Environmental Assessment
Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air Military Family Housing Areas





Langley Air Force Base, Virginia

Department of the Air Force

Air Combat Command
1st Fighter Wing
Langley Air Force Base, Virginia

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14. ABSTRACT

The purpose of the Proposed Action is to privatize MFH at Langley AFB. Privatizing MFH includes conveying 1,496 existing units to a privatization contractor and leasing the property on which the units are located to the contractor. This EA evaluates the No Action Alternative, the Proposed Action, the Maximum Development Alternative and cumulative impacts of other actions. Under the No Action Alternative, the 1,496 existing MFH units would not be conveyed to a privatization contractor and the units would continue to be used to house military personnel and dependents. The Proposed Action and Maximum Development Alternative include conveying 1,496 units and associated infrastructure and leasing 350 acres associated with the MFH to a privatization contractor. Under the Proposed Action Alternative, the contractor would demolish 1,104 units in the Bethel Manor area and construct 1,049 replacement units construct two units in the HTA area, renovate 109 units (47 units in the LTA and 62 units in the HTA area), and convey ?as is? 270 units (148 units in the 2000 area of Bethel Manor, 72 units in the LTA area, and 50 units in the HTA area). The contractor would operate, maintain, and manage an MFH inventory totaling 1,430 units. Under the Maximum Development Alternative, the contractor would demolish all 1,252 units in Bethel Manor and construct 1,211 replacement units. No units would be renovated at Bethel Manor under the Maximum Development Alternative. Construction and renovation activities in the LTA and HTA housing areas would remain the same as the Proposed Action. The privatization contractor would manage an inventory totaling 1,444 units. The privatization contractor would manage the housing development for a minimum of 50 years under the Proposed Action or Maximum Development Alternative. Resources considered in the impact analysis were: noise, land use, coastal zone, air quality, infrastructure and utilities, biological resources, water resources, earth resources hazardous materials and waste, cultural resources, and socioeconomic resources.

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Finding of No Significant Impact and Finding of No Practicable Alternative Military Family Housing Privatization Langley AFB, Virginia

AGENCY AND NAME OF PROPOSED ACTION

Department of the Air Force, Air Combat Command, 1st Fighter Wing, Langley Air Force Base (AFB), Virginia.

Housing Demolition, Construction, Renovation, and Leasing at Bethel Manor, Lighter Than Air, and Heavier Than Air Family Housing Areas, Langley AFB, Virginia.

BACKGROUND

Due to advancing age and continual deterioration, military family housing (MFH) units in the Bethel Manor, Lighter-Than-Air (LTA), and Heavier-Than-Air (HTA) neighborhoods at Langley AFB (the Base) require mechanical, electrical, and functional upgrades and expansions. Thus, action is needed to provide MFH at the Base that meets Air Force housing standards. The Bethel Manor area is located off Base approximately 3 miles west of the on-Base housing areas, LTA and HTA. An Air Force housing study determined that Langley AFB MFH meets Air Force privatization criteria as a means to upgrade the housing. Privatizing includes conveying existing units to a privatization contractor and leasing on-Base and off-Base Air Force property to the contractor to demolish, construct, renovate, and/or maintain homes for military families.

Pursuant to National Environmental Policy Act (NEPA) guidance, 32 Code of Federal Regulations (CFR) Part 989 (*Air Force Environmental Impact Analysis Process*), and other applicable regulations, the Air Force completed an environmental assessment (EA) of the potential environmental consequences of the No Action Alternative, Proposed Action, and Maximum Development Alternative.

NO ACTION ALTERNATIVE

The existing MFH units will not be conveyed to a privatization contractor and the units will continue to be used to house military personnel and dependents. The Air Force will continue with the planned demolition of 55 units in Bethel Manor and the Air Force will manage an inventory of 1,430 units. No MFH units will be constructed or renovated in Bethel Manor or the on-Base housing areas. There will be 220 fewer residents in MFH.

Noise. Noise associated with demolition of the 55 units at Bethel Manor will be temporary and intermittent, lasting only as long as the demolition activities. No construction activity will occur at the LTA and HTA areas; therefore, the primary source of noise will continue to be from aircraft operations. No significant impacts will occur.

Land Use. The existing MFH units on- and off-Base will continue to be managed by the Air Force. There will be no change in management of the remaining land use resources. No significant impacts will occur.

Coastal Zone Consistency. Based on information, data, and analysis presented in the EA, work associated with the No Action Alternative would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Preservation Act and with the goals of the Virginia Coastal Resources Management Program (VCP).

Air Quality. Emissions will be temporary and will be eliminated after demolition is completed. The greatest emissions from construction activity will be particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}) (1.70 tons per year [tpy]), which equates to 0.02 percent of the PM_{10} emissions within the Hampton Roads Air Quality Control Region (AQCR). A conformity determination is not required. No significant impacts will occur.

Infrastructure and Utilities. Demands on the water, wastewater, electricity, and natural gas systems will not exceed baseline levels since there will be no net change in personnel assigned to Langley AFB and because the systems serve both the Base and York County. The 3 percent decrease in impervious cover will correspond to a decrease in storm water runoff.

Erosion control techniques will be used during demolition to minimize erosion and protect surface water quality. A Virginia Department of Conservation and Recreation (VDCR) general storm water construction permit and storm water pollution prevention plan will be accomplished and implemented for the demolition activities. Demolition debris equates to 0.02 percent of the total remaining capacity of the landfill. The number of vehicles entering and exiting the Bethel Manor housing area will decrease by approximately 55 vehicles. No significant impacts occur since the No Action Alternative will not substantially increase the demands on existing systems, resulting in the need for additional capacity or new systems.

Biological Resources. Demolition of the 55 units will occur in Bethel Manor, which is an urbanized area and has no wetlands present in the developed areas. Therefore, minimal disturbance to existing wildlife during demolition is expected. According to the Virginia Department of Conservation and Recreation (VDCR) and the Virginia Department of Game and Inland Fisheries (VDGIF), the project is not anticipated to adversely impact the natural heritage resources, any documented state-listed plants or insects, or Federal or state T&E species. No significant adverse effects will occur since the No Action Alternative will not impact a T&E species, substantially diminish habitat for a plant or animal species, substantially diminish a regionally important plant or animal species, interfere substantially with wildlife movement or reproductive behavior, or affect wetlands.

Water Resources. Activities associated with the demolition of the 55 surplus units will not impact groundwater or surface water, or floodplains. Demolition of 39 surplus units will occur in the 100-year floodplain in the southern portion of Bethel Manor and will not be replaced. No units will be constructed in the floodplains of the on-Base housing areas. No significant impacts will occur.

Earth Resources. Demolition will not cause any soil profile destruction. Use of best management practices such as rock berms, silt fences, and single point construction entries will minimize erosion during demolition. No significant impacts will occur.

Hazardous Materials and Waste. Contractors will use and store hazardous materials and waste in accordance with all federal, state, and local laws and regulations, and applicable Base management plans. No environmental restoration program (ERP) sites occur within the MFH neighborhoods. The demolition contractor will be responsible for handling all asbestos-containing material (ACM) and lead-based paint (LBP) in MFH. Soil under and immediately surrounding the MFH units may contain both chlordane (a termiticide) and lead (from LBP).

Cultural Resources. There are no known archaeological resources located in the Bethel Manor neighborhood. The 55 Capehart units identified for demolition are eligible for inclusion in the National Register of Historic Places. The Air Force will comply with the Program Comment, adopted pursuant to 36 CFR 800.14(e) to meet their responsibilities under section 106 for demolition of these properties. No significant adverse impacts will occur for these properties.

Socioeconomic Resources. There will be no overall change in York County population. The vacant housing units in York County will accommodate the 55 families that will be displaced. There will be no change in the number of students attending area schools. The demolition activities will benefit sales volume, income, and employment in the area. No significant impacts will occur since the No Action Alternative will not result in substantial growth or concentration of population or the need for substantial additional housing or public services.

PROPOSED ACTION

The Air Force will convey 1,496 existing MFH units and associated infrastructure to a privatization contractor who will then demolish 1,104 units in Bethel Manor and construct 1,049 replacement units, construct two units in the HTA area, renovate 109 units in the LTA and HTA areas, and convey 270 units (148 units in Bethel Manor, 72 units in the LTA area, and 50 units in the HTA area). The privatization contractor will manage a total of 1,430 units for a minimum of 50 years. There will be 478 less residents in MFH.

Noise. The conclusions for the No Action Alternative apply to Bethel Manor. The new and renovated housing units in the LTA and HTA housing areas will be designed and constructed to meet Air Force noise level reduction criteria. No significant impacts will occur.

Land Use. Continued use of the Bethel Manor, LTA, and HTA neighborhoods for MFH is compatible with the General Plan. No additional land will be needed to accommodate the activities associated under privatization. No significant impacts will occur.

Coastal Zone Consistency. Based on the information, data, and analysis presented in the EA, work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Preservation Act and with the goals of the VCP.

Air Quality. The greatest annual emissions and greatest percentage of emissions within AQCR will be PM_{10} (104.5 tpy), which equates to 1.67 percent of the PM_{10} emissions inventory. The conclusions for the No Action Alternative apply. No significant impacts will occur.

Infrastructure and Utilities. Due to the reduction in residents living in Bethel Manor and on-Base housing areas, water consumption and wastewater generation will decrease from baseline conditions; however, energy use will increase due to an increase in living space for the new, renovated, and replacement units. Storm water runoff will decrease due to the 3.9 percent decrease in impervious cover in Bethel Manor and the 2.9 percent decrease in the on-Base housing areas. The storm water conclusions for the No Action Alternative apply. Disposal of demolition and construction debris at Bethel Manor and the on-Base housing areas equate to 0.51 percent and 0.08 percent, respectively, of the total remaining capacity of the landfill. Traffic congestion associated with construction will be short-term and there will be no net increase in vehicles entering and exiting the Base during peak traffic periods. No significant impacts occur since the Proposed Action will not substantially increase demands on existing systems, resulting in the need for additional capacity or new systems.

Biological Resources. Similar to the No Action Alternative, all construction activities will occur in developed housing areas where wetlands are not present. No T&E species occur within the MFH areas. Discussions and conclusions in the No Action Alternative apply. The Wildlife Diversity Division of the Virginia Department of Game and Inland Fisheries (VDGIF) recommended that a site visit be performed at Bethel Manor prior to the beginning of the project to determine if a waterbird nesting colony containing great blue heron and state special concern great egret exist at Bethel Manor, where it is in relation to the proposed construction and demolition activities, and determine what recommendations would be warranted to limit impacts to such a colony, if it did exist. The site visit would be coordinated by the privatization contractor on this requirement and follow up with the VDGIF to ensure the site visit is conducted. No significant adverse effects are anticipated.

Water Resources. Construction activities will not involve groundwater withdrawals or use of groundwater. Pollutants could be generated from runoff from streets and parking areas. Storm water management practices and permits for construction will be implemented to reduce the potential for pollutants to enter groundwater or surface water sources. Demolition of 39 units will occur in the southern portion of the 100-year floodplain in Bethel Manor; however, the units will not be replaced. Two new units will be constructed in 100-year floodplain in the HTA housing area. There is no practicable alternative, however, that will not involve construction in the floodplain. Therefore, the first floor of these units will be elevated above the 100-year flood elevation. No significant impacts will occur.

Earth Resources. Construction activity in the Bethel Manor and on-Base housing areas will occur within areas disturbed and modified by prior MFH construction. Geology will not change. The Community Development Plan for these neighborhoods will be developed to minimize any disturbances to geology and soil. The best management practices identified for the No Action Alternative will be implemented. No significant impacts will occur.

Hazardous Materials and Waste. The discussion and conclusion for the No Action Alternative apply. The proposed MFH units will be constructed without any ACM or LBP. No significant impacts are anticipated.

Cultural Resources. Capehart houses in the Bethel Manor Housing area are considered eligible for listing in the National Register of Historic Places. However, compliance with Section 106 of the Act for the proposed demolition of Capehart housing in the Bethel Manor area of Langley AFB has been accomplished at the Air Force level through issuance of a Program Comment by the Advisory Council on Historic Preservation. A copy of this document is included in Appendix F. In addition, a separate memorandum of agreement (MOA) will be developed

between the Air Force and the Virginia State Historic Preservation Office (VA SHPO) which addresses contractor requirements in the event of discovery of unanticipated archaeological resources during demolition or construction activities in the Bethel Manor area.

Historical and archaeological sites that may be eligible for inclusion in the National Register of Historic Places will be potentially impacted by the proposed action in the LTA and HTA housing areas. All planned renovations of LTA and HTA housing units will be consistent with the Secretary of the Interior's standards, as noted in the Langley AFB cultural resources management plan. Proposed new housing units will be constructed in accordance with these standards and designed to be compatible with the Langley Field Historic District. In order to address these issues comprehensively, the Air Force will enter into a MOA with the contractor-developer and the VA SHPO to establish procedures and conditions for the developer-contractor in order to reduce the potential for adverse effects for future actions. The MOA addresses renovation and maintenance of the historical properties, site improvements, demolition, and new construction. The MOA also addresses impacts to several archeological sites on the property to be transferred. Renovation of housing units will not occur in the three archaeological sites in the LTA and HTA areas, and the two new units for the HTA will be located in vacant areas that will not impact the archaeological sites. The MOA will address procedures and conditions for the privatization contractor to avoid adverse impacts in the case of unanticipated discovery of archeological resources during activities associated with privatization. A copy of the draft MOA is contained in Appendix G.

Socioeconomic Resources. The conclusions for the No Action Alternative apply. No significant impacts will occur.

MAXIMUM DEVELOPMENT ALTERNATIVE

The Air Force will convey 1,496 existing MFH units and associated infrastructure to a privatization contractor who will then demolish 1,252 units in Bethel Manor and construct 1,211 replacement units. Construction and renovation activities in the LTA and HTA housing areas will remain the same as the Proposed Action. The privatization contractor will manage a total of 1,444 units for a minimum of 50 years. There will be 451 less residents in MFH.

The conclusions for the Proposed Action apply to noise, land use, coastal zone consistency, infrastructure and utilities (on-Base only), biological resources, water resources, earth resources, hazardous materials and waste, cultural resources, and socioeconomic resources for the Maximum Development Alternative.

Air Quality. The greatest annual emissions and greatest percentage of emissions within the AQCR will be PM_{10} (111.3 tpy), which equates to 1.78 percent of the PM_{10} emissions inventory. The conclusions for the No Action Alternative apply. No significant impacts will occur.

Infrastructure and Utilities. Due to the reduction in residents living in Bethel Manor and on-Base housing areas, water consumption and wastewater generation will decrease from baseline conditions; however, energy use will increase due to an increase in living space for the new, renovated, and replacement units. Storm water runoff will increase due to the 2.3 percent increase in impervious cover in Bethel Manor and the 2.9 percent decrease in the on-Base housing areas. The increase in impervious cover at Bethel Manor is due to the increase in gross living requirements for the new housing units. The storm water conclusions for the No Action Alternative apply. Disposal of demolition and construction debris at Bethel Manor equates to 0.63 percent of the total remaining capacity of the landfill. Traffic congestion associated construction will be short-term and there will be no net increase in vehicles entering and exiting the Base during peak traffic periods. No significant impacts occur since the Proposed Action will not substantially increase the demands on existing systems, resulting in the need for additional capacity or new systems.

ENVIRONMENTAL JUSTICE

Activities associated with the No Action Alternative, Proposed Action, and Maximum Development Alternative will not impose adverse environmental effects on adjacent populations. Therefore, no disproportionately high and adverse effects will occur to minority and low-income populations.

CUMULATIVE IMPACTS

Cumulative impacts were analyzed for 10 other projects anticipated to occur during the same period as the Proposed Action. The same biophysical resource areas were analyzed for all alternatives for cumulative effects on the environment. No cumulative impacts will occur under the No Action Alternative, Proposed Action, or the Maximum Development Alternative.

PUBLIC INVOLVEMENT

A notice announcing a 30-day public comment period and the availability of the draft EA was published in *The Daily Press* on April 23, 2006. Langley AFB received letters with comments from federal and state agencies, which were incorporated into the EA. The letters and responses to comments are included in Appendix E of the EA.

CONCLUSION

Based on my review of the facts and analyses contained in the attached EA and incorporated by reference, I conclude that implementation of the No Action Alternative, Proposed Action, or Maximum Development Alternative will not have a significant impact, either by itself or when considering cumulative impacts. Accordingly, requirements of NEPA, regulations promulgated by the Council on Environmental Quality, and 32 CFR 989 are fulfilled and an environmental impact statement is not required.

Pursuant to Executive Order 11988 (Floodplain Management), the authority delegated in Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action and Maximum Development Alternative includes all practicable measures to minimize harm to floodplain environments.

MARK D. WRIGHT
Colonel, USAF
Deputy Director of Installations for Civil Engineers (A7)

29 Sep 06
Date

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Environmental Assessment
Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air Military Family Housing Areas

Langley Air Force Base, Virginia

Department of the Air Force

Air Combat Command
1st Fighter Wing
Langley Air Force Base, Virginia

August 2006

COVER SHEET

FINAL ENVIRONMENTAL ASSESSMENT

Housing Demolition, Construction, Renovation, and Leasing at Bethel Manor, Lighter-Than-Air (LTA), and Heavier-Than-Air (HTA) Family Housing Areas: Langley Air Force Base (AFB), Virginia.

Responsible Agency: Department of the Air Force, Air Combat Command, 1st Fighter Wing, Langley AFB, Hampton, Virginia.

Proposed Action: Military Family Housing (MFH) Privatization at Langley AFB, Virginia.

Written comments and inquiries regarding this document should be directed to: Mr. Troy Andersen 1CES/CEVQP, 37 Sweeney Blvd., Langley AFB, VA 23665-2107, telephone 757-764-1095.

Report Designation: Final Environmental Assessment.

Abstract**:** The purpose of the Proposed Action is to privatize MFH at Langley AFB. Privatizing MFH includes conveying 1,496 existing units to a privatization contractor and leasing the property on which the units are located to the contractor. This EA evaluates the No Action Alternative, the Proposed Action, the Maximum Development Alternative, and cumulative impacts of other actions. Under the No Action Alternative, the 1,496 existing MFH units would not be conveyed to a privatization contractor and the units would continue to be used to house military personnel and dependents. The Proposed Action and Maximum Development Alternative include conveying 1,496 units and associated infrastructure and leasing 350 acres associated with the MFH to a privatization contractor. Under the Proposed Action Alternative, the contractor would demolish 1,104 units in the Bethel Manor area and construct 1,049 replacement units, construct two units in the HTA area, renovate 109 units (47 units in the LTA and 62 units in the HTA area), and convey "as is" 270 units (148 units in the 2000 area of Bethel Manor, 72 units in the LTA area, and 50 units in the HTA area). The contractor would operate, maintain, and manage an MFH inventory totaling 1,430 units. Under the Maximum Development Alternative, the contractor would demolish all 1,252 units in Bethel Manor and construct 1,211 replacement units. No units would be renovated at Bethel Manor under the Maximum Development Alternative. Construction and renovation activities in the LTA and HTA housing areas would remain the same as the Proposed Action. The privatization contractor would manage an inventory totaling 1,444 units. The privatization contractor would manage the housing development for a minimum of 50 years under the Proposed Action or Maximum Development Alternative. Resources considered in the impact analysis were: noise, land use, coastal zone, air quality, infrastructure and utilities, biological resources, water resources, earth resources, hazardous materials and waste, cultural resources, and socioeconomic resources.

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	microgram per cubic meter
AAFES	Army and Air Force Exchange Service
ACM	asbestos-containing material
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatibility Use Zone
AST	aboveground storage tank
the Base	Langley AFB
BVI	BVI Waste Systems of Virginia
CAA	Clean Air Act
CDP	Community Development Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRMP	Cultural Resources Management Plan
CY	calendar year
CZMA	Coastal Zone Management Act
dBA	a-weighted sound level measured in decibels
DNL	day-night average sound level
DoD	Department of Defense
DVP	Division of Virginia Power
EA	environmental assessment
EBS	environmental baseline survey
EIAP	environmental impact analysis process
EIFS	Economic Impact Forecast System
EIS	environmental impact statement
EO	Executive Order
ERP	Environmental Restoration Program
FEMA	Federal Emergency Management Act
FHMP	Family Housing Master Plan
FIP	federal implementation plan
FIRM	flood insurance rate map
FONSI	finding of no significant impact
ft^2	square feet
FS	feasibility study
FY	fiscal year
HCP	housing community profile
HRMA	housing requirements and market analysis
HRSD	Hampton Road Sanitation District
HTA	Heavier Than Air
kWH	kiloWatt hour
LBP	lead-based paint
lbs/ft^3	pounds per cubic foot
LFHD	Langley Field Historic District
LTA	Lighter Than Air
mcf	million cubic feet
MFH	military family housing
mg/kg	milligram per kilogram

MHPI	Military Housing Privatization Initiative
MILCON	military construction
MOA	Memorandum of agreement
MSA	metropolitan statistical area
msl	mean sea level
MSW	municipal solid waste
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
NLR	noise level reduction
NOAA	National Oceanic and Atmospheric Agency
NWI	National Wetlands Inventory
OMB	Office of Management and Budget
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RI	remedial action
RMA	resource management area
ROD	record of decision
ROI	region of influence
RPA	resource protection area
RTV	rational threshold value
SHPO	State Historic Preservation Office
SIP	state implementation plan
T&E	threatened and endangered
TSP	total suspended particle
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VCP	Virginia Coastal Resources Management Plan
VDEQ	Virginia Department of Environmental Quality
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
WWTP	wastewater treatment plant

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

This chapter provides the following: an introduction; statement of the purpose of and need for action; location of the action; decision to be made, summary of the scope of the environmental review; summary of baseline conditions to be used for the environmental evaluation in this environmental assessment (EA); a brief discussion of environmental justice; applicable regulatory requirements; and a summary of the organization of the document.

1.1 INTRODUCTION

More than 38 percent of U.S. Air Force-owned and operated military family housing (MFH) does not meet modern standards and requires either major improvement or replacement. Consequently, the Department of Defense (DoD) proposed, and Congress enacted, the Military Housing Privatization Initiative (MHPI) in the 1996 National Defense Authorization Act. This initiative offers the Air Force authority to address its housing needs by utilizing privately financed and privately built MFH constructed to market standards. The goal of the MHPI is to drastically reduce the time required to provide military members with quality, affordable housing and replace its aging inventory of housing units.

The MHPI allows for use of funds designated for specific Air Force projects for construction of private sector-financed housing. In addition, the MHPI provides a wide range of alternatives to conventional military housing construction to revitalize, construct, and acquire other additional family housing. The MHPI describes guarantees and commitments the DoD is authorized to make to private sector housing providers. The MHPI restricts the government's contribution to an amount not to exceed 50 percent of the total capital cost of the project. The MHPI is the enabling legislation that authorizes execution of the various alternatives financed by the private sector.

The Air Force Family Housing Master Plan (FHMP) articulates the Air Force's investment strategy to meet housing needs through the use of traditional construction funding (*i.e.*, Congressionally appropriated funds for MFH construction through the military construction [MILCON] program) and privatization. The FHMP identifies the most cost effective and time-efficient investment option for each installation (*i.e.*, use of traditional construction options and/or the MHPI) to meet the housing requirements of military families consistent with Congressional and DoD directives. The Air Force recognizes that conditions that influence the FHMP are constantly changing. Accordingly, the FHMP allows for incorporation of changes in conditions and update of investment strategies, costs, and priorities (Langley AFB 1999).

The DoD tasked the Air Force with upgrading all required, inadequate housing by or before fiscal year (FY) 2010. In addition to the current Air Force-wide inventory of 104,000 housing units, studies project the Air Force would need 5,000 new units to meet DoD directives. The cost to the Air Force to attain the DoD tasking and to construct 5,000 new units would be more than $7 billion using traditional construction funds.

Sufficient funds are not projected to be available to meet this goal using traditional construction options.

The two primary criteria for privatization are:

- Economic Feasibility "Scored" Cost. The Office of Management and Budget (OMB) directed that the "scored" cost for housing privatization shall not exceed one third of the estimated MILCON cost to bring all housing units up to modern standards (referred to as a three-to-one leverage in budget authority). The scored cost is the amount of funds the OMB requires the Air Force to budget in the current fiscal year to cover the federal government's costs (and potential costs) associated with loans, guarantees, and other financial obligations or future commitments being made.
- Economic Feasibility and Life Cycle Costs. Guidance requires that life cycle costs associated with privatization be less than the life cycle costs for government ownership. The cost of privatization includes the OMB scored cost and the net present value of the expected Basic Allowance for Housing for service members living in the privatized units. The life cycle costs of government ownership include the MILCON cost and the net present value of maintenance, repair, utilities, management, and any other services provided.

Military family housing at Langley Air Force Base (AFB, the Base) meets these two privatization criteria; therefore, privatizing MFH is a viable option.

1.2 PURPOSE OF AND NEED FOR ACTION

While the quality of existing on-Base MFH has been in decline for the past three decades, deployments and family separations have lengthened; out-of-pocket expenses for service members living in private housing have increased; and demands on military personnel and their families have increased. A DoD Quality of Life Task Force report confirmed these disconcerting trends and warned that readiness and morale are in jeopardy. It is for this reason that the MFH privatization initiative is so important to the DoD, service members and their families, and to taxpayers.

The purpose of the action is to provide adequate MFH that meets Air Force housing standards by privatizing existing on and off-Base housing units for military personnel stationed at Langley AFB. The parcels commonly known as the Housing Maintenance area for the Bethel Manor housing area would also be privatized. However, the Housing Maintenance area for the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas would not be privatized. There is a need to accelerate the Base's ability to provide military families access to safe, quality, affordable housing in a community in which they choose to live. As discussed previously, the Air Force is committed to adequately housing its people and responsibly managing its housing resources because productivity and retention of Air Force members greatly depend on such actions (per Air Force Policy Directive 32-60, Housing, 20 July 1994). Properly designed quarters providing some degree of individual privacy are essential to the successful accomplishment of the important and increasingly complicated jobs military personnel must perform.

The Bethel Manor MFH units were constructed between 1960 and 1997; the HTA units between 1920 and 1934; and the LTA MFH units between 1931 and 1934. Housing units in the HTA and LTA areas are eligible for inclusion on the National Register of Historic Places (NRHP). Due to advancing age and continual deterioration, 1,104 of the 1,252 units (88.3 percent) on Bethel Manor are inadequate and no longer meet Air Force MFH standards. Additionally, some units have deteriorated beyond the reasonable cost of whole unit renovation according to Air Force guidance. Units in the LTA and HTA family housing areas have gone through many upgrades over the years, and 125 units have undergone whole house renovations between 2000 and 2003; another 122 units need major whole house renovation. Life cycle costs for privatization are less than costs for continued government ownership. Therefore, there is a need to privatize the Bethel Manor, HTA and LTA MFH areas to provide suitable living environments.

Based on findings in the 2003-2008 Langley AFB Housing Requirements and Market Analysis (HRMA), existing housing for the Base is estimated to be 1,496 units, which includes a surplus of 68 units (USAF 2003). Additionally, two new units would be constructed in the HTA area. Prior to the privatization initiative, the Air Force would demolish 16 of those surplus units in the Bethel Manor 2000 housing area in FY2006 and FY2007 to make room for a new gas station and shoppette. The remaining surplus units would be demolished under the privatization initiative. Therefore, the housing requirement is 1,430 units (1,496 – 68 + 2 = 1,430).

