allow a plant or animal to live there (Hall *et al.* 1997). Biological resources for this EA include vegetation, wildlife, and special-status species occurring on Langley AFB in the vicinity of each of the proposed actions.

*Vegetation* includes all existing upland terrestrial plant communities and submerged aquatic vegetation (SAV), with the exception of special-status species. The affected environment for vegetation includes those areas subject to demolition and construction disturbance. Wetlands are discussed in Section 3.5, *Coastal Zone, Floodplains, and Wetlands*.

*Wildlife* includes all vertebrate animals with the exception of those identified as threatened or endangered or sensitive. Wildlife includes fish, amphibians, reptiles, birds, and mammals.

*Special-Status Species* are defined as those plant and animal species listed as threatened, endangered, or proposed as such by the USFWS. The federal ESA protects federally listed, threatened, and endangered plant and animal species. Species of concern are not protected by the ESA; however, these species could become listed and protected at any time. Their consideration early in the planning process could avoid future conflicts that might otherwise occur. The discussion of special-status species focuses on those species with the potential to be affected by demolition, construction, and construction-related noise. Commonwealth of Virginia species of concern are also discussed.

### **3.6.1 Affected Environment**

The affected environment includes the proposed construction locations for alternatives under Proposed Action One and the proposed construction location under Proposed Action Two. Each of the proposed construction sites includes open, developed areas with some trees and landscape vegetation.

**Vegetation.** Although much altered by three centuries of human disturbance, temperate broadleaf deciduous forest is the predominant natural vegetation over much of Virginia and the eastern United States. Langley AFB lies within the southeastern evergreen forest region, which includes Virginia's southeastern corner and is primarily associated with the outer Coastal Plain. Much of the historic, native vegetative cover has been removed from Langley AFB, and the majority of the base consists of managed lawns and landscaped areas composed of ornamental trees and shrubs and developed areas of buildings, structures, and pavement. However, there are some naturally forested uplands with pockets of salt marsh vegetation and inland wetland communities as well. Only remnant patches of native upland forest vegetation are currently found within the base. A total of 8 percent (230.6 acres) of the base is forested or in its natural state (Langley AFB 1998).

The largest areas of marsh are located along Tabb Creek and the Northwest Branch of the Back River. The marsh area is characterized by seven plant communities including: cord grass, dwarf cord grass, salt meadow hay, salt grass, rush, marsh elder, and salt brush. Species distribution is dependant on salinity, drainage, slope, substrate, elevation, and tidal inundation (Langley AFB 1998).

**Wildlife.** Wildlife on the base are wide-spread species that are habitat generalists or tolerant of disturbance and include a wide variety of game and fur-bearing animals, small mammals, waterfowl, songbirds, raptors, amphibians, reptiles, and fish. The proximity of the base to estuarine and marine habitats of Chesapeake Bay provides habitat for a variety of neotropical migrants and waterfowl. Important native mammals expected to be found near forested areas on base include white-tailed deer, raccoon, red fox, gray and fox squirrels, Virginia opossum, and various species of small rodents. Mammals that frequent open grassland areas include various species of shrews, moles, the meadow jumping mouse, meadow vole, eastern cottontail rabbit, and striped skunk. Open grassland areas are also important foraging areas for various species of bats known to inhabit the region. Reptiles, which may inhabit the wetland communities, include the six-lined racerunner, eastern hognose snake, black racer, the black rat snake, and the canebrake rattlesnake. Wetland invertebrate inhabitants include crabs, oysters, and clams.

Common breeding birds include Carolina chickadee, tufted titmouse, wood thrush, cardinal, red-eyed vireo, several species of wood warbler, carolina wren, summer tanager, northern flicker; red-bellied woodpecker; screech owl, and red-shouldered hawk. Songbirds typical of the tidal wetland/salt marsh community include Ipswich sparrow, Savanna sparrow, redwing blackbird, American crow, and fish

crow. Shore birds are also found in this community and may include plovers, turnstones, willets, sanderlings, gulls, terns, sandpipers, yellow-legs, and herons. Waterfowl that may use this community include canvasbacks, ruddy ducks, greater and lesser scaups, bufflehead, redhead, common golden-eye, blue-winged teal, double-crested cormorant, and American coot. Characteristic game birds include Wild Turkey; Northern Bobwhite, and Mourning Dove (Langley AFB 1998). Birds that frequent open field areas include abundant and more generalist species, such American robin, European starling, American crow, common grackle, and Brown-headed cowbird.

***Special-Status Species.*** No federally listed threatened or endangered species are known to exist on Langley AFB, although bald eagles feed and forage in the surrounding waters and tidal flats. The state endangered canebrake rattlesnake is not known to exist on Langley AFB; however, the species has been identified by the USFWS and Virginia Department of Game and Inland Fisheries (VDGIF) and included on with federal and state listed species of concern potentially occurring at or within a 10-mile radius of Langley AFB. Table 3-13 identifies the species of concern that could occur within a 10-mile radius of Langley AFB (USFWS 2005, VDGIF 2005).

### **3.6.2 Environmental Consequences**

Determination of the significance of potential impacts to biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts to biological resources are significant if species or habitats of concern are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a species of concern. Analysis of potential on-base impacts focuses on whether and how ground-disturbing activities and changes in the noise environment may affect biological resources.

No special-status species are known or likely to occur on Langley AFB. The state endangered canebrake rattlesnake is not known to exist on Langley AFB; however, should any be encountered during demolition or construction activities, appropriate measures to minimize impacts to the species would be taken. As such, no significant impact to vegetation, wildlife, and special-status species would be expected from construction activities at any of the sites under the two proposed actions.

#### **Proposed Action One**

##### ***Alternative A***

Development under this alternative would have little impact to vegetation, wildlife, and special-status species. Construction would occur on previously developed sites. Because impacts are anticipated to be minor with the implementation of Alternative A, it is anticipated that vegetation, wildlife, and special-

<b>Table 3-13 Federally Listed, Proposed, and Candidate and Species of Concern (State and Federal) Within a 10-Mile Radius of Langley AFB</b>			
<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	
		<i>Federal</i>	<i>State</i>
<b>Vertebrates</b>			
Turtle, hawksbill	<i>Eretmochelys imbricata</i>	LE	LE
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	LE	LE
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	LE	LE
Loggerhead Sea Turtle	<i>Caretta caretta</i>	LT	LT
Green Sea Turtle	<i>Chelonia mydas</i>	LT	LT
Mabee's Salamander	<i>Ambystoma mabeei</i>		LT
Canebrake Rattlesnake	<i>Crotalus horridus</i>		LE
Chicken Turtle	<i>Deirochelys reticularia</i>		LE
Eastern Tiger Salamander	<i>Ambystoma tigrinum tigrinum</i>		LE
Barking Treefrog	<i>Hyla gratiosa</i>		LT
Gull-billed Tern	<i>Sterna nilotica</i>		LT
Dismal Swamp Southeastern Shrew	<i>Sorex longirostris fisheri</i>		LT
Loggerhead Shrike	<i>Lanius ludovicianus</i>		LT
Northern Diamond-Backed Terrapin	<i>Malaclemys terrapin terrapin</i>	SOC	
Atlantic Sturgeon	<i>Acipenser oxyrhynchus</i>	SOC	SOC
Marsh rabbit	<i>Sylvilagus palustris palustris</i>		SOC
Star-nosed Mole	<i>Condylura cristata parva</i>		SOC
Northern River Otter	<i>Lontra canadensis lataxina</i>		SOC
Carpenter Frog	<i>Rana virgatipes</i>		SOC
Oak Toad	<i>Bufo quercicus</i>		SOC
<b>Birds</b>			
Piping Plover	<i>Charadrius melodijs</i>	LT	LT
Bald Eagle	<i>Haliaeetus leucocephalus</i>	LT	LT
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	LE	LT
Peregrine Falcon	<i>Falco peregrinus</i>	LE(S/A)	LT
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	LE	LE
Eastern Big-Eared Bat	<i>Plecotus rafinesquii macrotis</i>	SOC	LE
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>	SOC	LT
Upland Sandpiper	<i>Bartramia longicauda</i>		LT
Black Rail	<i>Laterallus jamaicensis</i>	SOC	
Cerulean Warbler	<i>Dendroica cerulea</i>	SOC	
Diana fritillary	<i>Speyeria diana</i>	SOC	
Forster's Tern	<i>Sterna forsteri</i>		SOC
Caspian Tern	<i>Sterna caspia</i>		SOC
Least Tern	<i>Sterna antillarum</i>		SOC
Great Egret	<i>Ardea alba egretta</i>		SOC
Yellow-crowned Night Heron	<i>Nyctanassa violacea violacea</i>		SOC
Glossy Ibis	<i>Plegadis falcinellus</i>		SOC
Northern Harrier	<i>Circus cyaneus</i>		SOC
Swainson's Warbler	<i>Limnithlypis swainsonii</i>		SOC
Magnolia Warbler	<i>Dendroica magnolia</i>		SOC
Saltmarsh Sharp-Tailed Sparrow	<i>Ammodramus caudacutus</i>		SOC
Winter Wren	<i>Troglodytes troglodytes</i>		SOC
Dickcissel	<i>Spiza americana</i>		SOC
Purple Finch	<i>Carpodacus purpureus</i>		SOC
Tricolored Heron	<i>Egretta tricolor</i>		SOC



<b>Table 3-13 Federally Listed, Proposed, and Candidate and Species of Concern (State and Federal) Within a 10-Mile Radius of Langley AFB (continued)</b>			
<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	
		<i>Federal</i>	<i>State</i>
<b>Birds</b>			
Common Moorhen	<i>Gallinula chloropus cachinnans</i>		SOC
Sandwich Tern	<i>Sterna sandvicensis acuflavidus</i>		SOC
Barn Owl	<i>Tyto alba pratincola</i>		SOC
Red-Breasted Nuthatch	<i>Sitta canadensis</i>		SOC
Brown Creeper	<i>Certhia americana</i>		SOC
Sedge Wren	<i>Cistothorus platensis</i>		SOC
Hermit Thrush	<i>Catharus guttatus</i>		SOC
Golden-crowned Kinglet	<i>Regulus satrapa</i>		SOC
Brown Pelican	<i>Pelecanus occidentalis carolinensis</i>		SOC
Little Blue Heron	<i>Egretta caerulea caerulea</i>		SOC
<b>Invertebrates</b>			
Northeastern Beach Tiger Beetle	<i>Cincidela dorsalis dorsalis</i>	LT	C
Duke's Skipper	<i>Euphyes dukesi</i>	SOC	
Arogos Skipper	<i>Atrytone arogos arogos</i>	SOC	
Chowanoke Crayfish	<i>Orconectes virginienis</i>	SOC	
Phreatic Isopod	<i>Caecidotea phreatica</i>	SOC	
<b>Plants</b>			
Pondspice	<i>Litsea aestivalis</i>	SOC	
Harper's fimbriatylis	<i>Fimbristylis peusilla</i>	SOC	
Eastern bloodleaf	<i>Iresines rhizomatosa</i>		G5T3
Virginia least trillium	<i>Trillium pusillum var. virginiaum</i>		G3T2
LT – Listed Threatened LE – Listed Endangered EX – Believed to be extirpated in Virginia E (S/A) – Endangered due to similarity of appearance to a Federally listed species SOC – Species of Concern (those species that have been identified as potentially imperiled or vulnerable throughout their range). C – Candidate (The state has enough information to list the species as threatened or endangered but this action is precluded by other listing activities). Global Rank – the species rarity throughout its total range. G1 – extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals' or because of some factor(s) making it especially vulnerable to extinction. G2 – very rare and imperiled with 6 to 20 occurrences of few remaining individuals; or because of some factor(s) making it vulnerable to extinction. G3 – either very rare and local throughout its range or found locally (abundantly at some of its locations) in a restricted range; or vulnerability to extinction because of other factors. Usually fewer than 100 occurrences are documented. G__T__ - signifies the rank of subspecies or variety. For example G5T1 would apply to a subspecies of a species that is demonstrably secure globally (G5) but the subspecies warrants a rank of T1, critically imperiled. Source: USFWS 2004; VDGIF 2005			

status species would not be adversely affected. No adverse impacts to biological resources would be anticipated in the Community Center of the base at the proposed location of the new LFCU.

**Alternative B**

Under this alternative construction location, little impact to biological resources would be anticipated. The nearby wetland drainage ditch is maintained by mowing, removing any potential for habitat value, and would likely be minimally affected by the adjacent site development. No special-status species are known or are likely to occur in the open areas of the base, thus the proposed construction would have no effect on threatened, endangered species, or special-status species under Alternative B. Because no impacts associated with the implementation of the proposed construction activities at Alternative B are

expected, it is anticipated that vegetation, wildlife, and special-status species would not be adversely affected.

***Alternative C***

No special-status species are known or are likely to occur at Alternative C, thus implementation of this alternative would have no effect on threatened or endangered species, or other special-status species. The nearby wetland drainage ditch is maintained by mowing, removing any potential for habitat value, and would likely be minimally affected by the adjacent site development. Because impacts are anticipated to be minimal with the implementation of Alternative C, it is anticipated that vegetation, wildlife, and special-status species would not be adversely affected.

***Alternative D (No-Action)***

Under the no-action alternative for each of the proposed construction locations under the Proposed Action One alternatives, the Air Force would not implement any construction projects. Existing conditions (as described under the affected environment) would remain unchanged. No adverse effects to vegetation, wildlife, or special-status species would be expected through implementation of the no-action alternative.

**Proposed Action Two**

***Alternative A***

The proposed location for the LSC includes open grasslands, wooded and riparian areas, and wetlands providing a varied habitat to a diverse group of species. It is expected that disturbance-tolerant species would relocate to other wetland areas on site or to the proposed on-site stormwater basin. Birds that frequent the existing pasture would likely relocate nearby to the adjacent open fields of the golf course to the southwest or to the recreational fields to the east and southeast. Impacts are anticipated to be minimal with the proposed LSC construction; therefore, it is anticipated that vegetation, wildlife, and special-status species would not be significantly affected.

***Alternative B (No-Action)***

Under the no-action alternative, the Air Force would not construct an LSC on Langley AFB at this time. Existing conditions (as described under the affected environment) would remain unchanged. No adverse effects to vegetation, wildlife, or special-status species are anticipated through implementation of the no-action alternative.

**Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

The combined consequences of implementing the two proposed actions at Langley AFB would not have a significant impact to biological resources since impacts under Proposed Action One would not be adverse

and the impacts would not be significant under Proposed Action Two. No combined cumulative impacts to special-status species would occur since none are known or likely to occur on Langley AFB.

### **3.7 CULTURAL, TRADITIONAL, AND VISUAL RESOURCES**

Cultural resources are divided into three categories: archaeological resources, architectural resources, and traditional cultural resources or properties. Archaeological resources are places where people changed the ground surface or left artifacts or other physical remains (e.g., arrowheads or bottles). Archaeological resources can be classed as either sites or isolates and may be either prehistoric or historic in age. Isolates often contain only one or two artifacts, while sites are usually larger and contain more artifacts. Architectural resources are standing buildings, dams, canals, bridges, and other structures. Traditional cultural properties are resources associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. Traditional cultural properties may include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Visual resources for this EA are defined as the natural and human aspects of land use that comprise the aesthetic qualities of an area.

#### **3.7.1 Affected Environment**

**Archaeological Resources:** A comprehensive archaeological resources overview produced a base sensitivity map which indicated that most of Langley AFB had been disturbed by construction or other impacts (Langley AFB 2004a). The Virginia Department of Historic Resources (VDHR) concurred that archaeological resources were absent in those areas subjected to systematic shovel testing, and that an archaeological survey would not be required for areas covered by existing runways, roads, parking lots, and certain existing buildings. They indicated; however, that additional survey of areas identified as having moderate or low archaeological potential might be necessary in the future (Langley AFB 2004a). A survey conducted in 2004 along the shoreline of the Back River and Tabbs Creek (Langley AFB 2005b). A total of fifteen archaeological sites have now been identified within the base or on the base border with NASA. No archaeological resources are known to exist within the proposed construction of any of the locations under either proposed action.

**Architectural Resources:** Architectural surveys at Langley AFB have identified an area encompassing the Lighter-Than-Air, Heavier-Than-Air, and airfield areas as eligible for the National Register of Historic Places as the Langley Field Historic District. Historic District resources (ca. 1917 to 1945) illustrate the evolution of construction within the Army Air Corps and are associated with the development of Langley Field, the Army Air Corps, and NASA. Of the 379 Air Force buildings and structures in the potential district, 285 are contributing resources (Langley AFB 2004a). VDHR has

concluded with the proposed district boundary and list of contributing and non-contributing building resources (Langley AFB 2004a). Property types include aircraft operations facilities; administration, residential, and recreational facilities; wind tunnels; laboratories; runways; taxiways; and road systems; and landscape features. None of these structures lie within the area of affected environment for the alternatives under the proposed action.

**Traditional Resources:** Some Native American resources have been identified at Langley AFB in the northern portion of the base; however, none are known to exist in the vicinity of proposed construction activity under Proposed Action Two. No Native American resources have been identified at Langley AFB in the south central portion of the base where alternative sites are considered for Proposed Action One. Based on consultation with the Virginia Council on Indians, no federally recognized Indian tribes or lands are located in Virginia (Langley AFB 2004a).

**Visual Resources:** The significance of a change in visual character is influenced by social considerations, including public value placed on the resource, public awareness of the area, and general community concern for visual resources in the area. Examples of human aspects of land use include scenic highways and historic properties.

### **3.7.2 Environmental Consequences**

For cultural resources the threshold for significant impacts includes any disturbance that may affect the integrity of a historic property or a cultural resource whether or not it has been evaluated to determine its eligibility to the National Register. Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment by introducing visual or audible elements that are out of character for the period the resource represents, or neglecting the resource to the extent that it deteriorates or is destroyed. Indirect impacts are those that may occur as a result of the completed project, such as increased vehicular or pedestrian traffic in the vicinity of the resource.

No impacts to archeological or architectural resources would be expected since none of these resources are known to occur in the area of affected environment for the proposed construction projects under either of the proposed actions. No impacts to cultural or traditional resources would be expected. The base is not in possession of tribal human remains, funerary objects, sacred objects, or objects of cultural patrimony (Langley AFB 2004a).

## **Proposed Action One**

### ***Alternative A***

Under Alternative A, Building 467 (existing LFCU) would be demolished; the building has no architectural significance (Langley AFB 2004a) and therefore, no impacts would occur to architectural properties. No impacts to archaeological or traditional cultural resources or properties would be expected under the Alternative A since construction would occur on previously disturbed areas. However, in the event that archaeological resources are discovered during any demolition or construction activity, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification. Construction in the Langley Field District would not have an adverse impact to cultural resources since the action would remove a non-compatible, non-historic building to be replaced by an architecturally compatible building. Construction of the 192 FW HQ building at this location would improve the visual impact of the historic district with the addition of an architecturally compatible building. There would be impacts to visual resources during facility construction, but the impacts would be short-term in duration.

A new LFCU building would be constructed in the base's Community Center. This location is located outside of the Langley Field Historic District; therefore, impacts to cultural, traditional, or visual resources would not be expected. As discussed above, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification.

### ***Alternative B***

No significant impacts to archaeological or traditional cultural resources or properties would be anticipated from implementation of this alternative since construction would occur on previously disturbed areas. Dormitories 37 and 38, each over 50 years old, would be demolished. An evaluation of the architectural significance these buildings has not been completed; however, demolition of the dormitories would not be expected to result in an adverse impact to architectural resources on Langley AFB. Two adjacent dormitories (35 and 36) built during the same time period and proposed for demolition have been evaluated with a determination from the State Historic Preservation Office that demolition would not have an adverse impact to architectural resources on Langley AFB. In the event that archaeological resources are discovered during any demolition or construction activity, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification. There would be short-term visual impacts during facility construction; however, when construction is complete, no significant adverse impacts to visual resources would be expected due to implementation of Langley AFB architectural compatibility standards and landscaping around the building.

***Alternative C***

No impacts to archaeological or traditional cultural resources or properties would be anticipated from implementation of this alternative. The area has been previously disturbed by construction activities. In the event that archaeological resources are discovered during any demolition or construction activity, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification. As mentioned under Alternative B, there would be short-term visual impacts during facility construction; however, when construction is complete, no significant adverse impacts to visual resources would be expected due to implementation of Langley AFB architectural compatibility standards and landscaping around the building.

***Alternative D (No-Action)***

Under the no-action alternative, the Air Force would not implement any construction projects associated with the proposed integration of the 192 FW with 1 FW since this integration proposal would not occur. No construction projects associated with the proposal would be implemented; changes to the existing conditions at Langley AFB would not occur as a result of the no-action alternative. No adverse impacts to cultural, traditional, or visual resources would be expected with implementation of the no-action alternative.

**Proposed Action Two**

***Alternative A***

The location for proposed LSC construction is not in the Langley Field Historic District. An existing barn over 50 years old would be demolished. An evaluation of the architectural significance of the barn has not been completed; however, demolition of the structure would not be expected to result in an adverse impact to architectural resources on Langley AFB. No adverse impacts to archaeological, architectural, or traditional cultural resources or properties would be anticipated from construction of the LSC at this location. In the event that archaeological resources are discovered during any demolition or construction activity, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification. There would be impacts to visual resources during facility construction, but the impacts would be short-term in duration. A minor adverse effect to visual resources would be expected since the visual character of the land would be changed by building development.

***Alternative B (No-Action)***

Under the no-action alternative, the Air Force would not construct a LSC on Langley AFB at this time. No changes to the existing conditions would occur as a result of implementation of the no-action alternative. No adverse impacts to cultural, traditional, or visual resources would be expected.

## **Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

No adverse impacts to cultural and traditional resources would occur under the action alternatives under Proposed Action One or Proposed Action Two; therefore, if both proposed actions were implemented, negligible impacts to these resources would be expected. While visual resources may be improved under Proposed Action One Alternative A through replacement of a non-compatible facility with a compatible facility in the Langley Field Historic District, the visual impacts under Proposed Action Two Alternative A could be diminished by introducing facility construction on a largely undeveloped parcel of land.

### **3.8 SOCIOECONOMICS AND INFRASTRUCTURE**

Socioeconomics is defined as the social and economic activities associated with the human environment, particularly population and economic activity. Economic activity typically includes employment, personal income, and industrial growth. Because direct socioeconomic effects associated with implementation of the each of the proposed actions would occur in the immediate vicinity of Langley AFB, infrastructure resources (housing, utilities, and transportation) in the affected environment are included in this analysis.

#### **3.8.1 Affected Environment**

The affected environment for this analysis includes the following regional cities and counties: Hampton, Newport News, Norfolk, Poquoson, Virginia Beach, Williamsburg, James City County and York County which are the areas surrounding Langley AFB and in which most socioeconomic effects would be experienced due to facility demolition and construction activities.

#### **Population**

The affected regional population increased by 4 percent from 2000 to 2004 reaching an estimated 1,586,310 persons in 2004. By comparison, the population of the Commonwealth of Virginia increased by almost 5 percent during the same period, reaching 7,459,827 in 2004 (USCB 2005).

Approximately 21 percent of the 2004 population of the Commonwealth of Virginia resides in the affected region. The cities and counties range in population size from Williamsburg, the smallest with 11,465 residents to Virginia Beach, the largest with 440,098 residents. The two areas with the largest population increase between 2000 and 2004 were Suffolk City County (19.3 percent) and James City County (14.5 percent). The 2004 estimated regional population indicate an average growth rate of 2.8 percent. By comparison, the Commonwealth of Virginia had an estimated growth rate of 5.1 percent for 2004 (USCB 2005).

## **Employment and Earnings**

Langley AFB provides significant economic benefit to the local communities. In addition to nearly \$533 million in personnel payroll expenditures in 2004, Langley AFB also purchased considerable quantities of goods and services from local and regional firms. Construction costs; service contracts; and materials, supplies, and equipment for the base totaled over \$1.0 billion. Further, the Air Force estimates that the economic stimulus of Langley AFB created approximately 5,946 secondary jobs in the civilian economy generating approximately \$168 million to the local region. In total, Langley AFB contributed over \$1.7 billion to the local economy in 2004 (Langley AFB 2004b). In 2004, the Langley AFB workforce totaled 11,275. Of this total, approximately 8,905 were active duty military; 1,632 were appropriated fund civilians; and 738 were non-appropriated contract civilians and private business personnel.

In the affected region, total full- and part-time employment increased 5.6 percent from 693,066 jobs in 1990 to 733,878 jobs in 2000. Non-farm earnings in the affected cities and counties totaled more than \$30 million 2003, approximately 16 percent of the Commonwealth's total. The largest contributions to employment in 2000 were made by services (24.3 percent) and state and local government (21.3 percent). The sectors of the economy exhibiting the greatest addition of jobs in the state over the period 1990 to 2000 were services and transportation and public utilities (USDCEA REIS 2005). For the years 1990 to 2000, the contribution of the military decreased an average of 12.5 percent across the affected cities and counties. In the Commonwealth of Virginia, military employment declined 21.5 percent between 1990 and 2000; the City of Norfolk had the greatest decline (39.5 percent) of military employment.

## **Infrastructure**

### ***Housing***

The 2000 United States Census documented 437,774 housing units in the affected region with the greatest number of units in the cities of Virginia Beach, Norfolk, and Newport News. The vacancy rate for housing units in the region in 2000 was approximately 6.1 percent.

Currently, housing on Langley AFB is available in military family housing units, dormitories, and billeting facilities. A total of 1,512 two; three; four; and five –bedroom homes are available to Langley AFB personnel and their families. Of the active duty personnel assigned to Langley AFB in 2004, nearly 21 percent resided in government housing and unaccompanied housing units.

### ***Utilities***

*Electric Power and Natural Gas.* Dominion Virginia Power provides electric power to the base. Langley AFB is currently in the process of installing an improved electrical system which will include the construction of a new 8-mile direct buried underground 34.5-kilovolt (kV) loop express feeder system. Additionally, ten new transformers, (5 megavolt-amp [MVA] each), and associated electrical switching



devices will be installed. The current system has a maximum combined peak demand load of 25.3 megawatts. Virginia Natural Gas provides natural gas to Langley AFB through an underground main that extends along Sweeney Boulevard. The natural gas system is adequate to meet existing and short-term projected demand.

*Potable Water.* Langley AFB's potable water is provided by Newport News Waterworks. Langley AFB has several non-potable water sources that can be used for contingency purposes. Three potable water treatment facilities, Harwood's Mill Water Treatment Plant (WTP), Lee Hall WTP, and a reverse osmosis well field currently make up the Newport News Waterworks with a maximum production capability of 108 million gallons per day (MGD). The total active tank storage capacity of the Langley AFB system is 2.5 million gallons (Langley AFB 2003a).

*Wastewater Treatment.* Wastewater generated at the base is discharged through the sanitary sewer system to the Hampton Roads Sanitation District (HRSD). The average daily flow is 1.3 MGD; however, during rain events, this flow increase to between 3 and 5 MGD. The base has an HRSD Industrial Wastewater Discharge Permit (No. 0011) effective through 1 October 2006 that regulates the amount of pollutants that can be discharged to the sanitary sewer system.

### ***Transportation***

Regional access to Langley AFB is provided from Interstate 64 (I-64) via Armistead Avenue, LaSalle Avenue, and King Street. LaSalle Avenue is a four-lane roadway that provides direct access to the Langley AFB Main Gate and Visitor's Center. Nealy Avenue begins at the Main Gate and continues northeast through the installation. Armistead Avenue, a four-lane roadway, provides access through the base's West Gate and onto Sweeney Boulevard, the primary east-west road. King Street is a two lane road providing access to the Langley AFB King Street Gate. The NASA Durand Gate, in the north central portion of the base, provides access to base civilian and active duty personnel.

### **3.8.2 Environmental Consequences**

The threshold level of significance for socioeconomics consists of a combination of several factors, to include unusual population growth or reduction, unusual increase/decrease in demands on housing and public services, and the potential to substantially increase/decrease employment opportunities. The threshold of significance for transportation resources is the potential for the proposed actions to adversely impact traffic patterns within and access to Langley AFB.

Analysis indicated that the proposed actions would represent a minor beneficial impact to the local communities through facility construction expenditures and increased military income while both actions have the potential for minor adverse effects to transportation resources from increased numbers of active duty personnel on the base.

## **Proposed Action One**

### *Alternatives A, B, and C*

#### **Population**

Langley AFB would experience an increase of 300 full-time (i.e., active duty) personnel representing an increase of 2.7 percent of the 2004 base population. If it is assumed that nearly 80 percent of the 300 active duty personnel (approximately 240) and their families (averaged 2 dependents) would relocate to the local region, this would represent a less than 1 percent increase to the local population. This increase would not have a measurable impact to the local or regional population and would not place noticeably adverse demands on community services, utilities, or housing. In addition, normal fluctuations in personnel and the rate of growth in the region would render this impact nearly imperceptible.

#### **Employment and Earnings**

Construction and O&M expenditures associated with the L-ITF integration proposal would be over \$15.8 million over a approximate three-year period. Construction activity would contribute to the local economy although the potential effects would be minor and temporary. Approximately 25 to 30 workers would be employed at any one time during construction. Workers would likely commute from the surrounding area to Langley AFB on a short-term temporary basis. It is probable that local construction companies would be contracted, with the majority of the construction materials purchased outside the local region and transported on-site. When compared with local regional development projects, the economic impacts associated with this action would be easily absorbed within the Hampton Roads region.

Military personnel at Langley AFB earned an average annual salary of \$44,649 (Langley AFB 2004b). Based on this average, the addition of 300 active duty positions at Langley AFB would generate approximately \$13.4 million in 2004 dollars resulting in a positive, yet negligible impact to the local economy.

#### **Infrastructure**

##### *Housing*

The projected personnel increase would have negligible impacts to the housing market. The on-base housing supply combined with the available off-base housing and projected growth in the region would be sufficient to accommodate personnel changes associated with the L-ITF integration proposal.

##### *Utilities*

Demand for electricity and natural gas would be expected to increase by implementation of the proposed action; however the overall impact would not be appreciable since area capacity could meet the demand. On drill weekends, approximately 700 guardsmen would be expected on the base. It is assumed nearly

250 would billet on the base; 300 would commute to Richmond, and the remaining 250 would be from the local region. An increased demand for utilities on the drill weekends would be expected; however, the overall impact would not be significant.

### ***Transportation***

Construction-related traffic off I-64 related to this proposal would be short-term and temporary and the transportation system would not experience negligible affect. Construction traffic is authorized access through only the LaSalle Gate which could lead to congestion during peak periods during the week. Employment on the base in 2004 was approximately 11,275 jobs of which approximately 9,416 employed persons (i.e., active duty military and civilians) lived off base. Data collected by the Bureau of Transportation Statistics (BTS) indicate approximately 87 percent of vehicular travel is via personal vehicle. This percentage has been used to estimate the potential for approximately 8,192 vehicle trips during each peak travel period in the vicinity of and at Langley AFB (BTS 2001). In order to evaluate the impact to vehicular volume at Langley AFB under this proposed action, an assumption was made that 80 percent of the 300 ANG personnel would live off base. The BTS vehicular travel percentage was then applied to the off-base personnel to determine the additional traffic in and around Langley AFB. Based on this approach, Langley AFB could see an increase of 209 vehicles during peak travel periods. Drill weekend traffic volumes would not be expected to adversely impact traffic patterns locally or on the base since the presence of active duty and civilian personnel on the weekends is minimal.

Overall, traffic volumes on Langley AFB would increase; however, 192 FW personnel would work staggered four-day work weeks (i.e., Monday through Thursday or Tuesday through Friday) with most personnel arriving before 6:45 A.M. and departing after 5:30 P.M. – generally, before and after peak traffic periods.

### ***Alternative D (No-Action)***

Socioeconomics and infrastructure resources would not be affected by implementation of the no-action alternative. The 192 FW personnel would not integrate with the 1 FW; associated construction and modification projects would not occur.

## **Proposed Action Two**

### ***Alternative A***

#### **Population**

Assuming operation of the LSC would bring 800 positions to Langley AFB, the base would experience an increase of 7.1 percent of the 2004 base population; the proposed personnel addition would result in a less than 1 percent increase to the local population. This increase would not have a measurable impact to the local or regional population and would not place noticeably adverse demands on community services,

utilities, or housing. The effect would be minimal considering the normal fluctuations in personnel and the rate of growth in the region.

### **Employment and Earnings**

Construction expenditures associated with the LSC proposal would be approximately \$10 million. Construction activity would contribute to the local economy although the potential effects would be minor and temporary. Construction activity would contribute to the local economy although the potential effects would be minor and temporary. Approximately 25 to 30 workers would be employed at any one time during construction. Workers would likely commute from the surrounding area to Langley AFB on a short-term temporary basis. It is probable that local construction companies would be contracted, with the majority of the construction materials purchased outside the local region and transported on-site. When compared with local regional development projects, the economic impacts associated with this action would be easily absorbed within the Hampton Roads region.

Military personnel at Langley AFB earned an average annual salary of \$44,649 (Langley AFB 2004b). Based on this average, the addition of 800 active duty positions at Langley AFB would generate approximately \$35.7 million in 2004 dollars to the local economy.

### **Infrastructure**

#### *Housing*

The projected personnel increase would not adversely affect the housing market. The on-base housing supply combined with the available off-base housing and projected growth in the region would be sufficient to accommodate personnel changes associated with this proposed action.

#### *Utilities*

Demand for electricity and natural gas would be expected to increase by implementation of the proposed action; however the overall impact would not be appreciable since area capacity could meet the demand. Given the size of the LSC computer-based operation, electrical and communication system upgrades in the north portion of the base would be required. Implementation of this action under current conditions would result in an adverse impact to this resource.

#### *Transportation*

Construction-related traffic off I-64 related to this proposal would be short-term and temporary and the transportation system would not experience negligible affect. Construction traffic is authorized access through only the LaSalle Gate which could lead to congestion during peak periods during the week. Employment on the base in 2004 was approximately 11,275 jobs of which approximately 9,416 employed persons (i.e., active duty military and civilians) lived off base. Data collected by the Bureau of Transportation Statistics indicate approximately 87 percent of vehicular travel is via personal vehicle.

This percentage has been used to estimate the potential for approximately 8,192 vehicle trips during each peak travel period in the vicinity of and at Langley AFB (BTS 2001). In order to evaluate the impact to vehicular volume at Langley AFB under this proposed action, an assumption was made that nearly 80 percent of the additional 800 personnel would live off base. The BTS vehicular travel percentage was then applied to the off-base personnel to determine additional traffic volumes in and around Langley AFB. Based on this approach, Langley AFB could see an increase of 557 vehicles within the Langley AFB road network. Since this is a 24-hour operation, it is assumed that one-third of the LSC personnel would work a standard 8:00 a.m. to 5:00 p.m. shift resulting in approximately 185 additional vehicles on Langley AFB during this peak travel period.

#### ***Alternative B (No-Action)***

Socioeconomics and infrastructure resources would not be affected by implementation of the no-action alternative. Impacts to this resource would not be expected since baseline conditions (as described under the affected environment, Table 3-3) would remain unchanged.

#### **Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

No long-term adverse cumulative impacts to socioeconomics or infrastructure resources would occur with implementation of either Proposed Action One or Proposed Action Two. The region would experience minor positive impacts from 2007 to 2010 due to construction expenditures totaling nearly \$26 million. Over \$49 million (in 2004 dollars) would be added to the local economy with the addition of approximately 1,100 personnel positions at Langley AFB resulting in additive positive long-term impacts to the local economy. Housing and utilities would not be significantly affected as the availability of both would meet future demands. Transportation resources on Langley AFB would not experience an adverse impact due to the geographic separation of the proposed facilities and the availability of four base access gates. Additionally, the majority of personnel transport would occur after peak travel periods.

### **3.9 LAND MANAGEMENT AND USE**

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

Attributes of land use include general land use and ownership, land management plans, and special use areas. Land ownership is a categorization of land according to the type of owner. Major land ownership categories include federal, state, American Indian, and private. Federal lands are further defined by the managing agency, which may include the USFWS, U.S. Forest Service, or the DoD. Land uses are

frequently regulated by management plans, policies, ordinances, and regulations that determine the types of activities that are allowed or that protect specially designated or environmentally sensitive uses.