1.3 LOCATION OF THE PROPOSED ACTION

Langley AFB is located in Hampton, Virginia, approximately 5 miles northeast of the city's central business district. As shown in Figure 1-1, the LTA and HTA MFH areas are located on Langley AFB. The Bethel Manor MFH area is located in York County approximately 3 miles west of the main Base, along the western shoreline of Big Bethel Reservoir, geographically separate from the main Base.

1.4 DECISION TO BE MADE

This EA provides Air Force decision-makers with information regarding the potential environmental consequences of the No-action Alternative, Proposed Action, and Maximum Development Alternative. This information will be used to support the decision of whether to prepare a Finding of No Significant Impact (FONSI) and proceed with the Proposed Action or prepare an Environmental Impact Statement (EIS) for the Proposed Action.

1.5 SCOPE OF THE ENVIRONMENTAL REVIEW

The National Environmental Policy Act (NEPA) requires federal agencies to consider environmental consequences in the decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations to implement the NEPA. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] Sections 1500-1508) and 32 CFR Part 989 (*Air Force Environmental Impact*

Analysis Process), July 15, 1999, and amended March 28, 2001. These federal regulations establish both the administrative process and substantive scope of the EIAP designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. The CEQ regulations require that an EA:

- Briefly provide sufficient evidence and analysis to determine whether an EIS or FONSI should be prepared;
- Assist the agency's compliance with NEPA when no EIS is required; or
- Facilitate preparation of an EIS, when required.

The EA will analyze potential environmental impacts that could result from implementation of the Proposed Action or the Maximum Development Alternative (including demolition and construction), taking into consideration possible cumulative impacts from other relevant actions in the area. The EA will also identify required environmental permits relevant to the Proposed Action or Maximum Development Alternative Actions. As appropriate, the affected environment and environmental consequences of the No Action Alternative, Proposed Action, and Maximum Development Alternative, may be described in terms of site-specific descriptions or regional overview. Finally, the EA will identify mitigation measures to prevent or minimize environmental impacts, if required.

The following biophysical resource areas were identified for assessing the potential impacts at Bethel Manor, LTA, and HTA housing areas: noise; land use; coastal zone, air quality; infrastructure and utilities (including water supply, wastewater treatment, energy, storm water management, solid waste management, and transportation); biological resources (including vegetation and wildlife, threatened and endangered [T&E] species, and wetlands); water resources (including groundwater, surface water, and floodplains); earth resources (including geology, topography, and soil); hazardous materials and hazardous waste management (including asbestos containing materials [ACM], lead-based paint [LBP], pesticides, and Environmental Restoration Program (ERP) sites); cultural resources (including historic and archaeological), socioeconomic resources; and environmental justice.

Safety and health impacts arising from construction and maintenance of the facilities will not be evaluated, as contractors would be responsible for compliance with applicable Occupational Safety and Health Administration regulations specifying appropriate protective measures for all employees. According to the Langley AFB General Plan, all polychlorinated biphenyls (PCB)-contaminated transformers above the 50 parts per million limit have been removed from the Base (Langley AFB 2003a); therefore, the MFH areas are PCB-free, and PCBs will not be evaluated in this EA. Radon will also not be evaluated, as coastal Virginia, including Langley AFB, is located in an area where the United States Environmental Protection Agency (USEPA)-predicted average indoor screening level is less than 2 picoCuries per liter (pCi/L) (USEPA 2004). This information suggests that indoor radon concentrations in the MFH areas are below the USEPA action level of 4.0 pCi/L.

1.6 BASELINE CONDITIONS

The baseline conditions used for this EA are calendar year (CY) 2004. However, if CY04 data are not available, the most recent information will be used. It is estimated the existing MFH units would be conveyed to the privatization contractor in FY07 and that all activities would be completed approximately 7 years after initiation (*i.e.*, FY14). For analysis purposes, it is estimated that construction project activities would be distributed equally over the 7-year period. The analysis will be considered on an average annual basis for some resources (*e.g.*, potable water, wastewater, energy, municipal solid waste), while other resources such as construction waste will consider the entire 7-year construction period.

1.7 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued by the President on February 11, 1994. In the EO, the President instructed each federal agency to make "...achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Adverse is defined by the Federal Interagency Working Group on environmental justice as "...having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms." Based on analysis of impacts, a determination on significance of impacts will be made. If impacts would be significant, the Air Force would either prepare an EIS or not implement the proposal. Accordingly, environmental justice will be addressed either in a FONSI (after determination of significance of impacts) or in a Record of Decision based on an EIS.

1.8 APPLICABLE REGULATORY REQUIREMENTS

Any permits and amendments to existing permits from local, state, and federal agencies that would be required by the Proposed Action and Maximum Development Alternative would be the responsibility of the privatization contractor. As part of the general storm water permit required to be submitted by the contractor, he would ensure that a storm water pollution prevention plan (SWPPP) was prepared before initiating demolition or construction activities. The SWPPP would also include an erosion and sediment control plan in conformance with guidelines published in the Virginia Sediment and Erosion Control Handbook.

1.9 ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters.

Chapter 1 Contains an introduction; a statement of the purpose of and need for action; the location of the action; decision to be made; scope of the environmental review; discussion of baseline conditions; environmental justice; presentation of the applicable regulatory requirements; and the organization of the EA.

Chapter 2	Contains a history of the formulation of alternatives; describes the alternatives considered but eliminated from further consideration; details the proposed alternatives; presents information on past and reasonably foreseeable future actions; identifies the preferred alternative; and summarizes environmental impacts for all alternatives; and identifies necessary best management practices (BMP) to minimize impacts.
Chapter 3	Contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the No Action Alternative, the Proposed Action, or the Maximum Development Alternative.
Chapter 4	Presents analysis of the environmental consequences.
Chapter 5	Lists preparers of this document.
Chapter 6	Lists the persons and agencies consulted in preparation of this EA.
Chapter 7	Lists the sources of the information used in preparation of this EA.

Appendix A	Coastal Zone Consistency
Appendix B	Noise Information
Appendix C	Air Quality Information
Appendix D	Interagency and Intergovernmental Coordination for Environmental Planning
Appendix E	*Public Review*
Appendix F	Program Comment by the Advisory Council on Historic Preservation
Appendix G	Memorandum of Agreement
Appendix H	U.S. Geological Topographical Maps

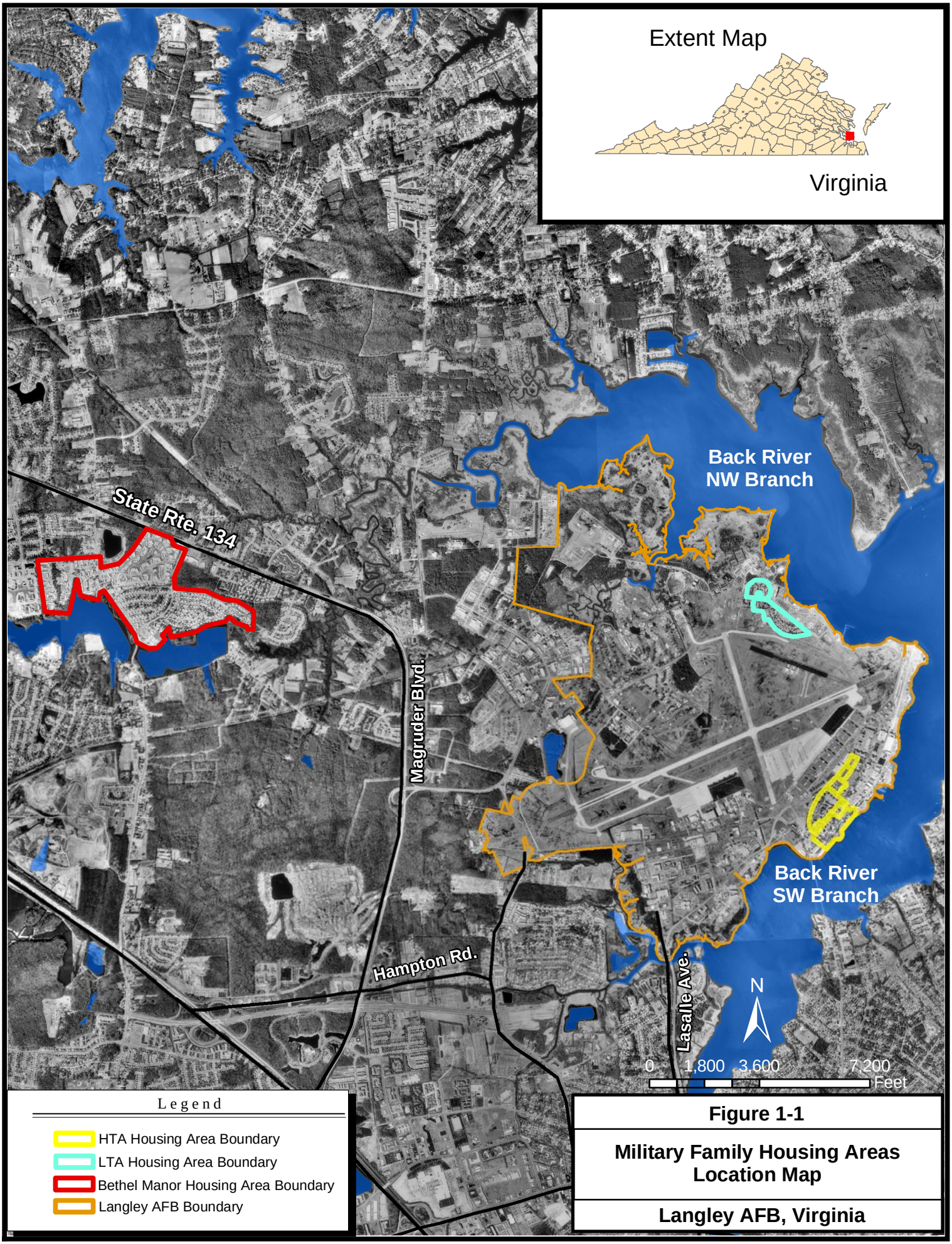


Figure 1-1

Military Family Housing Areas Location Map

Langley AFB, Virginia

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CHAPTER 2
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter discusses the following: formulation of alternatives; alternatives consideration; the No Action Alternative; the Proposed Action; the Maximum Development Alternative; other actions anticipated for Langley AFB during the period associated with the MFH privatization activity; identification of the preferred alternative, a summary of environmental impacts, and mitigation.

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

The Housing Community Plan (HCP) for the Base is used as the building block for the Base's FHMP. The goal of the HCP is to identify the current status of housing at Langley AFB so the privatization program can provide families with houses and communities that meet contemporary Air Force and local community standards of design and amenities in accordance with local construction standards and building practices. The HCP was completed in August 2005 (USAF 2005).

As part of HCP process, a Housing Condition Assessment was conducted in late 2001. The assessment used established criteria to determine if the housing units are adequate or inadequate according to Air Force standards. The assessment data indicate that 1,104 or 88.3 percent of the units at Bethel Manor are currently inadequate and require revitalization and 122 or 41 percent of the units at the LTA and HTA neighborhoods are inadequate and require revitalization.

The HCP focuses on two objectives: improving the community areas and improving individual housing units. Recommendations are provided to bring the current inventory to the standards defined in the FHMP and to extend the life of a residence to 25 years. The HCP recommendations are intended to foster a sense of identification and belonging with the home, street, and neighborhood for each family, and to make housing areas attractive and a source of pride.

The life cycle cost for privatizing all Langley AFB units is less than that for continued government ownership. To comply with DoD directives and provide the necessary improvements to MFH, the Air Force has determined that the two criteria mentioned in Subchapter 1.1 have been met and that privatization is a potentially feasible option for Bethel Manor, LTA, and HTA MFH areas.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Alternative authorities for providing MFH have been available through the Build-to-Lease Program (10 United States Code [USC] 2835), rental guarantees in accordance with 10 USC 2836, and leasing of non-excess property in accordance with 10 USC 2667. Because of changes in budget scoring rules and the advent of housing privatization initiatives, these programs are no longer considered viable options.

Given the condition of the housing units at Bethel Manor and the need to further upgrade the LTA and HTA neighborhoods, along with the demonstrated need for MFH

housing, the Air Force decided to correct the deficiencies of these housing units. Three other alternatives were developed and considered by the Air Force: MILCON funding for MFH renovation, demolition, and replacement construction; renovation of existing MFH; and construction of additional MFH on a new site.

2.2.1 MILCON Funding for Renovation, Demolition, and Replacement Construction

Renovation, demolition, and replacement construction activities conducted under this alternative would be the same as the preferred alternative, but Air Force MILCON funding would be used rather than private sector financing. The Air Force would retain ownership of the housing units. This alternative is not a viable solution and was eliminated from further consideration for the following reasons:

- Projected MILCON budgets do not have sufficient funds to correct the identified housing inadequacies before the required date of 2012 specified by the Office of the Secretary of Defense General Planning Guidance;
- Life cycle costs for privatization are less than costs for continued government ownership; and
- Bethel Manor and the LTA and HTA neighborhoods meet all Air Force criteria for privatization.

2.2.2 Renovation of Existing Housing

Under this renovation alternative, privatization of Bethel Manor (due to the historic nature of the LTA and HTA areas, renovation is directed in the Proposed Action) would take place as described under the Proposed Action. However, renovation would only be used to correct existing inadequacies. No demolition and replacement construction would be used. This alternative is not a viable solution and was eliminated from further consideration for the following reasons:

- Some units have deteriorated beyond the reasonable cost of whole unit renovation according to Air Force guidance;
- Life cycle costs for a combination of renovation, demolition, and replacement construction are less than costs for renovation only; and
- Renovation only would result in a less aesthetically pleasing housing area than is desired.

2.2.3 Construction of Additional Housing on a New Site

The Air Force considered use of private sector financing to construct new housing on a new site within, adjacent to, or in proximity to, Langley AFB. This alternative is not a viable solution and was eliminated from further consideration for the following reasons:

- The Air Force does not have authority or funding to purchase privately-owned land for MFH construction;

- Sufficient undeveloped and unconstrained (e.g., mission and environmental constraints) land that is geographically separate or severable from the main base is not available; and
- This alternative would not be consistent with ongoing privatization initiatives.

For the reasons stated in the previous subchapters, alternatives that would fund the actions to correct the deficiencies using traditional funding are not viable. Thus, the Air Force should consider the No Action Alternative and other privatization alternatives.

2.3 EXISTING MFH CONDITIONS

The MFH at Langley AFB is generally divided into five housing areas. Three of these areas are located off-Base in Bethel Manor (see Figure 2-1, at the end of this chapter). The other housing areas, HTA, and LTA, are generally located in the northeastern and southeastern portions of Langley AFB (see Figures 2-2 and 2-3, at the end of this chapter). Table 2.1 summarizes the existing Langley AFB MFH inventory.

It is estimated that, on average, each unit has approximately 1,275 square feet (ft^2) of impervious cover associated with sidewalks, driveways, garages/car ports, and patios. Based on the inventory of 1,252 units and 1,275 ft^2 of impervious surface per unit, there would be approximately 1,596,300 ft^2 of impervious cover for all MFH units in Bethel Manor. Using the existing housing area of approximately 272.7 acres (See Subchapter 2.3.1) and assuming that 10 percent of the housing area is street pavement, approximately 27.3 acres (1,189,188 ft^2) would be impervious cover, which equates to approximately 0.02 acres (950 ft^2) of impervious cover for streets per housing unit (27.3 / 1,252 = 0.02). The total amount of impervious cover, which includes sidewalks, and streets, etc would be 2,225 ft^2 (1,275 ft^2 + 950 ft^2 = 2,225 ft^2). Therefore, the total amount of impervious cover, which includes the combined area of the units, sidewalks, and streets, *etc.* (baseline total area) would be 4,637,610 ft^2 (1,851,910 + 2,785,700 = 4,637,610).

Table 2.1 Summary of Existing Langley AFB MFH Inventory and Impervious Cover

Neighborhoods and Year Units Constructed	No. of Units*	Bedrooms Per Unit Type	Average Square Footage of Unit (ft^2)**	Total Gross Living Area (ft^2)	Other Impervious Cover (ft^2)	Total Impervious Cover (ft^2)
Bethel Manor						
1500/1600/1700 Areas (Capehart)						
1960	368	3	1,272	468,096	818,800	1,286,896
1960	116	4	1,553	180,148	258,100	438,248
Subtotal	484			648,244	1,076,900	1,725,144
1800/1900 Area						
1966	116	2	1,143	132,588	258,100	390,688
1966	20	3	1,194	23,880	44,500	68,380
1970	100	2	1,186	118,600	222,500	341,100
1966	20		1,384	27,680	44,500	72,180

Table 2.1 Summary of Existing Langley AFB MFH Inventory and Impervious Cover (continued)

Neighborhoods and Year Units Constructed	No. of Units*	Bedrooms Per Unit Type	Average Square Footage of Unit (ft^2)**	Total Gross Living Area (ft^2)	Other Impervious Cover (ft^2)	Total Impervious Cover (ft^2)
Bethel Manor						
1967	32	2	1,129	36,128	71,200	107,328
1967	4	3	1,236	4,944	8,900	13,844
1967	8	4	1,384	11,0742	17,800	128,542
Subtotal	300	--	--	454,562	667,500	1,122,062
2000 Area						
1997	38	2	1,281	48,678	84,550	133,228
1975	80	3	1,601	128,080	178,000	306,080
1976	42	3	1,601	67,242	93,450	160,692
1997	64	3	1,607	102,848	142,400	245,248
1975	96	4	1,609	154,464	213,600	368,064
1976	96	4	1,609	154,464	213,600	368,064
1997	42	4	1,787	75,054	93,450	168,504
1975	6	5	1,801	10,806	13,350	24,156
1997	4	5	1,867	7,468	8,900	16,368
Subtotal	468	--	--	749,104	1,041,300	1,790,404
Bethel Manor Total	1,252	--	--	1,851,910	2,785,700	4,637,610
HTA Area						
1920	12	2	1,691	20,292	29,412	49,704
1920	39	3	1,946	75,894	95,589	171,486
1931	38	3	3,182	120,916	93,138	214,054
1932	12	3	2,993	35,916	29,412	65,328
1934	4	3	2,956	11,824	9,804	21,628
1920	1	4	1,963	1,963	2,451	4,414
1934	12	4	4,678	56,136	29,412	85,548
HTA Total	118	--	--	322,941	289,218	612,159
LTA Area						
1931	57	3	1,731	98,667	139,707	
1931	1	4	3,456	3,456	2,451	5,907
1932	34	3	1,793	60,962	83,334	144,296
1934	30	3	1,900	57,000	73,530	130,530
2003	4	4	2,150	8,600	9,8040	18,404
LTA Total	126	--	--	228,685	308,826	537,511
LTA and HTA Total	244			551,626	598,044	1,149,670
Totals	1,496	--	--	2,403,536	3,383,744	5,787,280

* *The table shows the anticipated inventory.*

** *Based on average square footage of existing units per the two, three, or four bedroom house categories (Johnson 2006a).*

Note: Impervious cover is estimated at 2,225 ft^2 per existing MFH unit in Bethel Manor and 2,451 ft^2 for the HTA and LTA housing areas.

Since Bethel Manor and the on-Base housing areas are geographically separated, the total baseline impervious cover for the LTA and HTA areas should be separate. Therefore, based on the inventory of 244 total units and 1,275 ft^2 of impervious surface per unit, there would be approximately 311,100 ft^2 of impervious cover for all MFH units in the on-Base housing areas. Using the existing housing areas of approximately 66.7 acres (See Subchapter 2.3.1) and assuming that 10 percent of the housing areas are street pavement and parking areas, approximately 6.7 acres (291,852 ft^2) would be

impervious cover, which equates to approximately 0.027 acres (1,176 ft^2) of impervious cover for streets per housing unit (6.7 / 244 = 0.027). The amount of impervious cover, which includes sidewalks, and streets, etc would be 2,451 ft^2 (1,275 ft^2 + 1,176 ft^2 = 2,451 ft^2). Therefore, the total amount of impervious cover, which includes the combined area of the units, sidewalks, and streets, *etc.* (baseline total area) would be 1,149,670 ft^2 (551,626 + 598,826 = 1,149,670).

2.3.1 Bethel Manor

The Bethel Manor Housing Area is geographically separate from Langley AFB. It is a satellite residential and recreational complex located in York County, Virginia approximately 3 miles west of Langley AFB. Bethel Manor consists of 1,252 housing units in a 272.7-acre area. It is composed primarily of junior and senior non-commissioned officers and company and field-grade officers. The housing area consists of four neighborhoods commonly referred to as the 1500 and 1600 Area, 1600 and 1700 Area, 1800 and 1900 Area, and 2000 Area. Capehart housing, 1500 through 1700 areas, is the oldest of the housing areas in Bethel Manor. These units were constructed in 1960. The 1800 and 1900 Area in Bethel Manor was constructed in 1966 while the 2000 area was constructed in 1975 and 1997. No units in Bethel Manor have ever been renovated.

Approximately 33 acres of the southern portion of Bethel Manor in the Capehart Area are located in the 100-year floodplain. This area includes approximately 39 existing structures.

Bethel Manor is located on the northern bank of Big Bethel Reservoir, an impounded section of Brick Kiln Creek. The stream has been impounded since 1918. Until late 2004, Big Bethel Reservoir supplied drinking water to Bethel Manor, Langley AFB, and Fort Monroe in Hampton, Virginia via the Big Bethel Water Treatment Plant operated by the U.S. Army. Water is currently being supplied by the Newport News Water Works (Langley AFB 2003a). The Bethel Manor Housing Area contains supplemental housing units for Base personnel and their families, in addition to education, recreation, retail, and religious support facilities. A detached recreational park area associated with Bethel Manor is located on the south bank of Big Bethel Reservoir. The park is owned by the Air Force.

2.3.2 HTA Area

The HTA District of Langley AFB is composed primarily of officers housing, administrative areas, and community-related buildings, many of which are eligible for the NRHP. The district comprises 208 acres, has an elongated shape with its major axis aligned northeast to southwest. The Back River is the easternmost boundary and the western boundary is the flight line. All of the HTA area is at an elevation below the 100-year floodplain.

The HTA neighborhood consists of 118 historic MFH units housing company grade, field grade, senior, and general officer quarters on 42.79 acres adjacent to the southwest branch of the Back River in the southeast quarter of the Base. Fifty of the 118 HTA units

have been renovated since FY 2000. The HTA neighborhood contains detached garages for the housing units, which would also be privatized along with the units themselves, and other support facility buildings such as Distinguished Visitor Quarters, administrative, and mission support facilities. There are six administrative buildings intermingled within the HTA neighborhood. Other support facility buildings (utility faults and lift stations) located within the housing areas are also part of the proposed privatization.

The housing area consists of single family and multiple family housing units. The English Tudor Revival style is prevalent. These structures are organized in a pleasant community setting with tree-lined streets. Sweeney Boulevard separates the aircraft maintenance structures from the administrative and residential areas. The housing units are composed of masonry, have sloped roofs, and have masonry detailing. Other features include wood half-timbering, stucco, limestone and wood door and window surrounds. Some of the older units in the HTA area are also an English-cottage style of architecture, compared to the more high-style Tudor Revival architecture of the 1930s era construction.

2.3.3 LTA Area

The LTA District of Langley AFB is primarily composed of enlisted housing quarters with some community and administrative buildings to the north and south. Outdoor recreation areas are interspersed throughout the area. This district comprises 142 acres, has an elongated shape with its major axis aligned west to east. The district is located in the northeast portion of the Base between the Northwest Branch of the Back River, Tabb Creek, and the north aircraft-parking apron. The semi-radial pattern is historic to the period and is reflected in historical and new developments in the Tidewater Area. Approximately 99 percent of the LTA area is at an elevation below the 100-year floodplain.

Like the HTA District, residential structures are organized into a pleasant community setting. The buildings are in a Colonial Revival style. There are essentially two neighborhood areas both developed in the 1930s. Each neighborhood is organized around curvilinear streets, one with a chapel as its focal point. Even thought the LTA is less ornate than the residential structures in the HTA District, screened porches, sloped roofs, brick and stucco walls, and exposed painted timbers are elements that characterize these structures. The community and administrative buildings relate in a way to the residential areas by sharing sloped roofs and brick masonry walls. An industrial area is situated to the north of this area, but is well- separated by a main thoroughfare and open space.

The LTA neighborhood consists of 126 units with detached garages, which would also be privatized along with the units themselves, 122 historic MFH units and four non-historic units that house senior non-commissioned officers on 23.91 acres in the northeast quarter of the Base adjacent to the southwest branch of the Back River. Seventy two of the 126 LTA units have been renovated since 2000. Four new units were built in 2003

and 14 duplexes would be converted into seven Prestige Houses during privatization and are included in the total of 126 units.

2.4 DESCRIPTION OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the Bethel Manor, LTA, and HTA family housing areas would not be privatized and Langley AFB would continue to operate the housing area under current budget constraints. Military personnel and dependents would continue to reside in the existing housing units, which would remain Air Force property. The No Action Alternative would not fulfill the need for the Air Force to provide suitable housing for its military members.

The No Action Alternative, or maintaining the status quo, is not desirable because many units are deteriorating, and existing resources would not allow for renovation of required units to meet Air Force housing standards or current building codes. Nonetheless, CEQ regulations specify that the No Action Alternative be carried forward for analysis to identify potential impacts that might occur if the Proposed Action were not implemented. In addition, the No Action Alternative serves as a baseline for comparison to the Proposed Action.

Based on the total MFH requirement of 1,430 units (USAF 2003), there would be a surplus of 68 MFH units (55 units in Bethel Manor and 13 units in the HTA and LTA areas). Under the No Action Alternative, 55 units managed by Langley AFB in Bethel Manor would be demolished. According to the HRMA requirements for two, three, and four bedroom units, there is a surplus of 103 three-bedroom units at the Base. Therefore, it is anticipated the Air Force would demolish 55 of the three-bedroom units in Bethel Manor constructed in 1960. Since the occupancy rate of military families living on-Base is 89 percent (USAF 2003), it is assumed that families required to vacate the 55 surplus units earmarked for demolition would be housed in on-Base MFH units, whenever possible. Prior to the privatization initiative, the Air Force would demolish 16 of these surplus units in the Capehart area of Bethel Manor in FY06 and FY07 to make room for a new Army and Air Force Exchange Service (AAFES) gas station and shoppette. The 16 surplus units designated for demolition are discussed further in Subchapter 2.7.

The 55 surplus units to be demolished in the Capehart area of Bethel Manor would include the 39 structures located in the 100-year floodplain in the southern portion. These units would not be replaced. Total impervious cover would decrease by 192,335 ft^2 as a result of demolishing 55 of the 1,272 ft^2 units from 1960 (55 x 1,272 + 55 x 2,225 = 192,335).

2.5 DETAILED DESCRIPTION OF THE PROPOSED ACTION

Under the Proposed Action, the Air Force proposes to convey 1,496 MFH units and associated infrastructure to a privatization contractor selected under a competitive process. The Air Force would also lease approximately 350 acres of land associated with the MFH community to the privatization contractor. The privatization contractor would plan, design, develop, demolish, construct, own, operate, maintain, and manage for

50 years a 1,430-unit housing development, including all paving, drainage, and any utilities conveyed by the Air Force or constructed by the contractor. It is anticipated the contractor would demolish 1,104 of the 1,252 units in the Bethel Manor area and construct 1,049 replacement units, construct two units in the HTA area, renovate 109 units (47 units in the LTA and 62 units in the HTA area), and convey 270 units "as is" (148 units in the 2000 area of Bethel Manor, 72 units in the LTA area, and 50 units in the HTA area).

It is estimated that construction and demolition activities associated with the Proposed Action would be initiated during FY06 and completed within 7 years from the start date (FY13). The housing units to be conveyed are located within the six existing MFH neighborhoods shown in Figures 2-1, 2-2, and 2-3 at the end of this chapter.