### **3.9.1 Affected Environment**

Langley AFB includes developed and undeveloped lands. Main categories of developed land uses include airfield or direct mission areas; industrial support areas; administrative services areas; and housing, recreation, and services areas. Undeveloped lands are commonly called open space in planning documents and may include natural or cultural resource preservation sites, safety buffers, or other similar land uses. The affected environment is the locations proposed for construction activities under Proposed Action One and Proposed Action Two (see Figure 1-2).

### **3.9.2 Environmental Consequences**

The threshold level of significance for land management and use is the potential for the proposed actions and associated alternatives to change the land use in such a manner as to cause incompatibility with adjacent land management and/or uses.

#### **Proposed Action One**

##### *Alternatives A, B, and C*

Land use designations for Alternatives A and C are designated administrative; proposed construction would be compatible at these sites. Alternative B is designated open space and would require a change to administrative. A HQ ACC zoning waiver may be required if construction plans precede the land use designation change. A negligible impact to land management and use would be expected from redesignation of this site from open space to administrative.

##### *Alternative D (No-Action)*

Under this alternative, the 192 FW would not integrate with the 1 FW; no facility or modification projects would occur and no changes to existing land uses would be expected. No changes to existing land uses would occur under this alternative for Proposed Action Two. No significant adverse impacts to land management and use would be anticipated from implementation of this alternative under either proposed action.

#### **Proposed Action Two**

##### *Alternative A*

Land use designation of the proposed LSC under Proposed Action Two would require a change from recreation to administrative. A horse pasture and stable at the site have been under lease by the Langley

Saddle Club since 1953. The lease will expire in April 2006 and it is unlikely that Langley AFB would renew the lease. Construction of the LSC at this site would not be consistent with land use designation; however, Langley AFB has indicated that land use in vicinity of the horse pasture would be changed to administrative in the future (Langley AFB 2003a). A HQ ACC zoning waiver may be required if construction plans precede the land use designation change. A negligible impact to land management and use would be expected from redesignation of the land from recreation to administrative.

***Alternative B (No-Action)***

No changes to existing land uses would occur with implementation of this alternative. No adverse impacts to land management and use would be anticipated from implementation of the no-action alternative under this proposed action.

**Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

Combined impacts would be negligible since no significant adverse impacts would occur under either Proposed Action One and under Proposed Action Two. The areas identified for proposed development have been considered under the Langley AFB General Plan and all land uses would be compatible prior to implementation of proposed construction activities.

**3.10 HAZARDOUS MATERIALS, HAZARDOUS WASTE, AND SOLID WASTE MANAGEMENT**

Hazardous materials are identified and regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); the Occupational Safety and Health Act (OSHA); and the Emergency Planning and Community Right-to-Know-Act. Resource Conservation and Recovery Act (RCRA) defines hazardous waste as any solid, liquid, contained gaseous or semisolid waste, or any combination of waste that could or do pose a substantial hazard to human health or the environment. Waste may be classified as hazardous because of its toxicity, reactivity, ignitability, or corrosiveness. In addition, certain types of waste are “listed” or identified as hazardous in Code of Federal Regulations at 40 CFR Part 261. Executive Order 12088, *Federal Compliance with Pollution Control Standards*, ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from hazardous materials or hazardous waste due to federal activities. Other topics commonly addressed under hazardous materials and waste includes underground storage tanks and potential contaminated sites designated under the Air Force’s Environmental Restoration Program (ERP). Solid waste management refers to the disposal of materials from the demolition of existing facilities.

Asbestos-containing material (ACM) is any material containing more than one percent by weight of asbestos and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure. Asbestos is made up of microscopic bundles of fibers that may be airborne when distributed or damaged. These

fibers get into the air and may be inhaled into the lungs, where they may cause significant health problems. Due to its availability to withstand heat, fire, and chemicals, asbestos was historically used in construction materials, and is typically found in ceiling tiles, pipe and vessel insulation, floor tile, linoleum, mastic, and on structural beams and ceilings. Laws which address the health risks of exposure to asbestos and ACMs include Toxic Substance Control Act, OSHA regulations (29 CFR), and CAA (Section 112 of the CAA, as amended, 42 USC § 7401 *et seq.*). USEPA regulations concerning asbestos are contained in 40 CFR 61. The regulations require that the USEPA or authorized state agencies be notified of asbestos removal projects. The 1 FW *Asbestos Management and Operations Plan* provides guidance on the management of asbestos (Langley AFB 2004c).

Lead-based paint (LBP) was commonly used from the 1940s until the 1970s for exterior and interior painted surfaces. In 1978, the U.S. Consumer Product Safety Commission lowered the legal maximum lead content in most kinds of paint to trace amounts, therefore, buildings constructed after 1978 are presumed not to contain LBP. The use and management of LBP is regulated under Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992. Section 1017 requires the implementation of federally supported work involving risk assessments, inspection, interim controls, and abatement of lead-based paint hazards. Regulations relating to LBP can be found at 29 CFR, 40 CFR, and 49 CFR. Guidance for administrative and operations plans for managing lead-base paint-containing materials at Langley AFB is provided in the *Lead-Based Paint Management and Operations Plan* (Langley AFB 2003b).

### **3.10.1 Affected Environment**

Operations at Langley AFB require the use and storage of many hazardous materials. These materials include flammable and combustible liquids, acids, corrosives, caustics, anti-icing chemicals, compressed gases, solvents, paints, paint thinners, pesticides, petroleum hydrocarbons, hydraulic fluids, fire retardant, and photographic chemicals.

The Langley AFB *Hazardous Waste Management Plan* (HWMP) specifies protocols for storage locations on the base and proper handling procedures for all hazardous substances (Langley AFB 2003c). Protocols described in the HWMP include spill detection, spill reporting, spill containment, decontamination, and proper cleanup and disposal methods. Hazardous waste is generated at Langley AFB from a variety of activities, including aircraft maintenance, wastewater treatment, soil and groundwater remediation, training exercises, civil engineering projects, printing, medical facility, services, and security. Aircraft support functions are a major source of hazardous waste at Langley AFB. These functions include hydraulics, structural maintenance, aerospace ground equipment, munitions maintenance, corrosion control, fuels management, painting, and wheel and tire maintenance.



The USEPA designates facilities as large quantity generators of hazardous waste when wastes generated exceed 2,200 pounds any month during the year. Langley AFB is a large-quantity hazardous waste generator. In keeping with the requirements outlined in the Langley AFB HWMP, hazardous waste is properly segregated, stored, characterized, labeled, and packaged for collection at a designated initial satellite accumulation point. The base has approximately 45 waste accumulation points at work locations. A licensed contractor transports the waste from the accumulation points to the single designated 90-day Hazardous Waste Storage Area (HWSA) on Langley AFB where they are stored until disposal is economically practicable or before 90 days has expired, whichever comes first. A licensed disposal contractor picks up the wastes and transports it off base for disposal in a licensed disposal facility. Accumulated wastes gathered at a 90-day HWSA are analyzed, characterized, prepared for shipment, and forwarded to the Defense Reutilization and Marketing Office in Norfolk, which is responsible for arranging permanent disposal (Langley AFB 2003c).

Langley AFB has a proactive program to identify asbestos and lead in all structures in order to reduce potential hazards to occupants, workers, and the environment during future construction projects. The presence of asbestos in a facility or specific portion of a facility is determined following an inspection by qualified Bio-Environmental Engineering personnel in coordination with the Asbestos Program Officer or through a contracted service. An asbestos survey is conducted whenever maintenance, repair, or minor construction could result in exposure to ACMs. Survey results for ACM and LBP materials are available in the Civil Engineering Squadron building in the Environmental Flight office.

The ERP is the process by which contaminated sites and facilities are identified and characterized and by which existing contamination is contained, removed, and disposed of to allow for beneficial reuse of the property. ERP sites include landfills, underground waste fuel storage areas (e.g., oil/water separators), and maintenance-generated wastes. Compliance activities for ERP sites address underground storage tanks, hazardous materials management, closure of active sites, polychlorinated biphenyls, water discharges, and other compliance projects that occur on or near ERP sites. Since the ERP began at Langley AFB, 55 sites have been identified on the base; two additional ERP sites have been identified at Bethel Manor Housing. Twenty-three sites are currently regulated under the CERCLA (Gravette 2006). The location of ERP sites and proposed construction projects at Langley AFB are shown in Figure 3-4.

### **3.10.2 Environmental Consequences**

The significance of potential impacts associated with hazardous materials and wastes is based on the toxicity, transportation, storage, and disposal of these substances. Hazardous materials and hazardous waste impacts are considered significant if the storage, use, transportation, or disposal of these substances substantially increases the human health risk or environmental exposure. An increase in the quantity or toxicity of hazardous materials and/or hazardous waste handled by a facility may also signify a potentially significant impact, especially if a facility was not equipped to handle the new waste streams. No new

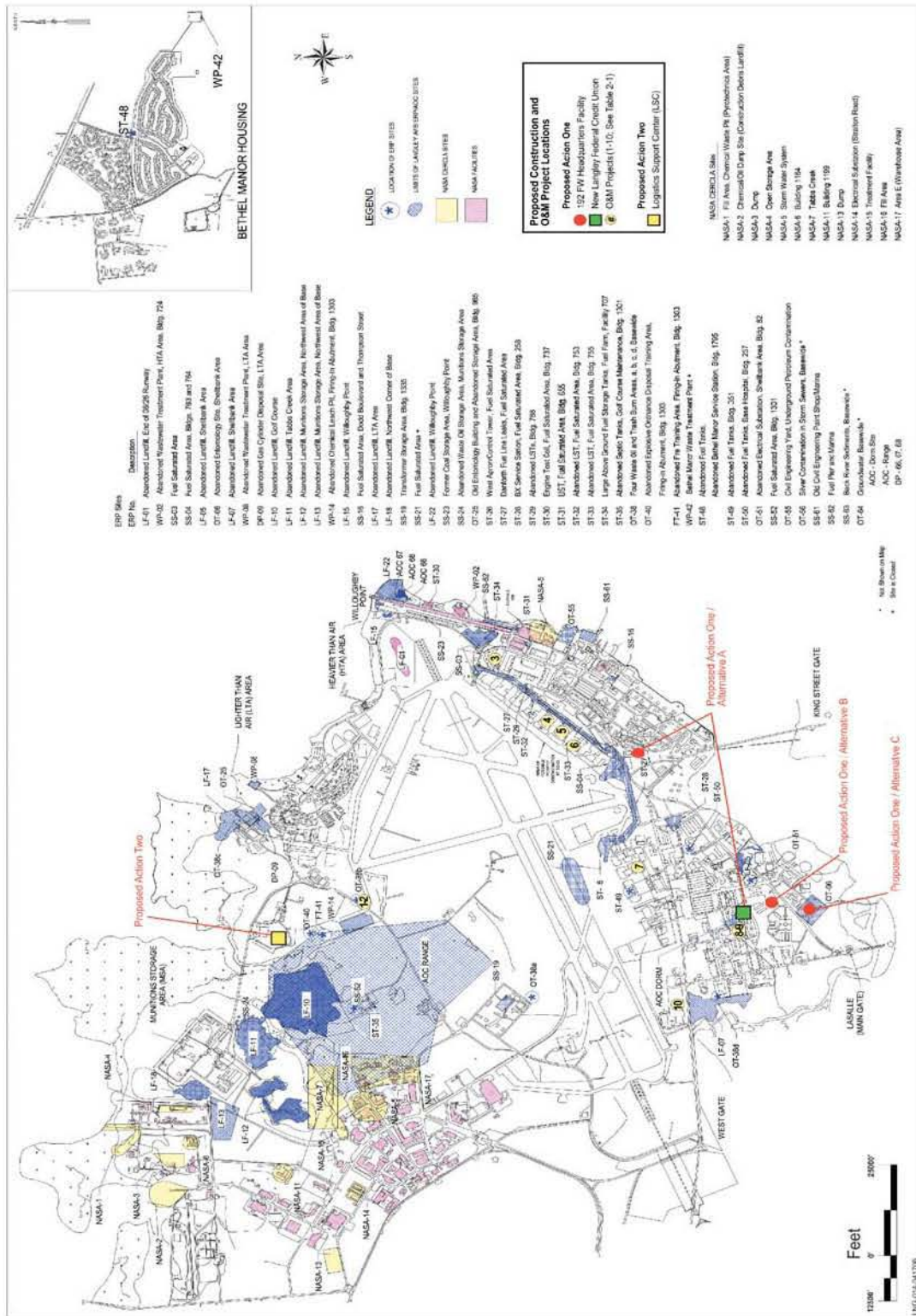


Figure 3-4 Langley AFB ERP Sites and Location of Proposed Construction and O&M Projects

waste streams would be created, waste amounts would not increase, and hazardous materials would not change at the base. It is anticipated that there would insignificant impacts to this resource with implementation of either Proposed Action.

### **Proposed Action One**

#### *Alternative A*

Building 467 (LFCU) was originally constructed in 1942. Modifications and building additions were made in 1957 and 1969. Given the period of construction, a potential exists for the presence of asbestos-containing materials or lead-based paint in the building materials. In the event that asbestos or lead-based paint would be encountered during demolition of the existing credit union building, the materials would be disposed of by a certified contractor in accordance with the Langley AFB HWMP (Langley AFB 2003c). Any hazardous waste removed from the proposed action site would be properly coordinated by base personnel and would be handled according to all applicable Air Force, local, state, and federal rules and regulations. Disposal of asbestos-containing materials would be in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) and transported in accordance Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Disposal of any lead-based paint would be in accordance with Virginia Lead-Based Paint Activities, Rules and Regulations (9 VAC 20-60-261). Uncontaminated construction debris would be disposed of off-site at the Bethel Sanitary Landfill or incinerated at the Hampton Steam Generation Plant (Langley AFB 2003c). The proposed site for construction of the new LFCU would require partial demolition of an asphalt parking lot; however, the presence of hazardous waste on the site is not expected.

#### *Alternative B*

Construction of Buildings 37 and 38 began in 1954 and were completed in 1957. Given the period of construction, a potential exists for the presence of asbestos-containing materials or lead-based paint in the building materials. In the event that asbestos or lead-based paint would be encountered during demolition of the dorms, the materials would be disposed of by a certified contractor in accordance with the Langley AFB HWMP (Langley AFB 2003c). Any hazardous waste removed from the proposed action site would be properly coordinated by base personnel and would be handled according to all applicable Air Force, local, state, and federal rules and regulations. Disposal of asbestos-containing materials would be in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) and transported in accordance Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Disposal of any lead-based paint would be in accordance with Virginia Lead-Based Paint Activities, Rules and Regulations (9 VAC 20-60-261). Uncontaminated construction debris would be disposed of off-site at the Bethel Sanitary Landfill or incinerated at the Hampton Steam Generation Plant (Langley AFB 2003c).

The location for proposed construction activities is a closed ERP site. There is also the potential that old underground fuel tanks exist on the site. Engineering controls and precautions would be implemented to protect site construction workers based on the potential for exposure to contaminants known to have been at the site.

#### ***Alternative C***

Two picnic shelters would be demolished under this proposal. No impacts to asbestos-containing materials or lead-based paint would be expected from demolition of these structures; however, in the event that asbestos or lead-based paint would be encountered during demolition of the picnic shelters, the materials would be disposed of by a certified contractor in accordance with the Langley AFB HWMP (Langley AFB 2003c). Any hazardous waste removed from the proposed action site would be properly coordinated by base personnel and would be handled according to all applicable Air Force, local, state, and federal rules and regulations. Disposal of asbestos-containing materials would be in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) and transported in accordance Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Disposal of any lead-based paint would be in accordance with Virginia Lead-Based Paint Activities, Rules and Regulations (9 VAC 20-60-261). Uncontaminated construction debris would be disposed of off-site at the Bethel Sanitary Landfill or incinerated at the Hampton Steam Generation Plant (Langley AFB 2003c).

The location for proposed construction activities under this alternative is ERP site OT-06, the Abandoned Entomology Site and Former Wastewater Treatment Plant, Shellbank Area. Active operations occurred here from 1943-1962. The 1995 Remedial Investigation/Feasibility Study (RI/FS) determined the site was contaminated with low levels of DDT, Dieldrin, Chlordane, Lindane, Malathion, and sewage treatment residues. The human health risk assessment found a site-related cancer risk within the EPA acceptable risk range of  $1 \times 10^{-4}$  -  $1 \times 10^{-6}$ . The EPA signed a No Further Action Record of Decision (ROD) on September 26, 2000 and has land use restrictions based on a future land use of open space. The Air Force conducted a five year review of the ROD decision which determined that site conditions did not warrant changing the existing ROD. Changing the land use from open space to administrative space may require additional remediation at the site to prevent a pathway to contamination exposure by construction site workers, and would require close coordination with the base environmental restoration office, EPA, and construction contractor.

#### ***Alternative D (No-Action)***

Under the no-action alternative, the Air Force would not implement integration of the 192 FW with the 1 FW; no facility construction or building modification projects related to this proposal would be implemented. No changes to hazardous materials, hazardous waste, or solid waste resources would be expected.

## **Proposed Action Two**

### *Alternative A*

An existing barn would be demolished under this proposal; however, asbestos-containing materials or lead-based paint would not be expected to be found. In the event that asbestos or lead-based paint would be encountered during demolition of the structure, the materials would be disposed of by a certified contractor in accordance with the Langley AFB HWMP (Langley AFB 2003c). Any hazardous waste removed from the site would be properly coordinated by base personnel and would be handled according to all applicable Air Force, local, state, and federal rules and regulations. Disposal of asbestos-containing materials would be in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) and transported in accordance Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Disposal of any lead-based paint would be in accordance with Virginia Lead-Based Paint Activities, Rules and Regulations (9 VAC 20-60-261). Uncontaminated construction debris would be disposed of off-site at the Bethel Sanitary Landfill or incinerated at the Hampton Steam Generation Plant (Langley AFB 2003c).

An abandoned fire training area, ERP Site 41 (FT-41 on Figure 3-4), is adjacent to this site. The ERP site was used from the 1960s to 1984 and added to the ERP list in 1981. Used oils, fuels, and solvents were dumped and then burned at the site. Although this is still an active ERP site, no adverse impacts from implementation of the proposed action at this alternative site would be anticipated provided procedural guidelines developed by the ERP manager in conjunction with base civil engineers and the EPA were followed to ensure the ERP site integrity is maintained. In addition, since no new waste streams would be created or increase and hazardous materials would not change at the base, it is anticipated that no adverse impacts to this resource would be with proposed construction of the LSC at this location.

Should any hazardous waste be removed from the proposed construction site, it would be properly coordinated by base personnel and would be handled according to all applicable Air Force, local, state, and federal rules and regulations. Disposal of asbestos-containing materials would be in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) and transported in accordance Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Disposal of any lead-based paint would be in accordance with Virginia Lead-Based Paint Activities, Rules and Regulations (9 VAC 20-60-261). Uncontaminated construction debris would be disposed of off-site at the Bethel Sanitary Landfill or incinerated at the Hampton Steam Generation Plant (Langley AFB 2003c). No ERP sites are known to exist in the vicinity of the proposed LFCU building location.

### *Alternative B (No-Action)*

Under this alternative, the Air Force would implement construction of a new LSC at Langley AFB at this time. No impacts to this resource would be anticipated. Existing conditions (as described under the affected environment) would remain unchanged.

**Combined Environmental Consequences from Proposed Action One and Proposed Action Two**

Effects from hazardous materials and waste associated with construction as well as O&M of facilities related to the proposed actions would be negligible since impacts from the individual project would not result in adverse impacts. No new waste streams would be created, waste amounts would not increase and hazardous materials would not change at the base under each proposed action, resulting in negligible impacts to this resource.

## **CHAPTER 4**

# **CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

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## **CHAPTER 4**

# **CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

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### **4.1 CUMULATIVE EFFECTS**

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR Part 1508.7). Assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action and alternatives, if they overlap in space and time.

Cumulative effects are most likely to arise when a proposed action is related to other actions that occur in the same location or at a similar time. Actions geographically overlapping or close to the proposed action and alternatives would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with the proposed action and alternatives would have a higher potential for cumulative effects.

To identify cumulative effects, three fundamental questions need to be addressed:

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

### **4.2 SCOPE OF CUMULATIVE EFFECTS ANALYSIS**

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time in which the effects could occur. Since the potential impacts of the proposed actions include Langley AFB and its vicinity, the cumulative effects analysis includes only those actions occurring within the affected region. The time frame for cumulative effects would begin in FY07 when construction of the LSC under Proposed Action Two and the majority of modification and construction projects under Proposed Action One would be expected to begin. Public documents prepared by federal, state, and local government agencies were the primary sources of information for identifying reasonable foreseeable actions.

In Chapter 3, each resource was not only assessed for the specific environmental consequences of individual elements of Proposed Action One and Proposed Action Two, it also assessed the combined effects of both proposed actions if they occurred at the same time. Since this aspect of interrelationship of combined effects was presented in Chapter 3, it will not be discussed further in this section.

### **Past and Present Actions**

Langley AFB is an active military installation that undergoes continuous change in mission and in training requirements. This process of change is consistent with the United States defense policy that the Air Force must be ready to respond to threats to American interests throughout the world. In 1998, the Air Force implemented a force structure change that added 12 F-15C aircraft and 134 personnel to Langley AFB, increasing the total number of F-15C aircraft to 66. Since then, the base completed establishment of a Combined Air Operations Center-Experimental and beddown of the Aerospace Expeditionary Force Center. In 2002, the Air Force selected Langley AFB for the initial wing of F-22A aircraft. The first operational F-22A aircraft arrived at Langley AFB in January 2005. Most of the facilities to support the F-22A wing were completed in FY05; the on-going beddown of aircraft is scheduled for completion in FY07. Approximately 16 acres along the flightline were disturbed for the F-22A beddown construction.

Numerous projects have been completed or are in progress at the base, including facility improvements and infrastructure upgrades. In 2005, a new water tower was constructed to replace a water tower (Building 616) demolished in 2004. In addition, portions of the water and wastewater treatment system, a library, a fitness center, a mission support group facility, and anti-terrorism/force protection of the King Street Gate were completed in the past year.

### **Future Proposed Actions**

In 2003, Langley AFB approved the Langley AFB General Plan, which identified areas on the base where existing missions could be expanded and where new missions could be located (Langley AFB 2003a). The base is currently updating many of the area development plans to address proposed facility construction and expansion.

During the timeframe FY06 to FY10, Langley AFB has proposed to implement numerous base construction and renovation projects. Construction projects include an Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center, Army and Air Force Exchange Service mini-mall and service station, Combat Arms Training Maintenance Range, Distributed Common Ground System and anti-terrorism/force protection entry gates at the LaSalle and West Gates. The 1 FW hospital will undergo a major expansion and renovation. Numerous facilities to include the ACC Fitness Center, Community Center, Enlisted Club, Bayview Towers and marina are expected to receive major renovations and/or additions beginning FY06.

The proposed construction projects analyzed in this EA when combined with future foreseeable Air Force proposals have the potential to disturb not more than 3 percent of the total acreage (2,883 acres) of Langley AFB over the next 5 years. Wetland loss or disturbance, if incurred, could be either mitigated on site or elsewhere on Langley AFB in potential mitigation areas identified by the USACE.

Implementation of Proposed Action One would result in temporary impacts to the resources analyzed; however, when combined with other future proposed actions on the base, may not be expected to have an adverse cumulative effect on other resources. Weekend flight operations would be conducted once each month by the 192 FW under Proposed Action One. The weekend sorties would have an adverse impact to some residents who may experience overflights but the overall impact to the resource will not be significant. Implementation of Proposed Action Two would result in temporary impacts to the resources analyzed; however, when combined with other future proposed facility construction (analyzed in separate environmental documents) in the north portion of the base, would be expected to have a short-term adverse cumulative effect on air quality; noise; biological ; and infrastructure (i.e., utilities and transportation) resources. Potential long-term adverse cumulative effects to soils from the addition of impervious surfaces to Langley AFB would be expected.

The decision of the 2005 DBCRC to realign 18 (one squadron) F-15C/D aircraft from Elmendorf AFB to Langley AFB would, in addition to numerous proposed military construction and improvement projects, require environmental analysis if undertaken. Under the realignment, Langley AFB's inventory of primary aircraft would consist of 2 squadrons of F-22A and one squadron of F-15C/D. As a result, 192 FW personnel could integrate with F-15 C/D wing groups with the same responsibilities as those found with the integration into the F-22A wing groups; however, no decision or formal agreements have been made at this time.

#### **4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

NEPA requires that environmental analysis include identification of any irreversible and irretrievable commitment of resources which would be involved in the proposed action should it be implemented. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the proposed actions analyzed in this EA, most resource commitments are neither irreversible nor irretrievable. Most environmental consequences are short-term and temporary, such as air emissions from demolition and construction operations. The L-ITF and LSC construction proposals would require consumption of limited amounts of materials typically associated with construction (wood, metal, asphalt,

and fuel). However, the amount of these materials used is not expected to significantly decrease the availability of these resources.

## **CHAPTER 5**

### **REFERENCES CITED**

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## CHAPTER 5

### REFERENCES CITED

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## **CHAPTER 6**

# **PERSONS AND AGENCIES CONTACTED**

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## **CHAPTER 6**

### **PERSONS AND AGENCIES CONTACTED**

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## **CHAPTER 7**

### **LIST OF PREPARERS AND CONTRIBUTORS**

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## CHAPTER 7

### LIST OF PREPARERS AND CONTRIBUTORS

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Years of Experience: 2



# **APPENDIX A**

## **INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE**

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR COMBAT COMMAND  
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR U.S. Fish and Wildlife Service (Kim Marbane)  
Virginia Field Office  
P.O. Box 99  
Gloucester, VA 23061

DEC 2 2006

FROM: HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB VA 23665-2769

SUBJECT: Proposed Beddown of the Langley Integrated Total Force, Langley AFB, VA

1. We send this letter in accordance with Air Force requirements for Interagency and Intergovernmental Coordination for Environmental Planning (IICEP). Headquarters Air Combat Command (HQ ACC) is in the initial stages of preparing an Environmental Assessment (EA) for the proposed beddown of the Langley Integrated Total Force (L-ITF) within the boundaries of Langley AFB. The purpose of the proposal is to increase the number of pilots trained on the new F/A-22 aircraft as a means of mitigating Air Force reductions in funding, aircraft, and experienced pilots. Under this proposal, the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG) would move from Richmond, VA and integrate with the 1<sup>st</sup> FW here at Langley AFB. The proposal would also involve construction of a new 24,900 square foot ANG Operations and Training Facility and a 19,000 square foot Readiness and Mobility facility.

2. Our EA will analyze the potential effects on environmental resources for these proposed facilities at different locations on base (see attached map). Pursuant to the Endangered Species Act and the National Environmental Policy Act, we request information regarding federally listed or proposed species that may be present in the potentially affected areas. We would appreciate receiving the information in digital/electronic format, if possible. We will contact you at a later date to determine the need for a Section 7 consultation. We anticipate the draft EA will be available for public and agency comment in January 2006.

3. Our contractor for this project is The Environmental Company (TEC) and we appreciate your cooperation during their data collection efforts.

4. Please contact our EA project manager, Mr. Donald Calder at HQ ACC/A7ZP, (757)764-6156 with any questions or concerns.

A handwritten signature in black ink, appearing to read "Larry H. Dryden".

LARRY H. DRYDEN, P.E.  
Chief, Planning Branch (A7ZP)

Attachment:  
Map of Alternative Site Locations



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR COMBAT COMMAND  
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR Virginia Department of Game and Inland Fisheries

Attn: Andy Zadnick  
4010 West Broad Street  
Richmond, VA 23230

DEC 2 2005

FROM: HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB VA 23665-2769

SUBJECT: Proposed Beddown of the Langley Integrated Total Force, Langley AFB, VA

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2. Our EA will analyze the potential effects on environmental resources for these proposed facilities at different locations on base (see attached map). Pursuant to the Endangered Species Act and the National Environmental Policy Act, we request information regarding federally listed or proposed species that may be present in the potentially affected areas. We would appreciate receiving the information in digital/electronic format, if possible. We will contact you at a later date to determine the need for a Section 7 consultation. We anticipate the draft EA will be available for public and agency comment in January 2006.
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4. Please contact our EA project manager, Mr. Donald Calder at HQ ACC/A7ZP, (757)764-6156 with any questions or concerns.

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LARRY H. DRYDEN, P.E.  
Chief, Planning Branch (A7ZP)

Attachment:  
Map of Alternative Site Locations



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR COMBAT COMMAND  
LANGLEY AIR FORCE BASE, VIRGINIA

DEC 2 2005

MEMORANDUM FOR Ms. Ethel Eaton  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, VA 23221

FROM: HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB VA 23665-2769

SUBJECT: Proposed Beddown of the Langley Integrated Total Force, Langley AFB, VA

1. We send this letter in accordance with Air Force requirements for Interagency and Intergovernmental Coordination for Environmental Planning (IICEP). Headquarters Air Combat Command (HQ ACC) is preparing an Environmental Assessment (EA) for the proposed beddown of the Langley Integrated Total Force (L-ITF) within the boundaries of Langley AFB. The proposal would increase the number of pilots trained on the new F/A-22 aircraft by integrating the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG), currently in Richmond, VA, with the 1<sup>st</sup> FW here at Langley AFB. The proposal also involves construction a new 24,900 square foot ANG Operations and Training Facility and a 19,000 square foot Readiness and Mobility facility. Our EA will analyze various locations on base for these two facilities (see attached site location map).
2. We will use information collected from the EA to consider any impacts on historic properties identified. This information will be coordinated with your office according to the steps outlined in 36 CFR 800.7. We anticipate a draft EA will be available for public agency comment in January 2006.
3. Our contractor for this project is The Environmental Company (TEC), and we would appreciate your cooperation during their data collection efforts.
4. Please contact our EA project manager, Mr. Donald Calder at HQ ACC/A7ZP, (757)764-6156 with any questions or concerns.

A handwritten signature in black ink, appearing to read "Larry H. Dryden".

LARRY H. DRYDEN, P.E.  
Chief, Planning Branch (A7ZP)

Attachment:  
Map of Alternative Site Locations



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR COMBAT COMMAND  
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR Ms. Ellie Irons

Virginia Department of Environmental Quality  
629 East Main Street, 6<sup>th</sup> Floor  
Richmond, VA 23219

DEC 2 2014

FROM: HQ ACC/A7ZP

129 Andrews Street, Suite 102  
Langley AFB VA 23665-2769

SUBJECT: Proposed Beddown of the Langley Integrated Total Force, Langley AFB, VA

1. We send this letter in accordance with Air Force requirements for Interagency and Intergovernmental Coordination for Environmental Planning (IICEP). Headquarters Air Combat Command (HQ ACC) is preparing an Environmental Assessment (EA) for the proposed beddown of the Langley Integrated Total Force (L-ITF) within the boundaries of Langley AFB. The proposal would increase the number of pilots trained on the new F/A-22 aircraft by integrating the 192<sup>nd</sup> Fighter Wing (192 FW) of the Virginia Air National Guard (ANG), currently in Richmond, VA, with the 1<sup>st</sup> FW here at Langley AFB. The proposal also involves construction a new 24,900 square foot ANG Operations and Training Facility and a 19,000 square foot Readiness and Mobility facility.
2. Our EA will analyze the potential effects on environmental resources resulting from the construction of for these proposed facilities at different locations on base (see attached map). It will also examine the potential for cumulative impacts from other past, present, and reasonably foreseeable future proposals.
3. Please contact our EA project manager, Mr. Donald Calder at HQ ACC/A7ZP, (757)764-6156 with any questions or concerns.

A handwritten signature in black ink, appearing to read "Larry H. Dryden".

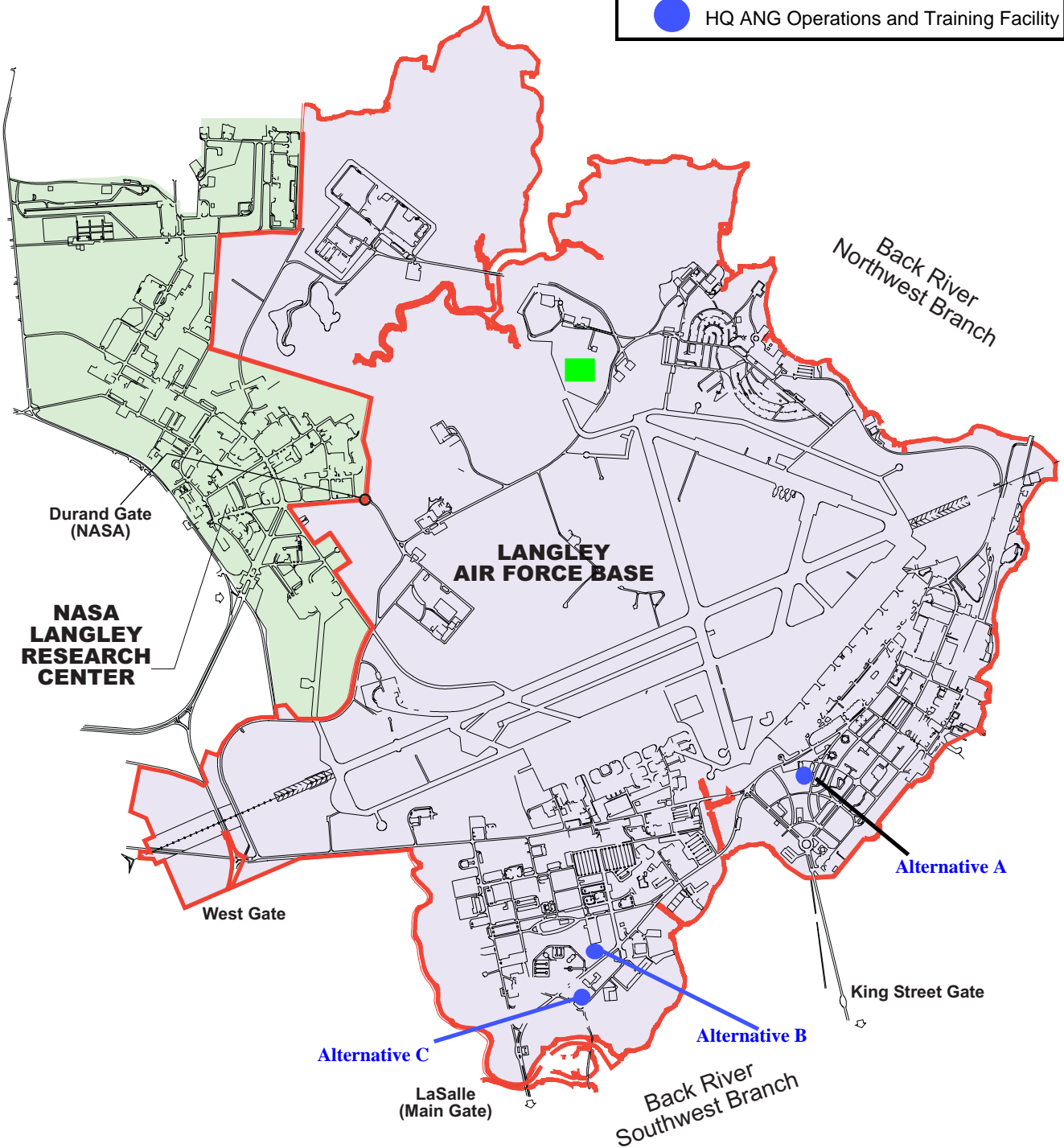
LARRY H. DRYDEN, P.E.  
Chief, Planning Branch (A7ZP)

Attachment:  
Map of Alternative Site Locations

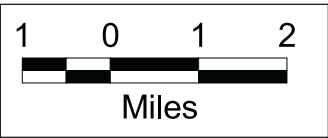


**Proposed Construction Locations**

- Logistics Supply Center (LSC)
- HQ ANG Operations and Training Facility



LNG-003-011205



**Langley Integrated Total Force Beddown  
Proposed Construction Locations**



**Langley Integrated Total Force Beddown Environmental Assessment  
IICEP Distribution List**

**The preceding letter was also sent to the following individuals:**

Air Data Analysis Program  
629 East Main Street, 8<sup>th</sup> Floor  
Richmond, VA 23219  
Attn: Mr. Kotur S. Narasimhan

Department of Forestry  
900 Natural Resources Dr., Ste. 800  
Charlottesville, VA 22903  
Attn: Mr. Michael Foreman

Waste Division  
629 East Main Street, 4<sup>th</sup> Floor  
Richmond, VA 23219  
Attn: Mr. Tom Modena

Department of Health  
Division of Drinking Water  
109 Governor Street, 6<sup>th</sup> Floor  
Richmond, VA 23219  
Attn: Mr. Alan Weber

Virginia Water Protection Program  
629 East Main Street, 9<sup>th</sup> Floor  
Richmond, VA 23219  
Attn: Ms. Ellen Gilinsky

Department of Mines, Minerals & Energy  
Division of Mineral Resources  
P.O. Box 3667  
Charlottesville, VA 22903  
Attn: Mr. Gerald P. Wilkes

Virginia Department of Environmental Quality  
Tidewater Regional Office  
5636 Southern Blvd.  
Virginia Beach, VA 23462  
Attn: Mr. Harold Winer

Virginia Institute of Marine Science  
P.O. Box 1346  
Gloucester Point, VA 23062  
Attn: Mr. Thomas A. Barnard, Jr.

Office of Plan & Pest Services  
1100 Bank Street  
Richmond, VA 23219  
Attn: Mr. Keith Tignor

Virginia Marine Resources Commission  
2600 Washington Avenue  
Newport News, VA 23607  
Attn: Mr. Tony Watkinson

Chesapeake Bay Local Assistance Department  
101 N. 14<sup>th</sup> Street, 17<sup>th</sup> Floor  
Richmond, VA 23219  
Attn: Ms. Catherine Harold

Virginia Department of Transportation  
Environmental Division  
1401 East Broad Street  
Richmond, VA 23219  
Attn: Mr. David Grimes

Department of Conservation & Recreation  
203 Governor Street  
Richmond, VA 23219  
Attn: Mr. John Davy



## COMMONWEALTH of VIRGINIA

W. Taylor Murphy, Jr.  
Secretary of Natural Resources

*DEPARTMENT OF ENVIRONMENTAL QUALITY*  
*Street address:* 629 East Main Street, Richmond, Virginia 23219  
*Mailing address:* P. O. Box 10009, Richmond, Virginia 23240  
Fax (804) 698-4500 TDD (804) 698-4021  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

Robert G. Burnley  
Director

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

December 14, 2005

Mr. Larry H. Dryden, P.E.  
Chief, Planning Branch (A7ZP)  
Headquarters, Air Combat Command  
Department of the Air Force  
129 Andrews Street, Suite 102  
Langley Air Force Base, Virginia 23665

RE: Proposed Bed-down of the Langley Integrated Total Force, Langley AFB,  
Virginia

Dear Mr. Dryden:

Thank you for your December 2, 2005 memo (received December 6), indicating that the Air Force is preparing an environmental assessment (EA) regarding the above subject.

The memo indicates that two new buildings would be constructed at Langley Air Force Base and that the number of pilots being trained would increase by integrating the 192nd Fighter Wing of the Virginia Air National Guard with the 1st Fighter Wing at Langley.

The roles of the Virginia Department of Environmental Quality (DEQ) in relation to the project under consideration 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 taking 60 days as allowed by the Federal Consistency Regulations, instead of two separate reviews. We recommend this

Mr. Larry H. Dryden, P.E.  
Page 2

approach to save time and extra effort for the Air Force as well as for the Commonwealth.

#### Environmental Review and Scoping

We are sharing your memorandum 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
  - Tidewater Regional Office\*
  - Air Division\*
  - Waste Division
  - Water Quality 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
- Virginia Institute of Marine Science
- Hampton Roads Planning District Commission
- City of Hampton
- City of Poquoson.

In order to ensure an effective coordinated review of the Environmental Impact Statement or Environmental Assessment and the consistency determination, we will require 19 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 be adequately described and analyzed. While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments to you 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, sections 930.30 through 930.46). 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 that the project will be consistent with the Enforceable Policies. In addition, we invite your attention to the Advisory Policies of the VCP (second enclosure). 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 determination may be provided as part of the NEPA documentation; as indicated above, we recommend this approach, because one review of 60 days' duration (15 CFR Part 930, section 930.41(a)) is less work for the Air Force as well as the Commonwealth than two reviews, one lasting 60 days and the other lasting 30 to 60 depending on NEPA requirements.

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.

#### Recommendations on Project Planning and Content of Documents

It is apparent to us, from experience over the past 18 months, that the Air Force is planning a number of projects at Langley Air Force Base, each of which requires environmental review and consistency review. It would be helpful to reviewers, and perhaps also to the Air Force, if the individual Environmental Assessments could make reference to a master plan document, or a Programmatic Environmental Impact Statement (EIS) and Plan, that shows, with effective topographic and other mapping and diagrams, the relationships of many of these projects to one another on the ground (and perhaps also in time). Our review of a Programmatic EIS and a master plan document, prior to individual project reviews, might enable us to respond somewhat faster to individual project documents. It would also diminish the workload of the Air Force in producing the individual documents, because in these the Air Force could make reference to the larger document as a means of disposing of certain issues that have been effectively addressed previously. Of course, the idea presupposes that the Programmatic EIS would be prepared and reviewed in the first place; and we assume that the EIS, and accompanying plans for development, would cover a defined time frame (for example: 2005 through 2008, or 2005 through 2015). It would also be necessary to allow modification of individual projects and the Plan

Mr. Larry H. Dryden  
Page 4

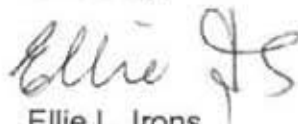
itself as circumstances, including fiscal and environmental constraints, make necessary.

A planning effort of this nature could include such things as stormwater master plans, which might be easier to develop and follow than individual stormwater plans for each project. Providing for the effective management of stormwater in a developing area could prevent later conflicts over individual projects for which stormwater management can no longer be effectively provided.

We would be interested in your reaction to this idea. If you have questions about a master plan approach, 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

cc: Harold J. Winer, DEQ-TRO  
Kotur S. Narasimhan, DEQ-Air  
Allen Brockman, DEQ-Waste  
Catherine M. Harold, DEQ-DWQ  
Andrew K. Zadnik, DGIF  
Scott Bedwell, DCR  
C. Lee Hill, DCR-DSWC  
Alice R. T. Baird, DCR-DCBLA  
Steven Pellei, VDH  
Tony Watkinson, MRC  
David L. O'Brien, VIMS  
Ethel R. Eaton, DHR  
Arthur L. Collins, Hampton Roads PDC  
James Freas, City of Hampton  
Charles W. Burgess, Jr., City of Poquoson



## COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.  
Secretary of Natural Resources

Department of Game and Inland Fisheries

Colonel W. Gerald Massengill  
Interim Director

December 12, 2005

Larry H. Dryden, P.E.  
Chief, Planning Branch (A7ZP)  
Department of the Air Force  
HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB, Virginia 23665-2769

RE: ESSLOG #21670, Proposed Beddown of the Langley Integrated Total Force, Logistics Supply Center and HQ ANG Operations & Training Facility (Alternatives A-C), Langley AFB, VA.

Dear Mr. Dryden:

This letter is in response to your request for information related to the presence of threatened or endangered species in the vicinity of the above referenced project.

**The *state endangered* canebrake rattlesnake (*Crotalus horridus*) has been documented approximately 0.75 mile from the sites of Alternatives B and C, 1.25 miles from Alternative A, and 2 miles from the Logistics Supply Center (LSC). Therefore, the applicant should coordinate with the VDGIF Environmental Services Section (804-367-6913) concerning potential impacts to this species.**

Also, the following species have been documented within 2 miles of these project areas:

*federal species of concern:*

northern diamond-backed terrapin (*Malaclemys terrapin terrapin*),

*state special concern:*

Forster's tern (*Sterna forsteri*),

least tern (*Sterna antillarum*),

Caspian tern (*Sterna caspia*),

northern harrier (*Circus cyaneus*),

great egret (*Ardea alba*),

yellow-crowned night-heron (*Nyctanassa violacea*), and

glossy ibis (*Plegadis falcinellus*).

As well, a block survey of an area encompassing the site of the LSC documented the *state special concern* saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*) during the breeding season. However, the classifications of *federal species of concern* and *state special concern* are not legal designations and do not require further coordination.

Larry H. Dryden, P.E.

ESSLog #21670

12/12/2005

Page 2

Information about fish and wildlife species was generated from our agency's computerized Fish and Wildlife Information System, which describes animals that are known or may occur in a particular geographic area. Field surveys may be necessary to determine the presence or absence of some of these species on or near the proposed area. Also, additional sensitive animal species may be present, but their presence has not been documented in our information system.

Endangered plants and insects are under the jurisdiction of the Virginia Department of Agriculture and Consumer Services, Bureau of Plant Protection. Questions concerning sensitive plant and insect species occurring at the project site should be directed to Keith Tignor at (804) 786-3515.

The Virginia Department of Conservation and Recreation, Natural Heritage Program, maintains a database of natural heritage resources, including the habitat of rare, threatened, or endangered plant and animal species, unique exemplary natural communities, and significant geologic formations, that may contain information not documented in this letter. Their database may be accessed from <http://www.dcr.state.va.us/dnh/nhrinfo.htm>, or by contacting S. Rene Hypes at (804) 371-2708.

This letter summarizes the likelihood of the occurrence of endangered or threatened animal species at the project site. If you have additional questions in this regard, please contact me at (804) 367-1185.

Please note that this response does not constitute consultation or management recommendations regarding endangered or threatened wildlife, or any other environmental concerns. These issues are analyzed by our Environmental Services Section, in conjunction with interagency review of applications for state and federal permits. If you have any questions in this regard, please contact the Environmental Services Section at (804) 367-6913.

*Please note that the data used to develop this response are continually updated. Therefore, if significant changes are made to your project or if the project has not begun within 6 months of receiving this letter, then the applicant should request a new review of our data.*

The Fish and Wildlife Information Service, the system of databases used to provide the information in this letter, can now be accessed via the Internet! The Service currently provides access to current and comprehensive information about all of Virginia's fish and wildlife resources, including those listed as threatened, endangered, or special concern; colonial birds; waterfowl; trout streams; and all wildlife. Users can choose a geographic location and generate a report of species known or likely to occur around that point. From our main web page, at [www.dgif.virginia.gov](http://www.dgif.virginia.gov), choose the hyperlink near the top of the page titled "Virginia Fish and Wildlife Information Service". For more information about the service, please contact Shirl Dressler at (804) 367-6913.



Larry H. Dryden, P.E.  
ESSLog #21670  
12/12/2005  
Page 3

Thank you for your interest in the wildlife resources of Virginia.

Sincerely,

A handwritten signature in cursive script that reads "Susan H. Watson". The signature is written in black ink and is positioned above the printed name.

Susan H. Watson  
Research Specialist Senior

cc: R.T. Fernald, VDGIF  
R. Hypes, VDCR-NH



# COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.  
Secretary of Natural Resources

**Department of Historic Resources**  
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)

December 19, 2005

Mr. Larry H. Dryden  
Chief, Planning Branch  
HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley Air Force Base, Virginia 23665-2769

Re: Proposed Beddown of the Langley Integrated Total Force  
Langley AFB, City of Hampton, Virginia  
VDHR File No. 2005-1740

Dear Mr. Dryden

We have received your notification of the above referenced project.

We want to remind you that the Department of the Air Force, as a federal agency, must consider the effects of its actions on historic properties listed in or eligible for the National Register of Historic Places and provide the Advisory Council on Historic Preservation the opportunity to comment in accordance with Sections 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR 800. The Section 106 review process begins when the federal agency provides a description of the undertaking and its Area of Potential Effect (APE) to the State Historic Preservation Officer (SHPO), which in Virginia is the Department of Historic Resources (DHR). For this reason we request that you consult with us directly on this undertaking. While 36 CFR 800.8 allows federal agencies to coordinate Section 106 compliance with the National Environmental Policy Act (NEPA), the agency must inform the applicable SHPO early in the process that it intends to do so. The agency must also take care that the environmental documentation prepared under NEPA does present information about historic properties and potential effects to such resources at a level of detail that allows the SHPO and other consulting parties to comment.

We look forward to working with you on this project. If you have any questions concerning our comments, please contact me at (804) 367-2323, ext. 114.

Sincerely,

Marc Holma, Architectural Historian  
Office of Review and Compliance

Cc: Ms Laura Baie, Community Planner, Langley Air Force Base

**Administrative Services**  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

**Capital Region Office**  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

**Tidewater Region Office**  
14415 Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

**Roanoke Region Office**  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

**Winchester Region Office**  
107 N. Kent Street, Suite 203  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-7535



# COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.  
Secretary of Natural Resources

## ***Marine Resources Commission***

2600 Washington Avenue  
Third Floor  
Newport News, Virginia 23607

William A. Pruitt  
Commissioner

December 12, 2005

Larry Dryden, P.E.  
Chief, Planning Branch  
Department of the Air Force  
Langley Air Force Base  
HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB, VA 23665-2769

Re: Beddown of the Langley Integrated  
Total Force, Langley AFB, Virginia

Dear Mr. Dryden:

In accordance with your letter dated December 2, 2005, we have reviewed the above-referenced information provided to us through your office.

The Marine Resources Commission, pursuant to Chapter 12 of Title 28.2 of the Code of Virginia, is responsible for issuing permits for encroachments in, on, or over State-owned submerged lands throughout the Commonwealth. From the information provided in your letter, the project does not appear to involve any encroachments channelward of mean low water along any natural rivers and streams. We look forward to the completion of the Environmental Assessment so we may provide more suitable comments on the proposal.

Thank you for the opportunity to comment at this time. If we may be of further assistance, please do not hesitate to give us a call.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Tracye L. West'.

Tracye L. West  
Environmental Engineer

TLW/moj  
HM

cc: DEQ, Office of Environmental Impact Review (w/encl.)

*An Agency of the Natural Resources Secretariat*

Web Address: [www.mrc.virginia.gov](http://www.mrc.virginia.gov)

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

217 Governor Street  
Richmond, Virginia 23219-2010  
Telephone (804) 786-7951 FAX (804) 371-2674 TDD (804) 786-2121

**M E M O R A N D U M**

**DATE:** March 6, 2006

**TO:** Mr. Donald Calder  
Department of the Air Force  
HQ ACC/A7ZP  
129 Andrews Street, Suite 102  
Langley AFB, VA 23665-2769  
757.764.6156  
[donald.calder@langley.af.mil](mailto:donald.calder@langley.af.mil)

**FROM:** Robert Munson, Planning Bureau Manager  
Virginia Department of Conservation and Recreation

**SUBJECT:** DCR-05-053: Department of the Air Force – Beddown of Total Integrated Force

The Department of Conservation and Recreation (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project vicinity. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from [www.dgif.virginia.gov/wildlife/info\\_map/index.html](http://www.dgif.virginia.gov/wildlife/info_map/index.html), or contact Shirl Dressler at (804) 367-6913.

DCR's Division of Chesapeake Bay Local Assistance has reviewed the subject project and offers the following comments:

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). In evaluating the various proposed actions for environmental consequences, the environmental assessment does not address Coastal Lands Management as one of the enforceable regulatory programs of the Coastal Zone Management Act and the Virginia Coastal Resources Management Program (VCP).

The Coastal Lands Management program is a state-local cooperative program administered by the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 *et seq.*

While Chesapeake Bay Preservation Areas are not locally designated on federal lands, this does not relieve the Air Force of its responsibilities to be consistent with the provisions of the Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations), as one of the enforceable programs of Virginia's Coastal Resources Management Program (VCRMP). Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated Chesapeake Bay Preservation Areas.

In Hampton, the areas protected by the Chesapeake Bay Act, as locally implemented requiring stringent performance criteria, include: tidal wetlands, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, tidal shores and a 100-foot vegetated buffer area located adjacent to and landward of the aforementioned features, and along both sides of any water body with perennial flow. Less stringent performance criteria apply to land that is contiguous to the 100-foot buffer for a distance of 100 feet in the landward direction.

Of the proposed action sites, Alternative C may have lands requiring the less stringent performance criteria. To be consistent this project must comply with the general performance criteria, found in the Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code §9 VAC 10-20-120, including minimizing land disturbance, preserving indigenous vegetation, and minimizing impervious surfaces.

For land disturbance activities over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. In addition, stormwater management criteria consistent with water quality protection provisions (§4 VAC 3-20-71 et seq.) of the *Virginia Stormwater Management Regulations* (§ 4 VAC 3-20) shall be satisfied.

Provided adherence with the Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia), the Virginia Stormwater Management Act (§ 10.1-603.1 et seq. of the Code of Virginia) and the general performance criteria (§9 VAC 10-20-120 et seq.), the projects would be consistent with the *Chesapeake Bay Preservation Area Designation and Management Regulations*.

Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink that reads "Robert S. Munson". The signature is written in a cursive style with a large, stylized initial "R".

Robert S. Munson  
Planning Bureau Manager



## COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
Secretary of Natural Resources

*DEPARTMENT OF ENVIRONMENTAL QUALITY*  
*Street address: 629 East Main Street, Richmond, Virginia 23219*  
*Mailing address: P. O. Box 10009, Richmond, Virginia 23240*  
Fax (804) 698-4500 TDD (804) 698-4021  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

David K. Paylor  
Director  
(804) 698-4000  
1-800-592-5482

May 24, 2006

HQ ACC/A7ZP (Attn: Mr. Donald Calder)  
129 Andrews Street, Suite 102  
Langley AFB, Virginia 23665-2769

RE: Draft Environmental Assessment and Consistency Determination for the Langley Integrate Total Force (L-ITF) Beddown and Logistics Support Center (LCS), Langley Air Force Base, City of Hampton, Virginia (DEQ 06-069F)

Dear Mr. Calder:

The Commonwealth of Virginia has completed its review of the Draft Environmental Assessment (EA) and Consistency Determination for the above referenced project. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. Also, as you are aware, pursuant to the Coastal Zone Management Act of 1972, as amended, federal actions that can have foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia Coastal Resources Management Program (VCP). The DEQ, as the lead agency for the VCP, is responsible for coordinating Virginia's review of federal consistency determinations. The following agencies, planning district commission, and locality took part in the review:

Department of Environmental Quality  
Virginia Marine Resources Commission  
Department of Game and Inland Fisheries  
Department of Conservation and Recreation  
Department of Agriculture and Consumer Services  
Department of Health  
Department of Mines, Minerals, and Energy  
Department of Historic Resources  
City of Hampton  
Hampton Roads Planning District Commission

### Project Description

The U.S. Air Force (Air Force) proposes to integrate the 192nd Fighter Wing (192 FW) of the Virginia Air National Guard (ANG), presently located at the Richmond International Airport, with the 1st FW (1 FW) at Langley Air Force Base (AFB). Under the action, known as the Langley Integrated Total Force (L-ITF) beddown proposal, 970 Virginia ANG 192 FW personnel and support equipment would be transferred to Langley AFB's 1 FW. To accommodate this proposed change, the Air Force would construct a 24,900 square foot Headquarters (HQ) facility with a footprint of 13,500 square feet for the 192 FW commander and staff. Parking areas would also be provided. The action is known as Proposed Action One. The Air Force identified three sites in the southern portion of the AFB and analyzed them as alternative A, B, and C; including a no-action alternative. Ten operation and maintenance (O&M) projects are included as an element of the three alternatives.

Furthermore, the Air Force proposes to construct a 166,000 gross square foot Logistics Support Center (LSC) in the north-central portion of the base. Existing LSC operations occur at Buildings 330 and 647, and an off-base facility in Newport News. Under this proposal, Building 330 would be renovated and converted to storage and warehouse space. Administrative functions of the 1 Logistics Readiness Squadron (1 LRS) and 192 LRS would be moved to the proposed LSC facility. This action is known as Proposed Action Two.

The EA submitted for the project concludes that based on the findings of the EA, no significant impact is anticipated from implementation of the proposed action. Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and an environmental impact statement (EIS) is not required. Furthermore, the Air Force found the proposed action consistent with the enforceable policies of the Virginia Coastal Resources Management Program (VCP).

### Environmental Impacts and Mitigation

1. *Water Quality & Wetlands.* According to the EA (page 3-18) there would be negligible impacts on surface water features at Langley AFB from Proposed Action One under any of the alternatives. The document states that a stormwater basin at each of the proposed construction locations under the alternatives would capture runoff and protect surface waters. Under Proposed Action Two, the document (page 3-20) finds that there would be no impacts to water resources from point source or non-point sources with the implementation of this action. The Air Force plans to comply with State erosion and sediment control (ESC) and stormwater management (SWM) laws and regulations to control water quality impacts.



The EA (page 3-26) finds that under Proposed Action One, the site for Alternative A does not contain wetlands; therefore no impacts would be expected. However, the sites for Alternative B and C contain confirmed wetlands contained in drainage ditches at each site. The document does not indicate that proposed construction would impact wetlands and the Air Force plans to implement standard ESC construction practices to avoid impacts. Under Proposed Alternative Two, approximately 1.2 acres of wetlands would be filled to accommodate the proposed action (EA, page 3-27). The Air Force commits in the document to obtain the proper permits and conduct consultation with administering agencies, including: the U.S. Army Corps of Engineers (Corps); DEQ; the Virginia Marine Resources Commission (VMRC); and the City of Hampton. The EA identifies potential wetland compensation sites, including a site identified by the Corps, east of the LaSalle Avenue gate.

#### *Identified Issues and Analysis*

In its initial review of the EA, DEQ found that the document discussed the need for a permit from the Corps, but only implies that Virginia Water Protection (VWP) permits will be obtained from DEQ for wetland impacts. It should be understood that State authorization for surface water and wetland impacts from the proposed action will be required in the form of a VWP Permit. The VWP permit process constitutes the Commonwealth's Section 401 Clean Water Act (CWA) certification authority under Virginia law.

Furthermore, based on the information contained in the report, DEQ found that it is unclear whether all surface water and wetland impacts have been avoided and minimized to the greatest extent practicable as required by State law. The document did not demonstrate that less environmentally damaging alternatives to the proposed site of the LSC do not exist, or that impacts to surface waters including wetlands have been adequately avoided and minimized. As such, based on the information contained in the EA, DEQ could reach no conclusive determination of consistency under federal consistency authority granted it by the federal Coastal Zone Management Act (CZMA).

Please note that the Commonwealth does not support the filling of wetlands, particularly when alternative sites have been identified. It is the policy of the Commonwealth of Virginia to first avoid impacts to wetlands before considering other mitigation measures such as compensation. The Virginia Water Protection permit regulations state that "mitigation means sequentially avoiding and minimizing impacts to the extent practicable, and then compensating for remaining unavoidable impacts of a proposed action" (9 VAC 25-210-10). According to State Water Control Law § 62.1-44.15:5D, "...except in compliance with an individual or general Virginia Water Protection Permit issued in accordance with this subsection, it shall also be unlawful to conduct the following activities in a wetland: (i) new activities to cause draining that significantly alters or degrades existing wetland acreage or functions, (ii) filling or dumping, (iii) permanent flooding or impounding, or (iv) new activities that cause significant alteration

or degradation of existing wetland acreage or functions. Permits shall address avoidance and minimization of wetland impacts to the maximum extent practicable. A permit shall be issued only if the Board finds that the effect of the impact, together with other existing or proposed impacts to wetlands, will not cause or contribute to a significant impairment of state waters or fish and wildlife resources."

Federal wetlands mitigation policy is guided by a Memorandum of Agreement between the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency that clarify a three-step approach to avoiding, minimizing, and compensating for unavoidable impacts (see Clean Water Act Section 404 (b)(1) *Guidelines Mitigation Memorandum of Agreement*, February 1990). The Corps first makes a determination that potential impacts have been avoided to the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and, finally, compensate for aquatic resource values. This sequence is considered satisfied where the proposed mitigation is in accordance with specific provisions of a Corps and EPA approved comprehensive plan that ensures compliance with the compensation requirements of the 404(b)(1) Guidelines (examples of such comprehensive plans may include Special Area Management Plans, Advance Identification areas (Section 230.80), and State Coastal Zone Management Plans).

DEQ also offered the following specific areas of deficiency that should be addressed in the final EA prepared for this proposed action:

- The discussion of mitigation measures (pages ES-2 and ES-3) appear to be limited solely to Federal (Corps) requirements. It omits any discussion of obtaining the required VWP Permit and providing a compensatory mitigation plan that satisfies Virginia Administrative Code, 9 VAC 25-210-115.
- Section 1.3, PURPOSE AND NEED FOR THE PROPOSED ACTIONS, Proposed Action Two (page 1-7) and section 2.1.3 Proposed Action Two (LSC) Alternative Identification Process (page 2-7), contain only a superficial discussion of the selection process as it related to the stated purpose and need (i.e. construct a LSC at Langley AFB sized to meet current and future known BRAC requirements resulting in the chosen). The identification of the horse pasture site as the site that avoids and minimizes impacts to wetlands to the greatest extent practicable will require a significantly more thorough discussion than to simply state that "No other locations on Langley AFB are being considered as none other would meet the purpose and need."
- Section 2.3, OTHER REGULATORY AND PERMIT REQUIREMENTS (PAGE 2-9), Table 2-2 appeared to be mislabeled (Table 2-1?). Furthermore, as discussed above, this table should be revised to include the requirement to obtain a VWP permit from DEQ. This regulatory requirement is related to the

Section 404 CWA process only to the extent that it constitutes Virginia's Section 401 CWA Certification of a Federal 404 permit. In accordance with the Coastal Zone Management Act (CZMA) of 1972, as amended, federal agency activities must be consistent, to the maximum extent practicable, with the enforceable policies of the State Coastal Zone Management program. The VWP program is one of the enforceable policies of the federally approved Virginia Coastal Resources Management Program (VCP). Therefore, federal activities must be consistent with the sections of the VWP program governing isolated wetlands not covered under Section 404 of the CWA.

- Section 2.4, MITIGATION MEASURES (page 2.10), see #1 above.
- Section 3.5.1, Wetlands and Figure 3-2 Langley AFB Wetlands, the text of this section provides a general discussion of the types, acreage and locations of wetlands on Langley AFB, not specific information concerning the wetlands to be impacted. Similarly, the wetland figure (3-2) provides no details concerning the location of proposed impacts. A review based on this figure alone, would indicate no apparent impacts. Significantly more detailed information should be provided in this section.

#### *Agency Discussions and Resolution*

DEQ's Office of Environmental Impact Review (OEIR) contacted the Air Force (Fisher/Calder) on April 28, 2006 to discuss the concerns raised by DEQ's Tidewater Regional Office (TRO) with regard to identified water quality and wetland impacts associated with Proposed Alternative Two. On May 9, 2006, the Air Force initiated discussion with DEQ-OEIR and DEQ-TRO regarding the necessary additional information and analysis needed to determine project consistency with VCP. On, May 11, 2006, the Air Force provided additional information and analysis included in a comment matrix consisting of revised text for the EA, and an additional figure showing wetlands in greater detail at the Proposed Alternative Two site. Then, on May 17, 2006, the Air Force provided a proposed schematic site plan (Figure 3-3) showing the location of the proposed LSC building and parking lot in relation to confirmed wetlands on site.

Based on the information contained in the EA and the additional information provided by the Air Force, DEQ determined that the proposed revisions to the text of the document generally appear to address DEQ's concerns regarding specific references to Virginia VWP law and Federal 404/401 CWA jurisdictional issues. The two additional figures provided, depicting wetlands in the vicinity of the LSC (Proposed Action Two), confirm that wetland or surface water impacts are proposed and that a Joint Permit Application (JPA) will be required. Therefore, DEQ-TRO finds that provided the requirements of the VWP permit program are met and a permit is obtained and complied with, this project would be considered consistent with the enforceable policies of the VCP as administered by DEQ.

Please note that the figures provided would not be adequate for the purpose of acquiring a VWP permit from DEQ. Viewed in conjunction with Figures 3-1 and 3-2 in the draft EA, the four figures seem to identify three separate sites in close proximity to one another. DEQ-TRO recommends that the Air Force clarify the location of the project site on these diagrams for the final EA. DEQ-OEIR contacted the Air Force (Fisher/Calder) on May 22, 2006, and the Air Force confirmed that the additional figure provided (Figure 3-3) represents the planned design location of the Proposed Action Two facility. Furthermore, the Air Force intends to minimize or eliminate wetland impacts on site, to the maximum extent practicable, during the development of final site plan for the proposal (Calder, May 22, 2006).

As previously explained, DEQ's permit review will ultimately require more specific and accurate site design drawings that justify that the site selection as well as the building and parking configuration chosen represent the least environmentally damaging practicable alternative. This demonstration may require modification of the general plan presented in the EA.

2. *Subaqueous Impacts.* According to the consistency determination (Appendix C) included in the EA, the two Proposed Actions would not trigger authorization under the subaqueous lands management enforceable policy of the VCP.

However, according to Figure 3-3 *Location of Proposed LSC Construction and Affected Wetlands and Waters on Langley AFB*, received subsequent to the submission of the draft EA, the proposed parking lot associated with Proposed Action Two encroaches into Tab Creek, a tidal tributary of the Back River.

The Virginia Marine Resources Commission (VMRC), pursuant to Chapter 12 of Title 28.2 of the Code of Virginia, is responsible for issuing permits for encroachments in, on, or over State-owned submerged lands throughout the Commonwealth. This program is one of the enforceable policies of the VCP. Additional information provided by the Air Force regarding Proposed Action 2, Alternative A, shows a planned encroachment over State-owned submerged lands. Therefore, the project must be consistent with Section 28.2-1204 of the Code of Virginia. In this regard, the Air Force must submit a JPA to the VMRC prior to any encroachment in, on, or over subaqueous beds.

3. *Erosion and Sediment Control and Stormwater Management.* As described in the EA (page 3-18), the Air Force would prepare an Erosion and Sediment Control (ESC) Plan and implement erosion and sediment control measures in accordance Virginia Erosion and Sediment Control Law and Regulations. Furthermore, the Air Force intends to prepare a Stormwater Management (SWM) Plan in accordance with Virginia Stormwater Management Law and Regulations (EA, page 3-18).

The Department of Conservation and Recreation (DCR) Division of Soil and Water Conservation (DSWC) did not respond to our request for comments on this proposed action. However, according to available DCR guidance, federal agencies and their authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R), and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, or other structures, soil/dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or more (2,500 square feet or more in a Chesapeake Bay Preservation Area) would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. Accordingly, we concur with the Air Force's commitment to prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. The federal agency is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and/or other mechanisms, consistent with agency policy.

Furthermore, DCR is responsible for the issuance, denial, revocation, termination and enforcement of Virginia Pollutant Discharge Elimination System (VPDES) permits for the control of stormwater discharges from municipal separate storm sewer systems (MS4s) and land disturbing activities under the Virginia Stormwater Management Program. Therefore, for projects involving land disturbing activities of 2,500 square feet or more in Chesapeake Bay Preservation Areas (CPBAs), the Air Force or its authorized agent is required to apply for registration coverage under the General Permit for Discharges of Stormwater from Construction Activities. General information and registration forms for the General Permit are available on DCR's website at:

<http://www.dcr.virginia.gov/sw/vsmp.htm#geninfo>.

4. *Chesapeake Bay Preservation Areas*. The federal consistency determination contained in the EA (Appendix C) states that the sites proposed for construction under both Proposed Actions would meet the required general performance criteria under the Chesapeake Bay Preservation Act (9VAC 10-20-120).

According to DCR's Division of Chesapeake Bay Local Assistance (DCBLA), pursuant to the Coastal Zone Management Act (CZMA) of 1972, as amended, Federal activities affecting Virginia's coastal resources or coastal uses must be consistent to the maximum extent practicable with the Virginia Coastal Resources Management Program (VCP) (CZMA section 307(c)(1) and *Federal Consistency Regulations* 15 CFR Part 930, sub-part C). In evaluating the various proposed actions for environmental consequences, DCR-DCBLA found that the EA does not include a discussion of the Coastal Lands Management enforceable policy of the VCP.

The Coastal Lands Management program is a state-local cooperative program administered by DCR-DCBLA and 84 localities in Tidewater Virginia, and established pursuant to:

- the Chesapeake Bay Preservation Act (Bay Act ) (Code of Virginia § 10.1-2100 thru § 10.1-2114); and
- Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations) (Virginia Administrative Code 9 VAC 10-20-10 *et seq.*).

Please note that the Virginia Erosion and Sediment Control Law (§ 10.1-560 *et seq.* of the Code of Virginia) and the Virginia Stormwater Management Regulations (§ 4 VAC 3-20) are administered by the Virginia Department of Conservation and Recreation's Division of Soil and Water, and not the Division of Chesapeake Bay Local Assistance.

Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated Chesapeake Bay Preservation Areas (CBPAs). In Hampton, the areas protected by the Bay Act, as locally implemented and requiring stringent performance criteria (i.e. Resource Protection Areas) include:

- tidal wetlands;
- non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow;
- tidal shores; and
- a 100-foot vegetated buffer area located adjacent to and landward of the aforementioned features and along both sides of any water body with perennial flow.

Less stringent general performance criteria apply to land that is contiguous to the 100-foot buffer for a distance of 100 feet in the landward direction (i.e. Resource Management Area).

Of the Proposed Action One sites, Alternative C may have lands requiring the less stringent performance criteria (RMA). To be consistent, this alternative must comply with the general performance criteria, found in the Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code §9 VAC 10-20-120, including:

- minimizing land disturbance;
- preserving indigenous vegetation; and
- minimizing impervious surfaces.

For land disturbance activities over 2,500 square feet, the projects must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. In addition, stormwater management criteria consistent with water quality protection provisions (§4 VAC 3-20-71 et seq.) of the *Virginia Stormwater Management Regulations* (§ 4 VAC 3-20) shall be satisfied (see section 3. *Erosion and Sediment Control and Stormwater Management*).

Provided adherence with the Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia), the Virginia Stormwater Management Act (§ 10.1-603.1 et seq. of the Code of Virginia) and the general performance criteria (§9 VAC 10-20-120 et seq.), the projects would be consistent with the *Chesapeake Bay Preservation Area Designation and Management Regulations*.

5. *Air Pollution Control*. The Air Force conducted an air quality analysis for Proposed Action One that quantifies the changes in air quality due to activities associated with the demolition, construction, and personnel realignment to support the proposed action (EA, page 3-7). The conclusion of the analysis is that impacts associated with demolition and construction activities would contribute less than one percent to regional air emissions, and that commuting personnel would also contribute less than one percent (EA, page 3-9). The same air emission contributions for each activity were determined for Proposed Action Two.

DEQ notes that Langley Air Force Base is located in the Hampton Roads ozone (O<sub>3</sub>) non-attainment area and an emission control area for the contributors to ozone pollution, which are volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>). This has two practical consequences for project development. One is that the Air Force should take all reasonable precautions to limit emissions of VOCs and NO<sub>x</sub>, principally by controlling or limiting the burning of fossil fuels. A second precaution, stemming from 9 VAC 5-40-5490 in the Regulations for the Control and Abatement of Air Pollution, is that there are some limitations on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents) that may apply in the construction of roads and parking areas associated with the project. The asphalt must be "emulsified" (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.

DEQ's Division of Air Program Coordination states that during construction, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;

- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

If project activities include the burning of construction or demolition material, this activity must meet the requirements under 9 VAC 5-40-5600 et seq. of the Regulations for open burning, and it may require a permit. The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. The Air Force should contact the City of Hampton officials to determine what local requirements, if any, exist.

*6. Solid and Hazardous Wastes and Hazardous Materials.* The EA (page 3-48) finds that no new waste streams would be created, waste amounts would not increase, and hazardous materials would not change at the base as a result of the proposed action. Asbestos containing material and lead-based paint would be handled and disposed in accordance with Virginia Solid Waste Management Regulations and transported in accordance with Virginia Regulations governing the Transportation of Hazardous Materials (EA, pages 3-50 through 3-52).