The contractor would provide private sector financing to correct existing housing inadequacies. This would involve renovation of some units, and demolition and replacement of other units. Units that currently meet Air Force standards and require no major work would also be conveyed to the contractor, as would the existing housing maintenance areas. The total number of housing units would change from 1,496 to a total end-state of 1,430 units at project stabilization under the Proposed Action. A total of 55 surplus units would be removed from the Bethel Manor area. In the HTA area, 12 units would be converted to six Senior Officer's quarters for a total of six surplus units. For the LTA area, 14 units would be converted to seven Chief Prestige units for a total of seven surplus units (total surplus reduction of 68 units) Two new units would be constructed in the HTA area thereby reducing the total amount of surplus units from 68 to 66. Sixteen surplus units in the Bethel Manor area would be demolished prior to the privatization initiative. Therefore, the total end-state of housing units would be 1,197 units in Bethel Manor, 114 units in the HTA area, and 119 units in the LTA area (Johnson 2006a). This action is evaluated under cumulative conditions discussed in Subchapter 2.7. The privatization contractor would be responsible for leasing the housing units, maintaining the housing units, and performing property management services. The education, recreation, retail, religious, administrative, transient quarters, and emergency support facilities located within housing area boundaries would not be conveyed.

The units have been characterized into five areas as shown in Table 2.2. The areas were determined based on geographic location that coincides to some extent to construction date and type. These areas are referred to as Capehart (units numbered 1500 - 1600 and 1600 - 1700), 1800/1900 Area, 2000 Area, LTA area, and HTA area. The Housing Condition Assessment conducted in 2001 indicated that 1,120, or 88.3 percent, of the housing units at Bethel Manor are inadequate. These inadequate units include all of Capehart, all of the 1800/1900 Area, and 320 units in the 2000 Area built in 1975. The 148 units in the 2000 Area built in 1997 are adequate. The inadequate units in the LTA and HTA areas are split between the two areas, with 47 percent of all LTA and HTA units considered inadequate and in need of whole house renovation.

Table 2.2 Summary of Housing Units at Bethel Manor, LTA, and HTA Housing Areas To Be Conveyed

Housing Area	Number of Units	Year Built	Square Foot/Unit	Assessment
Capehart (1500/1600/1700 Areas)	484	1960	1,440 - 1,800	484 Inadequate
1800/1900	300	1966	1,186 - 1,384	300 Inadequate
2000	320	1975	1,508 - 1,801	320 Inadequate
2000	148	1997	1,003 - 1,581	148 Adequate
LTA	126	1920-1934	1,710 - 1,888	72 Adequate 54 Inadequate
HTA	118	1918-1934	1,675 – 5,102	50 Adequate 68 Inadequate
Total Assets	1,496			1,226 Inadequate 270 Adequate

Note: Historic housing is not required to meet current square footage requirements for military housing, and these housing units would be renovated, not demolished.
Source: Johnson 2006a

Specific plans for renovation, demolition, and replacement construction for Bethel Manor would not be developed until after selection of the privatization contractor. However, the Langley AFB FHMP indicates that approximately 44 percent of the inadequate units would require improvement (493 units) and 56 percent would require replacement (627 units). These figures are for planning purposes and do not necessarily represent the actual number of units that would be renovated or demolished and replaced. For summary purposes, it is assumed that all but 148 units built in 1997 would be demolished and replaced. Because of the historic nature of the HTA and LTA housing areas, the 122 inadequate units would require whole house renovations based on a specific plan provided by the Air Force to ensure renovations comply with the State Historic Preservation Office (SHPO) and Langley AFB requirements (Langley AFB 1999).

Under MFH privatization, the contractor is responsible for developing a comprehensive Community Development Plan (CDP) that creates a network of neighborhoods within the community by creating a full range of compatible private and shared recreation and community-desired facilities, and provides efficient and separate vehicular and pedestrian traffic patterns. The CDP, to include neighborhood layout and unit design, would not be completed until late in the privatization contractor selection process or possibly later. Units would be designed and constructed to provide modern kitchen, living room, family room, bedroom, and bath configurations with ample interior and exterior storage. Until all project activity is completed, including the design/floor plans for the units that would be constructed, the exact number of units in each neighborhood is unknown.

Bethel Manor, LTA, and HTA housing areas are currently served by the following utility systems: water, electric, natural gas, sanitary sewer, telephone, cable, and storm water drainage systems. With the exception of natural gas utilities in the LTA and HTA housing areas, all utilities would be conveyed to the privatization contractor. The

privatization contractor would be required to upgrade all conveyed utilities as required to meet current Air Force standards and may relocate and/or modernize any of these assets if the CDP requires.

In the Bethel Manor area, the CDP would include street modifications (if required by the layout), garages and parking areas, curbs and gutters, sidewalks, street lights, grading, surface and storm drainage, landscaping where appropriate, and recreational spaces. The existing street layout would be used to the maximum extent possible. It is anticipated there would be no alterations to landscaping, lighting, curb and gutter, streetlights, streets, recreational spaces, *etc*. in the Langley Field Historic District (LFHD) (described in detail in Subchapter 3.10.1 below). If the CDP for the LTA and HTA areas specifies any changes, then consultation with the SHPO would be required as these components are also contributing parts of the LFHD protected by the National Historic Preservation Act.

The CDP would incorporate pollution prevention, energy, and water conservation and water quality initiatives into all facilities and activities where practicable. The objectives of the initiatives would be to improve waste reduction and management practices; energy efficiency and energy conservation practices; water resource conservation and management (*e.g*., drought-tolerant plants); and recycling and reuse practices. Recyclable waste generated during construction would be recycled according to the type of material.

The CDP would identify vegetated areas to be marked for preservation before clearing activities would begin. Additionally, buffer zones could be either natural or established vegetation that are maintained during and after development of the housing areas and other amenities.

Site plans would be designed to avoid disturbances to wetlands and no project activities would occur in wetlands. Wetlands delineation would be accomplished by the privatization contractor during the project design phase to accurately identify and map jurisdictional wetlands. Best management practices such as a silt fence would be installed between any identified jurisdictional wetlands and the project area to prevent indirect impact to wetlands. Fencing would be used to buffer equipment operations and other activities from the wetlands.

Storm water runoff would be minimized to prevent off-site transport of sediments into water bodies at all MFH areas (*i.e.*, Big Bethel Reservoir, neighboring streams, and ponds) using natural vegetation (existing trees, shrubbery, and lawns) as much as possible to provide a buffer zone to aide in benefiting water quality.

Entrances to construction sites would be stabilized before beginning construction activities. If a construction site entrance crosses a stream, swale, or other depression, a bridge or culvert would be provided to prevent erosion from unprotected banks.

Plans would comply with applicable federal, state, and local environmental laws and regulations, and Air Force guidance. The privatization contractor would obtain confirmatory samples to substantiate the presence of ACM and/or LBP if the Air Force

does not have adequate records to substantiate the presence or absence of either of these materials. The asbestos samples would be analyzed by a certified laboratory. The privatization contractor would prepare an asbestos disposal plan and submit it to Langley AFB for approval. Personnel handling asbestos would be trained and certified in accordance with the Virginia Asbestos Regulations (18 Virginia Administrative Code 15-20-10). The new units would be constructed without ACM or LBP. The privatization contractor would be required to use asbestos-free materials.

2.5.1 Demolish Existing MFH

Specific units that would require demolition and replacement within the Bethel Manor family housing area have not yet been identified. However, units most likely to be demolished are those built prior to 1995, which include 784 units in the Capehart Area and the 1800 and 1900 Areas of Bethel Manor, and 320 units in the 2000 Area, for a total of 1,104 units. Therefore, it is assumed that all units in Bethel Manor, with the exception of the 148 units built in 1997, would be demolished. Furthermore, of the possible 1,104 units that would be demolished in Bethel Manor, only 1,049 would be replaced. No units would be demolished in the LTA or HTA housing areas under privatization.

The privatization contractor would be responsible for demolition and disposal of waste materials. Materials from units proposed for demolition would be recycled, to the greatest extent possible. The contractor would dispose of the remaining materials in an approved landfill in accordance with state and local regulations. An investigation to determine the presence of LBP and ACM would be conducted before demolition of buildings. The privatization contractor would thoroughly inspect the affected part of the buildings where the demolition or renovation operation would occur for the presence of asbestos, including Category I and Category II nonfriable 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 20-1 10-1 0 et seq.). The Proposed Action would comply with the US Department of Labor, Occupational Safety and Health Administration regulations, and the Virginia Lead-Based Paint Activities Rules and Regulations.

Existing mature trees within the housing area would be retained in place to the maximum extent practicable. Removal of mature trees would be avoided wherever possible to retain the aesthetic value of the housing areas. It is possible some mature trees may be removed if determined to be improperly placed, or growing too close to housing units marked for demolition.

Table 2.3 details the estimated number of units that would be demolished within each area of Bethel Manor, as well as the estimated maximum gross area. The privatization contractor would prepare and implement a demolition plan that provides a phased approach for demolition of existing units and infrastructure.

Soil under and immediately surrounding the housing units could contain both chlordane (a pesticide) and lead (from LBP). The privatization contractor would take the precautions necessary during demolition to disturb as little of this soil as possible. Soil

would not be removed from the site without appropriate environmental testing and prior written consent of the Base commander or designee. The privatization contractor would ensure that all workers are aware of the potential presence of chlorinated pesticides and lead in the soil.

Table 2.3 Summary of MFH Demolition Activity

Neighborhood	No. of Units	Total Area Per Unit (ft^2)*	Total Gross Living Area (ft^2)	Bedrooms Per Unit Type
Bethel Manor				
Capehart	368	1,272	468,096	3
	116	1,553	180,148	4
Subtotal	484		648,244	--
1800/1900 Area	116	1,143	132,588	2
	32	1,129	36,128	2
	100	1,186	118,600	2
	20	1,194	23,880	3
	4	1,236	4,944	3
	28	1,384	38,752	4
Subtotal	300	--	354,892	--
2000 Area	122	1,601	195,322	3
	96	1,609	154,464	4
	96	1,609	154,464	4
	6	1,801	10,806	5
Subtotal	320	--	515,056	--
Totals	1,104	--	1,518,192	--

* *Based on average square footage of existing units per two, three, or four bedroom house categories (Johnson 2006a).*

2.5.2 Replacement Construction of MFH

As previously discussed in Subchapter 2.5.1, the Air Force anticipates 1,049 units would be constructed in Bethel Manor.

Based on the lack of undeveloped land in Bethel Manor and the LTA and HTA areas as well as environmental constraints, all new construction would occur in previously disturbed areas primarily occupied by existing housing units, roads, and parking lots. The total number of housing units in Bethel Manor would be reduced by 55 units under the Proposed Action. Therefore, slight changes in housing density within a given area could happen. New construction would avoid the 100-year floodplain, and jurisdictional wetlands. Work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Resource Protection Act and the goals of the VCP. Replacement units for the 39 structures to be demolished in the 100-year floodplain in the Capehart Area would not occur. This area is expected to remain undeveloped.

Replacement housing in Bethel Manor would include street modifications (if required by the layout), garages and parking areas, curbs and gutters, sidewalks, street

lights, grading, surface and storm drainage, landscaping where appropriate, and recreational spaces (*e.g.*, playgrounds/tot lots, picnic areas, and open spaces). The existing street layout would be used to the maximum extent possible.

Replacement housing would be designed to provide modern kitchen, living room, family room, bedroom, and bath configurations with ample interior and exterior storage. Living units would be expanded to meet space authorizations in accordance with current DoD and Air Force housing guidance. Neighborhood enhancements such as outdoor recreational areas would remain unchanged. The housing would be designed in the same architectural style characterized by the surrounding housing area. The design of housing would incorporate architectural elements defined in the Architectural Compatibility Guidelines and Landscape Development Plan for Langley AFB.

The constructed units would consist of a mixture of two-, three-, and four-bedroom single-family units and multiplex units assuming the same bedroom requirements listed in the HRMA: 34 percent for two-bedroom units, 42 percent for three-bedroom units, and 24 percent for four-bedroom units (USAF 2003). Table 2.4 lists the estimated maximum gross area for the 1,049 units when all project activities are complete.

All units would be equipped with high-energy efficiency heating, ventilation, and air conditioning systems. New foundations would have soil treated for termites in accordance with state law. The discussions in Subchapter 2.5.1 for pesticides and LBP in the soil would apply to construction activities.

The new units would be designed and constructed to comply with the Air Force noise level reduction (NLR) policy to attain interior day-night average sound level (DNL) of 45 dBA. No replacement units would be constructed in the 75 dB DNL or greater noise exposure area.

Table 2.4 Proposed Action MFH Units Replacement Construction

Neighborhood	No. of Units	Total Area Per Unit (ft^2)*	Total Gross Living Area (ft^2)	Bedrooms Per Unit Type
Bethel Manor				
2 Bedroom Units	356	1,775	631,900	2
3 Bedroom Units	442	2,050	906,100	3
4 Bedroom Units	251	2,500	627,500	4
Total	1,049	--	2,165,500	--

* *Based on average square footage of replacement units per two, three, or four bedroom house categories (Johnson 2005; Johnson 2006a).*

2.5.3 Renovations to Existing MFH Units

Specific renovation plans for Bethel Manor have not been prepared. The 148 units in the 2000 Area are adequate since they were constructed in 1997. Additionally, 122 units in the LTA and HTA housing areas have had whole house renovations completed since 2000; therefore, a total of 270 units would be conveyed as-is and would not require further renovation. Of the existing 1,104 inadequate units in Bethel Manor,

approximately 320 in the 2000 Area could be renovated (those units built in 1975 and 1976); however, it is assumed those 320 units would be replaced rather than renovated.

Specific renovations would be based on identified deficiencies and would include interior and exterior improvements. Possible renovations include roof and siding replacement; replacement of heating and cooling systems; construction of carports; resurfacing driveways and parking areas; replacement/construction of decks and yard fencing; room additions; replacement of interior sheet rock and painting; kitchen and bath renovations; and interior re-wiring and lighting upgrades.

Specific renovation plans for the LTA and HTA housing areas have been prepared and executed on 72 units in the LTA area and the 50 units in the HTA area. There would be a surplus of seven units in the LTA area and six units in the HTA area that would be considered surplus. Plans would be provided to the developer to execute whole house renovations on the remaining 47 units in the LTA area and 62 units in the HTA area. Therefore, there would be a total of 109 units that would be renovated. All renovations completed by the developer in the HTA and LTA areas must be consistent with the Secretary of the Interior's Standards, as noted in the Langley AFB Cultural Resources Management Plan (CRMP), and using guidance included in the CRMP Historic Building Treatment Plans (Langley AFB 2004b). Table 2.5 details the estimated number of units that would be renovated within each neighborhood, as well as the estimated maximum gross area for the units when all project activities are complete.

An investigation to determine the presence of LBP and ACM would be conducted before renovation of buildings. Renovation of buildings that contain these materials would be conducted in accordance with applicable regulatory requirements and as previously stated in Subsection 2.5.1. The privatization contractor would ensure the proper handling and disposition of hazardous materials as well as provide proper notice to regulatory agencies.

Existing mature trees within the housing areas would be retained in place to the maximum extent practicable. Removal of mature trees would be avoided wherever possible to retain the aesthetic value of the housing areas. Retention of trees in the HTA and LTA area is required without posing an adverse impact to the LFHD. It is possible that some mature trees may be removed if determined to be improperly placed, or growing too close to housing units that would be renovated.

The majority of the HTA housing area is located within the 65–70 dBA (a-weighted sound level measured in decibels) noise exposure area; however, some of the housing units along the northeastern portion of the housing area are located within the 70–75 dBA noise area. Approximately half the units in the LTA housing areas are located within the 65–70 dBA noise exposure area, and the other half is located within the 70–75 dBA noise exposure area. These units would be designed and renovated to comply with the Air Force NLR policy to attain an interior 45 dB DNL.

Table 2.5 Summary of Proposed Action MFH Renovation Activity

Neighborhood	No. of Units	Total Area per Unit (ft^2)*	Total Gross Living Area (ft^2)	Bedrooms per Unit Type
LTA Area				
SNCO	47	2,050	96,350	3
Subtotal	47		96,350	
HTA Area				
CGO	6	1,920	11,520	2
SO	16	2,920	46,720	3
FGO	39	2,300	89,700	3
FGO	1	2,700	2,700	4
Subtotal	62		150,640	
Total	109	--	246,990	--

* *Based on maximum square footage per two, three, or four bedroom house categories (Johnson 2005).*
SNCO – Senior NCO; CGO – Company Grade Officer; SO – Senior Officer; FGO – Field Grade Officer

Additionally, prior to occupancy of renovated units where soil was previously disturbed, the privatization developer would conduct representative sampling of soil immediately surrounding the housing, gardens, and likely children's play areas. If the results exceed screening values of 1.6 milligrams per kilogram (mg/kg) for chlordane and 26 mg/kg for lead, the privatization developer would have a competent risk assessor conduct a complete risk assessment. The results of the screening sampling or a risk assessment would be provided to the Air Force for approval prior to occupancy.

2.5.4 Construct New MFH, Proposed Action

The Air Force anticipates two new units would be constructed in vacant areas of the HTA housing area. The constructed units would consist of four-bedroom single-family units for senior officers. Since the HTA area is below the 100-year floodplain elevation, the first floor of these units would be elevated above the 100-year flood elevation. Table 2.6 lists the estimated maximum gross area for the two units when all project activities are complete.

Table 2.6 Proposed Action MFH Units New Construction

Neighborhood	No. of Units	Total Area Per Unit (ft^2)*	Total Gross Living Area (ft^2)	Bedrooms Per Unit Type
HTA	2	2,700	5,400	4
Totals	**2**	**--**	**5,400**	**--**

* *Based on the most conservative square footage (i.e., highest square footage) per the four-bedroom house categories*

The new housing units would be designed to provide modern kitchen, living room, family room, bedroom, and bath configurations with ample interior and exterior storage. Living units would be expanded to meet space authorizations in accordance with current DoD and Air Force housing guidance. Neighborhood enhancements such as outdoor recreational areas would remain unchanged. The housing would be designed in the same

architectural style characterized by the surrounding housing area. The design of housing would be compatible with the surrounding LFHD. Some guidance on new construction within the LFHD is included in the CRMP.

The two units would be equipped with high-energy efficiency heating, ventilation, and air conditioning systems. New foundations would have soil treated for termites in accordance with state law. The discussions in Subchapter 2.5.1 for pesticides and LBP in the soil would apply to construction activities.

The new units would be designed and constructed to comply with the Air Force NLR policy to attain interior DNL of 45 dBA. No units would be constructed in a DNL 75 dBA or greater noise exposure area.

2.5.5 Summary of Proposed Action MFH Activities

Table 2.7 summarizes the estimated maximum gross area for the 1,430 units when all project activities are complete. The table also compares the Proposed Action end total and the baseline condition for a net change. Using the information from Table 2.1, the 148 units from Bethel Manor to be conveyed were assumed to be the units constructed in 1997. Additionally, the 122 units in the HTA and LTA housing areas that have already been remodeled were assumed to the units constructed in 1931 and 1932.

The baseline condition includes a total square footage of 5,787,280 ft^2. This includes a total area of 2,403,536 ft^2 for the housing units, and impervious cover estimated at 3,383,744 ft^2. Impervious cover for baseline conditions assumes 2,225 ft^2 per unit for the units in Bethel Manor and 2,451 ft^2 per unit for the units in the HTA and LTA areas (see Subchapter 2.3 and Table 2.1). It is estimated that, on average, each newly constructed unit would have approximately 1,650 ft^2 of impervious cover associated with sidewalks, driveways, garages/car ports, off-street parking, and patios. Based on a final inventory of 1,430 units, there would be about 5,462,693 ft^2 of total impervious cover, which is 324,587 ft^2 less than the baseline condition. Although the existing street pattern may be altered to accommodate the layout of housing units, it is estimated there would be no increase in the surface area of streets within the MFH neighborhoods due to the Proposed Action. Thus, the impervious cover associated with streets would not exceed the current condition.

Table 2.7 Summary of Proposed Action MFH Units

	No. of Units	Total Gross Living Area (ft^2)	Other Impervious Cover (ft^2)	Total Impervious Cover (ft^2)
Bethel Manor				
Convey as-is*	148	234,048	329,300	563,348
Construct	1,049	2,165,500	1,730,850	3,896,350
Total Requirement	1,197	2,399,548	2,060,150	4,459,698
Total Asset	1,252	1,851,910	2,785,700	4,637,610
Net Change	-55	547,638	-725,550	-177,912
HTA and LTA				
Convey as-is*	72	127,225	176,472	303,697
Convey as-is*	50	141,208	122,550	263,758
Construct	2	5,400	3,300	8,700
Renovate	109	246,990	179,850	426,840
Total Requirement	233	520,823	482,172	1,002,995
Total Asset	244	551,626	598,044	1,149,670
Net Change	-11	-30,803	-115,872	-146,675
Total requirement for all housing	1,430	2,920,371	2,542,322	5,462,693
Total Asset for all housing	1,496	2,403,536	3,383,744	5,787,280
Total Net Change	-66	516,835	-841,422	-324,587

** Johnson 2006a and Table 2.1.*

2.6 MAXIMUM DEVELOPMENT ALTERNATIVE

Under the Maximum Development Alternative, the Air Force proposes to convey 1,496 existing MFH units and associated infrastructure to a privatization contractor. The contractor would then demolish all 1,252 units in Bethel Manor and construct 1,211 replacement units. The units located in the 100-year floodplain in the Capehart Area would not be replaced with new units. This area is expected to remain undeveloped after demolition of the units. Construction and renovation activities in the LTA and HTA housing areas would remain the same as the Proposed Action.

All improvements and construction of units would be built on available acreage in Bethel Manor (272.7 acres). Similar to the Proposed Action, it is anticipated the contractor would renovate 109 units (47 units in the LTA and 62 units in the HTA area), construct two new units in the HTA area, and convey 122 units "as is" in the LTA and HTA housing areas. This alternative includes privatization for a 50-year term for a maximum of 1,444 units (1,211 + 109 + 2 + 122 = 1,444).

The privatization contractor would manage a total of 1,444 units. Other than the specific information concerning the numbers of units, the Proposed Action discussion in

Subchapter 2.5 concerning the CDP, wetlands, storm water, and environmental laws and regulations would apply to the Maximum Development Alternative.

2.6.1 Demolish Existing MFH, Maximum Development Alternative

All 1,252 units in the Bethel Manor would be demolished. Tables 2.1 and 2.3 detail the estimated number of units that would be conveyed and demolished within Bethel Manor, as well as the estimated maximum gross area. The privatization contractor would prepare and implement a demolition plan that provides a phased approach to demolition of existing units and infrastructure. The soil pesticide discussion in Subchapter 2.5.1 applies.

2.6.2 Construct New MFH, Maximum Development Alternative

The Air Force anticipates 1,213 units would be constructed. Table 2.8 details the estimated maximum gross area for the 1,213 units when all project activities are complete. The Proposed Action construction activity discussion in Subchapter 2.5.2 would apply to the Maximum Development Alternative.

It is estimated the constructed units would consist of a mixture of two-, three-, and four-bedroom multiplex units, as follows: 34 percent for two-bedroom units, 42 percent for three-bedroom units, and 24 percent for four-bedroom units (USAF 2003).

Table 2.8 Maximum Development Alternative MFH Units Construction

Designation	No. of Units	Total Area Per Unit (ft^2)*	Total Gross Living Area (ft^2)
Bethel Manor			
2 Bedroom Units	412	1,920	791,040
3 Bedroom Units	509	2,300	1,170,700
4 Bedroom Units	290	2,700	783,000
HTA Area			
4-Bedroom Units	2	2,700	5,400
Total	1,213	--	2,750,140

* *Based on most conservative square footage (highest square footage) per the two, three, or four bedroom house categories.*

2.6.3 Summary of Maximum Development MFH Activity

Table 2.9 summarizes the estimated maximum gross area for the 1,211 replacement units in Bethel Manor, construction of two new units in the HTA area, and renovation of 109 units in the LTA and HTA areas when all project activities are complete. The table also summarizes the Maximum Development Alternative final state, following construction.

Table 2.9 Summary of Maximum Development Alternative MFH Units

	No. of Units	Total Gross Living Area (ft^2)	Other Impervious Cover (ft^2)	Total Impervious Cover (ft^2)
Bethel Manor				
Construct	1,211	2,744,740	1,998,150	4,742,890
Total Requirement	1,211	2,744,740	1,998,150	4,742,890
Total Asset	1,252	1,851,910	2,785,700	4,637,610
Net Change	-41	892,830	-787,550	105,280
HTA and LTA				
Convey as-is*	72	127,225	176,472	303,697
	50	141,208	122,550	263,758
Construct	2	5,400	3,300	8,700
Renovate	109	246,990	179,850	426,840
Total Requirement	233	520,823	482,172	1,002,995
Total Asset	244	551,626	598,044	1,149,670
Net Change	-11	-30,803	-115,872	-146,675
Total requirement for all housing	1,444	3,265,563	2,480,322	5,745,885
Total Asset for All Housing	1,496	2,403,536	3,383,744	5,787,280
Total Net Change	-52	862,027	-903,422	-41,395

** Square footage of existing units is already included in the baseline.*

It is estimated that, on average, each newly constructed unit would have approximately 1,650 ft^2 of impervious cover associated with sidewalks, driveways, garage/car port, off-street parking, and patios. Baseline total square footage is estimated by assuming 1,275 ft^2 for impervious cover. Based on 1,213 units and 1,650 ft^2 of impervious surface per newly constructed, renovated units, and conveyed units, there would be about 5,745,885 ft^2 of impervious cover, which includes the total area of the 1,213 newly constructed units. Similar to the Proposed Action, it is assumed there would be no increase in the surface area of streets within the MFH neighborhoods. Thus, there would be about 41,395 ft^2 less than the baseline condition (*i.e.*, 5,787,280 ft^2).

2.7 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS IN THE REGION OF INFLUENCE

A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts most likely arise when a relationship exists between a proposed action and other actions that are expected to occur in a similar location or during a similar time period. Actions occurring in the same location or in proximity to each other would be expected to have more potential for cumulative impacts than geographically separated actions. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative impacts.

This EA includes an analysis to determine if the incremental impacts of the action, when added to other past, present, and reasonably foreseeable future actions, would result in cumulative impacts. As previously discussed in Subchapter 2.4, a new AAFES gas station and shoppette would be constructed at Bethel Manor. These facilities would not be conveyed to a privatization contractor. Sixteen housing units (units numbered 1500, 1501 – 1505, 1507, and 1577) would be demolished prior to the privatization initiative to make room for the new AAFES facility. In addition, the existing AAFES gas station would be demolished to allow for expansion of the Youth Center.

No other non-Air Force planned or foreseeable future actions surrounding the MFH areas were identified. The Bethel Manor and on-Base housing areas are geographically separated from each other. Therefore, past and future actions at the main Base would have little or no effect on local resources at the housing areas. However, actions at the main Base and MFH areas could affect the same regional resources (*e.g.,* air quality, solid waste, and socioeconomic resources).

Several major construction projects have been identified for FY06 through FY16, based on the Langley AFB General Plan, for an estimation of cumulative impacts that would occur during the time period associated with the Proposed Action and Maximum Development Alternative. These actions are not related to the Proposed Action or Maximum Development Alternative evaluated in this EA, but are for additional actions announced for the Base. The environmental impacts of these additional actions have or will be analyzed in separate NEPA documents and are addressed herein only in the context of potential cumulative impacts, if any. Table 2.10 lists the projects and the square footage for each project. Figures 2-2, 2-3, and 2-4 at the end of this chapter depict other action projects located in the HTA, LTA, and Bethel Manor housing areas, respectively. The figure identification numbers (ID No.) listed in the table are shown on the figures to locate the construction projects. None of these projects would result in an overall increase in Base personnel.