DEQ found that both solid and hazardous waste issues were addressed adequately in the report. However, the report did not include a search of waste-related data bases. DEQ performed a cursory review of its data files and determined that the facility is under the agency's Federal Facilities Installation Restoration Program (VA2800005033), a Formerly Used Defense Site (VA9799F1590), and a Resource Conservation and Recovery Act (RCRA) small quantity generator of hazardous waste (VAD988222527). The following websites may be used by the Air Force to locate additional information using the identification numbers:

- [http://www.epa.gov/echo/search\\_by\\_permit.html](http://www.epa.gov/echo/search_by_permit.html) or
- [http://www.epa.gov/enviro/html/rcris/rcris\\_query\\_java.html](http://www.epa.gov/enviro/html/rcris/rcris_query_java.html).

Langley Air Force Base (LAFB) is on the National Priorities List (NPL) and is the party responsible for remediation of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites on Base in order to be removed from the NPL. The LAFB Environmental Restoration Program (ERP) is charged with oversight of the CERCLA sites on Base.

The proposed building sites lie atop the Base-wide Groundwater Site (ERP Site OT-64). As the extent of contamination that may be associated with OT-64 has not been fully defined, it is possible that all, or none, of the proposed building sites may be situated atop a contaminant plume.

One of the proposed building sites (Proposed Action One, Alternative C) appears to be in the footprint of an active ERP site (Site OT-06 and 06 Annex) the site of a former



entomology building and former base wastewater treatment plant. The primary contaminant in the groundwater at OT-06/06Annex is trichloroethene, which is about to undergo remediation as part of an interim remedial action to reduce or eliminate associated risk. The soil portion of this site was closed under a Record of Decision (ROD) dated September 2000 which states "No Further Action". The risk assessment associated with this ROD looked at current and future land uses designated as recreational and residential and the resulting risk levels were deemed acceptable.

Of the remaining sites under consideration in this EA, only two appear to be adjacent to other ERP sites. Under Proposed Action One, Alternative A, the proposed location for the relocated Langley Federal Credit Union lies a couple hundred feet west of ERP Site OT-51, an abandoned electrical substation. In 1997, a concrete pad and contaminated soil were removed from the site during an interim removal action and a storm sewer line and surrounding soil leading from the substation was removed. A ROD was signed in January 1999 indicating "No Further Action" for soils is necessary. The groundwater portion of the site is included in OT-64.

The other construction site proposed in Alternative A, lies approximately two-hundred feet south of the Danforth Fuel Leaks, Fuel Saturated Area (ERP Site ST-27). This site was cleaned in accordance with DEQ Underground Storage Tank guidelines and was closed under a Decision Document dated July 2000.

The remaining construction sites proposed, Alternative B and the LSC site, are located away from active and closed ERP sites (except OT-64). It should be mentioned that the proposed location for the LSC is in the vicinity of a former bombing range so there is potential for munitions and explosives of concern and munitions constituents to be encountered.

The Federal Facilities Restoration Program recommends the facility contact John Tice, LAFB Environmental Restoration, at (757) 764-1082, for information concerning the CERCLA or Explosive Ordnance Disposal obligations at or near the proposed construction sites prior to initiating any land-, sediment-, or groundwater-disturbing activities.

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Also, all structures being demolished/renovated/ removed should be checked for asbestos-containing materials (ACM) and lead-based paint prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately. For more information contact Allen Brockman, DEQ Waste Division, at (804) 698-4468.

## *7. Petroleum Storage Tanks.*

### *i. Compliance and Inspection*

DEQ determined that Langley Air Force Base (CEDs # 5-001910) currently operates 13 regulated underground storage tanks (USTs) and 70 regulated aboveground storage tanks (ASTs) for the storage and dispensing of various petroleum products including, gasoline, diesel fuel, jet fuel, lubricating oils and heating oils. In addition, Langley operates regulated aboveground storage tanks (ASTs) under a current Oil Discharge Contingency Plan (ODCP) (# 05-5136). Based on DEQ's review of the proposed new facility locations no impacts to USTs or large ASTs (fuel farm) are expected. Various small (< 1,000 gallon) ASTs currently exist at many locations throughout the base, and some may be displaced by the proposed construction. Tanks displaced, closed or removed must be reported to the DEQ Tidewater Regional Office.

If the construction of this project will include the use of portable ASTs (>660 gallons) for equipment fuel, the tanks must be registered with DEQ using AST Registration form 7540-AST. This form is available at the DEQ web site at [www.deq.virginia.gov](http://www.deq.virginia.gov), under *Programs<Petroleum Programs<Download Library<UST & AST Registration Forms*. The completed registration form should be mailed to the DEQ address listed, along with the appropriate registration fee. Any questions concerning tank registration should be directed to Tom Madigan, DEQ Tidewater Regional Office, at (757) 518-2115.

### *ii. Remediation*

DEQ records indicate that there have been 150 petroleum releases reported at Langley Air Force Base, 5 of which are currently active cases. None of these petroleum releases are located at or adjacent to the proposed facility locations. If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ. Petroleum-contaminated soils generated during construction of this project

must be characterized and disposed of properly. Any necessary coordination may be arranged through LeAnn Moran, DEQ-TRO, at (757) 518-2126.

*8. Pesticides and Herbicides.* The use of herbicides or pesticides for landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used. Also, we recommend that the use of pesticides or herbicides containing volatile organic compounds as their active ingredient be avoided to the maximum extent practicable in order to protect air quality. Otherwise, the use of these pesticides or herbicides should be applied outside of the ozone season. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

*9. Natural Heritage Resources.* The EA (page 3-30) states that no special-status species are known or likely to occur on Langley AFB. The document concludes that no significant impact to vegetation, wildlife, and special-status species would be expected from construction activities at any of the sites under the two proposed actions.

The preparation of the draft EA for this proposal was coordinated with the Department of Conservation and Recreation (DCR), Division of Natural Heritage (DNH) (Appendix A, March 6, 2006 memorandum). DCR-DNH searched its Biotics Data System for occurrences of natural heritage resources from the project area. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, DCR-DNH does not anticipate that this project will adversely impact these natural heritage resources.

Under a Memorandum of Agreement, DCR represents the Virginia Department of Agriculture and Consumer Services (VDACS) in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. DCR finds that the current activity will not affect any documented state-listed plants or insects. VDACS confirms DCR's finding and determined that no additional comments are necessary in reference to endangered plant and insect species regarding the proposal. For additional information, contact Keith Tignor, VDACS, at (804) 786-3515.

In addition, DCR files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. New and updated

information is continually added to Biotics. DEQ recommends that DCR-DNH be contacted at (804) 786-7951, to secure information on natural heritage resources before the project is implemented.

*10. Wildlife Resources.* The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

Due to the location of alternatives A, B, and C, under Proposed Action One, DGIF does not anticipate a significant adverse impact upon threatened or endangered wildlife resources under its jurisdiction to occur. However, to minimize adverse impacts upon general wildlife resources, including fish, due to increased impervious surfaces, DGIF recommends Alternative A or B.

The site for Proposed Action Two is currently open grassland, wooded and riparian areas, and wetlands. The draft EA (page 3-33) states that disturbance-tolerant species are expected to relocate from this site to other wetlands areas or the proposed stormwater basin. Also, birds that frequent the existing pasture would likely relocate to the adjacent open fields of the golf course or other recreational fields. Therefore, the draft EA concludes that impacts are expected to be minimal. DGIF does not entirely agree with this conclusion. The Proposed Action Two site is approximately 1,000 ft from an occurrence of the State Special Concern great egret. Also, the State Endangered canebrake rattlesnake has been documented approximately 2 miles from the project site. DGIF believes these species and other disturbance-intolerant species may be adversely impacted by this action.

DGIF recommends that the final EA fully address these potential impacts. To mitigate these impacts, DGIF recommends avoiding and minimizing impacts to wetlands to the fullest extent possible. Any unavoidable impacts should be compensated based on ratios of at least 1:1 for PEM, 1.5:1 for PSS, and 2:1 for PFO.

To specifically mitigate potential adverse impacts upon canebrake rattlesnakes, DGIF recommends that, prior to the start of construction, all contractors are trained in the identification, basic natural history, and legal status of canebrake rattlesnakes. This could be accomplished via an appropriate information sheet distributed to those working on the project (attached). Information also can be found on DGIF's website, <http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030013>. If a canebrake

rattlesnake is observed at any time during the development or construction of this project, DGIF recommends that the Air Force contact DGIF Wildlife Diversity Biologist John (JD) Kleopfer, at (757) 253-4180, or DGIF's Richmond office at (804) 367-8999, so that the animal may be safely captured and relocated to a suitable site.

To further minimize potential adverse impacts to wildlife due to both actions, DGIF recommends:

- that the stormwater controls be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape;
- the use of bioretention areas; and
- minimizing the use of curb and gutter in favor of grassed swales.

Bioretention areas and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes. DGIF also recommends:

- all landscaping incorporate the use of native vegetation to the fullest extent possible; and
- strict erosion and sediment control measures be used throughout this project.

Given full consideration of the above recommendations regarding stormwater management, and implementation of strict erosion and sediment control measures, DGIF finds this proposal to be consistent with the fisheries management enforceable policy of the VCP. For additional information, contact Andrew Zadnik, DGIF, at (804) 367-2733.

*11. Water Supply and Wastewater Treatment.* The Virginia Department of Health (VDH) notes that the proposed action will require expansion of the waterworks and sanitary sewer system. Currently, Langley AFB purchases potable water from the City of Newport News, and discharges wastewater into the Hampton Roads Sanitation District collection system. VDH determined that there are no public groundwater wells within one mile of proposed sites, and no surface water intakes within five miles. VDH has no objection to the proposal. For more information, contact Susan Douglas, VDH, at (804) 864-7490.

*12. Mineral Resources.* The Virginia Department of Mines, Minerals and Energy (DMME) reviewed the draft EA and anticipates that the proposed action would have no significant impact to mineral resources. Additional information made be obtained by contacting Matt Heller, DMME, at (434) 951-6364.

**13. Historic Structures and Archaeological Resources.** According to the EA (page 3-35), no impacts to archaeological or architectural resources would be expected since none of these resources are known to occur in the area of affected environment for the proposed construction projects under either of the proposed actions. The document further states that in the event that archaeological resources are discovered during any demolition or construction activity, Langley AFB would implement the standard Air Force procedures in AFI 32-7065, *Cultural Resources Management Program* for unanticipated archaeological discoveries and notification.

The Virginia Department of Historic Resources (DHR) determined that the site of Proposed Action One, Alternative A is located within the identified National Register of Historic Places and Virginia Landmarks Register-eligible Langley Field Historic District. If the Air Force selects this alternative for its undertaking, DHR anticipates that there will be effects to historic properties. In addition, Action One, Alternatives B and C, and Action Two, Alternative A have the potential to impact archaeological resources. The Air Force should continue to consult with DHR pursuant to *Section 106 of the National Historic Preservation Act*, as amended, and its implementing regulation 36 CFR Part 800. This consultation must present meaningful analysis of the potential to impact historic properties based on approved design guidelines, locations of known resources, and predictive models for archaeological sites.

**14. Pollution Prevention.** DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source. We have several pollution prevention recommendations that may be helpful in constructing or operating this project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing

recycled materials, and integrated pest management in landscaping, among other things.

- Integrate pollution prevention techniques into the facility maintenance and operation, to include the following: inventory control (record-keeping and centralized storage for hazardous materials), product substitution (use of non-toxic cleaners), and source reduction (fixing leaks, energy-efficient HVAC and equipment). Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.

DEQ's Office of Pollution Prevention provides free information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact DEQ's Office of Pollution Prevention, Mr. Tom Griffin at (804) 698-4545.

*15. Energy Conservation.* DEQ recommends that new building be designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The energy efficiency of the facility can be maximized by optimizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, windows and insulation);
- facility siting and orientation with consideration towards natural lighting and solar loads
- high efficiency heating, ventilation, air conditioning systems;
- high efficiency lighting systems and daylighting techniques; and
- energy-efficient office and data processing equipment.

The Department of Mines, Minerals and Energy should be contacted, Matt Heller at (434) 951-6351, for assistance in meeting this challenge.

*16. Local Comments.* The City of Hampton reviewed the proposal and found that it does not appear to conflict with the City's current plans or policies. The City is willing to work with Langley AFB to minimize the potential conflicts generated by aircraft noise in the vicinity of the base and welcomes the new personnel to the community.

The City supports the commitment by the Air Force to utilize architectural design standards in accordance with the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. These building standards will contribute towards reducing maintenance costs, reducing environmental impacts, and improving worker productivity. For any additional information, contact James Freas, City of Hampton, at (757) 728-5233.

*17. Regional Comments.* The Hampton Roads Planning District Commission (HRPDC) reviewed the EA and contacted the City of Hampton regarding the project. Based on its review, the HRPDC finds the proposed action generally consistent with local and regional plans and policies. As in the past, HRPDC encourages that Air Force to provide reviewers with copies of the Langley AFB General Plan or other documentation that encompasses all the environmental impacts associated with the large number of projects being pursued at the base. Questions or comments may be directed to Arthur Collins, HRPDC, at (757) 420-8300.

#### Federal Consistency under the Coastal Zone Management Act

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the Virginia Coastal Resources Management Program (VCP). The VCP consists of a network of programs administered by several agencies. The DEQ coordinates the review of federal consistency determinations with agencies administering the Enforceable and Advisory Policies of the VCP.

The EA (Appendix C) includes a consistency determination and accompanying analysis of the enforceable policies of the VCP. Based on the information provided in the EA and federal consistency determination, the additional information provided by the Air Force during the review period, and the comments of reviewing agencies, we concur that the proposed activity is consistent with the Virginia Coastal Resources Management Program, provided that the Air Force complies with all requirements of applicable permits and other authorizations that may be required.

#### Regulatory and Coordination Needs

*1. Water Quality and Wetlands.* Based on the information contained in the EA and the additional information provided by the Air Force, DEQ determined that wetland and surface water impacts are proposed that will require a Virginia Water Protection (VWP) permit issued by DEQ's Tidewater Regional Office (TRO). A Joint Permit Application (JPA) may be obtained from and submitted to the Virginia Marine Resources Commission (VMRC) which serves as a clearinghouse for the joint permitting process involving the VMRC, DEQ, Corps, and local wetlands boards. For additional information and coordination regarding the VWP permit, contact Bert Parolari, DEQ-TRO, at (757) 518-2166.

*2. Subaqueous Lands Management.* Based on the additional information provided by the Air Force regarding Proposed Action 2, Alternative A, that shows a planned encroachment over State-owned submerged lands, a permit will be required from VMRC pursuant to Section 28.2-1204 of the Code of Virginia. For additional



information and coordination regarding subaqueous lands permitting and the JPA process, contact Elizabeth Gallop, VMRC, at (757) 247-8027.

**3. Erosion and Sediment Control and Stormwater Management.** The Air Force must ensure that it is in compliance with Virginia's Erosion and Sediment Control Law (Virginia Code 10.1-567) and regulations (4 VAC 50-30-30 *et seq.*) and Stormwater Management Law (Virginia Code 10.1-603.5) and regulations (4 VAC 3-20-210 *et seq.*). Activities that disturb 10,000 square feet or more of land (2,500 square feet in a Chesapeake Bay Preservation Area) would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. The Air Force is encouraged to contact DCR's Chowan, Albermarle and Coastal Watersheds Office, (757) 925-2468, for assistance with developing or implementing E&S and/or Stormwater Management Plans to ensure project conformance during and after active demolition.

For land disturbing activities equal to one acre or more, the Air Force is required to apply to DCR for registration coverage under the VPDES General Permit for Discharges of Stormwater from Construction Activities. Specific questions regarding the Stormwater Management Program requirements should be directed to Mr. Eric Capps, DCR, at (804) 786-3957, e-mail [eric.capps@dcr.virginia.gov](mailto:eric.capps@dcr.virginia.gov).

**4. Chesapeake Bay Preservation Areas.** Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated Chesapeake Bay Preservation Areas (CBPAs). In Hampton, the areas protected by the Bay Act, as locally implemented Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). This proposal must be consistent with the stringent (RPA) and general (RMA) performance criteria designated pursuant to the *Chesapeake Bay Preservation Area Designation and Management Regulations*. For additional information and coordination, contact Alice Baird, DCR-DCBLA, at (804) 225-2307.

**5. Air Quality Regulations.** Activities associated with this project may be subject to air regulations administered by the Department of Environmental Quality. The state air pollution regulations that may apply to the construction phase of the project are: fugitive dust and emissions control (9 VAC 5-50-60 *et seq.*) open burning restrictions (9 VAC 5-40-5600 through 5645), and restrictions on the use of cut back asphalt (9 VAC 5-40-5490 *et seq.*). For additional information, please contact Jane Workman, DEQ-TRO, at (757) 518-2112.

**6. Solid and Hazardous Wastes.** All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Contact DEQ's Tidewater Regional Office at (757) 518-2000, concerning location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered.

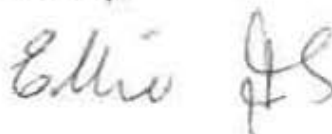
- *Asbestos Materials.* It is the responsibility of the owner or operator of a demolition activity, prior to the commencement of the demolition, to thoroughly inspect the affected part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ Waste Management Program for additional information, (804) 698-4021, and the Department of Labor and Industry, Ronald L. Graham at (804) 371-0444.
- *Lead-Based Paint.* If applicable, the proposed project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

*7. Petroleum Storage Tanks.* The Air Force must register new ASTs and USTs associated with this proposed action with DEQ. The removal of USTs must be conducted in accordance with Virginia UST Technical Regulation. The Air Force must characterize and dispose of any contaminated soils or groundwater in accordance with state regulations. For additional information and coordination, contact Harold Winer, DEQ Tidewater Regional Office, at (757) 518-2153.

*8. Historic Resources.* To ensure compliance with *Section 106 of the National Historic and Preservation Act of 1966*, the Air Force must continue to coordinate project activities with the Virginia Department of Historic Resources. Please contact Ethel Eaton, DHR, at (804) 367-2323.

Thank you for the opportunity to review the draft Environmental Assessment and consistency determination for this undertaking. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,



Ellie Irons, Program Manager  
Office of Environmental Impact Review

Enclosures

cc: Allen Brockman, DEQ-ORP  
Harold Winer, DEQ-TRO  
Tony Watkinson, VMRC  
Andrew Zadnick, DGIF  
Scott Bedwell, DCR  
Keith R. Tignor, VDACS  
Susan Douglas, VDH  
Ethel Eaton, DHR  
Matt Heller, DMME  
George Wallace, City of Hampton  
Arthur L. Collins, Hampton Roads PDC

**Fisher,John**

**From:** Winer,Harold  
**Sent:** Monday, April 17, 2006 1:31 PM  
**To:** Fisher,John  
**Cc:** Parolari,Bert; Borton,David; Johnston,Milton  
**Subject:** EIR #06-069F, Langley Integrated Total Force (L-ITF) Beddown and Logistics Support Center (LSC)

s requested, TRO staff has reviewed the supplied information and has the following comments:

egarding VWP issues, we have reviewed this document from the perspective of the Virginia Water Protection Permit Program and note that there will be permanent impacts to surface waters and or wetlands associated with Action 2, Alternative A. The report goes on to affirm that a permit will be obtained from the Corps and only implies that VWP permits will be obtained from DEQ for wetland impacts. It should be noted that the State authorization for surface water and wetland impacts will be in the form of a Virginia Water Protection Permit which constitutes our Section 401 certification under Virginia law. Based on the information contained in this report, it is unclear whether all impacts have been avoided and minimized to the greatest extent practicable as required by State law. As such, no conclusive determination of consistency can be made at this time. Review of this document, in and of itself, does not demonstrate that no less environmentally damaging alternatives to the proposed site of the LSC exist or that impacts to surface waters including wetlands have been adequately avoided and minimized. Many of these details will be appropriately resolved during the Joint Permit Application Review process. Provided that all necessary permits are obtained and complied with, the project will be consistent with our program requirements. Having said that, specific areas of deficiency in this report include the following:

- 1) The discussion of mitigation measures presented on Pages ES-2 and ES-3 appears to be limited solely to Federal (USACE) requirements. It omits any discussion of obtaining the required VWP Permit and providing a compensatory mitigation plan that satisfies Virginia Administrative Code, 9 VAC 25-210-115.
- 2) **Section 1.3, PURPOSE AND NEED FOR THE PROPOSED ACTIONS, Proposed Action Two** (page 1-7) and **2.1.3 Proposed Action Two (LSC) Alternative Identification Process** (page 2-7) – These sections contain only a superficial discussion of the selection process as it related to the stated purpose and need i.e. construct a LSC at Langley AFB sized to meet current and future known BRAC requirements resulting in the chosen. The identification of the horse pasture site as the site that avoids and minimizes impacts to wetlands to the greatest extent practicable will require a significantly more thorough discussion than to simply state that "No other locations on Langley AFB are being considered as none other would meet the purpose and need."
- 3) **Section 2.3, OTHER REGULATORY AND PERMIT REQUIREMENTS** (PAGE 2-9) – Table 2-2 appears to be mislabeled (Table 2-1?). Furthermore, this table should be revised to include the requirement to obtain a VWP permit from DEQ under independent Virginia law. This regulatory requirement is related to the Section 404 process only to the extent that it constitutes Virginia's Section 401 Certification of a Federal 404 permit. These State permitting requirements continue to exist even in cases where no Section 404 permit is required by the USACE and extend to isolated wetlands and other State waters that are not considered "wetlands or waters of the United States".
- 4) **Section 2.4, MITIGATION MEASURES** (page 2.10) – See #1 above
- 5) **Section 3.5.1, Wetlands** and **Figure 3-2 Langley AFB Wetlands** – the text of this section provides a general discussion of the types, acreage and locations of wetlands on Langley AFB, not specific information concerning the wetlands to be impacted. Similarly, the wetland figure (3-2) provides a complete lack of detail concerning the location of proposed impacts. If review were to be based on this figure alone, no impacts would be apparent. Significantly more detailed information should be provided in this section.

**Concerning Remediation issues:**

**Petroleum Storage Tank Compliance/Inspections:** Langley Air Force Base (CEDS # 5-001910) currently operates 13 regulated underground storage tanks (USTs) and 70 regulated aboveground storage tanks (ASTs) for the storage and despoising various petroleum products including, gasoline, diesel fuel, jet fuel, lubricating oils and heating oils. In addition, Langley operates the regulated aboveground tanks under a current Oil Discharge Contingency Plan (ODCP) # 05-5136. Based on my review of the proposed new facility locations no impacts to USTs or large ASTs (fuel farm) would be expected. Various small (< 1000 gallon) ASTs currently exist at many locations throughout the base, as such some may be displaced by new construction tanks displaced (closed and or removed) must be reported to the DEQ Tidewater Regional Office, attn: Tom Madigan (757) 518-1115

In addition to the above, if the construction of this project will include the use of portable AST storage (>660 gallons) for equipment fuel, the tank or tanks must be registered with DEQ using AST Registration form 7540-AST. This form is available at the **DEQ web site ([deq.virginia.gov](http://deq.virginia.gov))** under "**petroleum programs, download library, AST registration forms**". Once the registration form is completed, it should be mailed to the DEQ address on the form along with the appropriate registration fee (also listed on the form). **Any questions concerning UST or AST registration should be directed to "Tom Madigan" at the Tidewater Regional Office 5636 Southern Boulevard, Virginia Beach, VA 23462, (757) 518-2115 or by e-mail at [temadigan@deq.virginia.gov](mailto:temadigan@deq.virginia.gov)**

**Petroleum Storage Tank Cleanups:** There have been 150 petroleum releases reported at Langley Air Force Base, 5 of which are currently active cases. None of these petroleum releases are located at or adjacent to the proposed facility locations. If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ. Contact Ms. LeAnn Moran at (757) 518-2126. Petroleum contaminated soils generated during construction of this project must be properly characterized and disposed of properly.

**Regarding Waste issues,** all solid wastes generated during the demolition, construction and operation of the facility needs to be characterized in accordance with the Virginia Hazardous Waste Management Regulations prior to disposal at an appropriate facility.

It is strongly recommended that the source of the fill material used under the footprint of the proposed structure be evaluated for potential contamination prior to placement on Langley Air Force Base.

Thanks for the opportunity to comment.

Harold J. Winer  
Deputy Regional Director  
Virginia DEQ, Tidewater Regional Office  
Phone: 757-518-2153/Fax: 757-518-2003  
Email: [hjwiner@deq.virginia.gov](mailto:hjwiner@deq.virginia.gov)

## Fisher, John

**From:** Parolari, Bert  
**Sent:** Friday, May 19, 2006 4:24 PM  
**To:** 'Calder Donald W Civ ACC/A7ZP'  
**Cc:** Fisher, John; Peter, Kevin J; Hoffman Charee D Ctr ACC/A7ZP; Winer, Harold  
**Subject:** RE: EIR #06-069F, Langley Integrated Total Force (L-ITF) Beddown and Logistics Support Center (LSC)  
**Importance:** High

John – I have reviewed the submissions attached to your May 11, 2006 and May 17, 2006 emails and the associated attachments concerning the above referenced EIR. For the most part, your proposed revisions to the text of the document appear to address our earlier written comments regarding specific references to Virginia law, in addition to Federal 404 jurisdictional discussions. Your submissions also included two additional figures depicting wetlands in the vicinity of the LSC - proposed action two. While these figures are adequate for DEQ to determine that wetland or surface water impacts are proposed and that a Joint Permit application will be required, they will not be acceptable for the purpose of acquiring a VWP permit from DEQ. Viewed in conjunction with Figures 3-2 and 3-2 in the Draft EA, the four figures seem to identify three separate sites in close proximity to one another. While you may wish to clarify the location of your project on these diagrams for the sake of accuracy, I see nothing further to be gained by revising these drawings further for the sake of review by my office. As I explained to you and your associates over the phone, our permit review will ultimately require very specific and accurate drawings that justify that the site selection as well as the building and parking configuration chosen represent the least environmentally damaging practicable alternative. This demonstration may require modification of the general plan presented in the EA. Provided that the requirements of our permitting program are met and a Virginia Water Protection Permit is obtained and complied with, this project will be viewed as consistent from the perspective of the VWP program.

Bert W. Parolari, Jr.  
Virginia Water Protection Permit Manager  
Virginia Department of Environmental Quality  
636 Southern Blvd.  
Virginia Beach, VA 23462  
(757) 518-2166 (Voice)  
(757) 518-2103 (Fax)  
[wparolari@deq.virginia.gov](mailto:wparolari@deq.virginia.gov)

-----Original Message-----

**From:** Calder Donald W Civ ACC/A7ZP [mailto:[donald.calder@langley.af.mil](mailto:donald.calder@langley.af.mil)]  
**Sent:** Wednesday, May 17, 2006 9:28 AM  
**To:** Parolari, Bert  
**Cc:** -error-5.1.2-553 source routing not allowed.; Fisher, John; Peter, Kevin J; Hoffman Charee D Ctr ACC/A7ZP; Calder Donald W Civ ACC/A7ZP  
**Subject:** RE: EIR #06-069F, Langley Integrated Total Force (L-ITF) Beddown and Logistics Support Center (LSC)

Bert,

Based on our follow-up phone call last Friday (12 May), we've revised our additional figure for Alternative 2 (Logistic Supply Center site figure). This will become figure 3-3 in the final document, depicts a more detailed view of the horse pasture sites and associated wetlands/waters, and includes the LSC footprint, its associated parking lot, and a scale to gauge distances.

Please let me know if this revised figure (as well as our responses & proposed text revisions sent on 11 May) satisfactorily address your comments on our Draft EA. If everything is in order, please contact Mr. John Fisher at the VDEQ Office of Environmental Impact Review so that he can formally concur with our proposal and give us the green light to proceed toward a final document.

Don Calder  
HQ ACC/A7ZP (Planning Branch)  
(757)764-6156

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF ENVIRONMENTAL IMPACT REVIEW  
629 EAST MAIN STREET, SIXTH FLOOR  
RICHMOND, VA 23219  
FAX #804/698-4319



JOHN R. FISHER  
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

This will acknowledge receipt of your transmittal letter with enclosures requesting Commission review of the above-referenced project.

Please be advised that the Marine Resources Commission, pursuant to Section 28.2-1204 of the Code of Virginia, has jurisdiction over any encroachments in, on, or over any State-owned rivers, streams, or creeks in the Commonwealth. Accordingly, if any portion of the subject projects involves any encroachments channelward of ordinary high water along natural rivers and streams, a permit may be required from our agency.

(signed) Ejo Gally (date) 3/31/06  
(title) Environmental Engineer  
(agency) VA Marine Resources Commission

Fisher,John

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**From:** Elizabeth Gallup [Elizabeth.Gallup@mrc.virginia.gov]  
**Sent:** Tuesday, May 23, 2006 3:34 PM  
**To:** Fisher,John  
**Subject:** LAFB comments - updated

Based on additional information provided by the Air Force regarding Proposed Action 2/Alternative A where there will be an encroachment over State-owned submerged land a permit will be required from VMRC pursuant to Section 28.2-1204 of the Code of Virginia. A Joint Permit Application must be submitted to this agency.

Elizabeth Gallup  
Environmental Engineer  
Habitat Management Division  
Virginia Marine Resources Commission  
(757) 247-8027  
Elizabeth.Gallup@mrc.virginia.gov





COMMONWEALTH of VIRGINIA  
DEPARTMENT OF CONSERVATION AND RECREATION  
DIVISION OF CHESAPEAKE BAY LOCAL ASSISTANCE  
101 N. 14<sup>th</sup> Street, 17<sup>th</sup> Floor  
Richmond, VA 23219  
1-800-243-7229  
FAX (804) 225-3447

MEMORANDUM

TO: Scott Bedwell, DCR Environmental Impact Report Coordinator

FROM: Alli Baird, Chesapeake Bay Local Assistance

DATE: April 19, 2006

SUBJECT: DEQ-06-069F: DOD/USAF – Langley Integrated Total Force Support Center  
DCR-DCBLA Project # FSPR-USAF-02-06

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). In evaluating the various proposed actions for environmental consequences, the environmental assessment does not address Coastal Lands Management as one of the enforceable regulatory programs of the Coastal Zone Management Act and the Virginia Coastal Resources Management Program (VCP). The Coastal Lands Management program is a state-local cooperative program administered by the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations (the Regulations); Virginia Administrative Code 9 VAC 10-20-10 *et seq.*

Please note that the Virginia Erosion and Sediment Control Law (§ 10.1-560 *et seq.* of the Code of Virginia) and the Virginia Stormwater Management Regulations (§ 4 VAC 3-20) are administered by the Virginia Department of Conservation and Recreation's Division of Soil and Water, **not** the Division of Chesapeake Bay Local Assistance.

Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated Chesapeake Bay Preservation Areas. In Hampton, the areas protected by the Chesapeake Bay Act, as locally implemented requiring stringent performance criteria, include: tidal wetlands, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, tidal shores and a 100-foot vegetated buffer area located adjacent to and landward of the aforementioned features, and along both sides of any water body with perennial flow. Less stringent performance

criteria apply to land that is contiguous to the 100-foot buffer for a distance of 100 feet in the landward direction.

Of the Proposed Action One sites, Alternative C may have lands requiring the less stringent performance criteria. The Proposed Action Two site may also have lands requiring the less stringent performance criteria. To be consistent these projects must comply with the general performance criteria, found in the Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code §9 VAC 10-20-120, including minimizing land disturbance, preserving indigenous vegetation, and minimizing impervious surfaces.

For land disturbance activities over 2,500 square feet, the projects must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. In addition, stormwater management criteria consistent with water quality protection provisions (§4 VAC 3-20-71 et seq.) of the *Virginia Stormwater Management Regulations* (§ 4 VAC 3-20) shall be satisfied.

Provided adherence with the Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia), the Virginia Stormwater Management Act (§ 10.1-603.1 et seq. of the Code of Virginia) and the general performance criteria (§9 VAC 10-20-120 et seq.), the projects would be consistent with the *Chesapeake Bay Preservation Area Designation and Management Regulations*.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher

DEQ - OEIA PROJECT NUMBER: 06 - 069F

PROJECT TYPE:  STATE EA / EIR / FONSI  FEDERAL EA / EIS  SCC

RECEIVED

X CONSISTENCY DETERMINATION

APR 07 2006

PROJECT TITLE: LANGLEY INTEGRATED TOTAL FORCE (L-ITF) BEDDOWN AND LOGISTICS SUPPORT CENTER (LSC)

DEQ-Office of Environmental  
Impact Review

PROJECT SPONSOR: DEPARTMENT OF DEFENSE / U. S. AIR FORCE

PROJECT LOCATION:  X OZONE NON ATTAINMENT AREA

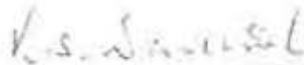
REGULATORY REQUIREMENTS MAY BE APPLICABLE TO:  X CONSTRUCTION  
 OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1.  9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E - STAGE I
2.  9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F - STAGE II Vapor Recovery
3.  9 VAC 5-40-5490 et seq. - Asphalt Paving operations
4.  X 9 VAC 5-40-5600 et seq. - Open Burning
5.  X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions
6.  9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to \_\_\_\_\_
7.  9 VAC 5-50-160 et seq. - Standards of Performance for Toxic Pollutants
8.  9 VAC 5-50-400 Subpart \_\_\_\_\_, Standards of Performance for New Stationary Sources, designates standards of performance for the \_\_\_\_\_
9.  9 VAC 5-80-10 et seq. of the regulations - Permits for Stationary Sources
10.  9 VAC 5-80-1700 et seq. Of the regulations - Major or Modified Sources located in PSD areas. This rule may be applicable to the \_\_\_\_\_
11.  9 VAC 5-80-2000 et seq. of the regulations - New and modified sources located in non-attainment areas
12.  9 VAC 5-80-800 et seq. Of the regulations - Operating Permits and exemptions. This rule may be applicable to \_\_\_\_\_

COMMENTS SPECIFIC TO THE PROJECT:

Being in an area of ozone non-attainment, all precautions are necessary to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) during construction.



(Kotur S. Narasimhan)  
Office of Air Data Analysis

DATE: April 7, 2006



# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Street address: 629 East Main Street, Richmond, Virginia 23219  
Mailing address: P. O. Box 10009, Richmond, Virginia 23240  
Fax (804) 698-4500 TDD (804) 698-4021  
www.deq.virginia.gov

David K. Paylor  
Director

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

## MEMORANDUM

**TO:** John E. Fisher, Environmental Program Planner

**FROM:** *ARB*  
Allen Brockman, Waste Division Environmental Review Coordinator

**DATE:** April 10, 2006

**COPIES:** Sanjay Thirunagari, Waste Division Environmental Review Manager; Paul Herman, file

**SUBJECT:** Environmental Assessment and Consistency Determination  
DOD/Air Force—Langley Air Force Base, Integrated Total Force (L-ITF)  
Beddown and Logistics Support Center (LSC), DEQ Project #06-069F

The Waste Division has completed its review of the Environmental Impact Assessment and Consistency Determination for Langley Air Force Base's Integrated Total Force (L-ITF) Beddown and Logistics Support Center (LSC), Hampton, in Virginia. We have the following comments concerning the waste issues associated with this project:

Both solid and hazardous waste issues were addressed adequately in the report. However, the report did not include a search of waste-related data bases. The Waste Division staff performed a cursory review of its data files and determined that the facility is under DEQ's Federal Facilities Installation Restoration Program (VA2800005033), a Formerly Used Defense Site (VA9799F1590), and a RCRA small quantity generator of hazardous waste (VAD988222527). The following websites may prove helpful in locating additional information for these identification numbers: [http://www.epa.gov/echo/search\\_by\\_permit.html](http://www.epa.gov/echo/search_by_permit.html) or [http://www.epa.gov/enviro.html/rcris/rcris\\_query\\_java.html](http://www.epa.gov/enviro.html/rcris/rcris_query_java.html). Paul Herman of DEQ's Federal Facilities Program was contacted for his review of this report and replied in a separate memo, attached, dated April 7, 2006.

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. In addition, the hazardous waste storage facility must be managed in accordance with applicable Federal State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations

are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Also, all structures being demolished/renovated/ removed should be checked for asbestos-containing materials (ACM) and lead-based paint prior to demolition. If ACM or LBP are found, in addition to the federal waste related regulations mentioned above, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Allen Brockman at (804) 698-4468.