Table 2.10 Other Actions Considered for Cumulative Impact Purposes

Project Title	Project Number	Figure ID No.	Estimated Project Start Date	Construction (ft^2)	Demolition (ft^2)
Demolish 16 Capehart Units	TBD	1	FY06	-	21,214
Demolish Bethel Manor Youth Center	TBD	2	FY06	-	19,617
Demolish Bethel Manor Shoppette	TBD	3	FY06	-	4,598
Construct AAFES Gas Station and Shoppette at Bethel Manor	MUHJ033010	4	FY07	24,412	-

Table 2.10 Other Actions Considered for Cumulative Impact Purposes (continued)

Project Title	Project Number	Figure ID No.	Estimated Project Start Date	Construction (ft^2)	Demolition (ft^2)
Expand Bethel Manor Youth Center	MUHJ030002	5	FY07	32,173	-
Sub Total of off-Base Projects				56,585	45,429
Construct Consolidated Communications Operations Facility (2 Stories)	MUHJ053005	6	FY09	87,284	-
Demolish Seaplane Hangar (Bldg 633)	TBD	7	FY05	-	40,552
Demolish White Houses (Bldgs. 868, 869, 948, & 949)	TBD	8	FYO5	-	5,207
Renovation of Bay View Towers*	TBD	9	TBD	158,800	-
Renovation of Enlisted Club*	TBD	10	TBD	37,808	-
Sub Total of on-Base Projects				283,892	45,759
Totals				340,477	91,188

** Assumes no increase in impervious cover.*

2.8 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The Proposed Action is the Preferred Alternative.

2.9 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2.11 summarizes the impacts of the No Action Alternative, the Proposed Action, and the Maximum Development Alternative.

2.10 MITIGATION

Best management practices are incorporated into the EA to minimize impacts.

Table 2.11 Summary of Environmental Impacts for the No Action Alternative, Proposed Action, and Maximum Development Alternative

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
Noise	**Off-Base:** Noise associated with demolition of 55 surplus units at Bethel Manor would be temporary and intermittent, lasting only as long as the demolition activities. There could be periods of time during which demolition noise could be discerned and provide minor annoyance to speech interference and loss of sleep for MFH personnel who normally sleep during the day. **On-Base:** No construction or demolition activity would occur in the on-Base LTA and HTA housing areas. The primary source of noise would continue to be from aircraft operations.	**Off-Base:** The analysis and conclusions for the No Action Alternative apply to the Proposed Action. Construction noise may be annoying at times. **On-Base:** The HTA and LTA neighborhoods are within the DNL 65-80 dBA noise contour. Fifty of the HTA units and 72 of the LTA units have been renovated and are likely compatible with NLR standards. The 11 units constructed in 2003 in the LTA Area would have been subject to NLR standards, and are likely compatible with NLR standards. The 109 units to be remodeled within HTA and LTA areas would be subject to NLR standards. As with the No Action Alternative, the primary source of noise would continue to be from aircraft operations. The two new housing units in the HTA area would be designed and constructed to meet Air Force NLR criteria.	**Off-Base:** The analysis and conclusions for the No Action Alternative and Proposed Action apply to the Maximum Development Alternative. **On-Base:** The analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative.
Land Use	**Off-Base:** Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Sixteen of the 55 units would be demolished in Bethel Manor to make way for the new AAFES gas station would be re-categorized as community commercial. There would be no change in management of the remaining land use resources. **On-Base:** No construction or demolition activity would occur in the on-Base LTA and HTA housing areas. The existing housing units are consistent with the Langley AFB General Plan.	**Off-Base:** It is anticipated that no additional land would be needed to accommodate the activities associated under privatization. The Bethel Manor Areas are designated as housing-accompanied in the Langley AFB General Plan. Thus, continued use of these neighborhoods for MFH would be compatible with the General Plan and would not need to be recategorized to accommodate the Proposed Action. **On-Base:** The analysis and conclusions for Off-Base land use apply. The two new housing units to be constructed in the HTA area would be compatible with the surrounding housing area.	**Off-Base:** The analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative. **On-Base:** The analysis and conclusions for the Proposed Action On-Base land use apply.
Coastal Zone	The No Action Alternative would have no reasonably foreseeable effect on the Coastal	The Proposed Action would have no reasonably foreseeable effect on the Coastal Lands Management policy of the Virginia Coastal	The Maximum Development Alternative would have no reasonably foreseeable effect on the Coastal Lands Management policy of the VCP.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	Lands Management policy of the VCP.	Resources Management Plan (VCP). Work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Preservation Act and the goads of the VCP.	Work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible to be consistent with the Chesapeake Bay Preservation Act and the goals of the VCP.
Air Quality	The greatest emissions from demolition activity would be would be particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}) (1.70 tons per year [tpy]), which equates to 0.02 percent of the PM_{10} emissions within the Hampton Roads air quality control region (AQCR). Emissions would be temporary and eliminated after the project is completed. A conformity determination would not be required because the associated emissions would not be expected to exceed or violate air quality standards.	The greatest annual emissions and greatest percentage of emissions within the Hampton Roads AQCR would be PM_{10} (104.5 tpy), which equates to 1.67 percent of the PM_{10} emissions inventory. Discussions on the temporary nature of emissions and conformity determination analysis for the No Action Alternative apply.	The greatest annual emissions and greatest percentage of emissions within the Hampton Roads AQCR would be PM_{10} (111.3 tpy), which equates to 1.78 percent of the PM_{10} emissions inventory. Discussions on the temporary nature of emissions and conformity determination analysis for the No Action Alternative apply.
Infrastructure and Utilities	**Off-Base:** Due to the overall reduction of 55 military families, water consumption would be 0.015 million gallons per day (mgd) less than baseline conditions. Wastewater generation would be 0.016 mgd less than baseline conditions. Electrical usage would decrease by 2,308 kilowatt hours (kWH) per day. Natural gas usage would decrease by 7.7 4 million cubic feet (mcf) per day. Demands on the regional water, wastewater, electricity, and natural gas systems would not exceed baseline levels since there would be no net change in personnel assigned to Langley AFB and because the distribution systems serve both the Base and York County. Impervious cover would decrease by 3.2 acres	**Off-Base:** Due to the overall reduction of military families, water consumption would be 0.03 mgd less than baseline conditions. Wastewater generation would be 0.03 mgd less than baseline conditions. Electrical usage would increase by 21,361 kWH per day, which equate to an approximate 35 percent increase when compared to the average daily baseline rate. Natural gas usage would increase by 71.2 mcf per day, which equates to a 35 percent increase over the baseline. Impervious cover would decrease by 4.1 acres or 3.9 percent, which corresponds to an decrease in storm water runoff. A general storm water construction permit from VDCR, erosion control and storm water pollution prevention plan discussion for	**Off-Base:** Due to the overall reduction in the number of military families, water consumption would be 0.027 mgd less than baseline conditions. Wastewater generation would be 0.028 mgd less than baseline conditions. Electrical usage would increase by 29,463 kWH per day, which equates to an approximate 48.3 percent increase when compared to the average daily baseline rate. Natural gas usage would increase by 98.2 mcf per day, which equates to a 48.6 percent increase over the baseline. Impervious cover would increase by 2.5 acres or 2.3 percent, which corresponds to an increase in storm water runoff. A general storm water construction permit from VDCR, erosion control

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	or 3 percent, which corresponds to a decrease in storm water runoff. A general storm water construction permit from the Virginia Department of Conservation and Recreation (VDCR) and storm water pollution prevention plan would be required. The plan would include standard erosion and sediment control practices to minimize potential impacts to soils and surface water resources. Erosion control techniques would be used during demolition to minimize erosion and protect surface water quality. Demolition debris equates to 0.02 percent of the total remaining capacity of the landfill. Traffic congestion that could occur from the MFH demolition projects would be short-term and would be eliminated when the demolition activities are completed. It is estimated that 55 less vehicles would enter and exit the housing area. **On-Base:** The MFH units would not be privatized and the units would continue to be maintained by the Air Force. There would be no demolition or replacement of units. The existing units would continue to be used to house military families and there would be no change in the water supply, wastewater discharge, volume of stormwater runoff, energy demand, volume of solid waste generation, and transportation from baseline conditions.	the No Action Alternative apply. Demolition debris equates to 0.51 percent of the total remaining capacity of the landfill. Discussions on traffic congestion and use of less vehicles analysis for the No Action Alternative apply. Traffic flow should remain the same within Bethel Manor after all activity is complete. Commuting patterns of residents would change as they are displaced to temporary housing during construction. However, local traffic patterns or traffic to and from Langley AFB would not be altered. Construction workers would commute to and from Bethel Manor and equipment would be transported to and from the site during construction. However, traffic associated with these activities would be offset by the reduction in residents living at Bethel Manor during construction. **On-Base:** Due to the reduction in number of on-Base residents, water consumption would decrease 9,010 gallons per day (gpd) less than baseline conditions. Wastewater generation would be 5,512 gpd less than baseline conditions. Electrical usage would increase by 1,197 kWH per day, which equates to an increase of 7.3 percent. Natural gas usage would increase by 3.6 mcf per day, which equates to an increase of 7.4 percent. Impervious cover would decrease by 3.4 acres or 2.9 percent from the baseline, which corresponds to a decrease in storm water runoff. Demolition debris equates to 0.08 percent of the total remaining capacity of the landfill. Disruption to traffic within the existing housing areas would not be anticipated. There would be no change in traffic patterns and traffic flow should remain the same as the baseline conditions.	and storm water pollution prevention plan discussion for the No Action Alternative apply. Demolition debris equates to 0.63 percent of the total remaining capacity of the landfill. Discussions from the Proposed Action concerning traffic patterns, flow of traffic, and construction workers commuting to and from Bethel Manor apply. Traffic congestion that could occur from the MFH construction and renovation projects would be short-term and would be eliminated when construction activities are completed. **On-Base:** The Maximum Development Alternative is identical to the Proposed Action for on-Base housing. The analysis for the resource areas in the Proposed Action would apply to the Maximum Development Alternative. Therefore, the water supply, wastewater discharge, volume of storm water runoff, energy demand, solid waste generation, and transportation would be the same.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
Biological Resources	**Off-Base:** **Vegetation and Wildlife** Demolition activities would disturb vegetation primarily consisting of lawns, urban trees, and ornamental shrubs. Due to its developed nature, the Bethel Manor housing area generally lacks suitable wildlife habitat. The activities would not substantially change habitat for plant or animal species, nor would they diminish an important plant or animal species. **Threatened and Endangered Species** No threatened, endangered (T&E), or special status species are documented within the housing area; however, some species have been documented between 0.25 and 1 mile of easternmost portion of Bethel Manor. The Virginia Department of Conservation and Recreation (VDCR) and the Virginia Department of Game and Inland Fisheries (VDGIF) stated the project is not anticipated to adversely impact the natural heritage resources, any documented state-listed plants or insects, or Federal or state T&E species. Trees and shrubs would be retained to the greatest extent possible. Areas of natural vegetation would not be disturbed. Use of BMPs, silt fences, and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites. **Wetlands** There would be no changes in wetlands, as no wetlands appear to be present in the developed areas of Bethel Manor that would be disturbed during demolition activities. Additionally, given that the MFH units would be maintained in their present location, there	**Off-Base:** **Vegetation and Wildlife** Construction and demolition activities would occur within developed, maintained areas with highly modified and disturbed landscape typical of urban residential or recreational areas. Similar to the No Action Alternative, there would be disturbances to vegetation consisting primarily of lawns, urban trees, and ornamental shrubs. The discussion on trees, areas of natural vegetation, and use of BMPs for the No Action Alternative apply. **Threatened and Endangered Species** Discussions concerning T&E or special status species in the No Action Alternative apply. Use of BMPs, silt fences, and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites. **Wetlands** Approximately 1.6 acres of non-tidal wetlands are located along the southern property boundary adjacent to Big Bethel Reservoir. These potential wetlands are outside the area that would be disturbed by the proposed demolition and construction. No tidal wetlands are located within the property boundary. There would be no reasonably foreseeable effect on the wetlands management policy of the VCP and no significant impact to wetlands. **On-Base:** **Vegetation and Wildlife** Similar to Bethel Manor, Proposed Action construction and demolition activities associated with the LTA and HTA neighborhoods would occur within developed, maintained areas with highly modified and disturbed landscape typical of urban residential or recreational areas. Additionally, the level of	**Off-Base & On-Base:** The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that a greater number of units would be constructed in the Bethel Manor neighborhood. No additional land, vacant or occupied would be used under the Maximum Development Alternative. Therefore, the analysis for the No Action Alternative and Proposed Action would be the same for the Maximum Development Alternative.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	would be no change in the floodplain status for the MFH areas. There would no significant impact to vegetation and wildlife, T&E or special status species, or wetlands. **On-Base:** No demolition or construction would occur in the on-Base housing areas. Therefore, baseline conditions for biological resources would not change.	ground disturbance activity would be substantially less in the on-Base housing areas than at Bethel Manor. The activities would not substantially change habitat for plant, nor would they diminish an important plant species. Since the land use is the same for both the Proposed Action and No Action Alternative, the analysis for the No Action Alternative would be the same for the Proposed Action. **Threatened and Endangered Species** The Proposed Action construction, renovation, and demolition activities associated with the LTA and HTA MFH neighborhoods would occur within the existing MFH neighborhoods where the land has been previously disturbed. Discussions concerning T&E or special status species in the No Action Alternative apply. Since the land use is the same for both the Proposed Action and No Action Alternative, the analysis for the No Action Alternative would be the same for the Proposed Action. **Wetlands** There are no wetlands in the vicinity of the housing areas.	
Water Resources	**Off-Base:** **Groundwater** Construction activities would not involve groundwater withdrawals or use of groundwater. Therefore, groundwater levels would not be affected. **Surface Water** Ground-disturbing activities greater than 1 acre would temporarily increase the potential for soil erosion and subsequent discharge of sediments to surface water via storm water runoff. A VDCR general permit and development and implementation of the required storm water pollution prevention plan would ensure that demolition and construction	**Off-Base:** **Groundwater** Construction activities would not involve groundwater withdrawals or use of groundwater. Therefore, groundwater levels would not be affected. Construction and use of roads would generate oils and other pollutants that could be carried by storm water runoff to adjacent shallow groundwater recharge areas. Storm water management practices and permits for construction of roadways would be implemented to reduce potential infiltration of point source and non-point source pollutants. The potential for groundwater contamination is considered minor. **Surface Water**	**Off-Base:** The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative. **On-Base:** The analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	activities would not result in significant impacts to surface water. **Floodplains** Demolition activities would not occur in the 100-year floodplain; therefore, baseline conditions for floodplains would not change under the No Action Alternative. **On-Base:** **Groundwater** Baseline conditions for groundwater would not change. **Surface Water** Baseline conditions for surface water would not change. **Floodplains** Baseline conditions for floodplains would not change.	The discussion on surface water for the No Action applies. **Floodplains** Approximately 39 housing units in the southern portion of Bethel Manor are located in the 100-year floodplain associated with Brick Kiln Creek and Big Bethel Reservoir. It is anticipated the privatization contractor would not construct new or replacement units in the floodplain. **On-Base:** **Groundwater** Discussions on groundwater for the off-Base area apply. **Surface Water** The discussion and analysis for the Proposed Action off-Base apply. As with the Proposed Action off-Base, it is anticipated that construction activities would not result in significant impacts to surface water. **Floodplains** The two new units that would be constructed in the HTA housing area would be located in the 100-year floodplain. There is no practicable alternative, however, that would not involve construction in the floodplain. Therefore, the first floor of these units would be elevated above the 100-year flood elevation. The size and frequency of floods and important floodplain functions would not change compared to baseline conditions.	
Earth Resources	**Off-Base:** Demolition would not cause any soil profile destruction. Use of BMPs such as rock berms, silt fences, and single point construction entries would minimize erosion during demolition. **On-Base:** No demolition or construction would occur in on-Base housing areas;	**Off-Base:** Construction activity in the housing areas would occur within areas that have been disturbed and modified by prior MFH construction; therefore, geology would not change. The Community Development Plan developed for the neighborhood would minimize any disturbances to the geology and soil. The BMPs identified for the No Action	**Off-Base:** The analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative. **On-Base:** The analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	therefore, baseline conditions for earth resources would not change.	Alternative would be implemented. **On-Base:** The analysis and conclusions for the off-Base Proposed Action apply.	
Hazardous Materials and Wastes	**Off-Base:** Contractors would use and store hazardous materials in accordance with Base procedures. Residents in the MFH units would continue to purchase hazardous materials for household uses, which would be considered residential waste as exempted by regulatory guidance. Any hazardous waste generated would be handled in accordance with all federal, state, and local laws and regulations and coordinated with the Langley AFB Environmental Flight. ACM and LBP would be removed and disposed in accordance with established regulations. The demolition contractor would disturb as little soil as possible in the event there are pesticides in the soil surrounding the housing units. Soil would not be removed from the site without appropriate environmental testing and without written consent from the Base Commander or designee. Two environmental restoration program (ERP) sites are located adjacent to the Bethel Manor housing neighborhood but are not considered an environmental risk due to their regulatory status and distance from the subject properties. **On-Base:** No demolition or construction would occur in the on-Base housing areas; therefore, baseline conditions for hazardous materials and hazardous waste resources would not change.	**Off-Base:** The analysis and conclusions for the No Action Alternative apply. The proposed MFH units would be constructed without any ACM or LBP. The privatization contractor would provide an LBP disclosure statement to new MFH residents. LBP hazards would be abated if the LBP is not properly maintained. The privatization contractor would be responsible for having a competent risk assessor carry out a representative sampling for pesticides in the soil immediately surrounding the housing, gardens, and likely children's play areas prior to occupancy of newly constructed housing where soil was disturbed. The results of sampling or a risk assessment would be provided to the Air Force for approval prior to occupancy. **On-Base:** The analysis and conclusions for the No Action and Proposed Action apply. Sixteen ERP sites are located adjacent to the LTA and HTA housing neighborhoods but are not considered an environmental risk due to their regulatory status and distance from the subject properties.	**Off-Base:** The analysis and conclusions for the No Action and Proposed Action apply to the Maximum Development Alternative. **On-Base: T**he analysis and conclusions for the No Action and Proposed Action Alternatives apply to the Maximum Development Alternative.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
Cultural Resources	**Off-Base:** Capehart houses in the Bethel Manor Housing area are considered eligible for listing in the National Register of Historic Places. However, compliance with Section 106 of the Act for the proposed demolition of Capehart housing in the Bethel Manor area of Langley AFB has been accomplished at the Air Force level through issuance of a Program Comment by the Advisory Council on Historic Preservation. A copy of this document is included in Appendix F. In addition, a separate programmatic agreement would be developed between the Air Force and the Virginia State Historic Preservation Office which addresses contractor requirements in the event of discovery of unanticipated archaeological resources during demolition or construction activities in the Bethel Manor area. **On-Base:** No construction activity would occur on Base. Existing sites would not be impacted by construction and would continue to be protected by the provisions of the base CRMP.	**Off-Base:** The analysis and conclusions for the No Action Alternative apply to the Proposed Action. **On-Base:** Historical and archaeological sites that may be eligible for the National Register of Historic Places would be potentially impacted by the proposed action in the LTA and HTA housing areas. All planned renovations of LTA and HTA housing units would be consistent with the Secretary of the Interior's standards, as noted in the Langley AFB cultural resources management plan. Proposed new housing units would be constructed in accordance with these standards and designed to be compatible with the Langley Field Historic District. In order to address these issues comprehensively, the Air Force would enter into a Memorandum of Agreement (MOA) with the contractor-developer and the VA SHPO to establish procedures and conditions for the developer-contractor in order to reduce the potential for adverse effects for future actions. The MOA addresses renovation and maintenance of the historical properties, site improvements, demolition, and new construction. The MOA also addresses impacts to several archeological sites on the property to be transferred. Renovation of housing units would not occur in the three archaeological sites in the LTA and HTA areas, and the two new units in the HTA would be located in vacant areas that would not impact the archaeological sites. The MOA would address procedures and conditions for the privatization contractor to avoid adverse impacts in the case of unanticipated discovery of archeological resources during activities associated with privatization.	**Off-Base:** The analysis and conclusions for the No Action Alternative apply to the Maximum Development Alternative. **On-Base:** The analysis and conclusions for the No Action Alternative apply to the Maximum Development Alternative.
Socioeconomic Resources	It is anticipated the 220 residents displaced due to the reduction of 55 units would relocate within York County or Hampton City area and that there would be no in-migration of workers to support demolition. Therefore, there would be no overall change in the region of influence	The conclusions for the No Action Alternative apply. MFH population would decrease by 478 people. The demolition and construction would benefit sales volume, income, and employment in the ROI.	The conclusions for the No Action Alternative apply. MFH population would decrease by 451 people. The demolition and construction would benefit sales volume, income, and employment in the ROI.

Resource	No Action Alternative	Proposed Action	Maximum Development Alternative
	(ROI) population. The vacant housing units in ROI could accommodate the 55 families that would be displaced. There would be no change in the number of students attending schools within the ROI. The demolition activities would benefit sales volume, income, and employment in the ROI. No demolition or construction would occur in on-Base housing areas; therefore, baseline conditions for socioeconomic resources would not change.		

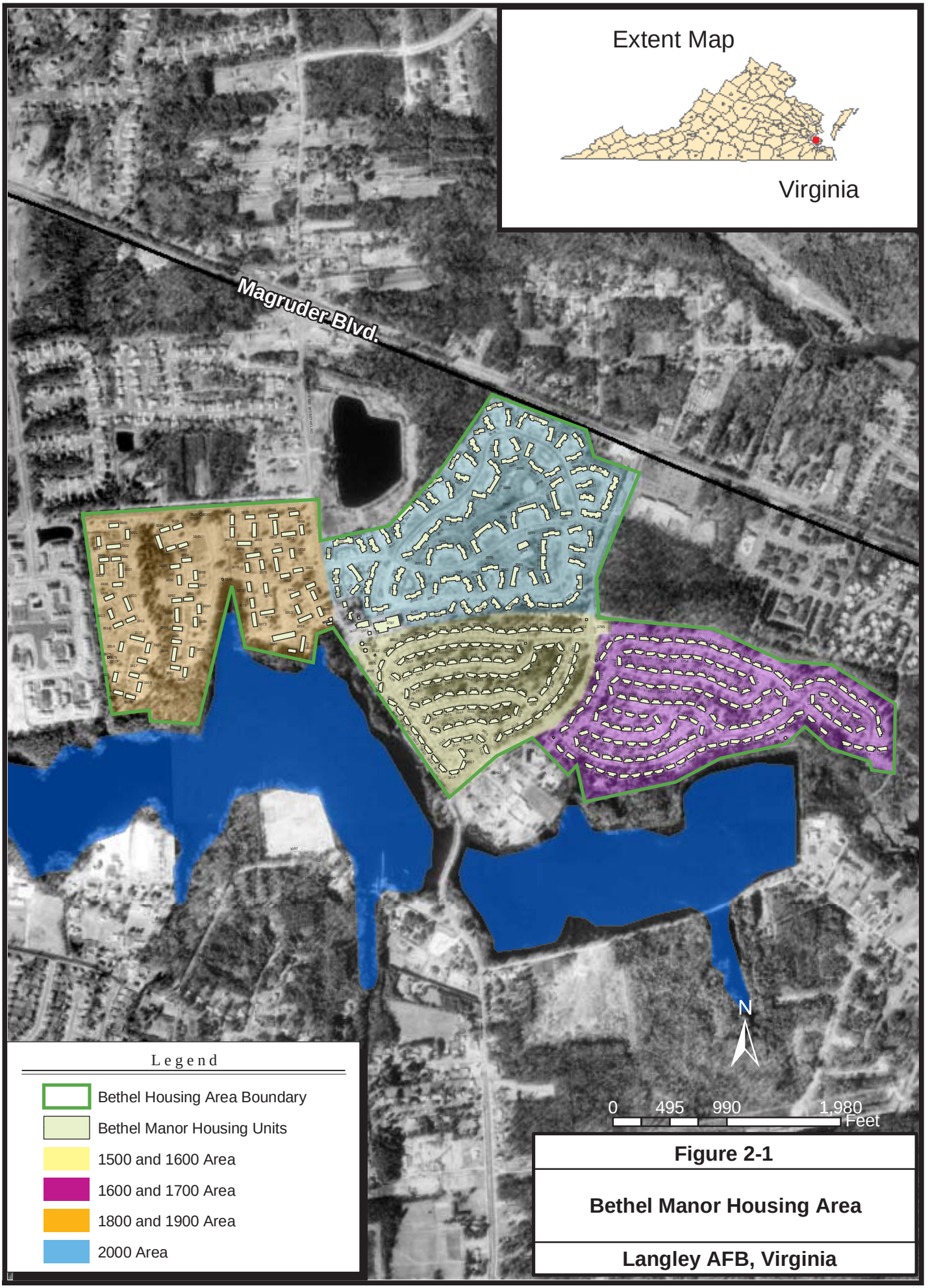


Figure 2-1

Bethel Manor Housing Area

Langley AFB, Virginia

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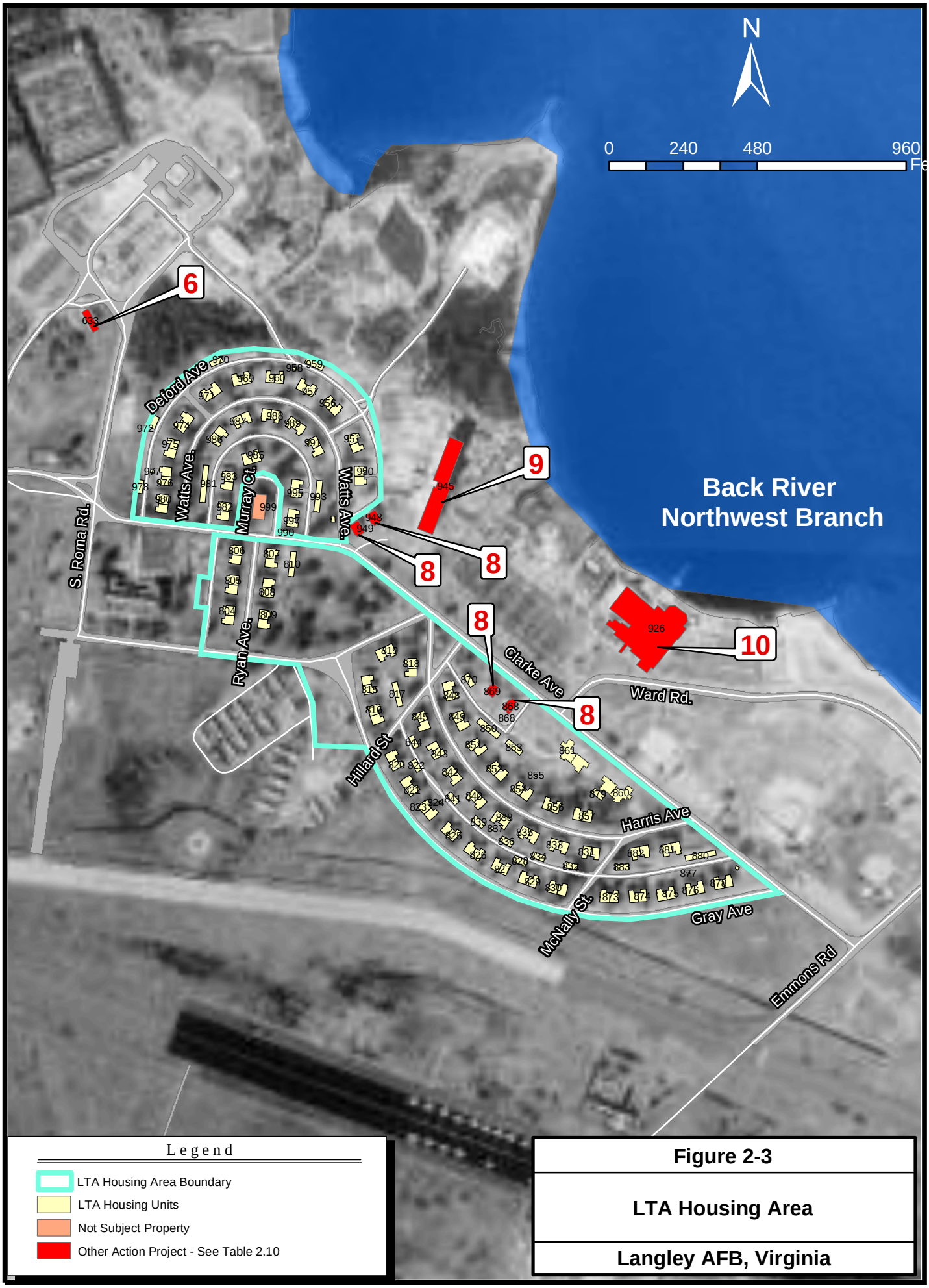