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WASTE DIVISION  
Federal Facilities Restoration Program  
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Environmental Assessment – Langley Air Force Base – Integrated Total Force  
Beddown and Logistics Support Center

TO: Allen Brockman

FROM: Paul E. Herman, P.E., FFR 

DATE: April 7, 2006

COPIES: John Fisher, File

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DEQ-Office of Environmental  
Impact Review

The Langley Air Force Base report entitled *Draft Langley Integrated Total Force Beddown and Logistics Support Center Environmental Assessment* dated March 2006 has been reviewed as requested by Allen Brockman, Waste Division Environmental Review Manager. The document presents five potential construction sites. A single site has been proposed for a new Logistics Support Center, three sites (Alternatives A, B, and C) for the 192 Fighter Wing (Virginia Air Guard) Headquarters to be constructed as part of the Integrated Beddown, and a single site for the relocated Langley Federal Credit Union building that would be displaced if Alternative A is selected.

Langley Air Force Base (LAFB) is on the National Priorities List (NPL) and is the party responsible for remediation of CERCLA sites on Base in order to be removed from the NPL. The LAFB Environmental Restoration Program (ERP) is charged with oversight of the CERCLA sites on Base.

The proposed building sites lie atop the Base-wide Groundwater Site, ERP Site OT-64. As the extent of contamination that may be associated with OT-64 has not been fully defined, it is possible that all, or none, of the proposed building sites may be situated atop a contaminant plume. One of the proposed building sites (Proposed Action One, Alternative C) appears to be in the footprint of an active ERP site, Site OT-06 and 06 Annex, the site of a former entomology building and former base wastewater treatment plant. The primary contaminant in the groundwater at OT-06/06A is trichloroethene which is about to undergo remediation as part of an interim remedial action to reduce/eliminate associated risk. The soil portion of this site was closed under a Record of Decision (ROD) dated September 2000 which states "No Further Action". The risk assessment associated with this ROD looked at current and future land uses designated as recreational and residential and the resulting risk levels were deemed acceptable.

Of the remaining sites under consideration in this EA, only two appear to be adjacent to other ERP sites. Under Proposed Action One, Alternative A, the proposed location for the relocated Langley Federal Credit Union lies a couple hundred feet west of ERP Site OT-51, an abandoned

electrical substation. In 1997, a concrete pad and contaminated soil were removed from the site during an interim removal action and a storm sewer line and surrounding soil leading from the substation was removed. A ROD was signed in January 1999 indicating "No Further Action" for soils is necessary. The groundwater portion of the site is included in OT-64. The other construction site proposed in Alternative A lies a couple hundred feet south of ERP Site ST-27, the Danforth Fuel Leaks, Fuel Saturated Area. This site was cleaned in accordance with the VDEQ Underground Storage Tank guidelines and closed under a Decision Document dated July 2000.

The remaining construction sites proposed, Alternative B and the LSC site, are located away from active and closed ERP sites (except OT-64). It should be mentioned that the proposed location for the LSC is in the vicinity of a former bombing range so there is potential for munitions and explosives of concern and munitions constituents to be encountered.

The Federal Facilities Restoration Program recommends the facility contact Mr. John Tice, LAFB Environmental Restoration at (757) 764-1082, for information concerning the CERCLA or Explosive Ordnance Disposal obligations at or near the proposed construction sites prior to initiating any land, sediment, or ground water disturbing activities.



COMMONWEALTH of VIRGINIA  
DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 326  
Richmond, Virginia 23219-2010  
(804) 786-2556 FAX (804) 371-7899

MEMORANDUM

DATE: April 24, 2006

TO: Mr. John E. Fisher  
Department of Environmental Quality  
Office of Environmental Impact Review  
629 East Main Street, Sixth Floor  
Richmond, Va. 23219  
[jefisher@deq.virginia.gov](mailto:jefisher@deq.virginia.gov)  
(804) 698-4339

FROM: Robert Munson, Planning Bureau Manager  
Virginia Department of Conservation and Recreation

SUBJECT: DEQ-06-069F: DOD/USAF – Langley Integrated Total Force Support Center

The Department of Conservation and Recreation (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, natural heritage resources have not been documented in the project area. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

In addition, according to the United States Fish and Wildlife Service Guidance dated September 14, 2000 "new construction of communication towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds". "Communications towers are estimated to kill 4-5 million birds per year and some of these species affected are also protected under the Endangered Species Act and Bald and Golden Eagle Act" (USFWS, 2000). Therefore, DCR recommends voluntary implementation of USFWS interim guidelines for Communication Tower Siting, Construction, Operation, and Decommissioning (<http://virginiafieldoffice.fws.gov/Erieweb/commtower.doc>).

Under a Memorandum of Agreement, DCR represents the Virginia Department of Agriculture and Consumer Services in comments regarding potential impacts on state-listed threatened and



endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Additionally, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, which may contain information not documented in this letter. Their database may be accessed from [http://www.dgif.virginia.gov/wildlife/info\\_map/index.html](http://www.dgif.virginia.gov/wildlife/info_map/index.html), or contact Shirl Dressler at (804) 367-6913.

Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in cursive script that reads "Robert S. Munson".

Robert S. Munson  
Planning Bureau Manager

## Literature Cited

U.S. Fish and Wildlife Service. 2000. Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

Please return your comments to:

MR. JOHN E. FISHER  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF ENVIRONMENTAL IMPACT REVIEW  
629 EAST MAIN STREET, SIXTH FLOOR  
RICHMOND, VA 23219  
FAX #804/698-4319

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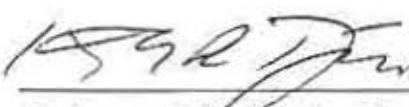
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Impact Review



JOHN E. FISHER  
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Statements in the project document concerning endangered species were reviewed and compared to available information. No additional comments are necessary in reference to endangered plant and insect species regarding this project.

(signed)  (Keith R. Tignor) (date) April 10, 2006

(title) Endangered Species Coordinator

(agency) VDACS, Office of Plant and Pest Service

## Fisher,John

---

**From:** Andrew Zadnik [Andrew.Zadnik@dgif.virginia.gov]  
**Sent:** Friday, April 21, 2006 10:31 AM  
**To:** Fisher,John  
**Cc:** nhreview@dcr.virginia.gov; ProjectReview.Richmond\_PO.DGIF@dgif.virginia.gov  
**Subject:** 06-069F\_ESS21670\_Langley AFB Logistics Support Ctr



Canebrake info  
sheet.pdf (435 ...)

This project involves construction of a new Headquarters facility and Logistics Support Center at Langley AFB. Three sites have been identified for Action One (alternatives A, B, & C). The proposed building would have a footprint of 0.3 ac, excluding parking areas. The site for the new Logistics Support Center (Action Two) is currently an undeveloped horse pasture. Impacts will include the loss of 1.2 ac of wetlands. Under Alternative's A and B, the amount of impervious surface would not increase. Under Alt. C, there would be approximately 1.5 ac of additional impervious surface. Stormwater retention ponds are proposed for both actions.

Due to the location of alternatives A, B, and C, we do not anticipate a significant adverse impact upon threatened or endangered wildlife resources under our jurisdiction to occur due to Action One. However, to minimize adverse impacts upon general wildlife resources, including fish, due to increased impervious surfaces, we recommend Alternative A or B.

The proposed site for Action Two is currently open grassland, wooded and riparian areas, and wetlands. The Draft EA (Page 3-33) states that disturbance-tolerant species are expected to relocate from this site to other wetlands areas or the proposed stormwater basin. Also, birds that frequent the existing pasture would likely relocate to the adjacent open fields of the golf course or other recreational fields. Therefore, the Draft EA states that impacts are expected to be minimal. We do not entirely agree with this statement. The Action Two site is approximately 1,000 ft from an occurrence of the State Special Concern great egret. Also, the State Endangered canebrake rattlesnake has been documented approximately 2 miles from the project site. We believe these species and other disturbance-intolerant species may be adversely impacted by this action. We recommend that the final EA fully address these potential impacts. To mitigate these impacts, we recommend avoiding and minimizing impacts to wetlands to the fullest extent possible. Any unavoidable impacts should be compensated based on ratios of at least 1:1 for PEM, 1.5:1 for PSS, and 2:1 for PFO.

To specifically mitigate potential adverse impacts upon canebrake rattlesnakes, we recommend that, prior to the start of construction, all contractors are trained in the identification, basic natural history, and legal status of canebrake rattlesnakes. This could be accomplished via an appropriate information sheet distributed to those working on the project (see attached). Information also can be found on our website, <http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030013>. If a canebrake rattlesnake is observed at any time during the development or construction of this project, we recommend that the applicant contact DGIF Wildlife Diversity Biologist John (JD) Kleopfer (757-253-4180) or our Richmond office (804-367-8999), so that we may safely capture and relocate the animal to a suitable site.

To further minimize potential adverse impacts to wildlife due to both actions, we recommend that the stormwater controls be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes. We also recommend that all landscaping incorporate the use of native vegetation to the fullest extent possible. Finally, we recommend strict erosion and sediment control

measures throughout this project.

Given full consideration of the above recommendations regarding stormwater management, and implementation of strict erosion and sediment control measures, we find this project to be consistent with the Fisheries Section of the VA Coastal Resources Management Program.

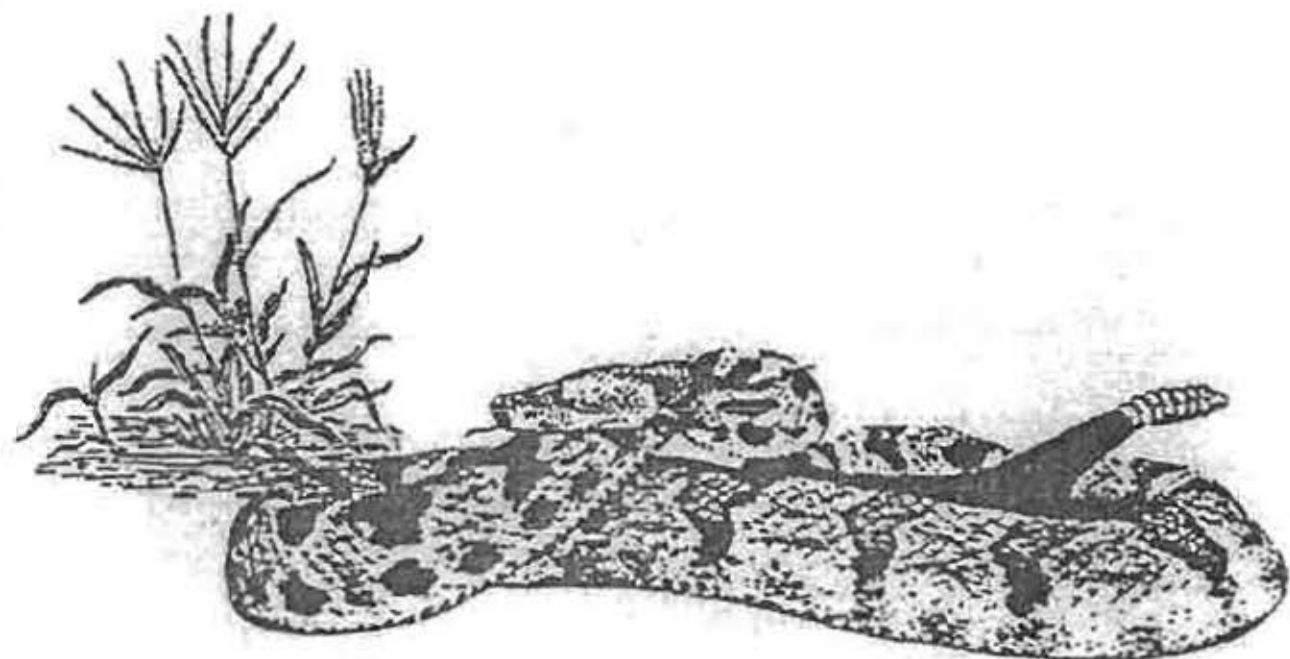
Thank you.

Andrew K. Zadnik  
Environmental Services Section Biologist  
Department of Game and Inland Fisheries  
4010 West Broad Street  
Richmond, VA 23230

(804) 367-2733  
(804) 367-2427 (fax)

# Virginia's Wildlife

## Species Profile



**Canebrake Rattlesnake**  
*Crotalus horridus atricaudatus*  
**Status: State Endangered**

Virginia Department of Game and Inland Fisheries  
Wildlife Diversity Division  
Nongame and Endangered Wildlife Program  
4010 West Broad Street  
P.O. Box 11104  
Richmond, VA 23230-1104  
804.367.8999



[www.dgif.state.va.us](http://www.dgif.state.va.us)

Wildlife Diversity Branches  
(I) Williamsburg: 757-253-7072  
(II) Forest: 804-525-7522  
(III) Blacksburg: 540-951-7921  
(IV) Verona: 540-248-9361  
(V) Fredericksburg: 540-899-4169

**Support Virginia's Nongame Wildlife Program!**  
**Remember the Nongame Wildlife Tax Checkoff as you do your Virginia state income taxes this year.**

# Virginia's Wildlife Species Profile: Canebrake Rattlesnake

## Virginia Distribution: Southeastern Coastal Plain

### Characteristics

The canebrake rattlesnake is a large venomous snake reaching a maximum length in Virginia of about 5 1/2 feet. As the only rattlesnake found in southeastern Virginia, it is easily identified by its distinctive black tail and rattle. The body color is usually pinkish, gray, yellow, or light brown, with brown to black chevrons. A brown or chestnut mid-dorsal stripe is usually present, as is a yellowish-gold to brown stripe from the eye to the back of the jaw. Canebrakes have a wide head with a deep pit on each side between the eye and nostril, and elliptical pupils.

### Feeding

Canebrakes feed primarily on gray squirrels, and typically feed only once or twice each year. They may also capture and eat other rodents, rabbits, and birds.

### Habitat and Distribution

The canebrake is a physically distinct variant of the timber rattlesnake (*Crotalus horridus*) which ranges from New England to Minnesota and south to Florida and Texas. Whether the canebrake warrants status as a subspecies is in question, but populations occurring southward from southern Missouri, western Tennessee, and southeastern Virginia are considered to represent this population.

In Virginia, while timber rattlesnakes are widespread in the mountain regions and western Piedmont, canebrakes occur only as two populations in the southeastern corner of the state. On the Lower Peninsula they occur in Hampton, Newport News, and York County; and south of the James River they are still found in Isle of Wight County, and in the Cities of Suffolk, Chesapeake, and Virginia Beach.



Figure 1. Canebrake and timber rattlesnake distribution in Virginia and the United States.

**FACT:** There are 30 species of snakes found in Virginia, but the canebrake rattlesnake is the only snake listed by the DGI as endangered or threatened in the Commonwealth.

Mature hardwood forests are the preferred habitat of canebrake rattlesnakes, but the snakes also are found in mixed hardwood-pine forests, cane thickets, and in the ridges and glades of swamps. They prefer areas with numerous logs and a significant layer of leaves and humus. Canebrakes overwinter in the bases of hollow trees and stumps, and in the underground tunnels resulting from stump and root decomposition.

### Reproduction

Canebrakes mature at about 4-6 years of age, and reproduce only every 2-3 years. Mating occurs in mid-summer through fall, and litters of 7-18 young are born the following August or September. The young are about 12 inches in length at birth, and resemble the adults.

### Morphology: Snakes

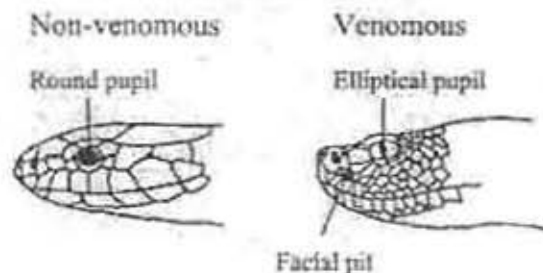


Figure 2. Facial distinctions between venomous and non-venomous snakes of Virginia.

### Threats, and How You Can Help

Habitat destruction or modification, and persecution by humans, are the primary threats to canebrake rattlesnakes. Despite their reputation, most canebrakes are reluctant to bite in the wild, preferring to lay undetected among the leaf litter. They rarely rattle even when approached, but if disturbed or startled they may strike in self-defense. Most rattlesnake bites occur when humans attempt to kill, capture, or handle a snake.

If you see a rattlesnake in the wild, do not disturb it. If you are concerned about its presence, please call the local office of the Virginia Department of Game and Inland Fisheries. If a rattlesnake bites you, do not attempt to administer first aid, rather, immediately seek treatment for snakebite at a medical facility.

For additional information, consult *A Guide to Endangered and Threatened Species in Virginia* by K. Terwilliger and J.R. Tate, or *The Reptiles of Virginia* by Joseph C. Mitchell.

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

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- C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF ENVIRONMENTAL IMPACT REVIEW  
629 EAST MAIN STREET, SIXTH FLOOR  
RICHMOND, VA 23219  
FAX #804/698-4319



JOHN E. FISHER  
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

The proposed Logistics Support Center inside Langley Air Force Base will require expansion of the waterworks and sanitary sewer system. Currently the base purchases potable water from the City of Newport News, and discharges wastewater into the Hampton Roads Sanitation District collection system. There are no public groundwater wells within 1 mile of the proposed Center, and no surface water intakes within 5 miles. We have no objection to the project.

(signed) Aaron L. Douglas (date) 14 April 2006

(title) Field Services Engineer

(agency) Department of Health



If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

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- C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

Please return your comments to:

MR. JOHN E. FISHER  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF ENVIRONMENTAL IMPACT REVIEW  
629 EAST MAIN STREET, SIXTH FLOOR  
RICHMOND, VA 23219  
FAX #804/698-4319

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JOHN E. FISHER  
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

*No significant impact to mineral resources is anticipated to result from this project.*

(signed) *M. J. Her* (date) *4/13/06*

(title) *Geologist Manager*

(agency) *DMME*



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Impact Review

# COMMONWEALTH of VIRGINIA

Department of Historic Resources  
2801 Kensington Avenue, Richmond, Virginia 23221

L. Preston Bryant, Jr.  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

April 17, 2006

Mr. John E. Fisher  
DEQ Office of Environmental Impact Review  
629 East Main Street, Sixth Floor  
Richmond, Virginia 23219

Re: Langley Integrated Total Force Beddown and Logistics Support Center  
DHR File No. 2005-1740; State Project # 06-069F

Dear Mr. Fisher:

Our office has received the Environmental Assessment for the project referenced above and provides the following comments for consideration.

The site of Proposed Action One/Alternative A is located within the identified National Register of Historic Places/Virginia Landmarks Register-eligible Langley Field Historic District. If the Air Force selects this alternative for its undertaking, we anticipate that there will be effects to historic properties. In addition, Action One/Alternatives B and C and Action Two/Alternative A have the potential to impact archaeological resources. The Air Force should continue to consult with the Department of Historic Resources (DHR) pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800. This consultation must present meaningful analysis of the potential to impact historic properties based on approved design guidelines, locations of known resources, and predictive models for archaeological sites.

We look forward to working with the Air Force towards a successful project. If you have any questions, please contact me at (804) 367-2323 x153 or email [roger.kirchen@dhr.virginia.gov](mailto:roger.kirchen@dhr.virginia.gov).

Sincerely,

Roger W. Kirchen, Archeologist  
Office of Review and Compliance

Cc: Mr. Donald Calder, Langley AFB

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Winchester Region Office  
107 N. Kent Street, Suite 203  
Winchester, VA 22001  
Tel: (540) 722-3427  
Fax: (540) 722-7535



City of Hampton

APRIL 21, 2006

John E. Fisher  
Department of Environmental Quality  
Office of Environmental Impact Review  
629 East Main Street, Sixth Floor  
Richmond, VA 23219

**Re: Comment on draft Environmental Assessment -  
Langley Integrated Total Force (L-ITF) Beddown and Logistics Support Center  
(LSC)  
Langley Air Force Base, Virginia  
Project number - 06-069F**

Dear Mr. Fisher:


City of Hampton Planning staff have received and reviewed the draft Environmental Assessment (EA) for the beddown of the 192<sup>nd</sup> Fighter Wing of the Virginia Air National Guard and the construction of a new centralized Logistics Support Center. These actions will entail new building construction in two on-base locations, and weekend training flights for the National Guard.

The project does not appear to conflict with any of the City's current plans or policies. The City is willing to work with LAFB to minimize the potential conflicts generated by aircraft noise in the vicinity of the base and we look forward to welcoming their new personnel to the community.

The City commends LAFB on their commitment to utilize architectural design standards in accordance with the Leadership in Energy and Environmental Design (LEED) Green Building Rating System for the new buildings to be constructed. These building standards will contribute towards reducing maintenance costs, reducing environmental impacts, and improving worker productivity.

Please let me know if I can be of further assistance regarding this project (757-728-5233 or [jfreas@hampton.gov](mailto:jfreas@hampton.gov)).

Sincerely,

  
James Freas  
City Planner  
City of Hampton



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DEQ-Office of Environmental Impact Review

April 24, 2006

Mr. John E. Fisher  
Department of Environmental Quality  
Office of Environmental Impact Review  
629 East Main Street, Sixth Floor  
Richmond, Virginia 23219

Re: Langley Integrated Total Force Beddown and Logistics  
Support Center DEQ 06-027S (ENV:GEN)

Dear Mr. Fisher:

Pursuant to your request of March 24, 2006, the staff of the Hampton Roads Planning District Commission has reviewed the Environmental Assessment and Consistency Determination for the proposed integration of the 192<sup>nd</sup> Fighter Wing of the Virginia Air National Guard with the 1<sup>st</sup> FW of Langley Air Force Base. The proposal includes the construction of a 192 FW Headquarters and 10 operations and maintenance projects, and construction of a Logistics Support Center. We have contacted the City of Hampton regarding the project.

Based on this review, the project is generally consistent with local and regional plans and policies. As in the past, we encourage the applicant to provide reviewers with copies of the Langley AFB General Plan or other documentation that encompasses all the environmental impacts associated with the large number of projects being pursued at this base.

In addition, the City of Hampton has submitted additional comments to you in a separate letter. We concur with their comments.

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

Sincerely,

Arthur L. Collins  
Executive Director/Secretary

MLJ:fh

Copies: Mr. James Freas, HA

**CHESAPEAKE**

Caroline V. Collier, City Manager  
Amy Dworkinath, Deputy City Manager  
Darius B. Edge, Mayor  
A. Joe Newman, Council Member  
Debbie Roper, Council Member

**FRANKLIN**

Maria S. Fetheroff, Council Member  
Richard S. Taylor, City Manager

**GLoucester County**

John J. Adams, Sr., Board Member  
William H. Whisenand, County Administrator

**HAMPTON**

Ranger K. Quinlan, Council Member  
Rick A. Ramsey, II, Mayor  
Jetta F. Wallace, Jr., City Manager

**ISLE OF WIGHT COUNTY**

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Earl D. Cook, Vice Chairman

**JAMES CITY COUNTY**

Bruce C. Goodson, Chairman  
Sandra B. Wanyard, County Administrator

**NEWPORT NEWS**

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Joe E. Frank, Mayor  
Ronny W. Hildebrandt, City Manager

**NORFOLK**

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Donald L. Williams, Council Member  
Regina V.K. Williams, City Manager  
Barney C. Wynn, Council Member  
W. Rindy Wright, Council Member

**POQUOSON**

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Sandra C. Plesner, Jr., Mayor

**PORTSMOUTH**

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Charles E. Atherton, Sr., Council Member

**SOUTHAMPTON COUNTY**

James T. Fann, Board Member  
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**SUFFOLK**

R. Steven Herbert, City Manager  
Scott J. Ralston, Mayor

**SURRY COUNTY**

Tyrone A. Franklin, County Administrator  
Lucy S. Lytle, Board Member

**VIRGINIA BEACH**

Harry E. DeLoe, Council Member  
Robert M. Dyer, Council Member  
Louis R. Jones, Vice Mayor  
Mylene E. Osborn, Mayor  
Jim Reeves, Council Member  
Peter W. Schmidt, Council Member  
JAMES K. SCOTT, City Manager

**WILLIAMSBURG**

Jackson C. Tuttle, II, City Manager  
Janine Tuttle, Mayor

**YORK COUNTY**

James G. McReynolds, County Administrator  
Thomas G. Sheppard, Jr., Board Member

# **APPENDIX B**

## **AIR QUALITY ANALYSIS**

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Proposed Action One: Alternative A Summary and Demolition

**U.S. Air Force Air Conformity Applicability Model 4.2.2**

Help

SCENARIO: Proposed Action One-Alt A

INSTALLATION: LANGLEY AFB Inst ID: 380

County: HAMPTON State: VA ZIP Code: 23665 Employees: 11477

Add Aircraft	Description	Yr/Qtr	Operation Mode	Quantity	Edit
	Demo	2008/1		1	Edit  Delete  Calculate  Reports  Graph  Exit Program
	Demo	2008/1		1	
Add Special Facilities	Personnel	2007/2	ANG	300	
	Personnel	2007/2	ANG	350	
Add Personnel	Personnel	2007/2	ANG	250	
	Personnel	2007/2	ANG	100	
Mobile6	SupFac - 192 FW HQ Facility	2008/2		1	
	SupFac - Misc O&M Projects	2007/4		1	
Tanks 4.0b	SupFac - Proposed Langley FCU	2008/2		1	

Alternative A Demolition

**Building Demolition Information**

Demolition Description: Langley FCU Demo  
Maximum of 20 characters

Duration of Demolition: 15 days

Building Width: 25 feet

Building Length: 55 feet

Building Height: 16 feet

Start Date of Demolition:  
 Year: 2008  
 Quarter: 1

**Building Demolition Information**

Demolition Description: Langley FCU Add Demo  
Maximum of 20 characters

Duration of Demolition: 2 days

Building Width: 16 feet

Building Length: 36 feet

Building Height: 16 feet

Start Date of Demolition:  
 Year: 2008  
 Quarter: 1

Proposed Action One: Alternative B Summary and Demolition

**U.S. Air Force Air Conformity Applicability Model 4.2.2**

Help

SCENARIO: Proposed Action One-Alt B

INSTALLATION: LANGLEY AFB Inst ID: 380

County: HAMPTON State: VA ZIP Code: 23665 Employees: 11477

Add Aircraft	Description	Yr/Qtr	Operation Mode	Quantity	Edit
	Demo	2008/1		1	Delete
	Demo	2008/1		1	
Add Special Facilities	Personnel	2007/2	ANG	300	Calculate
	Personnel	2007/2	ANG	350	
Add Personnel	Personnel	2007/2	ANG	250	Reports
	Personnel	2007/2	ANG	100	
Mobile6	SupFac - 192 FW HQ Facility	2008/2		1	Graph
Tanks 4.0b	SupFac - Misc D&M Projects	2007/4		1	

New Scenario

Delete Scenario

Save As Scenario

Exit Program

Alternative B Demolition

**Building Demolition Information**

**Demolition Description**

Dorm 37

Maximum of 20 characters

Duration of Demolition: 60 days

Building Width: 37 feet

Building Length: 220 feet

Building Height: 48 feet

Start Date of Demolition:

Year: 2008

Quarter: 1

OK Cancel

**Building Demolition Information**

**Demolition Description**

Dorm 38

Maximum of 20 characters

Duration of Demolition: 60 days

Building Width: 37 feet

Building Length: 220 feet

Building Height: 48 feet

Start Date of Demolition:

Year: 2008

Quarter: 1

OK Cancel



Proposed Action One: Alternative C Summary

**U.S. Air Force Air Conformity Applicability Model 4.2.2**

Help

SCENARIO: Proposed Action One-Alt C

INSTALLATION: LANGLEY AFB Inst ID: 380

County: HAMPTON State: VA ZIP Code: 23665 Employees: 11477

Description	Yr/Qtr	Operation Mode	Quantity
Personnel	2007/2	ANG	300
Personnel	2007/2	ANG	350
Personnel	2007/2	ANG	250
Personnel	2007/2	ANG	100
SupFac - 192 FW HQ Facility	2008/2		1
SupFac - Misc O&M Projects	2007/4		1

Buttons: Add Aircraft, Add Special Facilities, Add Personnel, Mobile6, Tanks 4.0b, New Scenario, Delete Scenario, Save As Scenario, Edit, Delete, Calculate, Reports, Graph, Exit Program

Proposed Action One: Alternative A Construction

**Construction Information**

**Construction Description**  
 Proposed Langley FCU  
Maximum of 20 characters

No Multi-Family Units: 0  
 No Single-Family Units: 0  
 Sq Ft Commercial/Retail Units: 0 sq. feet  
 Sq Ft Office/Employment Units: 9000 sq. feet

Start Date of Construction:  
 Year: 2008  
 Quarter: 2

Phase 1 Information:  
 Duration of Phase 1: 5 days  
 Gross Area to be Graded: 1 acres

Phase 2 Information:  
 Duration of Phase 2: 365 days  
 Total Acres Paved with Asphalt: 0 acres

Are Any of the Following Dust Controls in Place?

**Soil Piles**

- Covered Or Watered Twice Daily
- Automatic Sprinkler System Installed
- No Controls

**Exposed Surface/Grading**

- Watered Twice Daily
- Watered with Frequency, Keeping Soil Moist at All Times
- No Controls

**Loads**

- At Least 2 Feet of Freeboard
- Secure Cover
- No Controls

**Truck Hauling Road**

- Unpaved and Watered Twice Daily
- Paved
- No Controls

Buttons: OK, Cancel

Proposed Action One: Alternative A, B, and C Construction

Construction Information		
<b>Construction Description</b> <div style="border: 1px solid black; padding: 2px; display: inline-block;">192 FW HQ Facility</div> <small>Maximum of 20 characters</small>		
<b>No Multi-Family Units:</b> <input type="text" value="0"/>	<b>Start Date of Construction:</b>  Year: <input type="text" value="2008"/> Quarter: <input type="text" value="2"/>	
<b>No Single-Family Units:</b> <input type="text" value="0"/>		
<b>Sq Ft Commercial/Retail Units:</b> <input type="text" value="0"/> sq. feet		
<b>Sq Ft Office/Employment Units:</b> <input type="text" value="13500"/> sq. feet		
<b>Phase 1 Information:</b> Duration of Phase 1: <input type="text" value="30"/> days Gross Area to be Graded: <input type="text" value="1"/> acres	<b>Phase 2 Information:</b>  Duration of Phase 2: <input type="text" value="364"/> days  Total Acres Paved with Asphalt: <input type="text" value="0"/> acres	
<b>Are Any of the Following Dust Controls in Place?</b>		
<b>Soil Piles</b> <input checked="" type="radio"/> Covered Or Watered Twice Daily <input type="radio"/> Automatic Sprinkler System Installed <input type="radio"/> No Controls		<b>Exposed Surface/Grading</b> <input checked="" type="radio"/> Watered Twice Daily <input type="radio"/> Watered with Frequency, Keeping Soil Moist at All Times <input type="radio"/> No Controls
<b>Loads</b> <input type="radio"/> At Least 2 Feet of Freeboard <input checked="" type="radio"/> Secure Cover <input type="radio"/> No Controls		<b>Truck Hauling Road</b> <input type="radio"/> Unpaved and Watered Twice Daily <input checked="" type="radio"/> Paved <input type="radio"/> No Controls
<input type="button" value="OK"/> <input type="button" value="Cancel"/>		

Construction Information		
<b>Construction Description</b> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Misc O&amp;M Projects</div> <small>Maximum of 20 characters</small>		
<b>No Multi-Family Units:</b> <input type="text" value="0"/>	<b>Start Date of Construction:</b>  Year: <input type="text" value="2007"/> Quarter: <input type="text" value="4"/>	
<b>No Single-Family Units:</b> <input type="text" value="0"/>		
<b>Sq Ft Commercial/Retail Units:</b> <input type="text" value="0"/> sq. feet		
<b>Sq Ft Office/Employment Units:</b> <input type="text" value="14300"/> sq. feet		
<b>Phase 1 Information:</b> Duration of Phase 1: <input type="text" value="30"/> days Gross Area to be Graded: <input type="text" value="0"/> acres	<b>Phase 2 Information:</b>  Duration of Phase 2: <input type="text" value="364"/> days  Total Acres Paved with Asphalt: <input type="text" value="0.28"/> acres	
<b>Are Any of the Following Dust Controls in Place?</b>		
<b>Soil Piles</b> <input checked="" type="radio"/> Covered Or Watered Twice Daily <input type="radio"/> Automatic Sprinkler System Installed <input type="radio"/> No Controls		<b>Exposed Surface/Grading</b> <input checked="" type="radio"/> Watered Twice Daily <input type="radio"/> Watered with Frequency, Keeping Soil Moist at All Times <input type="radio"/> No Controls
<b>Loads</b> <input type="radio"/> At Least 2 Feet of Freeboard <input checked="" type="radio"/> Secure Cover <input type="radio"/> No Controls		<b>Truck Hauling Road</b> <input type="radio"/> Unpaved and Watered Twice Daily <input checked="" type="radio"/> Paved <input type="radio"/> No Controls
<input type="button" value="OK"/> <input type="button" value="Cancel"/>		

Proposed Action One: Alternative A, B, and C: Commuting Personnel

Full Time National Guard at 300

**Personnel Information**

Number of Persons Realigned:

Proposed Action Period:  
 Year:   
 Quarter:

Operating Profile:  
 Active Duty  
 Training  
 ANG  
 AFRES  
 Civilian

Days/Month:

**Emission Drivers:**  
 Residential Heating  MMBTU/resident/year  
 Facility Heating  BTU/sqft  
 Facility Heating Provided by Central Plant  %  
 New Employees Living On Base  %  
 One-Way Commute  miles  
 Govt VMT  Ann. mi/per

These factors are part of the Base Definition. Editing these factors here will change them in the Base Definition.

Part Time National Guard at 670

**Personnel Information**

Number of Persons Realigned:

Proposed Action Period:  
 Year:   
 Quarter:

Operating Profile:  
 Active Duty  
 Training  
 ANG  
 AFRES  
 Civilian

Days/Month:

**Emission Drivers:**  
 Residential Heating  MMBTU/resident/year  
 Facility Heating  BTU/sqft  
 Facility Heating Provided by Central Plant  %  
 New Employees Living On Base  %  
 One-Way Commute  miles  
 Govt VMT  Ann. mi/per

These factors are part of the Base Definition. Editing these factors here will change them in the Base Definition.

**Personnel Information**

Number of Persons Realigned:

Proposed Action Period:  
 Year:   
 Quarter:

Operating Profile:  
 Active Duty  
 Training  
 ANG  
 AFRES  
 Civilian

Days/Month:

**Emission Drivers:**  
 Residential Heating  MMBTU/resident/year  
 Facility Heating  BTU/sqft  
 Facility Heating Provided by Central Plant  %  
 New Employees Living On Base  %  
 One-Way Commute  miles  
 Govt VMT  Ann. mi/per

These factors are part of the Base Definition. Editing these factors here will change them in the Base Definition.

**Personnel Information**

Number of Persons Realigned:

Proposed Action Period:  
 Year:   
 Quarter:

Operating Profile:  
 Active Duty  
 Training  
 ANG  
 AFRES  
 Civilian

Days/Month:

**Emission Drivers:**  
 Residential Heating  MMBTU/resident/year  
 Facility Heating  BTU/sqft  
 Facility Heating Provided by Central Plant  %  
 New Employees Living On Base  %  
 One-Way Commute  miles  
 Govt VMT  Ann. mi/per

These factors are part of the Base Definition. Editing these factors here will change them in the Base Definition.

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt A

Installation: LANGLEY AFB

## Emissions Summary Report For 2007

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.34	0.81	0.10	0.07	0.07
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.02	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	2.31	0.06	0.00	0.09	0.00
Other Phase II Const. - Workers Trips	0.05	0.00	0.00	0.00	0.00
Other Phase I Const. - Grading Equip.	0.00	0.00	0.00	0.00	0.00
Total	2.70	0.87	0.10	0.18	0.07
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.08	0.45	0.03	0.10	0.05
Mobile - Base Employee Commute VMT	146.62	8.25	0.00	9.59	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	147.70	8.69	0.03	9.69	0.05
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00
<b>Grand Total</b>	150.39	9.57	0.14	9.87	0.11

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt A

Installation: LANGLEY AFB

## Emissions Summary Report For 2008

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Demolition	0.00	0.00	0.00	0.00	0.01
Other Phase I Const. - Grading Equip.	0.01	0.04	0.00	0.00	0.00
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.56
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	3.92	9.34	1.16	0.85	0.75
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.20	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	26.58	0.69	0.04	0.99	0.02
Other Phase II Const. - Workers Trips	0.55	0.03	0.00	0.03	0.00
Total	31.06	10.10	1.19	2.09	1.34
<b>Mobile Sources</b>					
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	1.43	0.59	0.04	0.13	0.06
Mobile - Base Employee Commute VMT	280.64	15.10	0.00	17.53	0.00
Total	282.07	15.69	0.04	17.66	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.01	0.02	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.02	0.00	0.00	0.00
<b>Grand Total</b>	<b>313.15</b>	<b>25.81</b>	<b>1.24</b>	<b>19.75</b>	<b>1.41</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt A

Installation: LANGLEY AFB

## Emissions Summary Report For 2009

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase II Const. - Workers Trips	0.14	0.01	0.00	0.01	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.97	2.31	0.29	0.21	0.19
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.05	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	6.57	0.17	0.01	0.25	0.00
Total	7.68	2.49	0.29	0.52	0.19
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.43	0.59	0.04	0.13	0.06
Mobile - Base Employee Commute VMT	271.08	13.88	0.00	16.13	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	272.51	14.48	0.04	16.26	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.11	0.14	0.00	0.01	0.01
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.11	0.14	0.00	0.01	0.01
<b>Grand Total</b>	<b>280.30</b>	<b>17.10</b>	<b>0.34</b>	<b>16.79</b>	<b>0.26</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt A

Installation: LANGLEY AFB

## Emissions Summary Report For 2010

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Mobile Sources</b>					
Mobile - Base Employee Commute VMT	261.27	12.71	0.00	14.75	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	1.43	0.59	0.04	0.13	0.06
Total	262.70	13.30	0.04	14.89	0.06
<b>Point Sources</b>					
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.13	0.16	0.00	0.01	0.01
Total	0.13	0.16	0.00	0.01	0.01
<b>Grand Total</b>	262.84	13.46	0.04	14.89	0.07

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt B

Installation: LANGLEY AFB

## Emissions Summary Report For 2007

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.48
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.34	0.81	0.10	0.07	0.07
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.02	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	2.31	0.06	0.00	0.09	0.00
Other Phase II Const. - Workers Trips	0.05	0.00	0.00	0.00	0.00
Other Phase I Const. - Grading Equip.	0.01	0.03	0.00	0.00	0.00
Total	2.70	0.90	0.11	0.18	0.55
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.11	0.46	0.03	0.10	0.05
Mobile - Base Employee Commute VMT	146.62	8.25	0.00	9.59	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	147.73	8.71	0.03	9.69	0.05
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00
<b>Grand Total</b>	150.43	9.61	0.14	9.87	0.59



# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt B

Installation: LANGLEY AFB

## Emissions Summary Report For 2008

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Demolition	0.00	0.00	0.00	0.00	0.16
Other Phase I Const. - Grading Equip.	0.01	0.03	0.00	0.00	0.00
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.48
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	2.97	7.09	0.88	0.65	0.57
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.14	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	20.17	0.52	0.03	0.76	0.02
Other Phase II Const. - Workers Trips	0.42	0.02	0.00	0.03	0.00
Total	23.58	7.67	0.91	1.58	1.23
<b>Mobile Sources</b>					
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Mobile - Base Employee Commute VMT	280.64	15.10	0.00	17.53	0.00
Total	282.12	15.71	0.04	17.67	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.01	0.02	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.02	0.00	0.00	0.00
<b>Grand Total</b>	<b>305.70</b>	<b>23.40</b>	<b>0.95</b>	<b>19.24</b>	<b>1.30</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt B

Installation: LANGLEY AFB

## Emissions Summary Report For 2009

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase II Const. - Workers Trips	0.09	0.01	0.00	0.01	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.63	1.51	0.19	0.14	0.12
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.03	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	4.28	0.11	0.01	0.16	0.00
Total	5.01	1.62	0.19	0.33	0.13
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Mobile - Base Employee Commute VMT	271.08	13.88	0.00	16.13	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	272.55	14.49	0.04	16.27	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.09	0.11	0.00	0.01	0.01
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.11	0.00	0.01	0.01
<b>Grand Total</b>	<b>277.65</b>	<b>16.22</b>	<b>0.24</b>	<b>16.61</b>	<b>0.20</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt B

Installation: LANGLEY AFB

## Emissions Summary Report For 2010

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Mobile Sources</b>					
Mobile - Base Employee Commute VMT	261.27	12.71	0.00	14.75	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Total	262.74	13.32	0.04	14.89	0.06
<b>Point Sources</b>					
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.10	0.12	0.00	0.01	0.01
Total	0.10	0.12	0.00	0.01	0.01
<b>Grand Total</b>	262.84	13.44	0.05	14.90	0.07

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt C

Installation: LANGLEY AFB

## Emissions Summary Report For 2007

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.34	0.81	0.10	0.07	0.07
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.02	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	2.31	0.06	0.00	0.09	0.00
Other Phase II Const. - Workers Trips	0.05	0.00	0.00	0.00	0.00
Other Phase I Const. - Grading Equip.	0.00	0.00	0.00	0.00	0.00
Total	2.70	0.87	0.10	0.18	0.07
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.11	0.46	0.03	0.10	0.05
Mobile - Base Employee Commute VMT	146.62	8.25	0.00	9.59	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	147.73	8.71	0.03	9.69	0.05
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00
<b>Grand Total</b>	150.42	9.58	0.14	9.87	0.12

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt C

Installation: LANGLEY AFB

## Emissions Summary Report For 2008

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase I Const. - Grading Equip.	0.01	0.03	0.00	0.00	0.00
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.48
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	2.97	7.09	0.88	0.65	0.57
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.14	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	20.17	0.52	0.03	0.76	0.02
Other Phase II Const. - Workers Trips	0.42	0.02	0.00	0.03	0.00
Total	23.58	7.67	0.91	1.58	1.07
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Mobile - Base Employee Commute VMT	280.64	15.10	0.00	17.53	0.00
Total	282.12	15.71	0.04	17.67	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.01	0.02	0.00	0.00	0.00
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.02	0.00	0.00	0.00
<b>Grand Total</b>	<b>305.70</b>	<b>23.40</b>	<b>0.95</b>	<b>19.24</b>	<b>1.13</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt C

Installation: LANGLEY AFB

## Emissions Summary Report For 2009

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase II Const. - Workers Trips	0.09	0.01	0.00	0.01	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.63	1.51	0.19	0.14	0.12
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.03	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	4.28	0.11	0.01	0.16	0.00
Total	5.01	1.62	0.19	0.33	0.13
<b>Mobile Sources</b>					
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Mobile - Base Employee Commute VMT	271.08	13.88	0.00	16.13	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Total	272.55	14.49	0.04	16.27	0.06
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.09	0.11	0.00	0.01	0.01
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.11	0.00	0.01	0.01
<b>Grand Total</b>	<b>277.65</b>	<b>16.22</b>	<b>0.24</b>	<b>16.61</b>	<b>0.20</b>

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: Proposed Action One-Alt C

Installation: LANGLEY AFB

## Emissions Summary Report For 2010

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Mobile Sources</b>					
Mobile - Base Employee Commute VMT	261.27	12.71	0.00	14.75	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	1.48	0.61	0.04	0.14	0.06
Total	262.74	13.32	0.04	14.89	0.06
<b>Point Sources</b>					
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.10	0.12	0.00	0.01	0.01
Total	0.10	0.12	0.00	0.01	0.01
<b>Grand Total</b>	262.84	13.44	0.05	14.90	0.07

## Proposed Action Two: BRAC LSC

U.S. Air Force Air Conformity Applicability Model 4.2.2

Help

SCENARIO: BRAC LSC

INSTALLATION: LANGLEY AFB Inst ID: 380

County: HAMPTON State: VA ZIP Code: 23665 Employees: 11477

Add Aircraft	Description	Yr/Qt	Operation Mode	Quantity	Edit
	Personnel	2008/2	Active Duty	800	
Add Special Facilities	SupFac - BRAC LSC	2007/2		1	Delete

## Commuting Personnel

Personnel Information

Number of Persons Reassigned: 800

Proposed Action Period:

Year: 2008

Quarter: 2

Operating Profile:

Active Duty  
 Training  
 ANG  
 AFRES  
 Civilian

Days/Month: 0

Emission Drivers:

Residential Heating: 0.12 MMBTU/resident/year

Facility Heating: 84000 BTU/sqft

Facility Heating Provided by Central Plant: 0 %

New Employees Living On Base: 0 %

One-Way Commute: 30 miles

Govt VMT: 0 Ann. mi/per

These factors are part of the Base Definition. Editing these factors here will change them in the Base Definition.

## Construction

Construction Information

Construction Description: BRAC LSC

Maximum of 20 characters

No Multi-Family Units: 0  
 No Single-Family Units: 0  
 Sq Ft Commercial/Retail Units: 0 sq. feet  
 Sq Ft Office/Employment Units: 76000 sq. feet

Start Date of Construction:

Year: 2007

Quarter: 2

Phase 1 Information:

Duration of Phase 1: 60 days

Gross Area to be Graded: 6 acres

Phase 2 Information:

Duration of Phase 2: 364 days

Total Acres Paved with Asphalt: 4.19 acres

Are Any of the Following Dust Controls in Place?

Soil Piles:

Covered Or Watered Twice Daily  
 Automatic Sprinkler System Installed  
 No Controls

Exposed Surface/Grading:

Watered Twice Daily  
 Watered with Frequency, Keeping Soil Moist at All Times  
 No Controls

Loads:

At Least 2 Feet of Freeboard  
 Secure Cover  
 No Controls

Truck Hauling Road:

Unpaved and Watered Twice Daily  
 Paved  
 No Controls



# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: BRAC LSC

Installation: LANGLEY AFB

## Emissions Summary Report For 2007

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	5.73
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	4.17	9.95	1.23	0.91	0.80
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.13	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	28.30	0.73	0.04	1.06	0.02
Other Phase II Const. - Workers Trips	0.89	0.05	0.00	0.05	0.01
Other Phase I Const. - Grading Equip.	0.10	0.37	0.04	0.04	0.03
Total	33.47	11.11	1.31	2.20	6.59
<b>Grand Total</b>	33.47	11.11	1.31	2.20	6.59

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: BRAC LSC

Installation: LANGLEY AFB

## Emissions Summary Report For 2008

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Area Sources</b>					
Other Phase II Const. - Workers Trips	0.63	0.04	0.00	0.04	0.01
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	2.93	6.98	0.86	0.64	0.56
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.09	0.00
Other Phase II Const. - Stationary Equip.	19.84	0.51	0.03	0.74	0.02
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00
Total	23.39	7.52	0.89	1.51	0.58
<b>Mobile Sources</b>					
Mobile - Base Employee Commute VMT	84.19	4.53	0.00	5.26	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	2.37	0.98	0.07	0.22	0.10
Total	86.57	5.51	0.07	5.48	0.10
<b>Point Sources</b>					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.14	0.17	0.00	0.01	0.01
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	0.14	0.17	0.00	0.01	0.01
<b>Grand Total</b>	110.09	13.21	0.96	7.00	0.70

# USAF Air Conformity Applicability Model

## Emissions Summary Information

Scenario: BRAC LSC

Installation: LANGLEY AFB

## Emissions Summary Report For 2009

SOURCE CATEGORY	Emissions, Ton/Year				
	CO	NOX	SO2	VOC	PM10
<b>Mobile Sources</b>					
Mobile - Base Employee Commute VMT	162.65	8.33	0.00	9.68	0.00
Mobile - On-Road GOV VMT	0.00	0.00	0.00	0.00	0.00
Off-Road Base Support Vehicles	3.16	1.31	0.10	0.30	0.14
Total	165.81	9.64	0.10	9.97	0.14
<b>Point Sources</b>					
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Other Const. - Facility Heating	0.28	0.34	0.00	0.02	0.02
Total	0.28	0.34	0.00	0.02	0.02
<b>Grand Total</b>	166.09	9.98	0.10	9.99	0.16



**APPENDIX C**  
**FEDERAL AGENCY COASTAL ZONE**  
**MANAGEMENT ACT CONSISTENCY**  
**DETERMINATION**

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## COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

The following statement provides the Commonwealth of Virginia with the U.S. Air Force's Consistency Determination required under CZMA Section 307 and 15 CFR Part 930 (C). The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39. The Air Force has evaluated the potential impacts to the land and water resources of the Commonwealth's coastal zone required under the Virginia Coastal Resources Management Program (VCP).

There are nine enforceable programs included under the VCP for which the Air Force would comply to the maximum extent practicable. Five of these programs are not applicable to either of the Proposed Actions. Specifically, the following programs are not triggered:

- Fisheries Management;
- Subaqueous Lands Management;
- Dunes Management;
- Shoreline Sanitation; and
- Air Pollution Control.

The remaining four programs are applicable to the Air Force's Proposed Actions. They are:

- Wetlands Management;
- Non-Point Source Pollution Control;
- Point Source Pollution Control; and
- Coastal Lands Management.

Steps would be taken during the implementation of the Proposed Actions to be consistent to the maximum extent possible with the four regulatory programs identified above. The following activities would be carried out:

*Wetlands Management* – No adverse consequences are anticipated to wetlands at any of the sites proposed for construction under Proposed Action One, provided sedimentation and erosion control measures are implemented. In contrast, approximately 0.10 acres of wetlands would be affected under Proposed Action Two (Alternative A). A permit from the U.S. Army Corps of Engineers (USACE) Norfolk District and a permit under the Virginia Water Protection Permit Program (VWPPP) would be required. Langley AFB and its contractor would be required to submit a *Permit for Construction in Waters in the Commonwealth and in Wetlands* to satisfy all federal, local, and state requirements. To satisfy Virginia Administrative Code 9 VAC 25-210-115, Langley AFB would need to coordinate with the Virginia Department of Environmental Quality, the City of Hampton, and the Virginia Marine Resources Commission on the Joint Permit Application Review process. In order to implement

Proposed Action Two, a wetland mitigation plan would be developed within 90 days of FONSI/FONPA signature (32 CFR Part 989.22(d)).

*Non-Point Source Pollution Control* – Upland site development associated with initial building and parking lot construction could potentially involve minor sedimentation from land disturbance activities under both Proposed Actions; however, excavation and ground-disturbing activities would be conducted in a manner to control erosion and sedimentation. Proper use of siltation screens and other best management practices would also minimize erosion and sedimentation. The Air Force would follow all the applicable standards specified in Virginia's Erosion and Sediment Control Law, Regulations, and Certification Regulations (4 VAC 50-30-40).

*Point Source Pollution Control* – Langley AFB currently operates under and is in compliance with a VPDES permit administered by Virginia DEQ. The proposed construction at any of the proposed development locations under Proposed Action One would not disturb more than 1 acre of land; therefore, a VPDES General Stormwater Permit would not be required. The proposed location for the LSC under Proposed Action Two would disturb more than 1 acre of land; therefore, a VPDES General Stormwater Permit would be required. Operations under any of the proposed construction projects would not involve a point source emission or affect the status of the base's VPDES permit.

*Coastal Lands Management* – The sites proposed for construction under both Proposed Actions would meet the required general performance criteria under the CBPA (9 VAC 10-20-120) by

- Only disturbing land necessary for the proposed action,
- Preserving indigenous vegetation to the maximum extent practicable,
- Implementing best management practices regarding maintenance,
- Using a plan of development review process consistent with 15.2-2286 A 8 of the Code of Virginia and subdivision 1e of 9 VAC 10-20-231,
- Minimizing impervious cover,
- Managing stormwater consistent with the water quality protection provisions (4 VAC 3-20-71 *et seq.*) of the Virginia Stormwater Management Regulations (4 VAC 3-20),
- Providing evidence of wetland permits required to authorize grading or other on-site activities.



**APPENDIX D**

**INITIAL F-22 OPERATIONAL WING BEDDOWN  
ENVIRONMENTAL IMPACT STATEMENT  
EXCERPTS**

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## ***LA2 LANGLEY AFB, THE PROPOSED ACTION***

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This section details the actions that would occur at Langley AFB, Virginia, and in its associated training airspace if Langley were selected for the beddown of the Initial F-22 Operational Wing.

### ***LA2.1 Langley AFB: Base***

Four elements of this proposed action have the potential to affect Langley AFB. These four elements are (1) drawdown (removal) of F-15Cs and beddown of F-22s, (2) sorties by F-22s, (3) construction, and (4) personnel changes. Each is explained below.

#### **LA2.1.1 Drawdown of F-15Cs/Beddown of F-22s**

Langley AFB, as the proposed action, is the Air Force's preferred location for establishing the first F-22 Operational Wing. Implementing the beddown of the Initial F-22 Operational Wing at Langley AFB would result in the least disruption to overall Air Combat Command (ACC) and Air Force readiness. A total of 72 Primary Aircraft Inventory (PAI) F-22 aircraft, divided into three squadrons of 24 aircraft, would comprise the proposed wing. In addition, each squadron would receive two Backup Inventory Aircraft (BAI) F-22s as replacements for operational aircraft requiring maintenance or otherwise out of service. The F-22 beddown would start in September 2004 with delivery of the first F-22 to the base. By June 2007, when the full complement of 72 F-22s would be at the base, the beddown would be completed.

*PAI consists of the F-22s authorized and assigned to perform the wing's missions. BAI includes F-22s used as substitutes for PAI aircraft undergoing maintenance or otherwise unable to fly.*

The F-22 would replace the 66 PAI and 6 BAI F-15Cs at Langley AFB. Timing of the F-15C replacement would generally match the beddown of F-22s (Table LA 2.1-1), but the F-15Cs would be removed at a slightly faster rate than the beddown of the F-22s. At no time would the combination of F-22s and F-15Cs on base exceed the final total of 72 PAI and 6 BAI (2 BAI in each of the three squadrons) F-22s proposed for the wing.

Langley AFB also supports a few other aircraft types including the F-16 fighter (4) and the C-21 transport (6) for a baseline total of 82 aircraft. Aircraft belonging to the National Aeronautics and Space Administration (NASA) Langley Research Center and various transient aircraft (visitors), including the A-10, B-1, and C-5 also use the airfield. At completion of the beddown, the base would support 88 (PAI and BAI) aircraft and would continue to be used by transients and NASA-Langley Research Center aircraft.



*The Air Force proposes to drawdown Langley AFB's F-15C operational squadrons concurrently with the F-22 beddown.*

<b>Table LA2.1-1. Proposed F-22 Beddown and F-15C Drawdown Schedule: Langley AFB</b>			
<b>Year</b>	<b><i>Based F-15C PAI Aircraft</i></b>	<b><i>F-22 PAI Aircraft</i></b>	<b><i>Total PAI Aircraft</i></b>
Baseline	66	0	66
2004	53	7	60
2005	28	32	60
2006	2	58	60
2007	0	72	72

Note: 1. Totals include only F-15C and F-22 aircraft.

### LA2.1.2 Sorties

Like existing F-15C squadrons at Langley AFB, the operational F-22 squadrons would be integrated into the Air Force's Expeditionary Air Force (EAF) Construct. The EAF Construct grew out of the need for the United States to deploy forces worldwide despite the reduction in United States overseas basing and personnel. Under the EAF, the Air Force has divided its forces into 10 Aerospace Expeditionary Forces (AEFs) and 2 Aerospace Expeditionary Wings (AEWs) to make worldwide deployments more predictable and manageable. An AEF is a "packaged" group of different types of aircraft with a mix of capabilities suited to the tasking to overseas locations for about 90 days. These AEFs consist of wings or squadrons from multiple United States bases, and may operate as a unit or be integrated with other forces overseas. Pre- and/or post-deployment training at locations other than a "home" base also occurs for about another 30 days out of the year. Squadrons or wings are rotated into the AEF program on a 15-month cycle.

The Air Force anticipates that by 2007, the Initial F-22 Operational Wing would fly 11,187 sorties per year from Langley AFB. Based on projected requirements and deployment patterns under the AEF program, the F-22 Operational Wing would fly an additional 5,760 sorties at overseas airfields during deployments, or at other locations for exercises or in preparation for deployments. On average, each squadron (24 PAI aircraft) would be deployed for 120 days per year (90 days AEF and 30 days for pre- or post-AEF training); this equates to a single squadron being deployed all year. In addition, each squadron would participate in training exercises and operate out of another United States or overseas base for an average of one week per year, flying another 333 sorties (or 111 sorties per squadron) at remote locations other than Langley AFB. Some of these missions would involve ordnance delivery training or missile firing at approved ranges such as the Nellis Range Complex in Nevada, Utah Test and Training Range, or Eglin AFB's over-water ranges in the Gulf of Mexico.

*Beddown of F-22s at Langley AFB would result in approximately a 7 percent increase in total sorties.*

The 11,187 F-22 sorties at Langley AFB would represent an increase of 1,251 annual sorties above total baseline levels (Table LA 2.1-2). This approximate 7 percent increase in total sorties occurs because of two factors: six more aircraft (72 F-22s minus the 66 F-15Cs for a total of six more F-22 aircraft) and the increased sortie rate by the

## *Initial F-22 Operational Wing Beddown Draft EIS*

F-22s (20 sorties per aircraft per month) as compared to the lower rate of the F-15C (18 sorties per aircraft per month). After completion of the beddown, the F-22s would perform about 60 percent of total sorties at the base. Currently, F-15Cs account for 57 percent of the total sorties.

<i>Baseline</i>	<i>Sorties</i>	<i>Projected</i>	<i>Sorties</i>
F-15C	9,936	F-22	11,187
Total All Aircraft	17,531 <sup>1</sup>	Total All Aircraft	18,782 <sup>1</sup>

Note: 1. Includes 7,595 sorties by other based and transient aircraft.

The F-22s would employ similar departure, closed patterns, and landing procedures as currently used by the F-15Cs at the base. F-22 operations would adhere to existing restrictions, avoidance procedures, and the quiet-hours program at Langley AFB. However, the F-22's power would allow it to accelerate more quickly to climb speed and throttle back its power sooner (only 2 miles past the departure end of the runway). In contrast, the F-15Cs maintain a higher power setting throughout their climb. Overall, this capability of the F-22 would result in lower noise exposure in the airfield environment as the aircraft takes off.

The F-22 would fly the same percentage (30 percent) of sorties after dark (i.e., about 1 hour after sunset) as the F-15Cs under the Air Force's initiative to increase readiness. Approximately 5 percent (out of the total 30 percent) of the after-dark sorties are expected to occur during environmental night (10:00 pm to 7:00 am), which is identical to the F-15Cs. The rest are expected to occur about 1 hour after sunset. While the percentages of environmental night operations would not change with beddown of operational F-22s, the total annual sorties during this period would increase by 62, or by less than 1 per flying day (260 flying days/year).

The F-15Cs at Langley AFB currently take off with afterburner about 5 percent of the time (personal communication, Day 2000). Historically, this percentage has ranged from as low as 5 percent up to 60 percent, depending on mission requirements and factors such as temperature and humidity. The F-22s are expected to use the afterburner 5 percent of the time or less to take off.

### **LA2.1.3 Construction**

In order to support F-22 operations, additional infrastructure and facilities would be required at Langley AFB (Table LA2.1-3). A total of 26 demolition, construction, modification, or infrastructure improvement projects would be undertaken from 2002 to 2004 (Figure LA2.1-1).

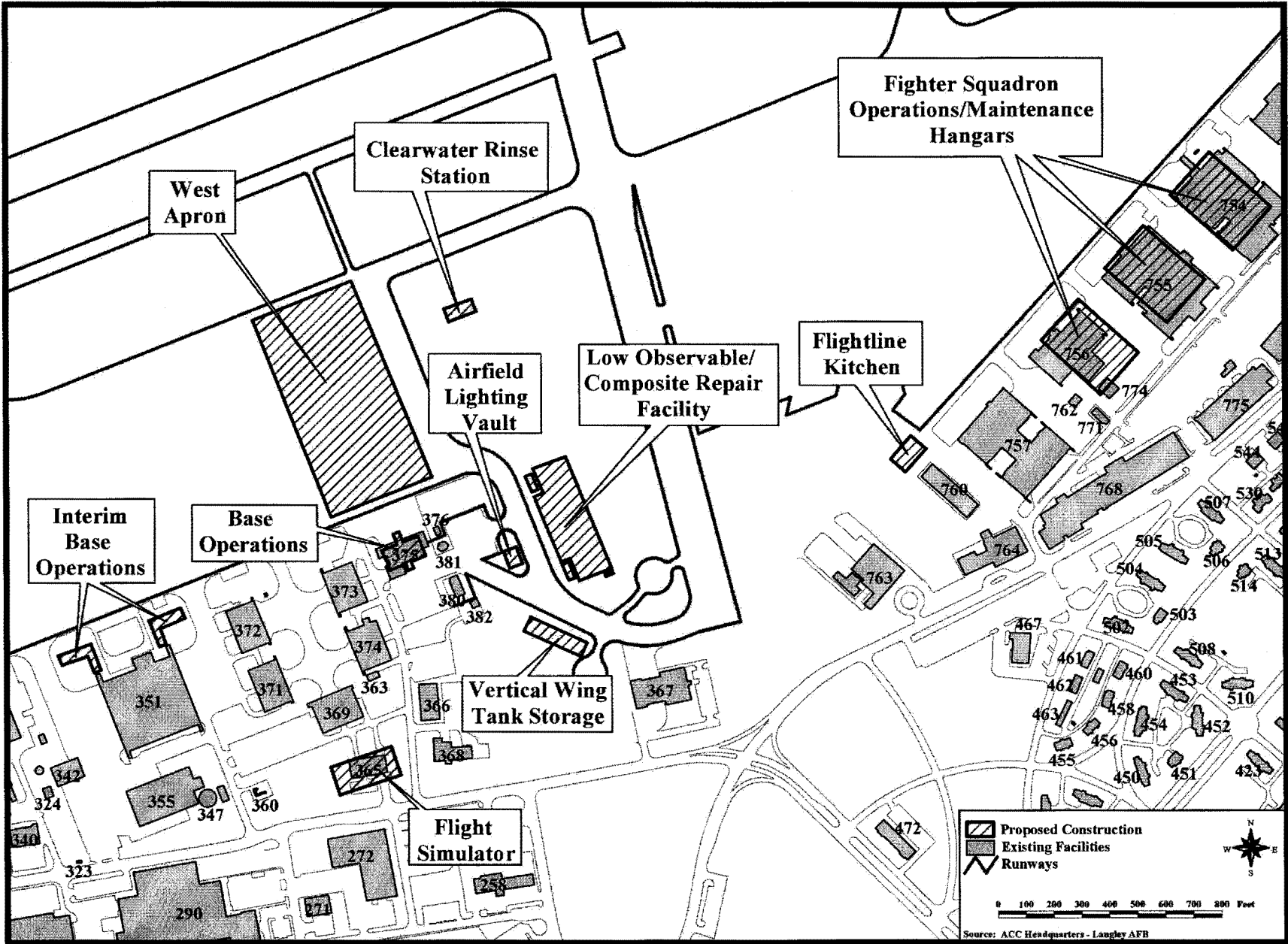


*A sortie is the flight of a single aircraft from takeoff through landing. F-15Cs annually fly 9,936 sorties from Langley AFB.*

*Environmental night (10:00 pm to 7:00 am) is the period when the effects of aircraft noise on people are accentuated.*

<b>Table LA2.1-3. Proposed Construction and Modification for Langley AFB</b>			
<i><b>Year</b></i>	<i><b>Description</b></i>	<i><b>Action</b></i>	<i><b>Affected Area In Acres</b></i>
2002	Fighter Squadron Operations/ Maintenance Hangar	Demolish and Construct	3.26
2002	Base Operations/Weather Building	Construct	0.23
2002	Low Observable Composite Repair Facility	Construct	1.46
2002	Airfield Lighting Vault	Construct	0.05
2002	Flightline Infrastructure	Upgrade	NA
2002	Operations/Logistics Group	Repair	NA
2002	Distinguished Visitor Route Landscape Repair <sup>1</sup>	Repair	NA
2003	Flight Simulator Building (Building 365)	Demolish and Construct	0.09
2003	Flightline Kitchen	Construct	0.18
2003	Fighter Squadron Operations/ Maintenance Hangar	Demolish and Construct	3.26
2003	Aerospace Ground Equipment Fuel Tanks	Construct	0.23
2003	Various Munitions Facilities	Repair	NA
2003	Restripe Airfield Pavements	NA	NA
2003	Hush House Pull Test	NA	NA
2003	Engine Shop	Repair	NA
2003	West Apron	Repair	NA
2003	Storm Drainage System	Repair	NA
2003	Flightline Supply Parts Building	Repair	0.28
2003	Vertical Wing Tank Storage	Construct	0.66
2004	Fighter Squadron Operations/ Maintenance Hangar	Demolish and Construct	3.26
2002/03/04	Associated Utilities/Infrastructure	Construct	2.93
		<b>Total</b>	≈16 acres
<b><i>Proposed Concurrent Non-F-22 Beddown Construction</i></b>			
2004	Hydrant Refueling System – West Apron	Replace and Upgrade	8.6
2004	Clearwater Rinse Station	Construct	0.92

Note: 1. Distinguished Visitor Route improvements include changes to previously disturbed areas.



**Figure LA2.1-1**  
**Proposed Major Construction Projects at Langley AFB**

Most construction would occur between 2002 and 2004. In total, the construction, modifications, repairs, and infrastructure improvements would affect about 16 acres and cost approximately \$98.2 million. Affected acres comprise the total area covered by the construction footprints of the proposed facilities, plus the surrounding lands where construction-related clearing and grading would occur.

Infrastructure upgrades, such as connecting new facilities to water and power systems, would also add to the affected areas on the base. Additionally, other planned military construction activities for current operations would also occur at Langley AFB and would enhance the base's ability to support based aircraft. These projects, planned for 2001, include remodels or upgrades to the Gold Flag, Security Forces, and Armament Facilities.

Demolition of three existing hangars and construction of new hangars and associated facilities represent the most substantial construction projects proposed at Langley AFB. All construction and modification projects would be located near the flightline (refer to Figure LA2.1-1).

Two additional base projects, the Hydrant Fueling System-West Apron and the Clearwater Rinse Station, have been included in the analysis, since they are proposed for construction during the same timeframe as the F-22 program and they provide support to the Langley AFB mission. The Hydrant Fueling System would provide simultaneous refueling capability that is not currently available at Langley AFB. The Clearwater Rinse Station would enhance operations by providing a rinse station in close proximity to the aircraft parking apron.

*Affected acres include the area covered by the footprints of the facilities, plus surrounding lands where construction-related grading and clearing would occur.*

#### LA2.1.4 Personnel Changes



*There would be an approximate 2 percent decrease in personnel at Langley AFB with the beddown of the Initial F-22 Operational Wing.*

Beddown of the F-22 Operational Wing would also require basing sufficient and appropriately skilled personnel to operate and maintain the wing and provide necessary support services. Overall, 1,846 personnel would be required to support the Initial F-22 Operational Wing. For Langley AFB, the F-22 personnel positions would be drawn from the equivalent positions associated with existing F-15C manpower authorizations. As such, total personnel would decrease by 243 due to the almost one-for-one replacement of the F-15Cs (Table LA2.1-4). Fewer personnel, particularly for maintenance, would be needed for the F-22 wing than for an equivalent number of F-15C aircraft. The beddown would occur in three equal phases associated with the establishment of the three squadrons (Table LA2.1-4), starting in September 2004 and ending by June 2007.



**Table LA2.1-4. Proposed Personnel Changes: Langley AFB**

	BASELINE		PROJECTED		<i>Total Change in Personnel</i>	CHANGE PER BEDDOWN PHASE <sup>1</sup>		
	<i>Baseline Personnel F-15C</i>	<i>Baseline Personnel Total</i>	<i>Projected Personnel F-22</i>	<i>Projected Personnel Total</i>		September 2004 –August 2005	September 2005 –June 2006	September 2006 –June 2007
Officer	155	2,047	169	2,061	+14	+4	+5	+5
Enlisted	1,909	6,206	1,598	5,895	-311	-103	-104	-104
Civilian	25	2,441	79 <sup>1</sup>	2,495 <sup>1</sup>	+54	+18	+18	+18
<b>Total</b>	<b>2,089</b>	<b>10,694</b>	<b>1,846</b>	<b>10,451</b>	<b>-243</b>	<b>-81</b>	<b>-81</b>	<b>-81</b>

Note: 1. Includes 54 contractor personnel.

## **LA2.2 Langley AFB: Training Airspace**

### **LA2.2.1 Airspace Use**

As the replacement for the F-15C at Langley AFB, the F-22 would conduct the same missions and training programs as the F-15C (refer to Chapter 2). The Air Force expects that the F-22 would operate in the airspace associated with Langley AFB in a manner similar to the F-15C operational squadrons now using that airspace. All F-22 flight activities would take place in existing airspace; therefore, no airspace modifications would be required for the F-22.

The affected airspace for Langley AFB consists of primary and occasional use airspace (Table LA2.2-1 and Figure LA2.2-1). Primary airspace includes one overland Military Operations Area (MOA) and six offshore Warning Areas (designated with a “W”) that the F-22 would use on a continuing basis for training. Chapter 2 provides definitions of these airspace units. Langley AFB F-15Cs use this primary airspace for 95 percent of their sortie-operations.

*A sortie-operation is the use of one airspace unit by one aircraft.*

Use of the primary airspace, particularly the Warning Areas, is dominated by other aircraft from the Navy (F-14, F-18) and other Air Force (A-10, F-16) units. The Langley AFB F-15Cs account for about 12.5 percent of total sortie-operations in the primary airspace and only contribute 1, 2, and 3 percent of the total sortie-operations in W-107, W-110, and W-122, respectively. W-72 and W-386 receive the most use by the Langley F-15Cs, accounting for 8 and 39 percent of total activities in these airspace units, respectively. All primary airspace lies within the flight distance available during a standard daily training flight.

**Table LA2.2-1. Baseline and Projected Annual Sortie-Operations in Airspace Associated with Langley AFB**

<i>Airspace Unit</i>	<i>Floor (feet)</i>	<i>Ceiling (feet)</i>	<i>Baseline F-15 Use</i>	<i>Total Baseline Use</i>	<i>Projected F-22 Use</i>	<i>Projected Total Use</i>
Primary Airspace						
Farmville MOA	300 AGL	5,000 MSL	555	619	317	849 <sup>1</sup>
W-72	Surface	unlimited	2,640	32,263	3,706	33,329
W-107	Surface	unlimited	29	2,373	41	2,385
W-110	Surface	23,000 MSL	7	298	10	301
W-122	Surface	unlimited	428	14,625	601	14,798
W-386	Surface	unlimited	3,598	9,273	5,512	11,187
W-387	Surface	unlimited	306	1,079	430	1,203
Occasional Use Airspace <sup>2</sup>	NA	NA	407	34,725	571	34,889

Notes: 1. Includes other users as well.