Figure 2-3

LTA Housing Area

Langley AFB, Virginia

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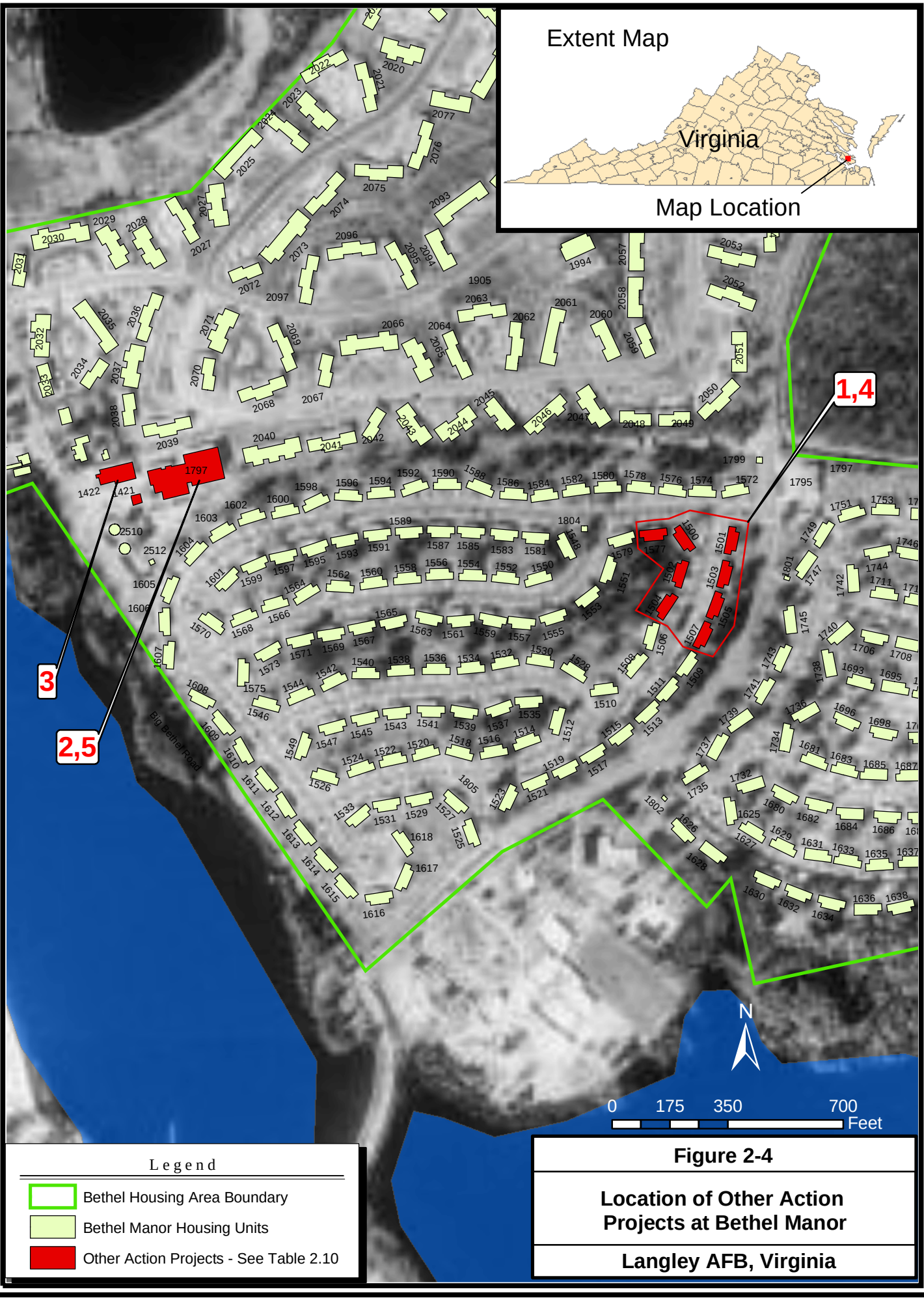


Figure 2-4

Location of Other Action Projects at Bethel Manor

Langley AFB, Virginia

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CHAPTER 3
AFFECTED ENVIRONMENT

This chapter describes the existing environmental resources that could be affected by or could affect the No Action Alternative, the Proposed Action, and the Maximum Development Alternative. Only those specific resources relevant to potential impacts are described in detail. Baseline conditions used for this EA are discussed in Subchapter 1.6.

Due to Bethel Manor being geographically separate (off-Base) from the main Base, the discussion of the affected environment is separated into "Off-Base Housing" and "On-Base Housing." Certain biophysical resource areas pertain to all the subject properties, such as Air Quality which is regional, and some will not, such as Cultural Resources, which are area-specific. Therefore, some of the biophysical resource areas will be discussed separately.

3.1 NOISE

3.1.1 Background Information

The characteristics of sound include parameters such as amplitude (loudness), frequency (pitch), and duration. Sound varies over an extremely large range of amplitudes. The decibel, a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for describing levels of sound.

Different sounds have different frequency contents. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment (*i.e.*, dBA) has been devised to measure sound similar to the way the human hearing system responds. The adjustments in amplitude, established by the American National Standards Institute (ANSI) (ANSI 1983), are applied to the frequency content of the sound. Figure 3-1, at the end of this chapter, depicts typical A-weighted sound pressure levels for various sources. For example, 65 dBA is equivalent to normal speech at a distance of 3 feet. Appendix B provides additional information, including a discussion of annoyance, speech interference, and hearing loss.

3.1.2 Existing Noise Levels

The primary source of noise at Langley AFB is from the Base's aircraft operations. Other noise sources in and around the Base include surface traffic and other industrial activities. During periods of no flying activity, noise results primarily from ground traffic movement, occasional construction, and similar sources. This noise is comparable to sounds that occur in typical communities. It is during periods of aircraft ground or flight activity that the noise environment changes. Existing noise levels are typical of an urban residential area near a major airport.

Air Force policy since 1978 has been to implement, where feasible, noise level reduction (NLR) measures in on-Base residential and public use buildings (USAF 1978). NLR measures are intended to reduce indoor noise levels to a DNL of 45 dBA or less. Recommended NLR is 25 dBA for units in the DNL 65 to 70 dBA noise zone, and 30 dBA for those in the DNL 70 to 75 dBA zone. Buildings constructed prior to

implementation of the NLR Policy were not necessarily built to NLR standards. Since implementation of NLR standards, all new buildings are designed and constructed to comply with the Air Installation Compatible Use Zone (AICUZ) land use compatibility guidelines (USAF 1999).

Off-Base Housing

The noise environment at Bethel Manor is similar to that of other suburban areas, and the typical sound levels would be expected to be between 40 and 60 dBA. Primary sources of noise include operation of motor vehicles in and around Bethel Manor and operation of lawn maintenance equipment. These are considered minor sources. Vehicle access to Bethel Manor is limited to residents and vehicles usually travel at low speeds (less than 25 miles per hour). Bethel Manor is located approximately 3 miles west of Langley AFB and approximately 4.5 miles from the airfield. The noise contour mapping for Langley AFB indicates that the 65 dBA DNL contour extends to approximately 3,200 feet south of Bethel Manor. These data indicate that aircraft operations at the Base do not create an incompatible noise environment at Bethel Manor.

On-Base Housing

Noise exposure from an AICUZ aircraft noise modeling done at Langley AFB in 1997 ranges from DNL 85 dBA near the runways to 65 dBA on the outskirts of the Base (Langley AFB 1997). The LTA and HTA neighborhoods are located less than 1 mile from the aircraft operation areas. Modeled DNL for aircraft noise, to include the F-15 and F/A-22, for the LTA and HTA housing areas is between 70 and 80 dBA noise exposure zone. Units in these neighborhoods are within the DNL 80 dBA noise exposure zone (Langley AFB 1997). These data indicate that aircraft operations at the Base create an incompatible noise environment at HTA and LTA housing areas. The HTA and LTA units were built prior to implementation of the NLR policy; therefore, the units were not built to NLR standards. Noise exposure from aircraft operations, the clear zones, and the accident potential zones associated with the runways at Langley AFB are presented in the *Langley AFB General Plan* (Langley AFB 2003a). The latest F-15 noise contours and projected F/A-22 noise contours are included in Appendix B.

3.2 LAND USE

Land use plans provide direction for development and improvement of Langley AFB. Land use planning is an effective tool in maximizing mission effectiveness, generally enhancing quality of life, and preserving quality of on-Base natural environments. A major part of land use planning involves combining compatible land uses and separating incompatible land uses. Efficient utilization of the limited land available is an indication of good land use planning. Existing land use categories at Langley AFB consist of airfield, airfield pavements, aircraft operations and maintenance, industrial, administrative, community commercial, community service, medical, housing-accompanied, housing-unaccompanied, outdoor recreation, and open space (including water) (Langley AFB 2003a).

Off-Base Housing

The Bethel Manor family housing area is geographically separate from Langley AFB. It is a satellite residential complex located in York County, Virginia, approximately 3 miles west of Langley AFB. Land use at Bethel Manor is primarily residential. However, education, recreation, retail, community support, fire protection, religious, and housing maintenance facilities are also located in the housing area. The lands currently occupied by the Bethel Manor neighborhood is categorized as housing-accompanied, or MFH (Langley AFB 2003a).

Bethel Manor is bounded by residential development and shopping areas to the north, east and west, and by the Big Bethel Reservoir to the south. Properties adjacent to Bethel Manor are zoned for residential use (York County 2002). A detached recreational area associated with Bethel Manor is located on the south bank of Big Bethel Reservoir. This recreational area, which is not part of the Proposed Action, is owned by the U.S. Army and leased to the Air Force. The park contains small recreational shelters, a manager's office, tennis courts, asphalt entrance driveway and parking areas, and a combination footbridge/boat launch ramp (Langley AFB 2003a).

On-Base Housing

The lands currently occupied by the LTA and HTA neighborhoods are categorized as housing-accompanied, or MFH. LTA is primarily bounded by recreation areas that include playgrounds, baseball and softball fields, tennis courts and the Enlisted Club. The lands surrounding the LTA neighborhood are currently categorized as open space, community commercial, administration, industrial and outdoor recreation. The land use for the church within LTA, is listed community service (Langley AFB 2003a).

The HTA neighborhood is surrounded by land that is categorized as administrative, community service, open space, community commercial, industrial and aircraft operations (Langley AFB 2003).

3.3 COASTAL ZONE

Pursuant to the Coastal Zone Management Act (CZMA) of 1972, the National Oceanic and Atmospheric Administration (NOAA) approved the Virginia Coastal Resources Management Program (VCP) in 1986. The VCP was established to protect and manage an area known as Virginia's Coastal Management Area or "coastal zone," which includes most of Tidewater, Virginia, including York County where Bethel Manor is located and Hampton County where HTA and LTA are located. Federal lands are excluded from Virginia's Coastal Management Area; however, activities on federal lands with any foreseeable coastal effects must be consistent with the VCP. Effective January 8, 2002, NOAA revised the regulations implementing the federal consistency provisions of the CZMA of 1972. The revisions were necessary based on new provisions in the 1990 Coastal Zone Act Reauthorization Amendments and the 1996 Coastal Zone Protection Act.

All federal development projects inside the coastal zone are automatically subject to consistency. Therefore, a Consistency Determination is required for the Proposed Action. This EA includes the Air Force's Consistency Determination for the Proposed Action and provides the environmental information to support the Consistency Determination. The VCP is a networked program with several agencies administering the policies. As the lead agency for the VCP, the Virginia Department of Environmental Quality (VDEQ) is responsible for coordinating the Commonwealth's review of federal Consistency Determinations. Virginia also has several advisory policies that were established to serve as a discretionary guide during project planning. The Air Force's Consistency Determination must address the applicable policies of the VCP. Although not required for the purposes of consistency, the VDEQ encourages federal agencies to consider the advisory polices of the VCP as well. Additional information about VCP polices, advisory polices, and the Consistency Determination review procedures are provided in Appendix A.

Policies of the VCP applicable to the Proposed Action include the following:

- Wetlands Management – The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The Virginia Marine Resources Commission administers the tidal wetlands program. The Virginia Water Protection Permit program administered by VDEQ includes protection of wetlands, both tidal and non-tidal.
- Non-point Source Pollution Control – Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Virginia Department of Conservation and Recreation.
- Air Pollution Control – The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. The State Air Pollution Control Board administers this program.
- Coastal Lands Management – This program is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department on federal lands. The program is established pursuant to the Chesapeake Bay Preservation Act and Chesapeake Bay Preservation Area Designation and Management Regulations. A Chesapeake Bay Preservation Area, which consists of Resource Protection Areas (RPA) and Resource Management Areas (RMA), has been established for York County pursuant to the Chesapeake Bay Preservation Area Designation and Management Regulations. RPAs 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 RPA. RMAs are contiguous to the RPA and were established to give

consideration to inclusion of: floodplains, highly erodible soil, including slopes in excess of 20 percent; highly permeable soil; certain non-tidal wetlands not included in the RPA; and other lands necessary to minimize erosion, reduce application of nutrients, and maximize water infiltration. Work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Preservation Act and the goals of the VCP.

The remaining policies of the VCP include: fisheries management, subaqueous lands management, dunes management, point source pollution control, and shoreline sanitation. These polices are not applicable to the Proposed Action because: (1) resources addressed by the policies are not present at Bethel Manor, and/or (2) the Proposed Action does not include activities addressed by the policies.

Advisory policies of the VCP applicable to the Proposed Action include the following:

- Coastal Natural Hazard Areas – In part, this policy covers areas susceptible to potential damage from flooding. The areas of concern include floodplains.
- Descriptions of resources addressed by these polices are provided in the applicable resource-specific sections in this EA. Air Force consistency with these policies is summarized in the resource-specific subchapters of Chapter 4. A Consistency Determination for the Proposed Action is provided in Appendix A.

3.4 AIR QUALITY

3.4.1 Air Pollutants and Regulations

Air quality in any given region is measured by the concentration of various pollutants in the atmosphere, typically expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$). Air quality is not only determined by the types and quantities of atmospheric pollutants, but also by surface topography, the size of the air basin, and by prevailing meteorological conditions.

The Clean Air Act (CAA), as amended in 1977 and 1990, provides the basis for regulating air pollution to the atmosphere. Different provisions of the CAA apply depending on where the source is located, which pollutants are being emitted, and in what amounts. The CAA required the USEPA to establish ambient ceilings for certain criteria pollutants. Those criteria pollutants are usually referred to as pollutants for which the USEPA established National Ambient Air Quality Standards (NAAQS). The ceilings were based on the latest scientific information regarding effects a pollutant may have on public health or welfare. Subsequently, the USEPA promulgated regulations that set NAAQS. Two classes of standards were established: primary and secondary. Primary standards define levels of quality necessary, with an adequate margin of safety, to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards define levels of air quality necessary to protect

public welfare (*e.g.*, decreased visibility, damage to animals, crops, vegetation, wildlife, and buildings) from any known or anticipated adverse effects to a pollutant.

Air quality standards are currently in place for six pollutants or "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_x, measured as sulfur dioxide [SO_2]), lead (Pb), and particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}). There are many suspended particles in the atmosphere with aerodynamic diameters larger than 10 micrometers. The collective of all particle sizes is commonly referred to as total suspended particulates (TSP). TSP is defined as particulate matter as measured by methods outlined in 40 CFR Part 50, Appendix C. The NAAQS are the cornerstone of the CAA. Although not directly enforceable, they are the benchmark for establishment of emission limitations by the states for pollutants USEPA determines to be a danger to public health or welfare. Appendix C contains additional information on the criteria pollutants.

On April 15, 2004, USEPA issued the first 8-hour ozone designations. Prior to that date, ozone attainment designations were determined by the 1-hour ozone standard of 0.12 ppm. The new 8-hour standard became effective 60 days after promulgation (June 15, 2004), while the existing 1-hour standard, for most purposes, remains in effect until USEPA determines an area has air quality meeting the 1-hour standard.

The CAA does not make the NAAQS directly enforceable. However, it does require each state to promulgate a State Implementation Plan (SIP) that provides for "implementation, maintenance, and enforcement" of the NAAQS in nonattainment areas. The General Conformity Rule, published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR part 93, subpart B, requires federal agencies to prepare written conformity determinations for federal actions in or affecting nonattainment areas, except when the action is covered under the Transportation Conformity Rule or when the action is exempted because the total increase in emissions is below the threshold emissions limits. The General Conformity Rule applies to federal actions occurring in air basins designated as nonattainment for criteria pollutants or areas designated as maintenance areas. Federal actions occurring in air basins that are in attainment of the NAAQS are not subject to the Conformity Rule.

In relation to General Conformity, the proper *de minimis* threshold to use to determine conformity depends upon when the federal action begins. Actions beginning before June 15, 2005 must meet the 1-hour ozone *de minimis* threshold. Actions beginning on or after June 15, 2005 must meet the 8-hour ozone *de minimis* threshold.

In Virginia, air quality regulations are enforced by VDEQ pursuant to the Air Pollution Control Law of Virginia. The Air Pollution Control Law of Virginia gives VDEQ the legal authority to carry out state air quality programs established by the State Air Pollution Control Board. It also provides the authority to carry out federally mandated air quality programs. The ambient air quality standards for Virginia are contained in the Virginia Administrative Code 5, Chapter 30 and administered by VDEQ. Table C-1 in Appendix C lists the national and Virginia ambient air quality standards.

3.4.2 Regional Air Quality

An accurate regional emissions inventory is needed to assess the potential contribution of a source or group of sources to regional air quality. An emissions inventory is an estimate of total mass emissions of pollutants generated from a source or sources over a period of time, typically 1 year.

The Bethel Manor, LTA, and HTA housing areas are within the Hampton Roads Intrastate Air Quality Control Region (AQCR 223), which includes Isle of Wright, James City, Nansemond, Southampton and York Counties, and the Cities of Chesapeake, Hampton, Franklin, Newport News, Norfolk, Portsmouth, Suffolk, Virginia Beach, and Williamsburg. The AQCR is currently in attainment for all NAAQS criteria pollutants except for O_3. AQCR 223, which was classified as a marginal non-attainment area for ozone in 1991, then reclassified as a maintenance area in 1997 based on 3 years of quality-assured ambient air monitoring data for the area, demonstrated that the NAAQS for O_3 had been attained. In 2004, however, USEPA once again classified AQCR 223 as a marginal non-attainment area as a result of USEPA's promulgation of a new 8-hour standard for O_3.

Accurate air emissions inventories are needed for estimating the relationship between emissions sources and air quality. Quantities of air pollutants are generally measured in pounds (lbs) per year or tons per year (tpy). The 2005 air emissions quantities for AQCR 223, which includes reported permitted stationary, mobile, and grandfathered air emission sources, is presented in Table 3.1.

Table 3.1 Baseline Air Emissions for Hampton Roads Intrastate AQCR 223

Air Quality Control Region	CO (tpy)	VOC (tpy)	NO_x (tpy)	SO_x (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Hampton Roads	32,752	6,203	32,067	89,018	6,247	5,333

Note: carbon monoxide ; NO_X=nitrogen oxides ; SO_X= sulfur oxides are measured as SO_2, sulfur dioxide; PM_{10}=particulate matter less than 10 microns in diameter; $PM_{2.5}$=particulate matter less than 2.5 microns in diameter. VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant. The criteria pollutant lead, Pb, is not included in the table because its use in fuels for internal combustible engines is prohibited by federal regulations; Pb emissions from vehicles and construction equipment used during the proposed project is not anticipated..

Source: AIRData 2005.

Ozone (ground-level ozone), which is a major component of "smog," is a secondary pollutant formed in the atmosphere by photochemical reactions involving previously emitted pollutants or precursors. Ozone precursors are mainly nitrogen oxides (NO_x) and VOC. NO_x is the designation given to the group of all oxygenated nitrogen species, including nitric oxide (NO), NO_2, nitrous oxide (N_2O), and others. However, only NO, NO_2, and N_2O are found in appreciable quantities in the atmosphere. VOCs are organic compounds (containing at least carbon and hydrogen) that participate in photochemical reactions and include carbonaceous compounds except metallic carbonates, metallic carbides, ammonium carbonate, carbon dioxide (CO_2), and carbonic acid. Some VOCs

are considered non-reactive under atmospheric conditions and include methane, ethane, and several other organic compounds.

As noted above, O_3 is a secondary pollutant and not directly emitted from common emissions sources. Therefore, to control O_3 in the atmosphere, effort is made to control NO_x and VOC emissions. For this reason, NO_x and VOC emissions are calculated and reported in emission inventories.

The typical emission sources at Langley AFB include boilers, fuel storage tanks, fuel dispensing, fuel loading racks, fuel system repair, fuel spills, furnaces, jet engine testing, abrasive blasting and grinding, welding, woodworking, fire training, entomology, solvent recovery, printed circuit lab, and propane usage (Langley AFB 2003a). Langley AFB air emissions are included in AQCR 223 emissions data shown in Table 3.1.

3.5 INFRASTRUCTURE AND UTILITIES

3.5.1 Water Supply

Langley AFB purchases its drinking water for the main Base complex and for the off-Base Bethel Manor MFH from the City of Newport News, which has been supplying water since January 2003. The primary source of water for Newport News Waterworks is surface water from various reservoirs and rivers and desalinized brackish groundwater. The maximum daily output for the Newport News Waterworks is 120 million gallons per day (mgd) (Langley AFB 2003a).

Off-Base Housing

The Bethel Manor MFH water system consists of approximately 20 miles of pipe (Langley AFB 2003a). The Bethel Manor MFH neighborhood has two 200,000-gallon elevated water storage tanks. Both tanks in the Bethel Manor MFH are considered to be in poor condition due to extensive corrosion and may be replaced as part of privatization. In 2004, Bethel Manor housing areas used an average of 133.3 million gallons (0.37 mgd) (Langley AFB 2005a), which is equivalent to approximately 68 gallons per person per day, assuming an estimated population of 5,388 people.

On-Base Housing

The Base owns and operates the 56-mile water distribution system that consists of mostly unlined cast iron pipe, with some ductile iron and polyvinyl chloride (PVC) piping. Langley AFB's water distribution system includes three elevated storage tanks with a total storage capacity of 850,000 gallons and one 2-million gallon round storage tank. Two of the elevated storage tanks are in poor condition due to extensive corrosion. The capacity of the elevated tanks is reduced due to the inability of the system to provide the required pressure to completely fill them. The Base's piping system is unable to withstand pressures in excess of 70 pounds per square inch (psi) without rupturing the pipes. With the lack of pressure needed to fill the tanks, their capacity is decreased to 620,000 gallons or roughly 73 percent of capacity. Water usage for the on-Base MFH neighborhoods in 2004 was 59.6 million gallons (0.16 mgd) (Langley AFB 2005a),

which is equivalent to approximately 170 gallons per person per day, assuming an estimated population of 960 people.

The existing 2-million-gallon ground storage tank is planned for demolition in FY 2005 to be replaced by two 1-million gallon ground storage tanks that will ease tank maintenance problems. One new tank will be located at the current site, and the second will be located at an undetermined site on the north side of the Base. A project to replace the LTA and HTA water distribution system was recently completed (Johnson 2006b).

3.5.2 Wastewater Treatment

Wastewater generated at the main Base complex and for the off-Base Bethel Manor MFH area is discharged to the York River Waste Water Treatment Plant (WWTP), which has a maximum capacity of 15.0 mgd. The York River WWTP is operated by the Hampton Roads Sanitation District (HRSD). The total amount of wastewater generated at Langley AFB is about 1.3 mgd, which includes industrial wastewater, and is equivalent to about 8.6 percent of the York River WWTP capacity of 15 mgd. The HRSD consists of nine WWTPs with a total capacity of 231 mgd. All WWTPs in the HRSD are linked together in the system, thus giving each plant the ability to pump some of its overflow to another plant (Langley AFB 2003a).

Off-Base Housing

Sanitary sewer lines within the Bethel Manor housing areas are owned by the Air Force and maintained by Langley AFB personnel. Sewer lines and manholes in the older sections of Bethel Manor require frequent maintenance and are in need of repair. Four sewage lift stations are located in the housing areas. During heavy rainfall, the lift station located in the 1700 Area of Bethel Manor cannot accommodate the infiltration and, subsequently, causes back ups and manhole overflows (Langley AFB 2003a). It is estimated the Bethel Manor MFH neighborhoods generate wastewater at a rate of about 388,575 gallons per day in FY04 (Langley AFB 2005a), which is equivalent to approximately 72 gallons per person per day.

On-Base Housing

The Base's domestic sewage is system consisting of approximately 95,000 linear feet of sewer mains and 65 lift stations. The sewer lines consist of clay, concrete, and PVC pipe. The primary lift station is located at Building 1370 and is operated at near capacity. During periods of heavy rain the stations capacity can be exceeded and sewage overflows occur. The piping in the system is in poor condition, and cracks in the clay and concrete pipes cause overflows, building flooding, higher than permitted discharge volumes, and back ups. Many of the on-Base lift stations require frequent maintenance and monitoring (Langley AFB 2003a). It is estimated the on-Base MFH neighborhoods generated wastewater at a rate of 99,679 gallons per day (Langley AFB 2005a), which is equivalent to approximately 104 gallons per person per day.

3.5.3 Energy

Off-Base Housing

Electrical. Dominion Virginia Power (DVP) supplies the electrical power to Bethel Manor. Electric power is sourced from an overhead power circuit that runs parallel to Big Bethel Road. The line is tapped to energize a single substation, which is also owned by DVP. The Air Force owns the primary electric distribution system within the housing area, which consists of approximately 6 miles of overhead lines and 4 miles of underground lines (Langley AFB 2003b). The average annual electrical usage for Bethel Manor housing in 2004 was 22,277,183 kiloWatt hours (kWH) (Langley AFB 2005a), an average of 61,033 kWH per day. Electrical consumption is 0.033 kWH per square foot per day for off-Base housing when considering the total amount of housing units is 1,874,872 ft^2.

Natural Gas. Virginia Natural Gas supplies natural gas to Bethel Manor. Gas service is metered at a single delivery point located near the intersection of Big Bethel Road and Eagle Drive. The natural gas distribution system consists of 58,139 feet of gas lines that range from less than 2 inches to 8-inches in diameter. The piping in Bethel Manor was installed in 1960 and is mostly coated steel. The Air Force owns and operates the entire pipeline in Bethel Manor (Langley AFB 2003a). The average annual usage in 2004 for the Bethel Manor housing is 73,582 million cubic fee (mcf) (Langley AFB 2005a), an average of 202 mcf per day. Natural gas consumption is $1.1x10^{-4}$ mcf per square foot per day for off-Base housing when considering the total amount of housing units is 1,874,872 ft^2.

On-Base Housing

Electrical. DVP supplies and regulates electrical service to the main Base and on-Base housing areas from four major field substations located on Base. The total system is composed of 186,035 feet of above ground primary lines and 225,720 feet of underground primary lines. The electrical distribution system at Langley AFB is considered to be unsatisfactory. The Base has partnered with DVP to upgrade much of the system to reduce the number rand frequency of power outages (Langley AFB 2003a; Langley AFB 2003b). Average annual usage for on-Base housing in 2004 was 5,963,707 kWH (Langley AFB 2005a), an average of 16,339 kWH per day. Electrical consumption is 0.032 kWH per square foot per day for on-Base housing when considering the total amount of housing units is 504,702 ft^2.

Natural Gas. Natural gas is supplied to Langley AFB by Virginia Natural Gas. The distribution system consists mainly of the original steel lines, with replaced sections being polyethylene. The systems consist of 80,943 feet of underground piping in the on-Base MFH neighborhoods. Virginia Natural Gas owns and operates all but 2,252 feet of the piping on-Base, and the Air Force owns the remaining on-Base portion. Natural gas piping on the Base was first installed in 1985, and now consists of approximately 61 percent steel pipe and 39 percent polyethylene plastic pipe (Langley AFB 2003a). Average annual usage for on-Base housing in 2004 was 17,906 mcf, an average of 49.06 mcf per day (Langley AFB 2005a). Natural gas consumption is $9.7x10^{-5}$ mcf/ft^2

per day for on-Base housing when considering the total amount of housing units is 504,702 ft^2.

3.5.4 Storm Water Management

Off-Base Housing

Surface water runoff at Bethel Manor is distributed through a series of underground storm water lines, culverts, and drainage ditches that empty into Big Bethel Reservoir, Brick Kiln Creek, and a pond northwest of the housing area. Open storm water drainage ditches are located along the northwest and northeast corners of the property. Underground line drop inlets are located along street curbs (Langley AFB 2003b).

As mentioned in Subchapter 2.3, there is an estimated 3,491,572 ft^2 of impervious cover (80.2 acres) in the Bethel Manor MFH neighborhoods. Overall, Bethel Manor has about 284 acres of land (Langley AFB 2003a).

On-Base Housing

The Langley AFB storm water drainage system is composed primarily of piping made of reinforced concrete. There are some areas made up of pipes and drainage ditches. The system is primarily gravity feed and discharges through 57 outfalls located throughout the Base. Storm water from the outfalls ultimately ends up into the southwest and northwest branches of the Back River. A few of the 57 outfalls empty directly into tributaries of the Back River. Twenty of the 57 outfalls discharge industrial areas as defined by federal and Virginia storm water regulations (Langley AFB 2004c); however, only 10 are required to be monitored under the VDEQ permit.

Langley AFB storm water collection system is prone to back ups and flooding during storm surges and heavy periods of rain due to lack of elevation and proximity to the waterfront. The level terrain on Base prevents the storm water from reaching the adequate velocities needed to keep piping and channels clear of sediment. As mentioned in Subchapter 2.3, there is an estimated 806,877 ft^2 of impervious cover (18.5 acres) in the on-Base MFH neighborhoods. Overall, Langley AFB has about 326 acres of impervious cover (Langley AFB 2003a).

Langley AFB has a Virginia Pollution Discharge Elimination System Permit No. VA0083194 and the Base meets current state and federal storm water permit requirements (Langley AFB 2004c).

3.5.5 Solid Waste Management

Municipal solid waste (MSW) at Langley AFB is managed in accordance with guidelines specified in Air Force Instruction (AFI) 32-7042, *Solid and Hazardous Waste Compliance*. The AFI incorporates by reference, requirements of Subtitle D, 40 CFR Parts 240 through 244, 257, and 258, and other applicable federal regulations, AFIs, and DoD directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program composed of the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of MSW; record-keeping and reporting; and pollution prevention.

Non-hazardous MSW at Langley AFB, including the MFH areas at Bethel Manor, LTA, and HTA, is collected by a private contractor. Residents place garbage and items other than normal household refuse together for pickup on scheduled day of collection. The refuse contractor does not dispose of scrap metal, auto parts/tires, toxic materials, sand, gravel, old appliances, furniture/large items, lead acid batteries or dry cells, and non-burnable items. All household garbage goes to the refuse-fired steam generating facility near NASA. Non-burnable MSW collected from the MFH area is taken to the King and Queen Sanitary Landfill (Permit Number SWP 554), operated by BVI Waste Systems of Virginia (BVI). The landfill received 2,755 tons of waste per day, or 1,005,535 tons, in 2004. The King and Queen Sanitary Landfill has a projected life expectancy of 25 years in 2004, or until 2029, and had a remaining capacity of 14.5 million tons at the end of 2004 (VDEQ 2005).

The Solid Waste Management Plan provided by Langley AFB indicates that non-hazardous MSW generated in both the on-Base and off-Base MFH neighborhoods for CY 2003 was 2,715 tons. This represents 21 percent of the total amount of MSW generated at the Base. Of that amount, 66 percent was incinerated; leaving 922 tons that were landfilled and 412 tons that were recycled. The Base also generated 4,111 tons of construction and demolition debris that was landfilled at the King and Queen Sanitary Landfill. This represents 32 percent of the total amount of MSW generated from Base activities (Langley AFB 2004a). Based on the 1,496 MFH unit inventory, each unit generates approximately 304 pounds of MSW per month. The 304 pounds of solid waste generated per unit each month would be considered as the baseline for this action. About 2.3 pounds of MSW are generated each day per person.

3.5.6 Transportation System

Off-Base Housing

Magruder Boulevard, also State Highway 134, serves as the main entrance road into the Bethel Manor housing area. Entrance to the 1800-1900 Areas is off Big Bethel Road, which connects to Magruder Boulevard. Traffic in Bethel Manor MFH is limited to residential and other authorized personnel. The roads in this area are closed to the public. State Highway 134 and Armistead Avenue form the most convenient route for personnel living in Bethel Manor housing area to travel to the Base. Since Magruder Boulevard is a heavily traveled road, traffic can sometimes cause congestion near the housing area.

On-Base Housing

Interstate 64 serves as the main north-south artery for transportation in the area. The highway bisects the middle of the peninsula where Langley AFB is located. The transportation system in the Chesapeake Bay area consists of a large network of bridges and tunnels (Langley AFB 2003a).

There are three major roads that lead to Langley AFB: King Street, LaSalle Avenue, and Armistead Avenue. Armistead Avenue leads to the West Gate and LaSalle Avenue leads to the Main Gate and provides access to the Visitor's Center. Traffic is occasionally backed up at the Base's gates during times when security conditions are

heightened. These back ups can interfere with traffic flow on Armistead Avenue. The traffic flow is not impeded on LaSalle and King Streets because the two streets dead end at the Base. Traffic on the Base flows relatively smoothly and with little impediments. The main east-west artery on Base is Sweeney Boulevard. Sweeney Boulevard, along with the roads that make up "perimeter road" pass through the on-Base MFH neighborhoods. The MFH neighborhoods cause traffic congestion because of the lower speed limits in the areas (Langley AFB 2003a).

3.6 BIOLOGICAL RESOURCES

3.6.1 Vegetation and Wildlife

Off-Base Housing

Approximately 80 percent of Bethel Manor has been previously disturbed and developed. Maintained lawns, urban trees, and ornamental shrubbery compose the principal vegetation cover in the housing area. Consequently, the immediate housing area generally lacks suitable wildlife habitat, except for those species habituated to suburban or urban areas. Areas immediately outside the housing area around Big Bethel Reservoir and Brick Kiln Creek support natural vegetation, including red maple, sweet gum, hackberry, red cedar; and vegetative communities including hardwood bottomland, pine woodland, mixed oak, hardwood forest, and non-tidal wetlands. These surrounding areas support a wide variety of wildlife (Langley AFB 2003b).

On-Base Housing

Most of Langley AFB was filled and leveled during construction of the installation: tidal wetlands along the shore are the only natural areas remaining. The Base MFH area is mostly made up of landscaped and turf areas. Efforts are underway to expand the approximate 250 acres of forested area on the Base. Common trees found at Langley AFB include the red maple, common hackberry, white cedar, sweet bay magnolia, and sour gum, among others. The understory at the Base typically consists of sweet pepperbush, witch-hazel, Virginia sweetspire, barberry, wax myrtle, strawberry bush, and yucca. Native groundcover and vines at Langley AFB include leaf lawn, wood fern, Christmas fern, trumpet creeper, leather flower, trumpet honeysuckle, cross vine, Carolina jessamine, English ivy, and creeping periwinkle (Langley AFB 1998).

Fauna at Langley AFB typically include raccoon, red fox, Virginia opossum, gray and fox squirrels, and various species of small rodents. Reptiles that may inhabit the coastal area of the Base include eastern hognose snake, black racer, six-lined racerunner, and the black rat snake. Wetlands areas of Langley AFB are habitat to muskrats, clams, crabs, and oysters. Songbirds, shore birds, waterfowl, game birds, and breeding birds in the vicinity of Langley AFB include the cardinal, Carolina chickadee, wood thrush, red-eyed vireo, wood warbler, woodpecker, screech owl, red-shouldered hawk, Ipswich sparrow, common and fish crow, redwing black bird, plovers, turnstones, willets, gulls, sandpipers, herons, ruddy ducks, blue-winged teal, canvas backs, wild turkey, mourning dove, and the northern bobwhite (Langley AFB 1998).

3.6.2 Threatened and Endangered Species

Off-Base Housing

The potential for federal T&E or special status species to occur in the housing area is low due to existing development and general lack of wildlife habitat. The federal and state-threatened bald eagle (*Haliaeetus leucocephalus*) has been documented within 0.25 miles of the easternmost portion of Bethel Manor. Also, the state-endangered canebrake rattlesnake (*Crotalus horridus*) and a documented waterbird colony containing great blue heron (*Ardea herodias*) and state special concern great egret (*Ardea alba*) are located approximately 1 mile and 0.5 mile, respectively, from the westernmost portion of the Bethel Manor housing area (VDGIF 2005).

The following state special concern species have been documented within 0.25 mile of the easternmost portion of Bethel Manor (VDGIF 2005):

- Forster's stern (*Sterna forsteri*),
- Barn owl (*Tyto alba*),
- Golden-winged warbler (*Vermivora chrysoptera*),
- Red-breasted nuthatch (*Sitta canadensis*),
- Brown creeper (*Certhia americana*),
- Winter wren (*Troglodytes troglodytes*),
- Hermit thrush (*Catharus guttatus*),
- Golden-crowned kinglet (*Regulus satrapa*),
- Little blue heron (*egretta caerulea*),
- Great egret,
- Yellow-crowned night heron (*Nyctanassa violacea*),
- Mourning warbler (*Oporornis philadelphia*),
- Purple finch (*Carpodacus purpureus*),
- Dickcissel (*Spiza americana*),
- Northern river otter (*Lontra canadensis lataxina*), and
- Star-nosed mole (*Condylura cristata parva*).

On-Base Housing

There has been no T&E or status species found at Langley AFB.

The state endangered canebrake rattlesnake (*Crotalus horridus*) has been documented approximately 1.25 miles from the HTA housing area. The federal species of concern northern diamond-backed terrapin (*Malaclemys terrapin terrapin*) has also been documented approximately 2 miles from the HTA area. Additionally, the following state special concern species have been documented approximately 0.75 to 1.25 miles from the HTA housing area (VDGIF 2005):

- Forster's stern (*Sterna forsteri*),
- Least tern (*Sterna antillarum*),
- Caspian tern (*Sterna caspia*),
- Northern harrier (*Circus cyaneus*),

- Great egret,
- Yellow-crowned night heron (*Nyctanassa violacea*), and
- Glossy ibis (*Plegadis falcinellus*).

The state endangered canebrake rattlesnake (Crotalus horridus) has been documented approximately 1.5 miles from the LTA housing area. The federal species of concern northern diamond-backed terrapin (*Malaclemys terrapin terrapin*) has also been documented approximately 1.25 miles from the LTA area. Additionally, the following state special concern species have been documented approximately 0.5 to 2 miles from the LTA housing area (VDGIF 2005):

- Forster's stern,
- Least tern,
- Caspian tern,
- Northern harrier,
- Great egret,
- Yellow-crowned night heron, and
- Saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*).

3.6.3 Wetlands

Off-Base Housing

Wetland delineations have not been conducted at Bethel Manor. However, the National Wetlands Inventory (NWI) map for the area shows non-tidal, forested and emergent wetlands associated with Brick Kiln Creek and Big Bethel Reservoir along the southern property boundary (see Figure 3-2 at the end of this Chapter). NWI data suggest that potential wetlands might extend onto undeveloped portions of the Bethel Manor property along the southern boundary, but no wetlands appear to be present in the developed areas that would be disturbed under the Proposed Action. The United States Fish and Wildlife Service (USFWS) produces NWI maps using aerial photo interpretation, soils maps, and limited ground truthing. Therefore, jurisdictional wetlands regulated under Section 404 of the Clean Water Act and state regulations are not always accurately depicted on NWI maps.

On-Base Housing

The USFWS reports that Langley AFB contains 651.9 acres of wetlands within the 2,883 acres that compose the Base. A total of 462 acres are non-freshwater estuarine wetlands. 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 dominated by bottomland hardwood trees and shrubs. Emergent wetlands primarily occur as small remnant patches, along drainage ditches, and as tidal marsh (USAF 2001).

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 (USAF 2001).

The Base is continually working with the Chesapeake Bay Restoration Program, the USFWS, and the Hampton Wetlands Board to protect the wetlands to the maximum extent practicable. Even though Langley AFB could legally develop in the wetlands areas on-Base, subject to permitting, construction in these areas would usually be higher in cost, destroy wildlife habitat, presents engineering difficulties, and does not represent the objectives established by the governing agencies (Langley AFB 1998). The wetlands at Langley AFB are protected by a setback of 50-feet for development and construction and a 100-foot setback for all water bodies draining into the Chesapeake Bay (Langley AFB 2003a). Wetlands areas identified on Langley AFB are shown on Figure 3-3 at the end of this Chapter. As indicated in Figure 3-3, there are no wetlands in the vicinity of either the LTA or HTA housing areas.

3.7 WATER RESOURCES

3.7.1 Groundwater

Off-Base Housing

Groundwater under Bethel Manor occurs in a shallow water table aquifer, an upper artesian aquifer system, and the principal artesian aquifer system. All three aquifers in this area contain water of moderate to poor quality due to high salinity and total dissolved solids. As a result, these aquifers have little or no potential for a conventional water supply. Regionally, groundwater velocity is on the order of 1 to 40 feet per year.

On-Base Housing

Terrain within the main portion of Langley AFB is low and flat, with elevations ranging from 0 to 15 feet above mean sea level (msl). Due to its proximity to the Back River and Chesapeake Bay, the remaining land area of the Base has historically displayed a high water table. Test bores taken in 1917 during initial development of Langley Field indicated this water table lies between 1 foot and 1.5 feet below the surface. The high water table necessitated moderate to major modifications to the land area encompassed by the Base. When the airfield was established, drainage problems were remediated by infilling and installation of sub-surface ceramic drainage tile systems in some areas (Langley AFB 2004b). Base groundwater is shallow with a depth of approximately 2 feet below ground level (Langley AFB 2003a).

3.7.2 Surface Water

Off-Base Housing

Bethel Manor is located in the Lynnhaven-Poquoson watershed (U.S. Geological Survey [USGS] Cataloging Unit: 02080108) along the northern shoreline of Big Bethel Reservoir. The reservoir was constructed in 1918 by damming Brick Kiln Creek. Areas upstream of Big Bethel Dam are non-tidal freshwater. Big Bethel Reservoir provides raw water for the Big Bethel Water Treatment Plant. Moving downstream of the dam, Brick Kiln Creek becomes brackish, tidal water. The creek joins Northwest Branch just east of

Route 172. Northwest Branch is a saltwater tidal tributary to Back River, which connects directly to Chesapeake Bay. No perennial streams are located within the Bethel Manor housing area. Storm water drainage is via several open drainage ditches and the storm sewer system. A constructed storm water retention pond, which is not owned by the Air Force, is located approximately 200 feet north of the property boundary (Langley AFB 2003b).

On-Base Housing

Langley AFB falls entirely within the watershed of Chesapeake Bay and is identified as an Environmental Resource Area. Salt and freshwater marshes along the Back River, New Market, Brick Kiln, and Tabbs Creeks, and numerous smaller drainages filter the Chesapeake Bay watershed and are protected by a minimum 50-foot setback. Drainage between these water features has been quite poor and historically resulted in numerous swamps prior to modern-day dredging and channeling operations. The Chesapeake Bay Preservation Act requires riparian buffers to be 100 feet from water features that drain into the Bay (Langley AFB 2003a).

Fifty-six storm water outfalls drain Langley AFB, with 21 outfalls associated with areas that contain industrial activities, but only 10 of those are required to be monitored in the Virginia Department of Conservation and Recreation (VDCR) Permit. All outfalls discharge into the southwest or northwest branches of the Back River.

3.7.3 Floodplains

Off-Base Housing

Figure 3-2 at the end of this Chapter shows the 100- and 500-year floodplains for Bethel Manor and the surrounding area. The floodplain mapping is based on digital Q3 Flood Data produced by the Federal Emergency Management Agency (FEMA). The Q3 Flood Data are created by scanning and digitizing FEMA Flood Insurance Rate Maps (FIRM) and are intended for a variety of planning applications. However, FEMA specifies that Q3 Flood Data cannot be used to determine absolute delineations of flood risk boundaries. The hard copy FIRM should be used to make official determinations. Site-specific topographic surveys, which have not been performed at Bethel Manor, are also useful in determining if a specific area or structure is within a floodplain.

The FEMA Q3 Flood Data indicate that 32.7 acres of the Bethel Manor housing area are located within the 100-year floodplain of Big Bethel Reservoir and Brick Kiln Creek. Some of the land within the 100-year floodplain is undeveloped. However, approximately 39 existing structures in the southern part of the 1600-1700 Area of Bethel Manor are within the 100-year floodplain, based on review of the digital aerial photography presented in Figure 3-2 at the end of this Chapter. EO 11988 (Floodplain Management) requires federal agencies to determine whether a proposed action would occur in the 100-year floodplain (area subject to a 1% or greater chance of flooding in any given year) and to consider alternatives to avoid adverse effects and incompatible development.

On-Base Housing

All of the HTA housing area and approximately 99 percent of the LTA area is located within the 100-year floodplain and entirely within the 50-year floodplain (Goss 2005). Figure 3-3 at the end of this Chapter depicts areas higher in elevation than the 100-floodplain. Higher elevations (31 feet above msl) include the adjacent landfill southwest of the Base. On-Base flooding is sometimes severe. Contingency plans such as placing sand bags in door entrances, have generally prevented or minimized property damage. The most severe flooding occurs during major storms or hurricanes. The LTA area was submerged under several feet of water during storm surge preceding Hurricane Isabel in September 2003 (Brown 2004). Areas below 9 feet msl are the most flood-prone and occur along the Base perimeter nearest to surrounding water bodies (Langley AFB 1998).

3.8 EARTH RESOURCES

3.8.1 Geology

Off-Base Housing

The soils and underlying geology surrounding Bethel Manor are characterized as surficial deposits of riverine, estuarine, and coastal terraces and plains. Approximately 90 percent of the property is described as part of the Lynnhaven Member containing medium to coarse pebbly sand grading upward into clayey fine sand and silt. This structure can be up to 15 feet thick. The remaining 10 percent is described as part of the Sedgefield Member containing pebbly to bouldery, clayey sand and fine to medium, shelly sand grading upward to sandy and clayey silt. This structure can be up to 50 feet thick (VDCED 1976).

On-Base Housing

Unconsolidated fluvial, estuarine, and marine deposits from the Cretaceous age (135 million years ago) make up the sediments below Langley AFB. These sediments are underlain by sandy clays, beach sand, and gravels from the Lynnhaven and Tabb formations. Earth moving activities during Base construction altered the soil profiles so they do not agree with surveys from surrounding areas. As a result, soil on the Base has never been accurately mapped (Langley AFB 1998).

The underlying geology surrounding Bethel Manor is characterized as surficial deposits of riverine, estuarine, and coastal terraces and plains. Approximately 90 percent of the property is described as part of the Lynnhaven Member containing medium to coarse pebbly sand grading upward into clayey fine sand and silt. This structure can be up to 15 feet thick. The remaining 10 percent is described as part of the Sedgefield Member containing pebbly to bouldery, clayey sand and fine to medium, shelly sand grading upward to sandy and clayey silt. This structure can be up to 50 feet thick (VDCED 1976).

3.8.2 Topography

Off-Base Housing

Terrain in the Big Bethel Housing area is moderately level. Elevations range from between 20 and 30 feet msl.

The establishment of the Big Bethel Reservoir in 1918 effected a major alteration to the original landscape. The reservoir inundated the floodplain of Brick Kiln Creek to a depth in places of nearly 20 feet. Housing sites in the residential areas were graded and filled preparatory to housing construction causing surface disturbances. Moderate subsurface disturbances also have resulted from site preparation and installation of underground utility lines (Langley AFB 2003b).

On-Base Housing

Langley AFB lies within the Coastal Lowland section of the Atlantic Coastal Plain physiographic province. The elevation of Langley AFB ranges from 5 to 11 feet msl throughout the Base. Fill material was added from leveling activities during construction of the Base. Topography of the Base is flat to gently sloping (Langley AFB 1998).

3.8.3 Soil

Off-Base Housing

Approximately 80 percent of Bethel Manor is characterized as urban land, consisting of asphalt, concrete, buildings, or other impervious surfaces. Undeveloped portions of the property primarily consist of Tomotley fine sandy loam, which is characterized as deep, nearly level, and poorly drained. Surface runoff in these areas is typically slow and there is a slight erosion hazard. This soil type typically exists in areas with a seasonally high water table (USDA-SCS 1985).

On-Base Housing

Underlying deposits of Virginia's Coastal Plain province are composed of Tertiary and Cretaceous period clays, sandstones, greensands, diatomaceous earths and shell marls. These are overlain by loosely consolidated river-deposited Quaternary sands, silts, and gravels (Works Progress Administration 1940). According to the Base CRMP, no comprehensive soil survey is available for the Base. A survey of selected areas of the Base provides the only readily available record of soil profiles (Langley AFB 2004b).

No published soil survey is available for the Langley AFB area; however, the City of Hampton Property Information Server web site identified the soil in the LTA housing area as Udorthents-Dumps. The soil type in the HTA housing area is Altavista, which is a fine sandy loam with 0 to 3 percent slopes (City of Hampton 2006).

3.9 HAZARDOUS MATERIALS AND WASTE

3.9.1 Hazardous Materials

Hazardous materials are substances defined by the United States Department of Transportation (USDOT) (49 CFR 105.5). The Solid Waste Disposal Act, as amended by

the Resource Conservation and Recovery Act (RCRA) (42 USC 6901, *et seq*.), was further amended by the Hazardous and Solid Waste Amendments of 1984, defines hazardous waste. In general, both hazardous materials and waste include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

Management of hazardous materials at Air Force installations is established primarily by AFI 32-7086, *Hazardous Materials Management.* The AFI incorporates the requirements of federal regulations, other AFIs, and DoD directives, for reduction of hazardous material uses and purchases. Hazardous materials are managed by the Base's Hazardous Materials Management Office. Base personnel are also required to maintain an accurate file of Material Safety Data Sheets for all hazardous materials used. Use of a hazardous materials inventory program reduces the need to store large quantities of hazardous materials on Base and allows these materials to be ordered on an as-needed basis (Langley AFB 2003a).

According to the *Integrated Solid Waste Management Plan 32-70,* hazardous materials such as oil, fuel, household cleaners, etc. are not to be placed in the trash. For residential hazardous materials, the Virginia Peninsulas Public Service Authority has a Household Chemical Collection Day every other month, and accepts household chemical waste from Langley AFB and Bethel Manor military residents. Household maintenance products, automotive products, lawn and garden products, household cleaning products, and other miscellaneous products are accepted. Residents can drop off items in York County, James City County, or with the City of Hampton. The dates and times of the turn-in days are publicized through the Base newspaper, *The Flyer*.

Off-Base Housing

Daily operations at Bethel Manor do not normally involve the use of hazardous materials. Occasionally residents and maintenance staff use oils, greased, pesticides, paint, and general cleaners. Diesel fuel for generators associated with sewage lift stations and emergency power generation at Bethel Manor is currently stored in aboveground storage tanks (AST). Gasoline is currently stored in underground storage tanks (UST) at the AAFES Shoppette Gas Station. An Environmental Baseline Survey (EBS), which included property inspections and review of environmental databases, was completed for the off-Base housing area in 2002 and updated in November 2003 (Langley AFB 2003b).

On-Base Housing

Residents of the Langley AFB on-Base housing areas may purchase cleaning supplies and other chemicals for personal use that contain constituents classified as hazardous materials. However, the Base does not track these purchases and the quantity of these materials is unknown. Small quantities of residential-type hazardous and non-hazardous substances (*e.g.,* gasoline, maintenance and cleaning products, and commercially available pesticides) likely are present in the housing units.

3.9.2 Hazardous Waste

Unless otherwise exempted by Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations, RCRA Subtitle C (40 CFR Parts 260 through 270 and 280) regulations are administered by the USEPA and are applicable to management of hazardous waste. Hazardous waste must be handled, stored, transported, disposed, or recycled in accordance with these regulations.

Hazardous waste at Langley AFB is managed according to *Langley AFB Hazardous Waste Management Plan, 32-7043.* Hazardous waste generated at the Base and MFH areas includes: antifreeze, paint, stripping elements, acid, batteries, oil, contaminated fuel, and spent solvents. Hazardous waste accumulation points are Base facilities where hazardous waste is generated and small quantities are stored.

Off-Base Housing

According to the EBS conducted at Bethel Manor in 2002, housing residents have occasionally placed hazardous wastes such as paint containers, household cleaners and solvents, used oil, and lead-acid vehicle batteries next to the central dumpsters located near Building 1843 in the Housing Maintenance Facility. Environmental Compliance and Assessment Management Program findings and interviews also indicate a former contractor allowed paint containers and rusty drums to accumulate in the same area. No indication of staining was mentioned in the findings and no stains or abandoned hazardous wastes were visible during the site visits conducted during the EBS. Records indicate that civil engineering personnel disposed of the hazardous waste via the Defense Reutilization Marketing Office and took steps to ensure that hazardous wastes do not accumulate near the central dumpsters, including moving the dumpsters farther inside the fenced area, posting additional signs with specific do-not-dump items listed, and installing a "dummy" video camera near the dumpsters. Household hazardous waste drop-off days and locations are scheduled and advertised. No accumulation of hazardous waste, petroleum waste, or suspect containers was observed during the EBS site visits (Langley AFB 2003b)

On-Base Housing

There are 28 initial accumulation points near the HTA MFH neighborhood and three near the LTA MFH neighborhood. One accumulation site, the Environmental Management Flight (Building 1390), is the only places where more than 55 gallons of hazardous waste can be stored. Hazardous waste is transported off-Base by a contractor and disposed in accordance with applicable directives. Personnel at Building 1390 maintain spill cleanup readiness (Langley AFB 2001).