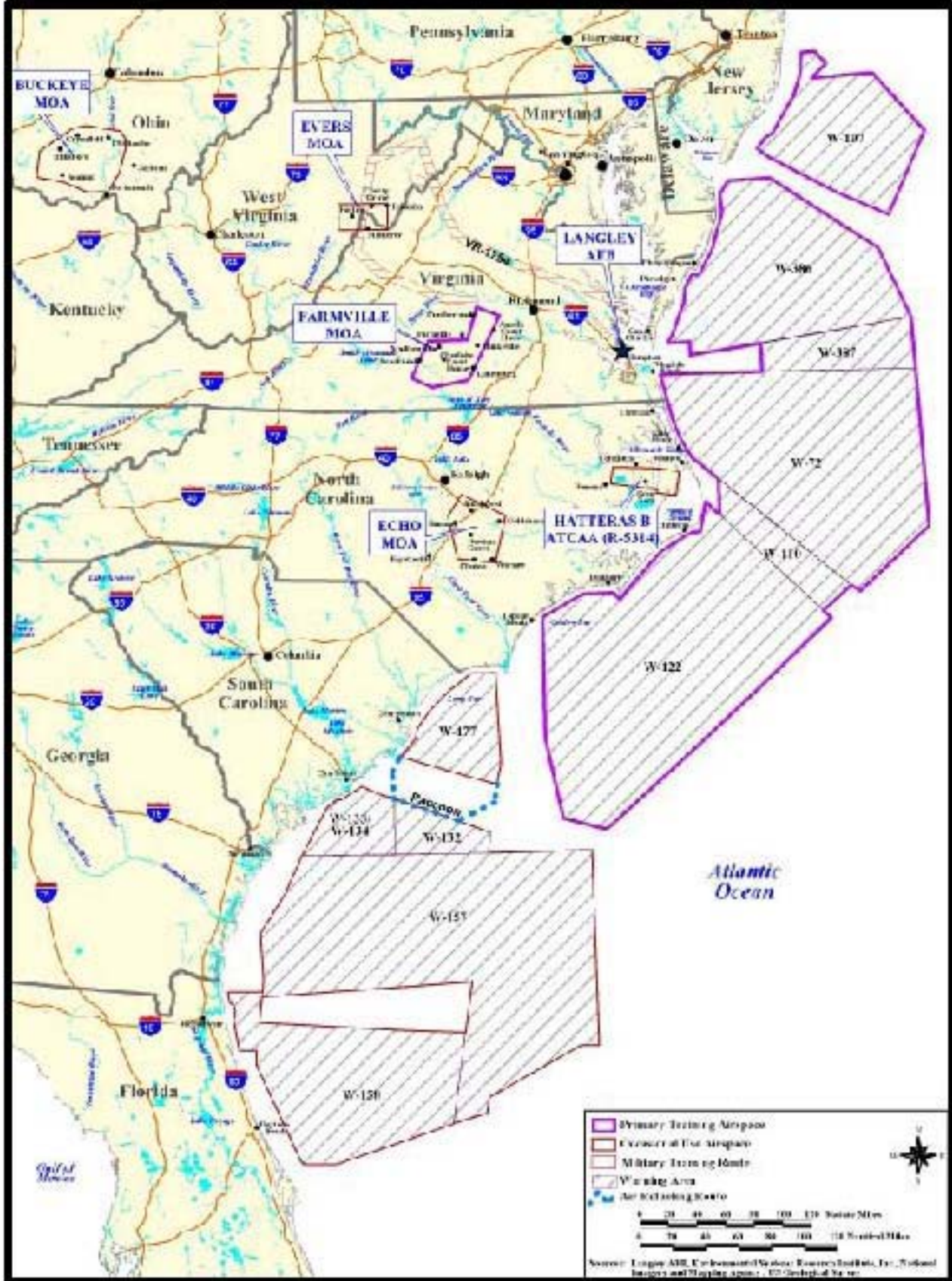
2. Echo MOA, Evers MOA, Buckeye MOA, Hatteras B ATCAA, W-132, W-134, W-157, W-158, W-177, MTR VR-1754, Aerial Refueling Track, and Restricted Airspace over Dare County Range represent occasional use airspace.

Occasional use airspace is composed of a number of MOAs, Air Traffic Control Assigned Airspace (ATCAA), Warning Areas, and other airspace units used rarely (less than 5 percent of sortie-operations) by Langley AFB's F-15Cs when primary airspace is unavailable. These occasional use airspace units consist of Echo, Evers, and Buckeye MOAs; Warning Areas 132, 134, 157, 158, and 177; Hatteras B ATCAA; Restricted Airspace over Dare County Range (R-5314); Military Training Route (MTR) VR-1754; and an Aerial Refueling Track. Use of each of these occasional use airspace units varies from year to year. On average, sortie-operations by F-15Cs from Langley AFB are less than one flight per flying day in each occasional use airspace unit. This pattern of use for primary and occasional use airspace would continue with beddown of the F-22s.

By the completion of the beddown in 2007, total annual sortie-operations would increase above baseline levels in all of the primary airspace units due to F-22 activities. The increase in W-386 would be 21 percent (an additional seven daily sortie-operations. For W-72, W-107, W-122, and W-387, sortie-operations would increase 11 percent or less. Only in W-72 would this add more than one (i.e., 4) daily sortie-operation. Use by the F-22s in W-110 would increase by three sortie-operations annually. In the most heavily used airspace units, W-386 and W-72, F-22 sortie-operations would account for 49 and 11 percent of total sortie-operations, respectively. Navy F-18 and F-14 fighter aircraft would remain the dominant users of most of the primary airspace units associated with the Langley AFB proposed action.

Cumulative sortie-operations in occasional use airspace would increase by 164 annually, or less than 0.5 percent. This amount of activity is less than year-to-year variations in use and would not change any baseline conditions.

Like the F-15C aircraft, the F-22 would fly approximately 90-minute-long missions, including takeoff, transit to and from the training airspace, training activities, and landing. Depending upon the distance and type of training activity, the F-22 would spend between 20 to 60 minutes in the training airspace. In the larger Warning Areas (W-72, W-122, and W-386), the duration of sortie-operations would be longer than in the smaller Farmville MOA. On occasion during an exercise, the F-22 may spend up to 90 minutes in one or a set of Warning Areas.



**Figure LA2.2-1**  
**Primary and Occasional Use Airspace Associated with Langley AFB**

*Altitudes are referred to as MSL when flying above water; while flying over land, both MSL and AGL are used to delineate airspace structure.*

The Navy manages and controls the major Warning Areas where the F-22 would fly. Although the Navy and Air Force would continue to coordinate scheduling and use of these airspace units, Navy activities have historically been given priority. These Warning Areas can accommodate multiple aircraft during a given period and would provide opportunities for the F-22 to train against mock adversaries in dissimilar aircraft.

The F-22 would fly more of the time at higher altitudes than the F-15C (Table LA2.2-2). In the Warning Areas, the F-22 would operate 95 percent of the time above 5,000 feet mean sea level (MSL), with 30 percent of the flight time above 30,000 feet MSL. Due to the lack of visual cues over water, fighter aircraft rarely engage in air-to-air training below 5,000 feet MSL. In the Farmville MOA, all flight activity would occur below 5,000 feet above ground level (AGL). The F-22 would conduct 317 annual sortie-operations in the Farmville MOA, or 238 fewer than the F-15Cs.

<b>General F-15 and F-22 Altitude Use</b>		
<b>Altitude (feet)</b>	<b>Percent of Flight Hours: F-15C</b>	<b>Percent of Flight Hours: F-22</b>
>30,000 <sup>1</sup>	8%	30%
10,000-30,000	67%	50%
5,000-10,000	14%	15%
2,000-5,000	8%	3.75%
1,000-2,000	2.75%	1%
500-1000	0.25%	0.25%

Note: 1. Operations by F-22s would emphasize use of higher altitudes more often than F-15Cs.

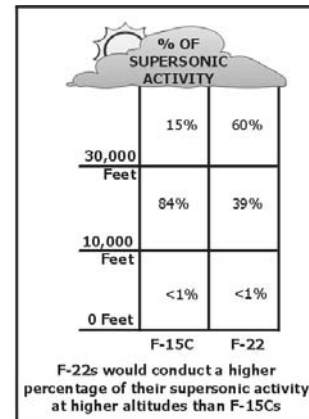
<b>Airspace Unit</b>	<b>PERCENT TIME OF AVERAGE SORTIE-OPERATION (FEET)</b>					<b>Supersonic Authorized</b>
	<b>500' - 1,000</b>	<b>1,000 - 5,000</b>	<b>5,000 - 10,000</b>	<b>10,000 - 30,000</b>	<b>&gt; 30,000</b>	
Farmville MOA	12.5/0.25	87.5/99.25	NA	NA	NA	No
W-72	0/0	11/5	14/15	67/50	8/30	Yes
W-107	0/0	11/5	14/15	67/50	8/30	Yes
W-110	0/0	11/5	14/15	75/80	0/0	Yes
W-122	0/0	11/5	14/15	67/50	8/30	Yes
W-386	0/0	11/5	14/15	67/50	8/30	Yes
W-387	0/0	0/0	0/0	92/70	8/30	Yes

Note: 1. F-15Cs and F-22s will not fly below 1,000 feet MSL while over water in Warning Areas per Air Force Instructions and safety requirements.

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The F-22 would, on average, fly the same percent of time (30 percent) after dark as the F-15Cs currently using the airspace. Approximately 5 percent of this activity would continue to occur during environmental night (10:00 pm to 7:00 am). Other users of the airspace units, particularly the Warning Areas, fly about 80 percent of the environmental night sortie-operations.

To train with the full capabilities of the aircraft, the F-22 would employ supersonic flight at altitudes and within airspace already authorized for such activities. Supersonic flight during air combat training would be performed in the Warning Areas but not in the MOAs. Due to the F-22's mission and the aircraft's capabilities, the Air Force anticipates that approximately 25 percent of the time spent in air combat training would involve supersonic flight. Most (>99 percent) supersonic flight would be conducted above 10,000 feet MSL, with 60 percent occurring above 30,000 feet MSL. Supersonic flight could occur infrequently (<1 percent) below 10,000 feet MSL in the over-water Warning Areas. In comparison, the F-15Cs commonly conduct supersonic flight about 7.5 percent of the time in air combat maneuvers; such flights are predominantly (84 percent) performed between 10,000 and 30,000 feet MSL. Within the Warning Areas, Navy F-14 and F-18, as well as Air Force F-16 fighter aircraft would continue to conduct training involving supersonic flight. The increased activity by the F-22s is not expected to change the amount of supersonic flight by other users.



*Due to its increased capabilities, the F-22 would operate at supersonic speeds more often than the F-15C.*

Among the occasional use airspace units, only within the Warning Areas (W-132, W-134, W-157, W-158, and W-177) could F-22s perform supersonic flight. Given the minimal number of F-22 sortie-operations potentially occurring in these airspace units, the increased supersonic activity would be negligible.

**LA2.2.2 Defensive Countermeasures**

Like the F-15C, the F-22 would employ chaff and flares as defensive countermeasures in training. Chaff and flares are the principal defensive mechanisms dispensed by military aircraft to avoid detection or attack by enemy air defense systems. Because of evolving tactics and mission scenarios, the F-22 is expected to use fewer defensive countermeasures (i.e., chaff and flares) per sortie, due to its stealth characteristics. However, because the F-22 is so new, this reduction in chaff and flare use cannot be defined yet. For the purposes of this analysis, it is estimated that the expenditure of chaff and flares by the F-22s would match that of F-15Cs on a per sortie basis. Chapter 2, section 2.1.2, provides details on the composition and characteristics of chaff and flares.

Chaff and flares would be used in the six primary Warning Areas, but not in the Farmville MOA. Current restrictions prohibit such use in the MOA; no restrictions on the amount or altitude of use apply in the Warning Areas. Under the proposed action at Langley AFB, F-22s would use up to 41,951 bundles of chaff and 22,374 flares per year (in 2007 and after) in the Warning Areas. These levels of use would represent an increase of 4,701 bundles of chaff and 2,501

	Chaff	Flares
F-15C	37,250	19,873
F-22	41,951	22,374
Change	+4,701	+2,501

flares annually over baseline F-15C use. The amount of chaff and flares used in each Warning Area would be proportional to the number of sortie-operations conducted by the F-22s. Based on the emphasis on flight at higher altitudes for the F-22, roughly 80 percent of F-22 chaff and flare releases throughout the Warning Areas would occur above 10,000 feet MSL. At this altitude, chaff would disperse over a very wide area. Most flares would be released more than 14 times higher than the minimum altitude required (700 feet) to ensure complete consumption.

### ***LA2.3 Permits and State Consultation***

Langley AFB operates under agreements with a series of environmental permitting agencies for such resources as air, water, and historic resources. The permit to operate Langley AFB in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board Regulation (July 26, 1999) permit (I.D. No. 650-00007; Registration No. 60059) would need to be amended to allow for the proposed construction and modification of facilities related to the F-22 beddown. Normally a base such as Langley AFB would be considered a major source. The permit that Langley AFB holds is known as a Synthetic Minor Operating permit. The base agrees to limit emissions to below 100 tons per year for each criteria pollutant and agrees to institute controls in order to keep within this limit. No initiation of any construction that would create new emissions is allowed before the new permit application is approved. The Virginia Department of Environmental Quality (DEQ) is allowed 90 days to review the permit application. Hazardous air pollutants (HAPs) listed under Title III of the Clean Air Act (CAA) would also need to be addressed in the permit application.

Langley AFB would also amend its Virginia Pollutant Discharge Elimination System (VPDES) permit that limits the concentrations and quantities of pollutants in water. Because the area of construction is over five contiguous acres two permits would be required – a permit to construct and a permit to operate. The application must include proof of proper operation and maintenance of facilities, discharge monitoring, record keeping, and reporting of data to Virginia DEQ. The facility must be open to inspections. Runoff must not create any water quality standards violations. In addition, the Hampton Roads Sanitation District requires a permit for new construction. Langley AFB would be responsible for maintaining compliance with all standards and monitoring requirements in its Hampton Roads Sanitation District Industrial Wastewater Discharge Permit.

Langley AFB also consults with the Virginia Department of Historic Resources for a review of effects to resources on the National Register of Historic Places (or National Register-eligible resources) under Section 106 of the National Historic Preservation Act, for the proposed demolition of hangars and construction of new facilities and structures.

The Air Force may also need to consult with the United States Environmental Protection Agency (USEPA), Region III, and Virginia DEQ regarding proposed construction near Environmental Restoration Program sites on Langley AFB.

### ***LA2.4 Public and Agency Concerns***

In order to ensure maximum opportunity for community dialogue, scoping was conducted in two distinct phases. Eighty-seven people attended the Phase-One and Phase-Two scoping meetings for Langley AFB. The Phase-One scoping meeting was held in Hampton, Virginia, on March 30, 2000.

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The Phase-Two scoping meetings were held in Hampton, Virginia (July 17); Manteo, North Carolina (July 18); and Parksley and Farmville, Virginia, on July 19 and 20, respectively. Fifteen written comments were received from the public and agencies prior to close of the scoping period.

During the scoping meetings, people were given the opportunity to ask questions and provide comments on the Initial F-22 Operational Wing beddown proposal. Some of the questions include:

- Is the noise output of the F-22 less than the F-15? (see section LA3.2)
- Why is Langley preferred over the other bases? (see Chapter 2)
- Does the Air Force have an idea of the number of alternatives they'll analyze? (see Chapter 2)
- How many F-22s will the Air Force eventually get? (depends on United States' needs)
- Are you going to let us know the noise abatement and changes in zoning that may occur? (existing abatement procedures; see section LA3.12)
- Will changes to flight patterns result due to basing the F-22 at Langley AFB? (the F-22 will follow the same basic flight tracks of the F-15C; see section LA2.1.2)
- Will F-22 basing require a change in ordnance being flown from Langley AFB? (see Chapter 2, section 2.1.2)
- When will Air Force incorporate actual noise data from a production engine? (best available data used; see section LA3)
- Will there be an increase in night sorties because of the F-22's multi-role capabilities? (see section LA2.1.2)
- What is the manpower requirement for the three F-15 squadrons? (see section LA2.1.4)
- Will this aircraft change the crash-zones from those currently existing? (changes to safety zones are not anticipated; see section LA3.4.1)
- Will fuel be dumped in flight? (the F-22 does not have the ability to dump fuel; see section LA3.4.1)
- Will there be fewer staff on hand to maintain the F-22 compared to the F-15? (see section LA2.1.4)
- Will the EIS project the number of sorties for the F-22 compared to the F-15? (see section LA2)
- How much revenue will the F-22 generate in the Hampton/Newport News area? (see section LA3.13)

- Who will make the decision and do the local communities have any say in this? (one way local communities provide input to the Air Force decisionmaker is by providing comments during the environmental process; refer to the Preface)



the federal airways, jet routes, and other corridors throughout this coastal region. Therefore, since the proposed beddown represents a continuation of current activities with only minor increases in sortie-operations, no adverse impacts in airspace use and management would be expected.

### ***Comparative Summary of the Five Potential Basing Locations***

Airspace management for the training airspace associated with all five beddown locations would be unchanged as a result of the F-22 beddown. There would be no substantive differences in the consequences at any of the five locations to airspace management.

### ***LA3.2 Noise***

Within this Draft EIS, noise is described by the sound level. Sound level is the amplitude (level) of the sound that occurs at any given time. When an aircraft flies by, the level changes continuously, starting at the ambient (background) level, increasing to a maximum as the aircraft passes closest to the receptor, and then decreasing to ambient as the aircraft flies into the distance. Sound levels are on a logarithmic decibel scale; a sound level that is 10 decibels (dB) higher than another will be perceived as twice as loud. More specific noise metrics include Maximum Sound Level ( $L_{max}$ ), the Sound Exposure Level (SEL), Day-Night Average Sound Level (DNL), and Onset-Rate Adjusted Monthly Day-Night Average Sound Level ( $L_{dnmr}$ ). A-weighted levels are used for subsonic aircraft noise, and C-weighted levels are used for sonic booms and other impulsive noises. A “C” is included in the symbol to denote when C-weighting is used. Each of these metrics is summarized below and discussed in detail in Appendix AO-1.

- Maximum Sound Level ( $L_{max}$ ) is used to define maximum noise levels.  $L_{max}$  is the highest sound level measured during a single aircraft overflight. For an observer, the noise level starts at the ambient noise level, rises up to the maximum level as the aircraft flies closest to the observer, and returns to the ambient level as the aircraft recedes into the distance.
- Sound Exposure Level (SEL) accounts for both the maximum sound level and the length of time a sound lasts. SEL does not directly represent the sound level heard at any given time. Rather, it provides a measure of the total sound exposure for an entire event averaged over 1 second.
- Day-Night Average Sound Level (DNL) is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a 24-hour period to represent total noise exposure. DNL also accounts for more intrusive night time noise, adding a 10 dB penalty for sounds after 10:00 pm and before 7:00 am. DNL is the appropriate measure to account for total noise exposure around airfields such as Eglin AFB.
- Onset-Rate Adjusted Monthly Day-Night Average Sound Level ( $L_{dnmr}$ ) is the measure used for subsonic aircraft noise in military airspace (MOAs or Warning Areas). This metric accounts for the fact that when military aircraft fly low and fast, the sound can rise from ambient to its maximum very quickly. Known as an onset-rate, this effect can make noise seem louder due to the added “startle” effect. Penalties of up to 11 dB are added to account for this onset-rate.

- C-Weighted Day-Night Sound Level (CDNL) is day-night sound levels computed for areas subjected to sonic booms. These areas are also subjected to subsonic noise assessed according to  $L_{dnmr}$ .

Comments received during scoping placed special emphasis on a comprehensive presentation of noise effects. Aircraft noise effects can be described according to two categories: annoyance and human health considerations. Annoyance, which is based on perception, represents the primary effect associated with aircraft noise. Far less potential exists for effects on human health. Appendices AO-1 and AO-2 provide detail on these effects and the studies used to identify them.

Studies of community annoyance to numerous types of environmental noise show that DNL correlates well with effects, and Schultz (1978) showed a consistent relationship between noise levels and annoyance. A more recent study reaffirmed and updated this relationship (Fidell *et al.* 1991). The updated relationship, which does not differ substantially from the original, is the current preferred form.

In general, there is a high correlation between the percentages of groups of people highly annoyed and the level of average noise exposure measured in DNL. The correlation is lower for the annoyance of individuals. This is not surprising considering the varying personal factors that influence the manner in which individuals react to noise. The inherent variability between individuals makes it impossible to predict accurately how any individual will react to a given noise event. Nevertheless, findings substantiate that community annoyance to aircraft noise is represented quite reliably using DNL.

<b>Relation Between Annoyance and DNL</b>	
<b><i>DNL</i></b>	<b><i>% Population Highly Annoyed</i></b>
65	12.3
70	22.1
75	36.5
80	53.7
85	70.2

In addition to annoyance, the effect of noise on human health was raised during the public scoping process for this Draft EIS. Other factors that can be used to evaluate a noise environment are noise-induced hearing loss, speech interference, and sleep disturbance. Effects on speech and sleep also contribute to annoyance.

A considerable amount of data on hearing loss have been collected and analyzed. It has been well established that continuous exposure to high noise levels (such as that occurring in a factory) will damage human hearing (USEPA 1978). Hearing loss is generally interpreted as the shifting to a higher sound level of the ear's sensitivity to perceive or hear sound (sound must be louder to be heard). This change can be either temporary or permanent. Federal workplace standards for protection from hearing loss allow an A-weighted time-average level of 90 dB over an 8-hour work period, or 85 dB averaged over a 16-hour period. As shown later in this section, noise levels associated with the activities of the F-22s would be more than 30 dB below these standards. In a MOA or Warning Area, the operations are random and widely dispersed. The random nature of operations and the wide altitude structure within the MOA make it unlikely that any one location would be repeatedly overflowed over a short duration.

Studies on community hearing loss from exposure to aircraft flyovers near commercial airports showed that there is no danger, under normal circumstances, of hearing loss due to aircraft noise (Newman and Bettie 1985). Commercial airport traffic is much more continuous and frequent than

at a military airfield and also commonly lower in altitude than flights in MOAs or Warning Areas. In Warning Areas and MOAs, military aircraft fly at varied altitudes, rarely fly over the same point on the ground repeatedly during a short period, and occur sporadically over a day. These factors make it unlikely that any hearing loss would occur (Thompson 1997). Other factors, described in Appendix AO-1, demonstrate the lack of potential hearing loss from the F-22 beddown.

Another non-auditory effect of noise is disruption of conversations. Speech interference associated with aircraft noise is a primary cause of annoyance to individuals on the ground. Aircraft noise can also disrupt routine activities, such as radio listening, television watching, or telephone use. The disruption generally lasts only a few seconds, and almost always less than 10 seconds. It is difficult to predict speech intelligibility during an individual event, such as a flyover, because people automatically raise their voices as background noise increases. A study (Pearsons *et al.* 1977) suggests that people can communicate acceptably in background A-weighted noise levels of 80 dB but some speech interference occurs when background noise levels exceed 65 dB. Typical home insulation reduces the noise levels experienced by 20 dB or more, which decreases speech interference.

Noise-related awakenings form another issue associated with aircraft noise. Sleep is not a continuous, uniform condition but a complex series of states through which the brain progresses in a cyclical pattern. Arousal from sleep is a function of a number of factors including age, gender, sleep stage, noise level, frequency of noise occurrences, noise quality, and presleep activity. Quality sleep is recognized as a factor in good health. Although considerable progress has been made in understanding and quantifying noise-induced annoyance in communities, quantitative understanding of noise-induced sleep disturbance is less advanced.

Studies (Fidell *et al.* 1994; Pearsons *et al.* 1995; Kryter 1984) of the effects of nighttime noise exposure on the in-home sleep of residents near military airbases, civil airports, and in several households with negligible nighttime aircraft noise exposure, revealed the SEL as the best noise metric predicting noise-related awakenings and a strong influence of habituation on susceptibility to noise-induced sleep disturbance.

To date, no exact quantitative dose-response relationship exists for noise-related sleep interference. Yet, based on studies conducted to date and the USEPA guideline of a 45 DNL to protect sleep interference, useful ways to assess sleep interference have emerged. If homes are conservatively estimated to have a 20-dB noise insulation, an average of 65 DNL would produce an indoor level of 45 DNL and would form a reasonable guideline for evaluating sleep interference. This also corresponds well to the general guideline for assessing speech interference.

### LA3.2.1 Base

#### ***Affected Environment***

Langley AFB has supported operations by a wide variety of aircraft throughout its 83-year history. These aircraft have ranged from World War I biplanes and World War II bombers to the current F-15C fighters. Other aircraft currently operating out of Langley AFB include F-16 fighters, C-21 transports, and aircraft used by the NASA-Langley Research Center on base. Because the mix of based and transient (visiting) aircraft using Langley AFB has varied over the years, the shape and extent of areas affected by aircraft noise has also varied.

Since the beddown of the F-15Cs at Langley AFB, the noise conditions have remained consistent over the years. Aircraft realignments, F-15 model upgrades, and requirements of national defense constitute minor changes at various points in time; however, general trends have been maintained. Noise levels experienced today are the same levels expected under a no-action decision, where no F-22s would be based at Langley AFB. The baseline noise levels, expressed as Day-Night Average Sound Levels (DNL), were modeled based on operations as they occur today – aircraft types, runway use patterns, engine power settings, altitude profiles, flight track locations, airspeed, and other factors. Appendices AO-1 and AO-2 present further information on noise metrics and the methods used for defining airfield noise levels.

*DNL, or Day-Night Average Sound Level, is the most widely accepted metric for assessing airfield noise.*

Air Force requirements for flying at night (i.e., after dark) are normally met during seasons (like winter) with early sunsets. This practice limits the amount of late night flight operations to the maximum extent possible. Langley AFB operates under a program designed to reduce noise, particularly at night. A local quiet-hours program is employed between the hours of 10:00 pm and 6:00 am to limit disturbance. F-15C environmental night operations after 10:00 pm and before 7:00 am are infrequent and account for only 5 percent of total activity at the airfield. These operations are typically composed of arrivals (i.e., aircraft returning to the base). In addition, the base uses the runway that directs air traffic departures over the water east of the base.

To identify the areas affected by noise, a program known as NOISEMAP is used to generate noise contours. This program depicts noise levels ranging from 65 to 85 DNL or greater in 5 dB increments. Table LA3.2-1 and Figure LA3.2-1 present the baseline noise conditions for Langley AFB. These contours take into account Langley’s attempt to reduce noise disturbances through such actions as minimizing night flying, avoiding flights over heavily populated areas, and use of jet engine noise suppressors for many maintenance activities.

<b>Table LA3.2-1. Acreage Under Baseline Noise Contours in the Vicinity of Langley AFB</b>			
<b>Noise Contour (DNL)</b>	<b>Acres Affected: On Base</b>	<b>Acres Affected: Off Base<sup>1</sup></b>	<b>Acres Affected: Total</b>
65-70	574	6,478	7,052
70-75	620	3,038	3,658
75-80	433	1,256	1,689
80-85	388	291	679
>85	684	6	690
<b>Total</b>	<b>2,699</b>	<b>11,069</b>	<b>13,768</b>

Note: 1. Off-base acreage includes both land and water.

Noise levels of 65 DNL or greater affect both on-base and off-base lands. Most (80 percent) of the affected area lies off base, but 44 percent of this off-base area consists of water. Section LA3.12, Human Resources, describes the land use implications of these noise levels.

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Noise due to construction and maintenance equipment, as well as general vehicle traffic is a common, ongoing occurrence in the base environment. Existing, continuing military construction projects are currently in progress at Langley AFB. Trucks, as well as heavy equipment, are usually found in the base environment on a daily basis to support these existing facility and infrastructure upgrades.

*Public scoping concerns included differences in noise generation of the F-22 compared to the F-15C and the effect of noise increases on the surrounding communities.*

***Environmental Consequences***

Under the proposed action, the area affected by noise levels of 65 DNL or greater would decrease by approximately 366 acres (see Table LA3.2-2 and refer to Figure LA3.2-1). This decrease results from an approximate 1,200-acre reduction in the area affected by noise levels of 65 to 75 DNL; however, there would be an approximate 800-acre increase in the area affected by noise levels greater than 75 DNL.

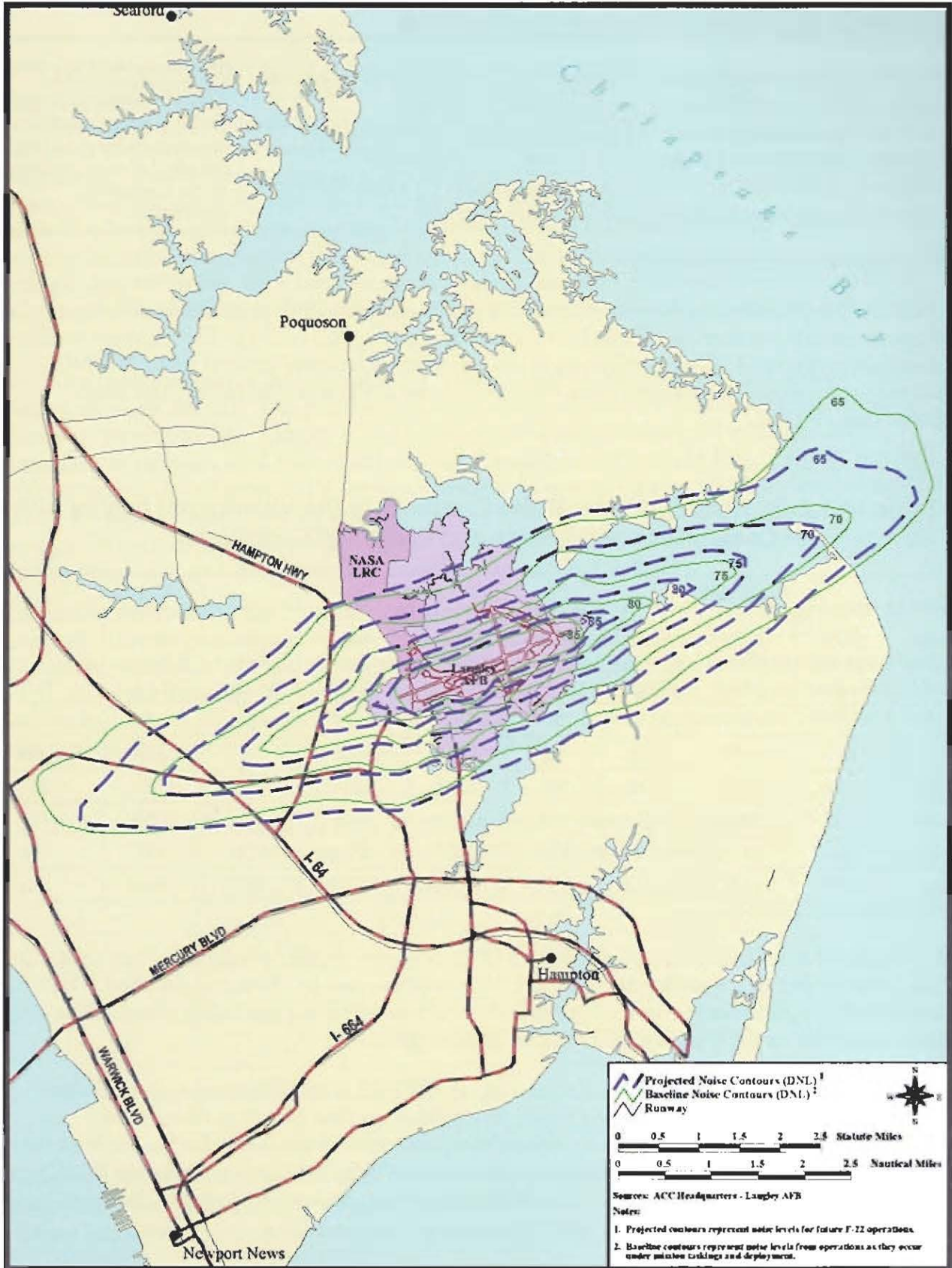
**Table LA3.2-2. Acreage Under Noise Contours in the Vicinity of Langley AFB  
Comparison of Baseline and Projected Conditions**

<i>Noise Contour (DNL)</i>	<b>BASELINE</b>			<b>PROJECTED</b>			<b>CHANGE</b>		
	<i>Acres Affected: On Base</i>	<i>Acres Affected: Off Base<sup>1</sup></i>	<i>Acres Affected: Total</i>	<i>Acres Affected: On Base</i>	<i>Acres Affected: Off Base<sup>1</sup></i>	<i>Acres Affected: Total</i>	<i>Acres Affected: On Base</i>	<i>Acres Affected: Off Base<sup>1</sup></i>	<i>Acres Affected: Total</i>
65-70	574	6,478	7,052	507	5,457	5,964	-63	-1,021	-1,084
70-75	620	3,038	3,658	622	2,928	3,550	+2	-110	-108
75-80	433	1,256	1,689	508	1,548	2,056	+75	+292	367
80-85	388	291	679	402	576	978	+14	+285	299
>85	684	6	690	811	39	850	+127	+33	160
<b>Total</b>	<b>2,699</b>	<b>11,069</b>	<b>13,768</b>	<b>2,850</b>	<b>10,548</b>	<b>13,398</b>	<b>155</b>	<b>-521</b>	<b>-366</b>

Note: 1. Includes off-base land and water acres.

At Langley AFB, off-base areas subjected to 65 DNL or greater would be reduced by 521 acres. On base, areas subjected to noise levels above 65 DNL would increase by 155 acres. Section LA3.12 describes the implications for the changes in land use affected by noise (excluding water). Overall, noise conditions on the ground would not change perceptibly.

Three factors cause this reduction in affected area: (1) the F-22 accelerates more quickly to climb speed; (2) the F-22 is able to set a lower power level sooner than the F-15C on takeoff and, therefore, the F-22 would generate more noise closer to the runway and less noise further from the runway (i.e., over the areas surrounding Langley AFB); and (3) the F-22 (compared to the F-15C) would require fewer maintenance activities where the engine is run at varying speeds along the flightline.



**Figure LA3.2-1  
Baseline and Projected Noise Contours at Langley AFB**

Short-term noise increases due to construction and renovation, as well as infrastructure (stormwater and electric lines) installment and realignment would occur. Construction occurs in stages, the earlier stage entails trucks, bulldozers, and other heavy construction equipment for the major construction projects (e.g., hangars, apron). This stage of construction would be temporary and isolated. Most of these projects would be undertaken adjacent to the flightline, occupy industrial areas, and be isolated from any off-base communities. In addition, construction would take place during daylight hours and would follow best management practices to minimize noise to any off-base receptors. Construction noise would be contained within base environs since most heavy construction would occur near the flightline, where noise would be compatible with ongoing activities.

### ***Comparative Summary of the Five Potential Basing Locations***

Langley and Elmendorf have the least potential for noise environmental consequences among the basing locations. The total off-base area affected by noise levels of 65 DNL or greater decreases by 366 acres at Langley, and at Elmendorf, the off-base affected area increases by 607 acres, but essentially all of it overlies military land or water. Although the affected area would increase by 3,875 acres at Tyndall and 2,455 acres at Mountain Home, respectively, the effects on off-base lands would be negligible: most of the area outside Tyndall is water, and at Mountain Home, the lands are used for grazing/agriculture. Increases of 1,623 acres at Eglin would, however, affect 123 acres of residential land use.

## **LA3.2.2 Airspace**

### ***Affected Environment***

Within MOAs and Warning Areas, subsonic flight can either be dispersed and randomly occurring or, due to either airspace configuration or training scenarios, it may be concentrated or channeled into specific areas or corridors. The Air Force has developed the MOA-Range NOISEMAP (MR\_NMAP) computer program (Lucas and Calamia 1996) to calculate subsonic aircraft noise in these areas. MR\_NMAP can calculate noise for both random operations and operations channeled into corridors. MR\_NMAP is supported by measurements in several military airspaces (Lucas *et al.* 1995). The affected airspace for Langley AFB includes MOAs and Warning Areas in which random aircraft operation is the norm.

The primary noise metric calculated by MR\_NMAP and used in this assessment is DNL (also known as  $L_{dn}$  or, by extension,  $L_{dnmr}$ ). DNL has been computed for each of the seven primary airspace units for baseline or no-action and for the proposed action. As discussed in Appendix AO-2, this cumulative DNL metric represents the most widely accepted method of quantifying noise impact. However, it does not provide an intuitive description of the noise environment. People often desire to know what the loudness of an individual aircraft will be; MR\_NMAP and its supporting programs can provide the  $L_{max}$  (Table LA3.2-3) and SEL (Table LA3.2-4) that account for both the duration and intensity of noise events for individual aircraft at various distances and altitudes. The  $L_{max}$  indicates the noise that would be heard by an individual the instant an aircraft flies overhead. SELs reflect the noise levels of a flyover, including

*$L_{dnmr}$  is the monthly average Onset-Rate Adjusted Day-Night Average Sound Level (DNL). Noise levels are calculated the same way for both DNL and  $L_{dnmr}$ . For this Draft EIS, all noise levels were interpreted using  $L_{dnmr}$ . However, to enhance readability, these noise levels will be referred to as DNL throughout the document.*

the maximum level, averaged over 1 second as the aircraft approaches and departs. Both measures are described in Appendix AO-2.