3.9.3 Asbestos

Asbestos-containing material is a material that contains at least 1 percent of asbestos by weight. Friable asbestos material is ACM that can be crumbled, pulverized, or reduced to powder by hand when dry. Friable ACM contains microscopic fibers that may become airborne when disturbed. Airborne ACM fibers can be inhaled, become lodged in the lungs and can cause serious health problems over time. Health effects generally do

not appear for decades after exposure. Asbestos has well known heat and fire-retardant characteristics and has been used in many products to reduce their flammability. It is commonly found in ceiling and floor tiles, tile mastic, pipe insulation and structural frame insulation materials produced prior to 1978, when its use was limited to reduce negative health effects caused by exposure.

Asbestos management at Air Force installations is established in AFI 32-1052, *Facility Asbestos Management*. AFI 32-1052 incorporates by reference applicable requirements of 29 CFR 669 *et seq.,* 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.140, Section 112 of the CAA, and other applicable AFIs and DoD directives. AFI 32-1052 requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the current status and condition of all ACM in the installation's inventory of facilities and documenting all asbestos management efforts. In addition, the AFI requires installations to develop an asbestos operating plan that details how the installation would conduct asbestos-related projects. Asbestos is regulated by the USEPA with the authority promulgated under Occupational Safety and Health Administration, 29 USC §669 *et seq*. Emissions of asbestos fibers to ambient air are regulated under Section 112 of the CAA.

Off-Base Housing

Asbestos surveys performed at Bethel Manor indicate that samples collected from units located in the 2000 Area (1976 construction) contained ACM in the front window, floor tiles, linoleum, outside caulking, tape, mastic, tile adhesive, and patio light fixture insulation. Samples collected from units in the 1900 Area (1966 construction) indicated that ACM include tile and black tar material. Samples collected from units in the 1500 and 1600 Area (1960 construction) indicate that floor tile, drywall taping compound, and piping material contain ACM (Langley AFB 2003b).

It is likely that friable and non-friable ACM are present in the housing units constructed in the 1960s and 1970s that have not undergone renovation. The housing units constructed and renovated in the 1990 Area (units numbered in the 2000s) are not likely to contain asbestos. Units likely to contain ACM include those non-renovated units in the 1500, 1600, 1700, 1800, and 1900 Areas.

On-Base Housing

Various asbestos surveys at Langley AFB have been conducted since the mid-1980's, and each of the MFH areas has been tested for the presence of ACM. Many of the housing units were found to have positive results for ACM, the majority of detections being found in pipe insulation, ceiling material, flooring, boiler room insulation, water boiler insulation, roof tar, and floor tile. ACM sample results are included in Appendix B of the EBS that was conducted in 2005 for MFH privatization at the LTA and HTA housing areas (Langley AFB 2005b).

ACM mitigation is conducted during major building renovations (Langley AFB 2005b). Each building is assessed for ACM risk prior to beginning renovations, and based on the assessment, ACM is removed or encapsulated.

3.9.4 Lead-Based Paint

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

Lead-based paint management at Air Force installations is established in the Air Force policy and guidance on LBP in facilities. The policy incorporates by reference the requirements of 29 CFR 1910.1025, 29 CFR 1926, 40 CFR 50.12, 40 CFR 240 through 280, the CAA, Public Law 102-550, and other applicable federal regulations. This policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. LBP sample results for on-Base housing are included in Appendix B of the EBS conducted in 2005 for MFH privatization (Langley AFB 2005b).

The *Lead-Base Paint Management and Operation Plan* requires the Base to inform housing residents, prior to taking occupancy, of the presence and risks of LBP. A questionnaire is provided to families with children under the age of seven to assess the potential exposure. Based on the risk severity, a blood monitoring program can be recommended. When a facility that requires renovation or demolition is determined to contain LBP, the plan is used to govern the abatement of the LBP prior to the facility being renovated or demolished. The LBP Management and Operation Plan includes assessing risk, scraping and encapsulation, and removal of paints (Langley AFB 2004e).

Off-Base Housing

Records obtained during the EBS conducted in the Bethel Manor housing areas in 2002, indicated that paint chips collected at two housing units (2047B and 2048A) contained lead. According to 1AMDS/SGPB Base personnel, tests performed in Buildings 1726, 1705, and 1914 did not indicate LBP on interior bedroom closet walls, bedroom walls, or sliding door track. A LBP risk assessment conducted for Building 1914 (home daycare) indicated that LBP was confirmed on exterior walls and doorframes. Building 1914 was power washed in April 2001 to prepare the exterior surface for painting. Paint chips collected from the ground around the exterior of the buildings were subsequently determined to contain lead (Langley AFB 2003b).

A 1998 Public Health Assessment on Langley AFB from Agency for Toxic Substances and Disease Registry the recommended a Base-wide survey for the presence of lead in soil where children are likely to come into contact with the soil. The survey was performed and conclusions were provided in a January 4, 1998 letter. The findings indicated Bethel Manor housing units, childcare facilities, and playgrounds were all well below the USEPA recommended action level (400 ppm) (Langley AFB 2003b).

Painted surfaces in the non-renovated housing units constructed in the 1960s and 1970s (prior to 1978) should be considered potentially lead containing. The housing units constructed and renovated in the 1990s (units numbered in the 2000s) are not likely

to contain LBP. Units likely to contain lead-based paint include those non-renovated units in the 1500, 1600, 1700, 1800, and 1900 areas.

On-Base Housing

Similar to the off-Base housing areas, painted surfaces in the non-renovated housing units constructed in the LTA and HTA prior to 1978 should be considered potentially lead containing. The housing units constructed and renovated in 2000, 2001, and 2003 are not likely to contain LBP. LBP surveys have been conducted in each of the on-Base MFH neighborhoods and sample results are included in Appendix B of the 2005 EBS for MFH privatization at the LTA and HTA housing areas (Langley AFB 2005b). Sampling associated with the various surveys yielded positive results in homes in each of the housing areas. LBP was detected on interior and exterior walls, wood trim baseboards, window and door frames, window shutters, composite soil samples from exterior of housing units, and in various dust swipe samples.

3.9.5 Pesticides

Pesticides at Langley AFB are managed under the Base's *Pest Management Plan*, as established by DoD Directive 4150.7. The plan emphasizes inspection and integrated pest management techniques. The Base pest management program includes inspection and control-as-necessary of household pests, structural pests, stored product pests, public health pests, ornamental and turf pests, and monitoring of pest control contracts. All Base pest management and golf course personnel who apply pesticides on Base property are required to be DoD-certified to ensure that pesticides are applied according to the directions for the product.

Langley AFB has used herbicides and pesticides on a regular basis for pest control. However, as a steward of the Chesapeake Bay, all chemicals used are approved by the USEPA and State of Virginia. In addition to managing pests on a Base-wide level, including control for ticks, fleas, household, and landscape-related pests, Langley AFB leads and participates in an intensive mosquito control program for the Tidewater Peninsula. Another control program treats invasive phragmites (a tall grass-like weed) along the wetlands of the Base. The Base instituted a 75 percent reduction in pesticide use initiative, based on a 1995 baseline figure (Langley AFB 2003a). The Entomology squadron uses only USEPA and Virginia State-approved chemicals and has developed an Integrated Pest Management Plan (Langley AFB 1998).

Pesticides are not stored in bulk at the MFH areas. According to the 2002 EBS, very few pest problems occurred at Bethel Manor. Occasional ant, roach, or rodents eradication is performed on an as needed basis per the request of the housing unit resident. Personnel stated that Unit 2071 did have termites in the late 1980s that were treated via application of a non-chlordane product per manufacturers' guidelines. Prior to the mid-1980s, chlordane was applied via sub-slab injection according to manufacturers' guidelines as a termiticide in housing areas. Langley personnel do not have records of any applications (Langley AFB 2003b). Levels of residual pesticides in the soil and residences have not been tested (Langley AFB 2005b).

Contractors are responsible for landscaping maintenance, including herbicide application, in common areas within all the MFH areas. Entomology Squadron personnel do not regularly apply herbicide in the housing areas.

3.9.6 Environmental Restoration Program

The Air Force established the ERP in 1983 to identify, characterize, and evaluate past (pre January 1984) disposal sites and remediate contamination on its installations as needed, to control migration of contaminants and potential hazards to ecological resources, human health, and the environment in accordance with CERCLA requirements. ERP goals are to protect human health and the environment by cleaning up and restoring Air Force sites where past activities created contamination from toxic and hazardous substances, low level radioactive materials, petroleum, oil and lubricants. Current ERP efforts are aimed at characterizing all active sites, determining future remedial actions, and implementing interim removal or remediation actions to reduce risks and eliminate contamination sources. Air Force policy is that sites where contamination has not entirely occurred after January 1984 are covered under the ERP. Sites where all contamination has occurred since January 1984 are remediated under the Compliance Cleanup program.

There are 16 ERP sites (OT-25, OT-38B, OT-38C, OT-56, OT-64, DP-09, LF-17, WP-08, SS-04, SS-16, SS-63, ST-26, ST-27, ST-29, ST-32, and ST-33) located adjacent to the LTA and HTA MFH neighborhoods. Additionally, there are two ERP sites (WP-42 and ST-48) in the Bethel Manor neighborhood which are considered adjacent to the housing areas. Figures 3-4 and 3-5 at the end of this Chapter show the location of these sites. Other sites that have been closed under the ERP are also identified on Figure 3-5.

Off-Base Housing

WP-42 (Abandoned Bethel Manor Wastewater Treatment Plant) is a former WWTP located east of the Bethel Manor Housing Area boundary, and outside the geographic area included in this EA. Existence of the WWTP was discovered during a records search in 1981. The WWTP was closed in the late 1960s and demolished in the early 1970s. A building located southeast of the documented location of the former WWTP is present on the 1970 historical topographic map and is not present on the 1973 historic topographic map. Demolition of the WWTP in the early 1970s coincides with the historic maps. A letter from 1CES/CEVR, dated November 3, 1999, indicates the site is no longer owned by the Air Force and therefore, is no longer addressed as an ERP site. The site is currently addressed as a Formerly Used Defense Site. A 1992 survey could find no trace of the demolished facility. The ERP site is considered closed (Langley AFB 2003c).

ST-48 (Abandoned Fuel Tanks, Abandoned Bethel Manor Service Station, Building 1795) is located on 0.1 acre of land near the extreme northwest corner of the 1500-1600 Area in Bethel Manor (see Figure 3-4 at the end of this Chapter). The site has contamination from a release of petroleum products from USTs associated with the former Capehart Service Station that impacted the soil and groundwater. The gas station was active from 1964 to 1984. A Langley AFB Fire Station Annex and Medical Clinic

Annex currently occupy Building 1795 located at the intersection of First and Fifth Streets. Groundwater, soil, and sediment and surface water from an adjacent drainage ditch were collected and analyzed in previous studies. Benzene, ethylbenzene, total xylenes, gasoline range organics, diesel range organics, and arsenic were detected at levels above risk based closure limits. Pesticides and arsenic were detected in the ditch sediment; however, results from sediment samples collected upstream appear to indicate the source is not likely associated with the former ST-48 activities. A letter from the VDEQ, dated August 11, 1999, indicates the site does not warrant further corrective action (Langley AFB 2003c).

On-Base Housing

OT-25 (Old Entomology Building) is located north of the LTA neighborhood and was initially identified in 1981. The site covers 3.5 acres and consists of Building 965, which was demolished in 1996, and a nearby abandoned storage yard. Spills, primarily of malathion, had occurred in the storage yard. Entomology operations began at the site in 1971 and ceased in 1983. Pesticide and herbicide management practices in the building and its surroundings led to contamination of building materials, soil, and groundwater near the building (Langley AFB 2003c). On January 20, 1989, several hundred gallons of diesel fuel spilled from a 10,000-gallon AST situated on the south side of Building 965, and spread out under the building. Base personnel pumped the fuel out from under the building, but it is probable that contamination of the soil and groundwater around Building 965 occurred at that time, although no sampling or analysis was performed at that time. The final remedial investigation (RI) was completed in December 2000. As of February 2006, the feasibility study (FS) to evaluate cleanup alternatives is still under development (Gravette 2006). In 2002, the Air Force issued a Record of Decision (ROD), but it was not signed by the USEPA nor has VDEQ concurred. There is a disagreement between the USEPA and DoD over specific language in RODs that include Institutional Controls. The agencies agreed to proceed with remedial action in spite of the dispute over the ROD language (Langley AFB 2003c).

OT-38B (Waste Oil and Trash Burning Area) is located southwest of the LTA neighborhood close to Buildings 1096 and 1097. The site was reported in the 1981 Phase I ERP records search. The area was reportedly in use from approximately 1917 to 1945. However, a visual inspection of the area was unable to find any evidence as to the location of the former burn pits (Langley AFB 2003c).

The remedial investigation for OT-38B was performed in 1997. Groundwater and soil samples were collected and analyzed during the RI. The groundwater samples were collected from one existing shallow monitoring well. A human health risk assessment and a preliminary ecological risk assessment were prepared for the site. The human health risk assessment indicated that all potential human receptors were below USEPA's acceptable range for carcinogenic risk. The potential receptors for the noncarcinogenic risk were below USEPA's acceptable Hazard Index value of 1.0. A ROD was signed on January 14, 1999 that closed the site with no further action (Langley AFB 2003c).

OT-38C (Waste Oil and Trash Burning Area) is located northwest of the LTA neighborhood between Building 1008 and the Back River. The site was reported in the 1981 Phase I ERP records search. The area was reportedly in use from approximately 1940 to 1950 and is contaminated with waste oils and solvents. An aerial photographic survey of photographs of the Pesticide Storage Area from 1944 to 1960 found no evidence of burning activity in this area. The same survey did find a circular area that could have been used as a potential burning pit site. A monitoring well and three soil borings were drilled at the site during an site investigation conducted in 1995. OT-38C is no longer considered a separate site and is co-located with LF-17. OT-38C was investigated as part of the RI performed on LF-17 in 2000 (Langley AFB 2003c).

OT-56 (Base wide Storm and Sanitary Sewers) site includes all the Base storm sewers, including those associated with SS-03. The storm and sanitary sewer outfalls are being investigated for silver contamination. As part of the compliance with the VDCR outfall permit, discharge from the outfalls must be sampled and analyzed for silver annually. An investigation in 1991 confirmed silver contamination in both the water and sediment at the outfalls (Langley AFB 2003c). A remedial action was completed in 2003. No further action is required for this site (Gravette 2006).

OT-64 (Base-wide Groundwater Contamination) is multiple groundwater contamination sites located throughout the Base. Primary contaminants of concern are pesticides, metals, volatile organic compounds, and polycyclic aromatic hydrocarbons. The definition of "Base wide" is the area under and near to known ERP sites. It does not include groundwater under open areas of the Base that are not under or near ERP sites. The contamination sources are spread throughout the installation. According to Base personnel, the RIs and FSs for each of the other sites on the Base will be used to evaluate contaminants from all sources and determine how to best address the intermingling of several contaminants within the Base's groundwater. Each of the areas of groundwater under the ERP sites will be addressed individually unless the sites are adjoining. However, the overall philosophy of how to investigate, monitor, and what to do at the areas, will be the same. As of March 2005, OT-64 was undergoing a FS (Gravette 2005).

DP-09 (Abandoned Gas Cylinder Disposal Site) includes the west side of LTA neighborhood and covers approximately 1.8 acres in the north-central portion of the Base. The area was reportedly used to bury gas cylinders used during the LTA dirigible work conducted from the 1920s to 1935. All buried cylinders found to date have either been empty or filled with sand. Site DP-09 is eligible for Air Force Environmental Restoration Account funding since LTA dirigible activities were conducted from the 1920s to 1935, and any contamination that may have occurred would be of a historical nature. A no further response action planned Decision Document was signed for Site DP-09 in November 1997. This site is considered closed (Langley AFB 2003c).

LF-17 (Abandoned Landfill, LTA Area) is north of the LTA neighborhood and covers approximately 4.8 acres. The landfill adjacent to the Back River near the old entomology building (ERP Site OT-25) area adjacent to the LTA area in the north-central portion of the Base (see Figure 3-5 at the end of this Chapter). The landfill was used from 1917 to 1945, but no documentation of the types of refuse materials deposited in the

landfill could be found. The majority of the landfill material was probably municipal-type refuse; however, materials such as waste oil and solvents in drums, paints, thinners, batteries, tires, fabrics, fly ash from coal burning, and construction debris, may have been deposited at the site. The site also includes a trash burning pit (ERP Site OT-38 Area C) used during the winter months when landfill operations were difficult due to high water table conditions. The Base skeet range presently occupies the area. Portions of the site are considered wetlands (Langley AFB 2003c).

In 2002, the determination of the extent of waste disposal areas by addition of test pits was completed and cleanup was under consideration. Cleanup alternatives for the Salt Marsh in the northern part of LF-17 are still under development. Information from the draft FS provided evaluation of remediation alternatives and a range of costs; determined additional testing of soil washing, and whether bioassay tests would reduce uncertainties in remedial action costs (Langley AFB 2003c). Bioassay and soil washing testing was completed. As of February 2006, the FS to evaluate cleanup alternatives is still under development (Gravette 2006).

WP-08 (Abandoned Wastewater Treatment Plant, LTA Area) is the site of a former WWTP covering approximately 0.7 acres adjacent to the Back River in the northeastern part of the Base, in the LTA area (see Figure 3-5). The WWTP was operated from 1930 to 1968 and provided only primary treatment. The WWTP was also equipped to disinfect final effluent before discharge into the Back River. Interviews indicate that a sewage lagoon was operated near Building 926 until 1940, but no documentation confirms its existence. Beginning in 1968, all on-Base sewage was discharged to the publicly owned treatment works. Aerial photographs indicate the WWTP consisted of two compartmentalized impoundments on an L-shaped lot surrounded by a fence. The WWTP was closed down and partially demolished between 1963 and 1968, and was fully demolished prior to 1978. The same L-shaped lot formerly occupied by the WWTP was redeveloped and is now used as a radar station. Most of the lot is paved with concrete; a bed of compacted gravel 3 to 4 feet thick underlies the pavement. The lot is surrounded by soft, marshy ground and is accessed by way of a single-lane blacktop road (Langley AFB 2003c).

SS-04 (Fuel Saturated Area, Buildings 763 and 764) is a fuel-saturated area covering approximately 4.5 acres along Nealy Avenue and its intersection with Danforth Avenue in the vicinity of Building 763 (see Figure 3-5 at the end of this chapter). The site includes 24 25,000-gallon USTs. These tanks were taken out of service in 1987 by cleaning the interior of the tanks and backfilling them with a sand and cement slurry. In addition, an 8-inch-diameter steel pipe JP-4 fuel transfer line extends through the site. Use of the transfer line was discontinued in 1990 (Langley AFB 2003c).

A report that detailed the field activities performed at SS-04 under the modified Corrective Action Plan for this site was submitted to VDEQ in July 2001. A Case Closure letter from VDEQ was received in August 2001 stating that endpoints established in the Corrective Action Plan were met and that no further action was necessary (Langley AFB 2003c).

SS-16 (Fuel Saturated Area, Dodd Boulevard and Thompson Street) was a possible fuel-saturated area covering approximately 0.4 acres east of the intersection of Dodd Boulevard and Thompson Street in the southwest portion of the Base (see Figure 3-5 at the end of this Chapter). Fuel was reportedly stored at the site in six USTs associated with a former gas station. Two USTs reportedly contained fuel oil, and the contents of the other four USTs are unknown. Based on a review of historical records, the tanks have been removed. Leakage from these tanks may have resulted in contamination of the soil and groundwater in the vicinity. Site SS-16 is currently a paved parking lot. Access to the subsurface at the site is limited to workers qualified to work in petroleum contaminated areas. VDEQ notified Langley on September 3, 1996 that further corrective action for SS-16 would not be required and issued a closeout letter (Langley AFB 2003c).

SS-63 (Base wide Back River Sediment Samples) consists of multiple sites located near Back River. Sediment samples were collected and contaminants have been detected in some of these samples, including metals, PCBs, and polychlorinated terphenyls. Interpretation of the significance of these discrete samples is extremely difficult because of the complex migration pathways that may occur in a tidal estuary such as the Back River. Base personnel determined the most effective way to characterize the sediment in the Back River was to conduct an investigation that encompasses the entire estuary rather than relying on information from discrete locations near ERP sites. A Remedial Investigation was completed for SS-63, formerly known as Area of Concern 01. As of February 2006, SS-63 was undergoing an FS (Gravette 2006).

ST-26 (West Apron/Control Tower, Fuel Saturated Area) is located to the west of the HTA neighborhood. The site includes several fuel-saturated areas in the south-central portion of the Base. These areas include the control tower area, the hot pits area, and Brown's Creek (see Figure 3-5 at the end of this chapter). These areas were monitored separately. The control tower site was originally identified as Site SS-21 in 1981. After soil sampling and analysis, the site was recommended for no further action. The control tower area is the area immediately surrounding Building 381 and includes the pumping station (Building 380) and the fire station (Building 375). The hot pits area is located at the northern edge of the jet parking area, where jets are fueled and de-fueled. Brown's Creek (VDEQ PC #91-1843) is a tidal creek that originates near the control tower and flows directly into the Back River. Site ST-21 was closed in 1992, and contamination is being addressed by remediation of ST-26 (Langley AFB 2003c; Gravette 2006).

The hot pits and Brown's Creek areas were closed on December 14, 1999. Operation of the groundwater treatment plant at the control tower area was suspended and the site was placed in postoperative monitoring. A field investigation of an area east and south of the control tower was completed in January 2000. No free product was found (Langley AFB 2003c). VDEQ stated in a March 2001 letter that cleanup endpoints were met and Site ST-26 posed no further risk. A Decision Document was written and submitted in April 2001 for final signature. This site is considered closed (Langley AFB 2003c).

ST-27 (Danforth Fuel Line Leaks, Fuel Saturated Area) is located to the west of the HTA neighborhood. The site includes the underground portion of the JP-4 fuel transfer line that carried jet fuel from the bulk fuel storage area (ERP Site ST-34) to the west parking apron (ERP Site ST-26) in the southeast part of the Base (see Figure 3-5 at the end of this chapter). The fuel transfer line is a 6,600-foot-long, 8- to 10-inch-diameter steel pipe that ranges in age from 30 to 50 years. Approximately 5,600 feet of the pipeline is buried underground. The pipeline starts at Building 741, runs under Danforth Avenue to its intersection with Sweeney Boulevard, continues parallel to Sweeney Boulevard, turns northwest near the intersection with Nealy Avenue, and terminates at Building 380. Use of the pipeline was discontinued in April 1990 (Langley AFB 2003c).

A letter from VDEQ dated December 13, 1999 stated that no further corrective action for ST-27 was warranted. Remediation of the site is considered complete. A Decision Document to formally close the site was prepared and submitted to VDEQ, and was signed on July 27, 2000 (Langley AFB 2003c).

ST-29 (Abandoned USTs, Building 788) is located to the west of the HTA neighborhood. The site is a series of eight USTs located under the parking lot adjacent to Building 788 in an area approximately 0.8 acres in size in the southeast portion of the Base (see Figure 3-5 at the end of this chapter). Extensive fill, including gravel, pavement, *etc.*, is present in the upper several feet around the tanks as a result of their installation. This remedial action began in 1992 and was completed in 1994. A Decision Document for no further action was prepared and submitted to VDEQ, and was signed on April 4, 2000. The site is considered closed (Langley AFB 2003c).

ST-32 (Abandoned UST, Building 753) is located to the northwest of the HTA neighborhood. The site is a fuel-saturated area covering approximately 0.1 acres and the UST beneath the grassy area between Building 753 and Danforth Avenue in the southeast portion of the Base (see Figure 3-5 at the end of this chapter). The site consists of an abandoned 60,000-gallon concrete fuel tank buried approximately 11 feet underground adjacent to the JP-4 pipeline. The tank was constructed in 1949 and stored No. 2 and No. 4 fuel oil. The fuel oil was used in the steam generation system in Building 753. Tank closure began in 1992 and was completed in 1993. VDEQ issued a closure letter on this site dated July 24, 1996 (Langley AFB 2003c).

ST-33 (Abandoned UST, Building 753) is located to the west of the HTA neighborhood. The site includes a fuel-saturated area covering approximately one-tenth of an acre and a UST beneath the grassy area between Building 755 and Danforth Avenue in the southeast portion of the Base (see Figure 3-5 at the end of this chapter). The UST is an abandoned 60,000-gallon concrete fuel tank buried approximately 11 feet below ground surface adjacent to the JP-4 pipeline. The tank was constructed in 1949 and was used to store No. 2 fuel oil. The fuel oil was used in the steam generation system in Building 755. A Decision Document for No Further Action was prepared and submitted to VDEQ, and was signed on April 4, 2000. The site is considered closed (Langley AFB 2003c).

There were 118 1,000-gallon USTs used to store fuel oil for boilers in the HTA and LTA areas that have been removed or abandoned in place (Langley AFB 2005b).

The LTA housing units had 67 fuel oil USTs removed or abandoned in place, 64 of which were leaking, that were removed and received approved closure under supervision of the VDEQ. The HTA area had 51 USTs removed or abandoned in place, 24 of which were leaking, that were removed and received approved closure under supervision of VDEQ (Langley AFB 2004d). There are four tanks in the HTA that are currently undergoing closure activities supervised by VDEQ; these are units 423, 430, 461, and 554 (Wiker 2006).

Interviews with Housing Maintenance personnel indicated that some of the USTs leaked or spilled fuel oil into the basements MFH units. Two of the units in the General's Houses section of the HTA neighborhood were the worst, and free product was found in the groundwater. The tank program now monitors the groundwater for oil because it seeped from groundwater into the basements (Brown 2004). 1CES/CEV personnel indicated that one of the units described is Building 554 which has received numerous complaints over the years about a petroleum odor coming from the basement. A groundwater treatment system was installed at the site of the leaking UST to remove free product, but was shut down in 2000 because vapor phase extraction endpoints in the basements were met. The remedial action since 2000 has consisted of monitoring groundwater wells for free product; free product removal in three wells: and vapor phase monitoring of the wells and basements, all on a quarterly basis.

Historically each duplex unit and single housing unit on Base had one UST for storing fuel oil. The USTs were located underground near the housing units and not in the basements with the boilers. There are units in both the LTA and HTA neighborhoods that USTs are abandoned in place. The HTA neighborhood has 40 buildings (36 duplexes, four single units) that according to interviews never had fuel oil USTs. Property records indicate the buildings had a 1 to 2-inch steam line connecting them to a central boiler at Building 180. Figures 3-6 and 3-7 at the end of this Chapter detail areas where fuel oil USTs in the HTA and LTA neighborhoods have been removed or abandoned in place.

3.10 CULTURAL RESOURCES

Cultural resources are prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. Cultural resources are divided into two categories: (1) historical resources (historic buildings and structures) and (2) archaeological resources (prehistoric, historic, and traditional). In addition to NEPA, the primary laws pertaining to the treatment of cultural resources during environmental analysis are the National Historic Preservation Act (especially Sections 106 and 110), the Archaeological Resources Protection Act, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act.