**Table LA3.2-3. Representative A-Weighted Instantaneous Maximum ( $L_{max}$ ) in dB Under the Flight Track for the Aircraft at Various Altitudes in the Primary Airspace<sup>1</sup>**

			ALTITUDE IN FEET ABOVE GROUND LEVEL						
<i>Aircraft Type</i>	<i>Airspeed (Knots)</i>	<i>Power Setting<sup>2</sup></i>	<i>300</i>	<i>500</i>	<i>1,000</i>	<i>2,000</i>	<i>5,000</i>	<i>10,000</i>	<i>20,000</i>
F-15C	520	81% NC	119	114	107	99	86	74	57
F-22 <sup>3</sup>	520	70% ETR	120	116	108	99	85	71	54
F-16A	450	87% NC	112	108	101	93	80	67	50
F-18A	500	92% NC	120	116	108	99	85	71	54
F-14A	530	100% NC	115	111	103	94	80	67	51
B-1B	550	101% RPM	117	112	106	98	86	75	61

- Note: 1. Level flight, steady high-speed conditions.  
 2. Engine power setting while in a MOA. The type of engine and aircraft determines the power setting: RPM = rotations per minute, NC = percent core RPM, and ETR = engine throttle ratio.  
 3. Projected based on F-22 composite aircraft.

**Table LA3.2-4. Sound Exposure Levels (SEL) in dB Under the Flight Track for Aircraft at Various Altitudes in the Primary Airspace<sup>1</sup>**

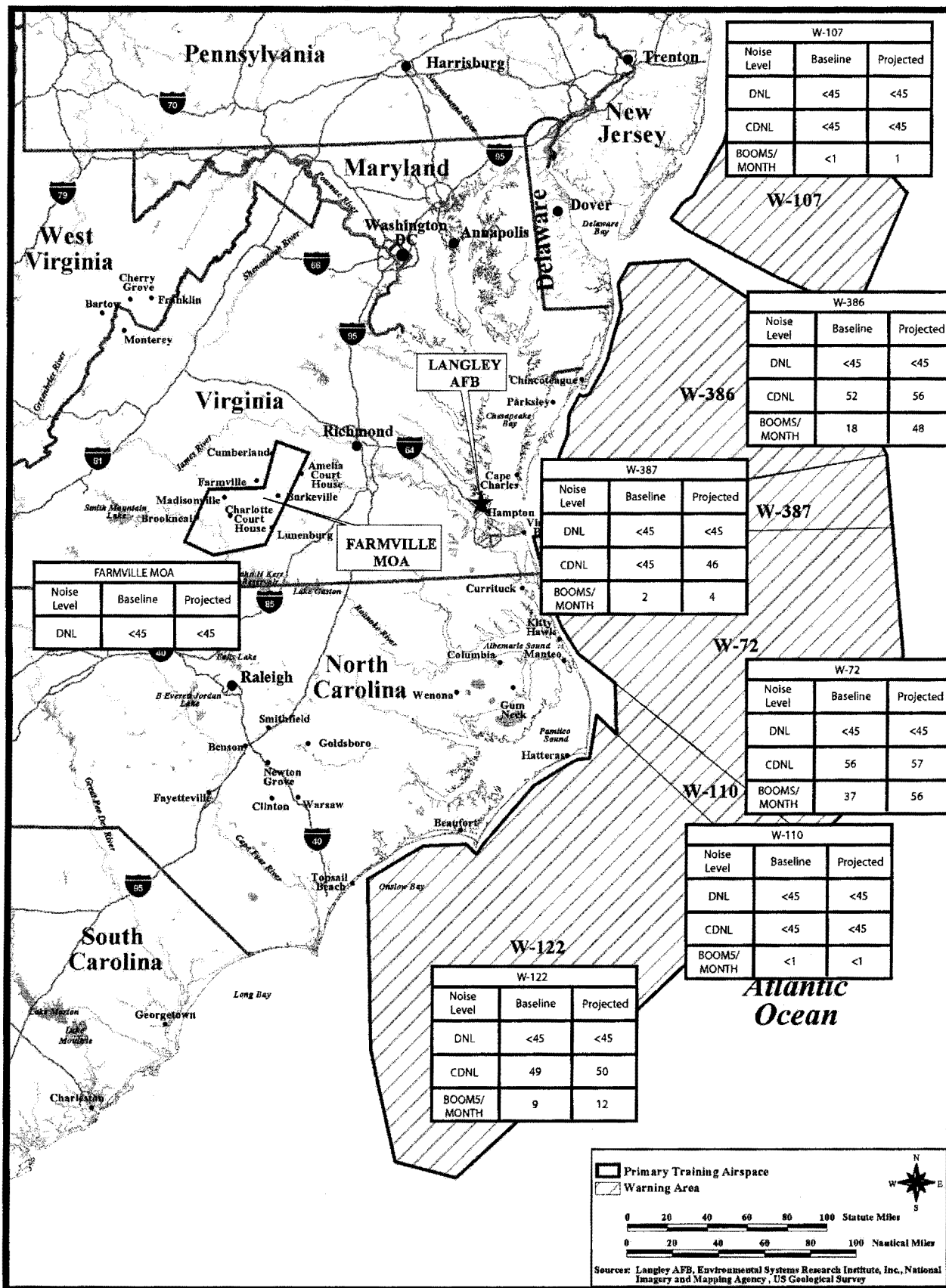
		ALTITUDE IN FEET ABOVE GROUND LEVEL						
<i>Aircraft Type</i>	<i>Airspeed (Knots)</i>	<i>300</i>	<i>500</i>	<i>1,000</i>	<i>2,000</i>	<i>5,000</i>	<i>10,000</i>	<i>20,000</i>
F-15C	520	116	112	107	101	91	80	65
F-22 <sup>2</sup>	520	118	114	108	101	89	77	62
F-16A	450	110	107	101	95	85	74	59
F-18A	500	118	114	108	101	89	77	62
F-14A	530	112	109	103	96	84	73	58
B-1B	550	116	112	107	101	92	82	70

- Notes: 1. Level flight, steady high-speed conditions.  
 2. Projected based on F-22 composite aircraft.

Figure LA3.2-2 shows the baseline and projected noise levels for the seven primary airspace units. As these data show, noise levels in all seven primary airspace units are below 45 DNL. Noise was not explicitly computed for the occasional use airspace because of the low amount of use (i.e., less than 5 percent of total F-15C sortie-operations). The numbers of F-15C sortie-operations in these occasional use airspace units are so low that their influence on the cumulative noise is negligible.

Supersonic flight for fighter aircraft in the Warning Areas is primarily associated with air combat training, which generally occurs above 10,000 feet MSL. No supersonic activity is permitted in the





**Figure LA3.2-2**  
**Baseline and Projected Noise Environment for Langley AFB Primary Airspace**

Langley AFB MOAs. The amplitude of an individual sonic boom is measured by its peak overpressure, in pounds per square foot (psf), and depends on an aircraft's size, weight, geometry, Mach number, and flight altitude. Table LA3.2-5 shows sonic boom peak overpressures for the F-15C and F-22 in level flight at various altitudes. Maneuvers can also affect boom amplitude, increasing or decreasing overpressures from those shown in Table LA3.2-5.

Aircraft	ALTITUDE (FEET)			
	10,000	20,000	30,000	40,000
F-15C	5.40	2.87	1.90	1.46
F-22	5.68	3.00	1.97	1.50

Aircraft exceeding Mach 1 always create a sonic boom; however, not all supersonic flight activities will cause a boom at the ground. As altitude increases, air temperature decreases, and the resulting layers of temperature change cause booms to be turned upward as they travel toward the ground. Depending on the altitude of the aircraft and the Mach number, many sonic booms are bent upward sufficiently that they never reach the ground. This same phenomenon, referred to as “cutoff,” also acts to limit the width (area covered) of the sonic booms that reach the ground (Plotkin *et al.* 1989).

When a sonic boom reaches the ground, it impacts an area which is referred to as a “footprint” or (for sustained supersonic flight) a “carpet.” The size of the footprint depends on the supersonic flight path and on atmospheric conditions. Sonic booms are loudest near the center of the footprint, with a sharp “bang-bang” sound. Near the edges, they are weak and have a rumbling sound like distant thunder.

Sonic booms from air combat training activities have an elliptical pattern. Aircraft will set up at positions up to 100 nautical miles apart, before proceeding toward each other for an engagement. Aircraft will fly supersonic at various times during an engagement exercise. Sonic booms can occur as the aircraft accelerate toward each other, during dives in the engagement itself, and during disengagement. The long-term average (CDNL) sonic boom patterns also tend to be elliptical.

Long-term sonic boom measurement projects have been conducted in four airspaces: White Sands in New Mexico (Plotkin *et al.* 1989), the eastern portion of the Goldwater Range in Arizona (Plotkin *et al.* 1992), the Elgin MOA at Nellis Range in Nevada (Frampton *et al.* 1993), and the western portion of the Goldwater Range (Page *et al.* 1994). These studies included analysis of schedule and air combat maneuvering instrumentation data, and they supported development of the 1992 BOOMAP model (Plotkin *et al.* 1992). The current version of BOOMAP (Frampton *et al.* 1993; Plotkin 1996) incorporates results from all four studies. Because BOOMAP is directly based on long-term measurements, it implicitly accounts for such variables as maneuvers, statistical variations in operations, atmospheric effects, and other factors.

## *Initial F-22 Operational Wing Beddown Draft EIS*

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A variety of aircraft conducting training perform flight activities that include supersonic events. Predominantly, these events occur during air-to-air combat, often at high altitudes. Roughly 3 to 10 percent of air combat training flight activities, depending upon aircraft type, result in sonic booms within the primary over-water Warning Areas where supersonic activities are authorized. On average, F-15Cs fly supersonic about 7.5 percent of the time, with Mach numbers usually 1.1 or less, but occasionally up to about 1.3. This is typical of all the current generation supersonic aircraft studied in development of BOOMAP.



*Langley-based aircraft are authorized for supersonic activity only in offshore Warning Areas.*

For Langley AFB, supersonic operations are in offshore Warning Areas; therefore, under most conditions, sonic boom footprints would fall entirely over the ocean. There is, however, variability in the distance that sonic booms will propagate (or travel) and, in some situations, booms may reach the shore. Those situations depend on specific flight parameters and atmospheric conditions. Aircrews and mission planners are aware of the effects of those

conditions and follow procedures that avoid or minimize on-shore booms. By following these procedures, the occasional on-shore boom would be infrequent.

Figure LA3.2-2 provides baseline and projected supersonic noise levels and sonic booms, CDNL, in affected airspace. This figure also shows the estimated number of booms per month that would reach the water at an average location in each airspace. Individual sonic boom footprints would affect areas from about 10 square miles to 100 square miles, which is a small portion of the area under the airspace. The booms-per-month values account for the total number of booms and the average area affected by each.

*One question asked during scoping was, "will there be an increase in the number of sonic booms?"*

### ***Environmental Consequences***

Despite increases in sortie-operations, proposed F-22 flight activities would not perceptibly increase noise levels in the primary or occasional use airspace. In all seven primary airspace units, noise levels would remain below 45 DNL (refer to Figure LA3.2-2). With the exception of W-387, noise levels in the primary airspace units would decrease minimally. The decreases would result from the higher altitudes used by the F-22s in comparison to the F-15Cs. F-22s would fly, on average, 80 percent of the time above 10,000 feet MSL, and 30 percent of the total time would be spent above 30,000 feet MSL. Given the rare sortie-operations in the occasional use airspace, no change in noise levels would occur.

Refer to Table LA3.2-3 for SELs for subsonic noise of several aircraft, including the F-22. Current data indicate that F-22 noise levels would be similar to most other aircraft commonly using the primary airspace units. Given that the majority of F-22 flight activity would occur above 10,000 feet MSL, noise levels would not be noticeably different from those found under baseline or no-action conditions. There is no substantive difference among the alternative basing locations for airspace subsonic noise; all are negligible.

*Noise from individual F-22 overflights would be similar to other aircraft using the primary MOAs and Warning Areas.*

The F-22 has enhanced supersonic capability relative to the current-generation fighter aircraft. It is projected that its supersonic time would be more than three times that of aircraft such as the F-15C (25 percent versus 7.5 percent). For example, during a typical 14-minute air-to-air engagement, the F-22 would be supersonic 3 to 4.5 minutes, while the F-15C would be supersonic 1 to 2 minutes. The F-22 would also commonly achieve Mach numbers up to about 1.3 versus 1.1 for the F-15C. The combination of more supersonic time and higher Mach number would result in a sonic boom environment six to seven times that of a similar number of F-15Cs. There are, however, two mitigating factors.



*The increased performance of the F-22 is expected to create more sonic booms per training mission than the F-15C.*

First, the majority of F-15C supersonic activity is below 30,000 feet, while 60 percent of F-22 supersonic activity would be above 30,000 feet. Booms generated at high altitude are weaker than those at low altitude. Applying the boom amplitudes shown in Table LA3.2-5 to the altitude distributions for the two aircraft types, impact per boom for the F-22 would be about 60 percent of the F-15C, for an enhanced boom factor (i.e., potential to generate booms) of about four.

The second mitigating factor is that not all F-22s would fly at full capability. In a typical combat training mission of 2 versus 2 or 4 versus 4, aircraft on one side would fly as F-22s, while aircraft on the other side would limit their performance to emulate enemy aircraft, which are current-generation technology. Thus, half of the F-22 sorties would have the enhanced boom factor, while the others would fly as non-F-22s and would not have an enhanced boom factor.

In the analysis of supersonic activity, the enhanced boom factor has been applied to half of the F-22 sorties, while other aircraft follow the BOOMAP model as originally developed. This corresponds to an increase in CDNL of 4 dB. If the enhanced boom factor were applied to all the F-22 sorties, the F-22 component of CDNL would increase by 6 dB rather than 4 dB. Individual sonic boom amplitudes would be approximately the same as current fighters such as the F-15C. Refer to Figure LA3.2-2 for the projected F-22 CDNL in the primary airspace units. Applying the enhanced boom factor to one-half the F-22 sorties increases sonic boom exposure (CDNL) by less than 1 to 2 dB in W-72, W-107, W-110, and W-122. Boom exposure in W-386 and W-387 would increase by 4 dB. Sonic booms would increase in W-72, W-122, W-386, and W-387. In W-72 and W-386, booms would increase by 19 and 30 per month, respectively. Three additional booms per month would occur in W-122 and two more per month in W-387.

### ***Comparative Summary of the Five Potential Basing Locations***

Noise effects from increased flight activities in the training airspace represent the most prominent factor in assessing the differences among the basing locations. For airspace units, subsonic noise would not change perceptibly under the proposed action at Langley or for any of the alternative locations. Despite increases in sortie-operations in these airspace units, the greater use of higher altitudes by the F-22 would reduce their noise contribution. Supersonic activity and sonic booms would increase substantially in some airspace units, but for Langley, Eglin, and Tyndall, these increases would occur over water where the effects would be minor. Increases in sonic booms over land would result in greater potential for impacts under the Mountain Home and Elmendorf

alternatives. In Mountain Home airspace, an increase of 55 sonic booms per month would be concentrated in two adjacent overland MOAs, resulting in greater potential effects than the other alternatives. Impacts for Elmendorf, also with overland MOAs, would be less than Mountain Home because the increase in sonic booms in any individual airspace unit would be less (1 to 28 per month) and the supersonic activity would be dispersed over several MOAs.

### ***LA3.3 Air Quality***

Air quality in a given location is described by the atmospheric concentration of six pollutants: ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter equal to or less than 10 microns in diameter (PM<sub>10</sub>), and lead. As part of the Clean Air Act (CAA), the USEPA has established criteria for these pollutants. These criteria, set forth as national ambient air quality standards (NAAQS) represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Based on measured ambient criteria pollutant data, the USEPA designates areas of the United States as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. States are required to develop a state implementation plan (SIP) that sets forth how the CAA provisions will be implemented within the state. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state. Details of the NAAQS and specific regulatory requirements for sources of these emissions in attainment and nonattainment areas are included in Appendix AO-1.

The CAA also establishes a national goal of preventing degradation or impairment in federally designated Class I areas. Class I areas are defined as those areas where any appreciable degradation in air quality or associated visibility impairment is considered significant. As a part of the Prevention of Significant Deterioration (PSD) Program, Congress assigned mandatory Class I status to all national parks, national wilderness areas (excluding wilderness study areas or wild and scenic rivers), and memorial parks greater than 5,000 acres. In Class I areas, visibility impairment is defined as atmospheric discoloration (such as from an industrial smokestack) and a reduction in regional visual range. Visibility impairment or haze results from smoke, dust, moisture, and vapor suspended in the air. Very small particles are either formed from gases (sulfates, nitrates) or are emitted directly into the atmosphere from sources like electric utilities, industrial fuel burning processes, and vehicle emissions. Stationary sources, such as industrial areas, are typically the issue with impairment of visibility in Class I areas, so the permitting process under the PSD program requires a review of all Class I areas within a 62-mile (100-kilometer) radius of a proposed industrial facility. Mobile sources, including aircraft and their operations at Langley AFB, are generally exempt from review under this regulation. While the review under the PSD permit program does not apply directly to base operations at Langley AFB, this analysis assessed a 62-mile radius area as a screening tool for reviewing potential visibility impacts.

Pollutants considered in this Draft EIS include volatile organic compounds (VOCs), which are precursors to (indicators of) O<sub>3</sub>, nitrogen oxides (NO<sub>x</sub>), which are also precursors to O<sub>3</sub> formation, as well as CO, SO<sub>2</sub>, and PM<sub>10</sub>. Airborne emissions of lead are not addressed because the affected areas contain no significant sources of this criteria pollutant.

**RECORD OF DECISION (ROD)  
FOR THE  
INITIAL F-22 OPERATIONAL WING BEDDOWN**

This document records the decision of the United States Air Force (Air Force) with regard to the Initial F-22 Operational Wing beddown at Langley Air Force Base (AFB), Virginia. In making this decision, the information, analysis, and public comments contained in the Final Environmental Impact Statement (FEIS) for the Initial F-22 Operational Wing Beddown were considered, among other relevant factors.

This ROD has been drafted in accordance with the regulations implementing the National Environmental Policy Act (NEPA), specifically Title 40 Code of Federal Regulations, Part 1505.2, *Record of decision in cases requiring environmental impact statements* (40 CFR §1505.2). Specifically, this ROD:

- States the Air Force's decision, (See page 8)
- Identifies all alternatives considered by the Air Force in reaching the decision and specifies the environmentally preferable alternative, (See page 4)
- Identifies and discusses relevant factors including economic and technical considerations, the Air Force mission, and any essential considerations of national policy which were balanced by the Air Force in making its decision, and states how those considerations entered into this decision, (See pages 1-2 and 4-5) and
- States whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not, and summarizes any monitoring and enforcement programs adopted where applicable for any mitigation. (See pages 5-8)

**Background**

The United States Congress identified and approved the new F-22 fighter to replace and supplement the aging F-15C fighter aircraft fleet. The F-22 Raptor is designed to ensure that America's armed forces retain air dominance. Forces must have complete control of the airspace over an area of conflict, thereby allowing freedom to attack and freedom from attack at all times and places for the full spectrum of military operations. Air dominance provides the ability to defend our forces from enemy attack and to attack adversary forces without hindrance from enemy aircraft. The next-generation F-22 air dominance fighter possesses stealth technology, state-of-the art radar and electronics, increased maneuverability, and the capability to fly at supersonic speeds while minimizing fuel use. These characteristics make the F-22 a formidable deterrent to potential adversaries, enabling the United States to maintain and extend its combat superiority throughout the world. The Air Force priority is to be equipped, trained and ready to fulfill its combat missions as directed by the President and Secretary of Defense. These issues form the basis of the purpose and need for the F-22 aircraft and the origin of the Initial F-22 Operational Wing Beddown initiative.

A Draft and Final EIS were prepared to aid in determining whether to beddown the first operational wing of three squadrons of F-22 aircraft at one of five existing Air Force bases: Langley AFB, Virginia; Eglin AFB, Florida; Elmendorf AFB, Alaska; Mountain Home AFB, Idaho; or Tyndall AFB, Florida. The EIS also evaluated the no-action alternative of not making a beddown decision at this time. The proposal includes a number of elements common to each location that would occur at the selected base or in its associated training airspace, as follows:

- Establishing three squadrons with a total of 72 Primary Aircraft Inventory and 6 Backup Aircraft Inventory and replacing existing combat F-15C aircraft at the base over a period of approximately 5 years, with construction beginning in 2002,
- Conducting flying operations at the base for training and operational deployment;
- Constructing base facilities and infrastructure necessary to support the Initial F-22 Operational Wing;
- Implementing the personnel changes (increases or decreases) at the base to conform to the F-22 wing's requirements;
- Conducting F-22 training activities in existing training airspace, emphasizing air-to-air combat and supersonic flight (where authorized), including Military Operations Areas (MOAs), Air Traffic Control Assigned Airspace (ATCAA) and Warning Areas;
- Employing defensive countermeasures, such as chaff and flares, in airspace authorized for such use; and
- Accomplishing limited employment of ground attack training using Joint Direct Attack Munitions at approved military training ranges such as Nellis Range Complex, Nevada; Utah Test and Training Range, Utah; and Eglin AFB's ranges, Florida.

The Air Force defined six operational and physical characteristics required of an Air Force base to support the beddown: (1) an existing F-15C (air superiority) mission; (2) established organization, maintenance, and logistics support for fighter aircraft; (3) access to nearby airspace for military use; (4) support for a wide range of training opportunities; (5) available infrastructure (such as fueling and runways that are designed for fighter aircraft); and (6) existing and suitable communication links for a fighter wing. Based on the Air Force identification and evaluation process, six bases met the operational requirements: the five bases listed above and Nellis AFB, Nevada. Nellis AFB was excluded from further consideration because adding or allocating the necessary facilities, infrastructure, organizational structure, and airspace required to support the Initial F-22 Operational Wing of three squadrons would adversely affect Nellis AFB's ability to fulfill its unique and important functions to support Air Force weapons systems and tactics testing and training. Therefore, to maintain the existing missions at Nellis AFB and ensure combat readiness of the Initial Operational Wing, the Air Force eliminated Nellis AFB from further consideration as an alternative location.

## **Public Involvement**

The public involvement process used by the Air Force for the EIS included the following steps:

- (1) Issuing a Notice of Intent to prepare the EIS in the Federal Register on March 3, 2000;
- (2) Performing public and agency scoping from March through November 2000. Thirty-three scoping meetings were held to actively solicit input from the public, local governments, federal and state agencies, Native Americans, Alaska Natives, and environmental groups;
- (3) Conducting Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) and Agency consultation;
- (4) Issuing a Notice of Availability on April 27, 2001 in the Federal Register; initiating the public comment period of the Draft EIS; and
- (5) Providing 23 public hearings, and a 45-day public comment period that was extended for an additional 15 days and that ended on June 25, 2001.

Approximately 800 copies of the Draft EIS were sent to federal, state, and local agencies, Alaska Native and Native American organizations, interest groups, those members of the public who requested a copy, and local libraries. In total, more than 170 IICEP letters were sent to appropriate federal, state, and local agencies. During the public comment period, public hearings were held in 23 locations in five states to provide an opportunity for the public to evaluate the proposal and analysis contained in the Draft EIS. There were 253 people who attended the hearings, with 106 people providing oral or written comments during that time. The Air Force received 74 additional written comments during the 60-day public comment period.

Comments received during the public review period were considered in the preparation of the Final EIS, which was issued on 9 November 2001 (Vol. 66, *Fed. Reg.*, No. 218, pg. 56674). The Final EIS contains identification of the preferred and environmentally preferred alternative, mitigation measures to reduce environmental consequences, errata, public and agency comments, and responses to comments.

## **Agency Consultation and Coordination**

The Air Force consulted and coordinated with Federal and State agencies regarding the Proposed Action at Langley AFB throughout the Environmental Impact Analysis Process. Agencies reviewing biological and cultural resources were contacted early in the environmental planning process and received IICEP notification in June 2000. Informal Section 7 consultation, in compliance with the Endangered Species Act, was initiated with the U.S. Fish and Wildlife Service (USFWS) in June 2000. The USFWS issued a letter indicating a finding of no impacts to federally listed or proposed species, or critical habitat for the Proposed Action in September 2001. Contact with the Virginia State Historic Preservation Office (SHPO) was initiated in April 2000. The SHPO and the Bureau of Indian Affairs (Washington, DC) received IICEP notification and requests for information in May and June 2000. Section 106 consultation was



initiated in June 2000, pursuant to the National Historic Preservation Act. Project review meetings resulted in a Memorandum of Agreement, signed in September 28, 2001, completing the Section 106 consultation. The Advisory Council on Historic Preservation (ACHP) was provided a review copy of the Memorandum of Agreement and chose not to participate in Section 106 consultation.

### **Alternatives Analyzed**

The EIS analyzed six alternatives: the proposed action, which is to beddown the Initial F-22 Operational Wing at Langley AFB, four alternative locations for the beddown (Eglin AFB, Florida; Elmendorf AFB, Alaska; Mountain Home AFB, Idaho; and Tyndall AFB, Florida), and a no-action alternative. For each alternative other than the no-action alternative, facilities would be constructed, modified, and/or demolished to accommodate the Initial F-22 Operational Wing. F-22 aircraft would conduct training flights (sorties) from the base, training flights in associated airspace (sortie-operations), and operational deployments as required. Under the no-action alternative, no base for the Initial F-22 Operational Wing would be selected at this time.

Langley AFB, the proposed action, was identified as the Preferred Alternative in the Draft EIS and Final EIS. Of all the alternatives analyzed, the No Action alternative is the alternative that is environmentally preferable, in that it has the least potential for adverse environmental consequences. However, Langley AFB is the environmentally preferable of all the five potential beddown locations (*i.e.*, of the action alternatives).

### **Consequences**

Environmental consequences among the alternatives were evaluated in five consolidated environmental resource areas that reflected public and agency interests: Aircraft Operations; Natural Resources; Cultural, Traditional and Visual Resources; Human Resources; and Community and Infrastructure. Review of the environmental technical results, comments from the public, input from agencies, and information provided by American Indian and Alaska Native tribes were among the matters considered to determine environmental consequences of each alternative. In all cases, each basing alternative was compared with the baseline or no-action conditions.

At Langley AFB, Aircraft Operations would increase by 7 percent, or 1,251 sorties per year. This would include an increase of 62 nighttime sorties. Off-base areas subject to noise levels of 65 decibel Day-Night Average Sound Level (DNL) or greater would decrease by 521 acres; exposed areas would shift, with some decreases and some increases in the affected area. Average sortie-operations would increase by seven per day in Warning Area 386, by four per day in Warning Area 72, and by less than one per day in all other Warning Areas. Subsonic noise levels in all primary airspace units, including the Farmville MOA, would not change perceptibly, and would remain below 45 DNL.

While the F-22 beddown would not result in exceedences of regulatory air quality thresholds at any of the bases, the emissions of criteria pollutants at Langley AFB would contribute the least to regional emissions. In terms of air safety, Langley AFB has the potential for slightly greater,

but still minor, impacts compared to the other action alternatives because private development has encroached into safety zones around Langley AFB.

In terms of airspace management and air quality, no substantive differences exist for the training airspace associated with the locations assessed for the beddown of the Initial F-22 Operational Wing. Subsonic noise levels in the training airspace associated with the Proposed Action and four alternative locations would not change perceptibly from baseline conditions. Supersonic activity would increase sonic booms in the over-water airspace associated with Langley AFB, but all supersonic impacts would remain minimal.

For Natural Resources, no impacts to wetlands or other waters of the United States would be expected to occur at Langley AFB as a result of implementing the proposed F-22 beddown. Potential ground disturbance is more limited at Langley AFB than at the other bases and Langley AFB areas were previously developed or landscaped with non-native terrestrial habitat. Minimal soil erosion is anticipated due to the relatively small area disturbed. Langley AFB has the lowest potential for adverse consequences to special status species. Also, proposed differences in subsonic or supersonic noise levels under the training airspace are not expected to be biologically significant when compared to current conditions.

For Cultural, Traditional, and Visual Resources, effects are not expected at Langley AFB for archaeological resources. Construction on Langley AFB would affect (but not significantly) visual and architectural resources. These effects are greater than the other action alternatives because of the proposed demolition and construction within a historic district (see mitigation measures below).

For Human Resources, Langley AFB is the only base where there would be a decrease in project-related population and housing demand; this would result from a decrease in direct and secondary employment during operations. However, the Langley AFB region would experience approximately 1,025 new jobs and \$30 million of earnings in peak construction years. Land use impacts from on-base construction would be minimal at any of the bases. There is also a low potential for disproportionate airfield noise impacts to minority and low-income populations at any of the bases.

For Community and Infrastructure, Langley AFB is the only location where the three-squadron wing would decrease the off-base demand for utilities such as water, sewer, and schools. The F-22 beddown at Langley would create the smallest increase in hazardous waste generation and have a decrease in vehicle traffic volumes compared to the four alternative locations.

### **Mitigation Measures and Management Actions**

Measures to avoid or minimize environmental harm from the F-22 Initial Operational Wing Beddown at Langley AFB were incorporated into the basic proposed action as noted in 40 CFR § 1502.14. These include actions, described below, designed to achieve reductions in the effect the action has on the community and continue working relationships with groups and members of the community to address environmental issues.

Hazardous Material/Waste Management Program Update: The Air Force will use the existing HAZMART for handling hazardous materials. It will update hazardous waste management plans

to reflect changes in hazardous waste generation and will add hazardous waste accumulation sites, as necessary, in waste generation locations. It will also implement hazardous waste control procedures to minimize all potential risks generated by any F-22 maintenance activities that present any unique hazards.

**Air Installation Compatible Use Zone (AICUZ) Program Update:** This program was developed by the Air Force to make recommendations to communities on land use compatibility with military aircraft operations. The AICUZ program provides recommendations to local governments on land uses compatible with exposure to aircraft noise and safety considerations. Langley AFB and the community have worked with the AICUZ program for decades. Langley AFB personnel would continue to work with the City of Hampton to ensure compatible land use development based on the established land use recommendations contained in the AICUZ program. Once flying operations have commenced, the Air Force will conduct a detailed noise study and land use analysis based on actual flight parameters in the vicinity of Langley AFB.

**Pollution Prevention and Stormwater Plans:** Pollution prevention and stormwater prevention programs and plans currently in existence at Langley AFB will be applied to the F-22 maintenance and operational activities and will be updated as appropriate to address any unique F-22 characteristics.

**Air Traffic Safety Measures:** The Air Force will continue close coordination of Langley AFB air traffic with the Federal Aviation Administration (FAA) to prevent conflicts with other air traffic. It will continue to employ existing arrival and departure routes that have proven effective for air traffic control and for avoiding conflicts, and to adhere to FAA rules for avoiding airports. The base Bird Aircraft Strike Hazard program will apply to the F-22.

**Construction-Related Measures:** Approximately 16 acres of previously disturbed land will be impacted by construction of facilities on Langley AFB. Construction of these facilities will take place at existing buildings and within paved and landscaped areas. No native terrestrial or wetland habitat will be disturbed by construction. Moreover, no critical or potential habitat for federal, state, or other special status species will be disturbed. Therefore, the impact from facility construction on Langley AFB on native habitats and wildlife will be negligible. Construction will be phased in a manner to reduce total noise generation and construction will occur during normal work days/working hours to reduce temporary effects of construction noise on off-base communities. The Air Force will employ standard best management practices such as watering of graded areas, covering of soil stockpiles, and contour grading (if necessary), to minimize temporary generation of dust and particulate matter. The Air Force will also employ standard construction practices such as erosion control measures and sediment retention measures to minimize soil erosion and sediment transport into bodies of water. Engineering controls may be used at Environmental Restoration Program Sites ST-27 and ST-26 to minimize potential of diffused hydrocarbon gases to enter the workspace. Construction activities are not expected to affect Chesapeake Bay Preservation Areas (including Resource Protection Areas and Resource Management Areas).

**Noise Management:** Langley AFB's noise abatement program focuses on reducing noise over residential areas near the base or areas affected by base aircraft. By continuing to employ this program, Langley AFB will minimize, where feasible, the potential for noise impacts on

populations and resources. Langley AFB operates under a program designed to reduce noise, particularly at night. A local quiet-hours program is employed to limit disturbance. Air Force requirements for flying at night (i.e., after dark) are normally met during seasons (like winter) with early sunsets. This practice limits the amount of late night flight operations to the maximum extent possible. Langley-based aircraft are authorized for supersonic activity only in over-water Warning Areas. Aircrews and mission planners follow procedures that avoid or minimize supersonic activity in offshore areas that could result in sonic booms reaching the shore. The Air Force will continue to restrict supersonic flight to 15 nautical miles from shore and above 10,000 feet mean sea level. This restriction will prevent potential impacts from sonic booms to sensitive species along and near the coastline. Wildlife species inhabiting the area near the base have likely habituated to aircraft noise and the proposed changes in noise levels are not expected to affect these species. The Air Force will not impact the active bald eagle nest 3 miles east of the runway. The impacts of noise on wildlife under the overland MOAs will likely not differ, biologically, from existing baseline conditions because (1) there will be no perceptible change in subsonic noise levels, (2) the number of low-level flights below 5,000 feet above ground level attributable to the F-22 will be reduced compared to baseline conditions, (3) existing airspace restrictions over sensitive areas will remain, and (4) the prohibition of supersonic flight will continue in the overland MOA.

To mitigate impacts to historic properties at Langley AFB as a result of the Initial F-22 Operational Wing beddown, the Air Force will implement stipulations contained in a Memorandum of Agreement between the Air Force and the Virginia Department of Historic Resources, in compliance with Section 106 of the National Historic Preservation Act (NHPA) and 36 Code of Federal Regulations (CFR) 800.

According to the Memorandum of Agreement, the Air Force will ensure that the following measures are carried out in consultation with the SHPO:

Facility recording:

- photograph buildings 754, 755, and 756 and complete a site plan drawing prior to demolition
- prepare a description and statement of significance for each building
- complete an Intensive Level Survey Field Form, including floor plan drawings
- provide draft documents to the SHPO for review and approval prior to demolition and
- provide final documents to the SHPO and explore other repository options

Salvage of architectural elements:

- survey buildings 754, 755, and 756 for character-defining architectural elements;
- salvage appropriate elements for reuse in replacement buildings or for curation; and
- select architectural elements and plan for their reuse in consultation with SHPO.

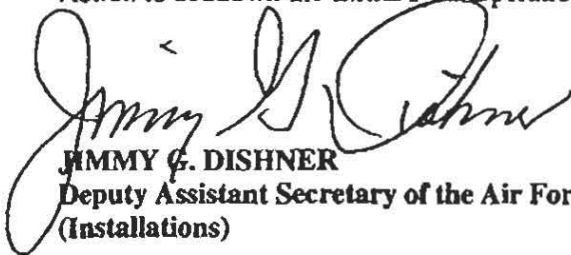
**Mitigation:**

- prepare a NRHP nomination form for the Langley Field Historic District and submit it to the Keeper of the National Register within 18 months of executing the Memorandum of Agreement
- rehabilitate Facility 442 in consultation with the SHPO
- develop a historic resources training video regarding the significance of historic resources on Langley AFB for installation personnel and
- develop photographic displays depicting the historic nature of the buildings that preceded the new hangars on the same site

If the Air Force encounters unanticipated historic properties or effects, reasonable efforts will be made to avoid, minimize, or mitigate adverse effects pursuant to 36 CFR 800.13(b).

**Decision**

After consideration of the matters discussed in this Record of Decision, the FEIS, inputs from the public, regulatory agencies and other relevant factors, the Air Force will implement the Proposed Action to beddown the Initial F-22 Operational Wing at Langley AFB, Virginia.

  
**JIMMY G. DISHNER**  
Deputy Assistant Secretary of the Air Force  
(Installations)

1/15/2002  
Date



**APPENDIX E**  
**DRAFT ENVIRONMENTAL ASSESSMENT**  
**DISTRIBUTION LIST**

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Langley Integrated Total Force Beddown and Logistics Support Center  
Draft Environmental Assessment  
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