Only those cultural resources determined to be potentially significant are subject to protection from adverse impacts resulting from an undertaking. To be considered significant, cultural resources must meet one or more of the criteria that would make that resource eligible for inclusion in the NRHP. The term "eligible for inclusion in the National Register" includes both properties formally determined as a historic place by the Secretary of the Interior and all other properties that meet NRHP listing criteria specified in Department of Interior regulations (36 CFR 60.4). Therefore, sites not yet evaluated may be considered potentially eligible for the NRHP and, as such, afforded the same regulatory consideration as nominated properties. Whether prehistoric, historic, or traditional, significant cultural resources are referred to as "historic properties."

Cultural resources management at Air Force installations is established in AFI 32-7065, *Cultural Resources Management*. AFI 32-7065 details compliance requirements for protecting cultural resources, including preparation of a Cultural Resources Management Plan (CRMP). Cultural resources at Langley AFB and Bethel Manor are managed in accordance with the Base's CRMP (Langley AFB 2004b).

3.10.1 Historic Resources

Off-Base Housing

Establishment of Big Bethel Reservoir in 1918 inundated the floodplain of Brick Kiln Creek, one of the most sensitive areas for potential historic architectural, archaeological, and prehistoric archaeological resources in the vicinity of Bethel Manor. Secondary sources and historic maps suggest the reservoir inundated an 18th century mill complex site along Brick Kiln Creek and the early 19th century Big Bethel Church. The most significant historic associations for this area date from the Civil War and the later 19th century. In 1861, Confederate forces constructed a system of earthen defenses around Big Bethel Church in an effort to prevent Union forces stationed at Hampton from advancing up the James/York Peninsula to Yorktown. The site was reported submerged when the reservoir was constructed in 1918. However, the church cemetery still exists on a small finger ridge overlooking the reservoir (Langley AFB 2004b).

As with the Army, the Air Force and the Navy consider their inventories of Wherry and Capehart properties, including any associated structures and landscape features, to be eligible for the NRHP for the purposes of Section 106 compliance. The Advisory Council on Historic Preservation has provided Program Comment for Wherry and Capehart Era Family Housing at Air Force and Navy Bases. This Program Comment, adopted pursuant to 36 CFR 800.14(e), demonstrates Department of the Air Force and Department of the Navy compliance with their responsibilities under Section 106 of the national Historic Preservation Act with regard to the following actions in the management of the Wherry and Capehart Era family housing; maintenance, repair, layaway, mothballing, privatization and transfer out of federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Wherry and Capehart-Era housing, associated structures and landscape features that may be eligible for listing on the NRHP (ACHP 2004).

On-Base Housing

A reconnaissance-level architectural survey conducted by the National Park Service (NPS) in 1991 identified the HTA and LTA areas as the Langley Field Historic District, under the National Register Criteria A, B, and C. The NPS survey identified the LFHD as being potentially eligible for listing on the NRHP. LFHD is significant under Criterion A of the NRHP because of its association with significant events and trends in military history; Criterion B for its association with the lives of persons significant in U.S. history; and Criterion C for illustrating the evolution of construction within the Army Air Corps between 1917 and 1947. The Virginia Department of Historic Resources (VDHR) concurred with the NPS district boundary delineation and eligibility recommendations. The district represents a cohesive collection of built resources due to its intact historic road system, landscape features, and architectural vocabulary. LFHD encompasses three strict historic areas: the HTA in the southern part of the LFHD, the LTA in the northern part of the LHFD, and the airfield that separates the two areas. All of the HTA and LTA housing units are considered historic and are primary in making up the LFHD (Langley AFB 2004b).

3.10.2 Archaeological Resources

Off-Base Housing

The non-submerged landforms currently exposed at Bethel Manor represent crests of ridges that overlooked the floodplain of this non-tidal portion of Brick Kiln Creek. Prehistoric occupations located on such upland and inland environments have traditionally been designated as small temporary or seasonal resource procurement sites. The archaeological signature of such sites generally consists of small, diffuse deposits of lithic or other cultural materials, with few underlying features. No archaeological sites have been recorded within the Bethel Manor Family Housing Area. Wheaton, *et al.* (1992) conducted shovel and auger tests within a single confined strip in the middle of the housing area west of Bethel Road. No positive shovel tests were reported, and no cultural material was noted in the auger samples obtained from this area (Langley AFB 2004b).

The housing area was graded and filled during the various phases of housing construction. In addition, moderate subsurface disturbances also resulted from site preparation and installation of underground utilities. It is likely that site preparation, intensive residential development, and installation of related underground utilities have reduced much of the significant prehistoric and historic archaeological potential of the housing area. The open spaces within the residential areas tested by Wheaton, et al. yielded no evidence of occupation, and there are few undeveloped peripheral areas inside the property fence along the northern shore of Big Bethel Reservoir. Therefore, the housing area exhibits low potential for intact archaeological resources (Langley AFB 2004b).

On-Base Housing

Langley AFB property preserves an important archaeological record of both Native Americans and historic occupation in eastern Virginia. Previous archaeological surveys indicate the Base has been severely impacted by construction and other activities over the past 80 years. Vast portions of each areas surveyed showed some level of disturbance. Approximately 74 to 80 percent of the LTA area has been heavily impacted by construction of the housing facilities. The whole HTA area northwest of Bryant Street has been heavily disturbed by building and road construction (Langley AFB 2005c).

The most recent archaeological survey of 406 acres identified four previously unrecorded sites and 23 archaeological locations, as well as archaeological conformation of three previously map-projected sites. The present total number of archaeological sites identified at the Base is fifteen (Langley AFB 2005c).

Five sites with Native American occupations, representing seven components overall, were identified during the most recent survey (see Table 3.2). Of these, Late Woodland and Protohistoric/Contact period components are the most dominant. Two of the sites could not be precisely dated. One other site (44HT98)contained a small Woodland component of unknown cultural and temporal affiliation. No sites were identified during the survey with definitive components predating 500 BC, although one previously surveyed site (44HT21) has been recorded with a Middle to Late Archaic component potentially dating as early as 6500 BC (Langley AFB 2005c).

Table 3.2 Native American Components Identified During Survey

Site	Undetermined Prehistoric	Undetermined Woodland	Late Woodland	Contact Protohistoric
44HT10			X	X
44HT95	X			
44HT96			X	X
44HT97		X		

Evidence for historic occupation of Langley AFB is much stronger. Seven sites with historic occupations, representing 23 components overall, were identified during the current survey (see Table 3.3). Late 18th to early 19th - century components are represented at all of the sites. Three of these (44HT10, 44HT12, and 44HT13) were continually occupied until the 20th century. One site (44HT96) contained components from the early 17th and early to late 18th centuries (Langley AFB 2005c).

The Proposed Action involves the LTA and the HTA housing areas. Of the 15 archeologically historic sites identified on Langley AFB only three occur in the areas covered by the Proposed Action. Sites 44HT10 and 44HT97 occur in the HTA housing area and site 44HT96 occupies the LTA housing area. These sites and all systematically surveyed areas are shown on Figure 3-8 at the end of this chapter. Site 44HT10 is near the officer's club in the HTA area. Site 44HT10 is recommended as potentially eligible for inclusion in the NRHP due to its Native American and historic components. Site 44H97 is a newly recorded archaeological site with evidence of prehistoric occupation of

undetermined age and historic occupation dating from the 18th and mid-19th centuries. Much of the site has already been impacted by construction of the surrounding residential housing area and Site 44HT97 is not recommended as eligible for inclusion in the NRHP. Site 44H96 is a newly recorded multi-component site with evidence of Native American occupation during the Late Woodland to Contact Periods and historic occupation dating from the early to late 18th century. Though much of the site area has been impacted by construction of the surrounding LTA housing units, shovel testing survey and test unit excavation identified the presence of intact Native American and historic deposits. Because this site could still yield valuable information both the Native American and historic components of the site are recommended as potentially eligible for inclusion in the NRHP (Langley AFB 2005c). Langley AFB recently received funding in January 2006 to conduct Phase II evaluations of these sites. The surveys would be conducted prior to turnover of the property to the contractor-developer, in accordance with Section 110 of the NHPA (Baie 2005).

Table 3.3 Historic Components Identified During Survey

	44HT10	44HT12	44HT13	44HT95	44HT96	44HT97	44HT98
Settlement to Society (1607-1750)					X		
Colony to Nation (1750-1789)					X		
Early National (1789-1830)	X	X	X	X	X	X	X
Antebellum (1830-1860)	X	X	X				X
Civil War (1861-1865)	X	X	X				X
Reconstruction (1865-1917)	X	X	X				
WWI to Present (1917-present)	X	X					

3.11 SOCIOECONOMIC RESOURCES

This assessment assumes impacts associated with the proposed action would occur within a designated region of influence (ROI) for Bethel Manor and Langley AFB. The ROI includes the Cities of Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Williamsburg, York County, and portions of the independent cities of Chesapeake, Suffolk, and Virginia Beach and the Isle of Wright and James City Counties. The ROI was determined by evaluating which geographic area would be most directly economically affected by the Proposed Action. Typically, the ROI encompasses the geographic area most likely to be influenced by changes in spending behavior by the affected personnel, as well as any changes in post spending on services and supplies

affected by the action. Therefore, baseline information provided in this subchapter pertains to both off-Base (Bethel Manor) and on-Base (LTA and HTA areas).

3.11.1 Population

Bethel Manor is located in York County, approximately 2 miles from the western boundary of Langley AFB and immediately north of the Hampton City limits and east of Newport News. York contains mostly rural and small waterfront communities. Langley AFB is located in the City of Hampton, which includes Fort Monroe.

The housing market area population has increased by 11.3 percent since 1990. The total population of counties contained within the housing market in 2003 area was estimated to be 1,548,446. Approximately 72 percent of the total population lies within the housing market area boundaries, which amounts to 1,120,516 persons. The City of Norfolk contains the largest portion of the housing market area population (20.7%), followed by Virginia Beach City (18.9%). The City of Norfolk is the sixth most populated county equivalent in Virginia and ranks 247th in total population out of the 3,141 county equivalents around the country (USAF 2003).

Population growth for some of the areas around Langley AFB since 1980 and expected population growth through 2010 include the City of Chesapeake which experienced a 31.1 percent increase in population from 1990 to 2000, while Hampton City and York County increased by 9.5 and 27.0 percent, respectively. The Cities of Norfolk and Portsmouth both experienced declining populations over the past two decades. The City of Chesapeake is expected to lead percentage growth over the next 10 years (USAF 2003).

3.11.2 Housing

The City of Norfolk is the largest population and housing center in the housing market area; however, all of the other areas do offer some housing options. The total number of private housing units within the housing market area boundaries was estimated to be 438,981 in 2003. Based on local building trends, population and household projections, and other information, the total housing supply has grown at an average annual rate of 1.0 percent since 1990. The housing supply in 2003 consisted of 255,927 homeowner units, 173,615 rental units, and 9,439 other units. As with most areas, homeowner units account for a majority of the housing units USAF 2003).

Table 3.4 Private Sector Housing Units by Area, 2003

Area	Total Units	Homeowner Units	Rental Units	Other
Chesapeake City	42,105	27,913	13,515	677
Hampton City	57,487	33,198	23,077	1,212
Isle of Wight County	7,586	5,980	1,318	288
James City County[1]	10,527	6,005	3,987	535
Newport News City	74,197	38,400	34,496	1,301
Norfolk City	93,586	41,440	49,453	2,693

Table 3.4 Private Sector Housing Units by Area, 2003 (continued)

Area	Total Units	Homeowner Units	Rental Units	Other
Portsmouth City	41,717	23,538	16,591	1,588
Suffolk City	8,719	7,214	1,311	194
Virginia Beach City	77,330	51,712	25,036	582
York County[2]	25,727	20,527	4,831	369
Total	**438,981**	**255,927**	**173,615**	**9,439**

[1] *Includes Williamsburg City*
[2] *Includes Poquoson City*
Note: Other units include vacant units not classified as homeowner or rental (i.e., vacant units held for seasonal, recreational or occasional use, for migrant workers, for occupancy by a caretaker or janitor, or for other reasons of the owner).
Source: USAF 2003

There were approximately 255,927 homeowner units in the housing market area in 2003, representing 58.3 percent of the total housing stock. The majority of these units were single-family type homes. The supply of homeowner housing has increased by 1.7 percent per year since 1990.

Home sales and prices for the local single-family real estate market have continued to push upward despite the economic conditions that have existed over the several years. Steady population and employment growth, combined with relatively low interest rates and prices, continue to drive the local homeowner market. According to the HRMA, the vacancy rate for owner-occupied housing was approximately 2.3 percent in the housing market area and is consistent with the strong demand for homeowner units on a state and national level. Nationally, homeowner vacancy rates average 1.7 percent while the State of Virginia has a higher homeowner vacancy rate of 2.2 percent (USAF 2003).

An average priced home in the local area costs $154,556 as of year-end 2002. The change in home prices has outpaced the rate of inflation since 1995 (2.4 percent), increasing by 4.6 percent per year. Average sales prices actually increased by 7.1 percent and 9.8 percent over the past two years after comparatively small increases from 1995 to 2000 (USAF 2003).

According to the HRMA, only higher-ranking personnel can comfortably afford an average priced home assuming they have the resources for an adequate down payment. However, in some parts of the housing market area, homeowner units are still affordable and good values are available to many lower ranking personnel as well. The local single-family real estate market is expected to meet the needs of military personnel electing to purchase homes in the housing market area (USAF 2003).

The rental market consists of approximately 45 percent traditional apartments, 32 percent duplex, triplex, and quadraplex type attached rental housing, 22 percent single-family rental housing, and one percent mobile homes. The supply of rental housing has increased by 0.1 percent per year since 1990. The median rental unit was built in the early 1970s and is in average condition (USAF 2003).

The median value of owner-occupied housing varies widely throughout Hampton. The overall median value for owner-occupied housing in Hampton is $91,100 according to the 2000 U.S. Census. Median household income also varies widely, with Hampton having a median household income of $39,532 in 2000. The percentage of the population below the poverty level in 2000 in Hampton was 11.3 percent compared to 9.6 percent for the Commonwealth of Virginia (U.S. Census Bureau 2000).

3.11.3 Education

The Hampton City Public School District serves Hampton, including Langley AFB and Bethel Manor. The district has 35 public schools with an enrollment approximating 22,000 students. The district includes 25 elementary school, six middle schools and four senior high schools. None of the public schools are located on Langley AFB.

3.11.4 Economy

The Norfolk-Virginia Beach-Newport News Metropolitan Statistical Area (MSA) best defines the southeastern Virginia region as it relates to Langley AFB. The military plays a major role in the area economy. Seven of the largest military installations in the world are located in the region, including Norfolk Naval Base, the world's largest. The tourism industry is a mainstay of the economy with a wide array of attractions, including military facilities, historic sites, theme parks, and beaches. The recent decline in the military sector has provided the infrastructure for the local economy to diversify into other industries like call centers, distribution facilities, and technology centers. The area appears well-positioned to withstand the current economic downturn, especially given recent national events. The economic base of the area is concentrated in service, government, and retail trade jobs. Other sectors of the economy, like finance, insurance and real estate and construction, have also been performing well. Currently, total employment of counties partially contained within the housing market area is approximately 970,600. Employment in the housing market area is expected to increase by approximately 11.2 percent through the year 2010. This is slightly less than the expected 12.7 percent growth in national employment levels over the same period (USAF 2003).

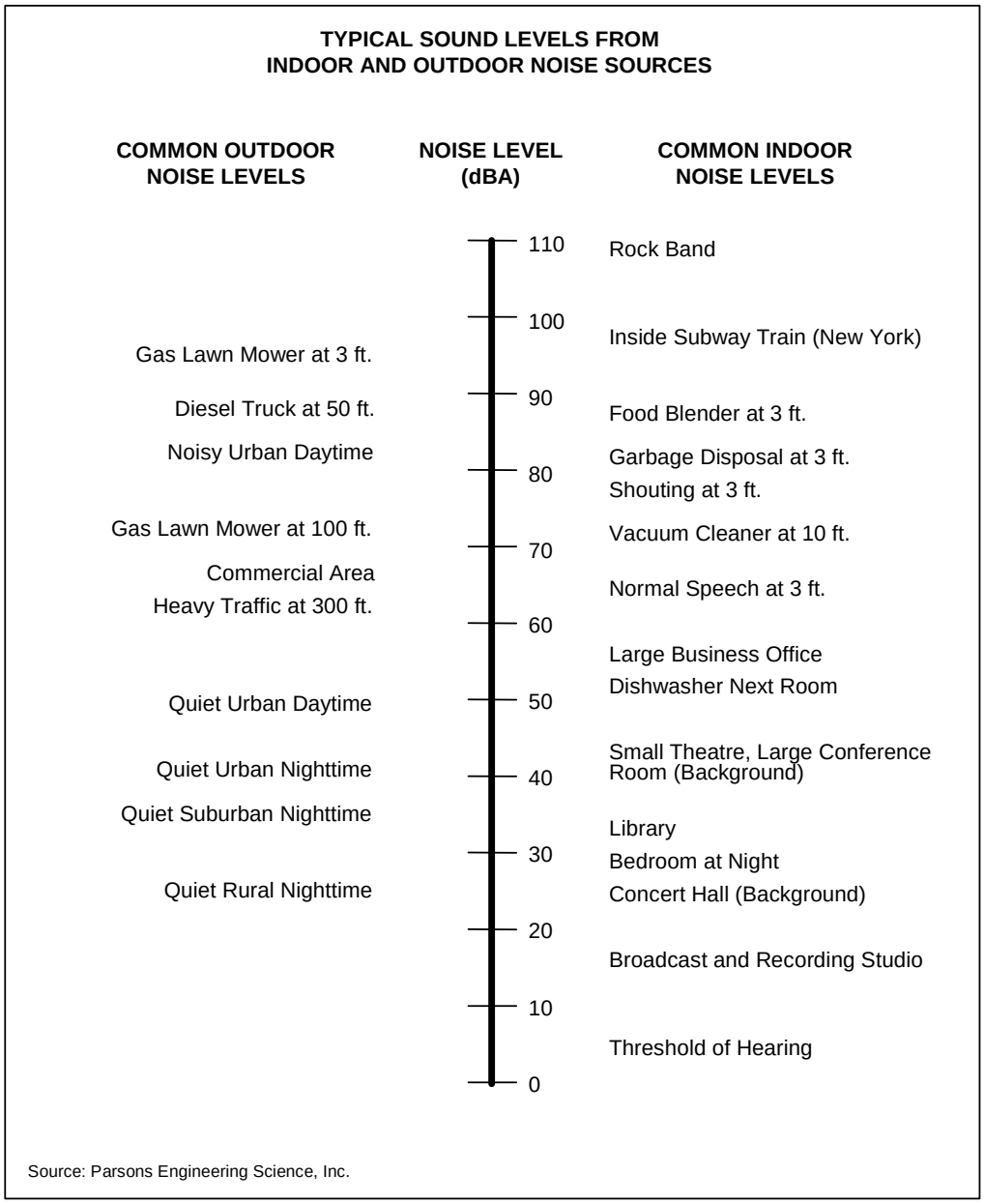
Employment data for the overall structure of the economy in the Langley AFB region (Norfolk-Virginia Beach-Newport News MSA) show that services, government, and retail trade are the main industries in the area, accounting for 71.4 percent of employment. The services sector ranks as the largest sector, representing 28.4 percent of total employment. The services sector has also been the fastest growing major industry since 1990, followed by the finance, insurance, and real estate sector. As a percent, the military sector represents 11.1 percent of employment. The importance of the military sector to the area economy is above average. During 2002, the military sector contributed approximately $5.1 billion of the $30.1 billion in inflation-adjusted earnings generated in the Norfolk-Virginia Beach-Newport News MSA (USAF 2003).

According to the HRMA, the unemployment rate for the housing market area was 4.3 percent in December 2002 (USAF 2003). The April 2005 unemployment rate for the Commonwealth of Virginia was 3.4 percent while the U.S. rate was 5.0 percent

(VEC 2005). Local area unemployment rates have historically remained above the State of Virginia rate and below the U.S. rates (USAF 2003).

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Figure 3-1 Typical A-Weighted Noise Levels



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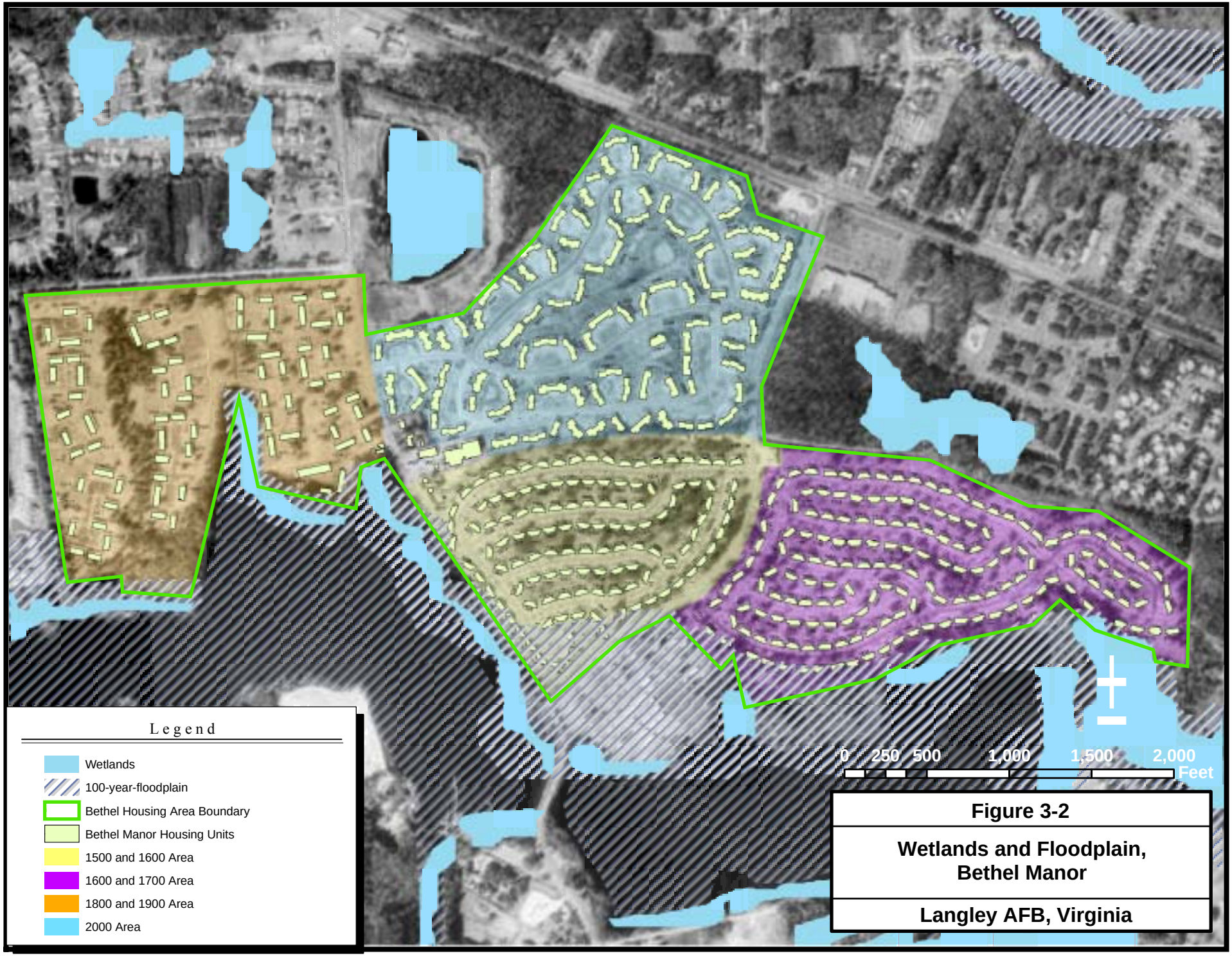


Figure 3-2

Wetlands and Floodplain, Bethel Manor

Langley AFB, Virginia

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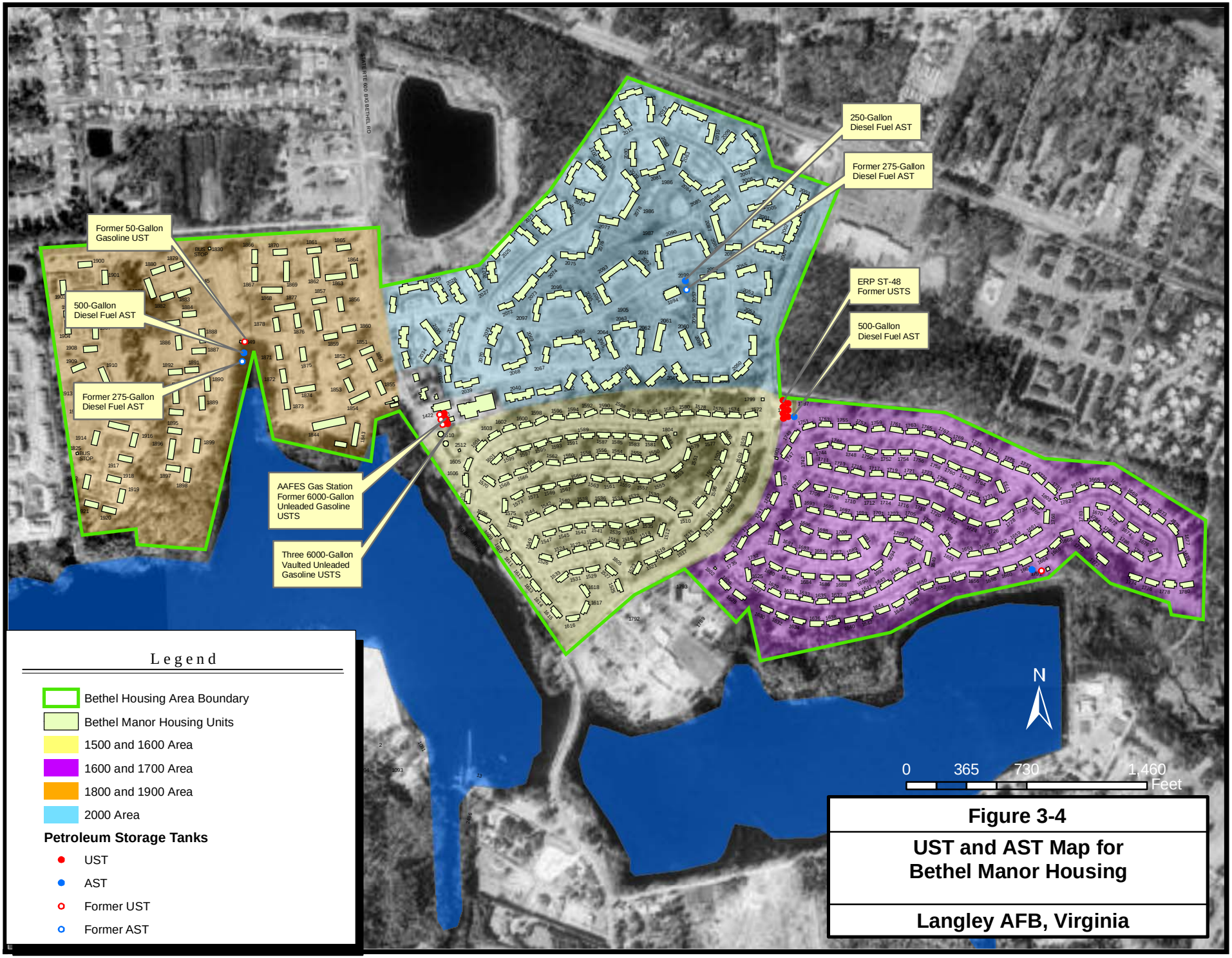
Figure 3-3

Wetlands and Floodplain, LTA and HTA

Langley AFB, Virginia

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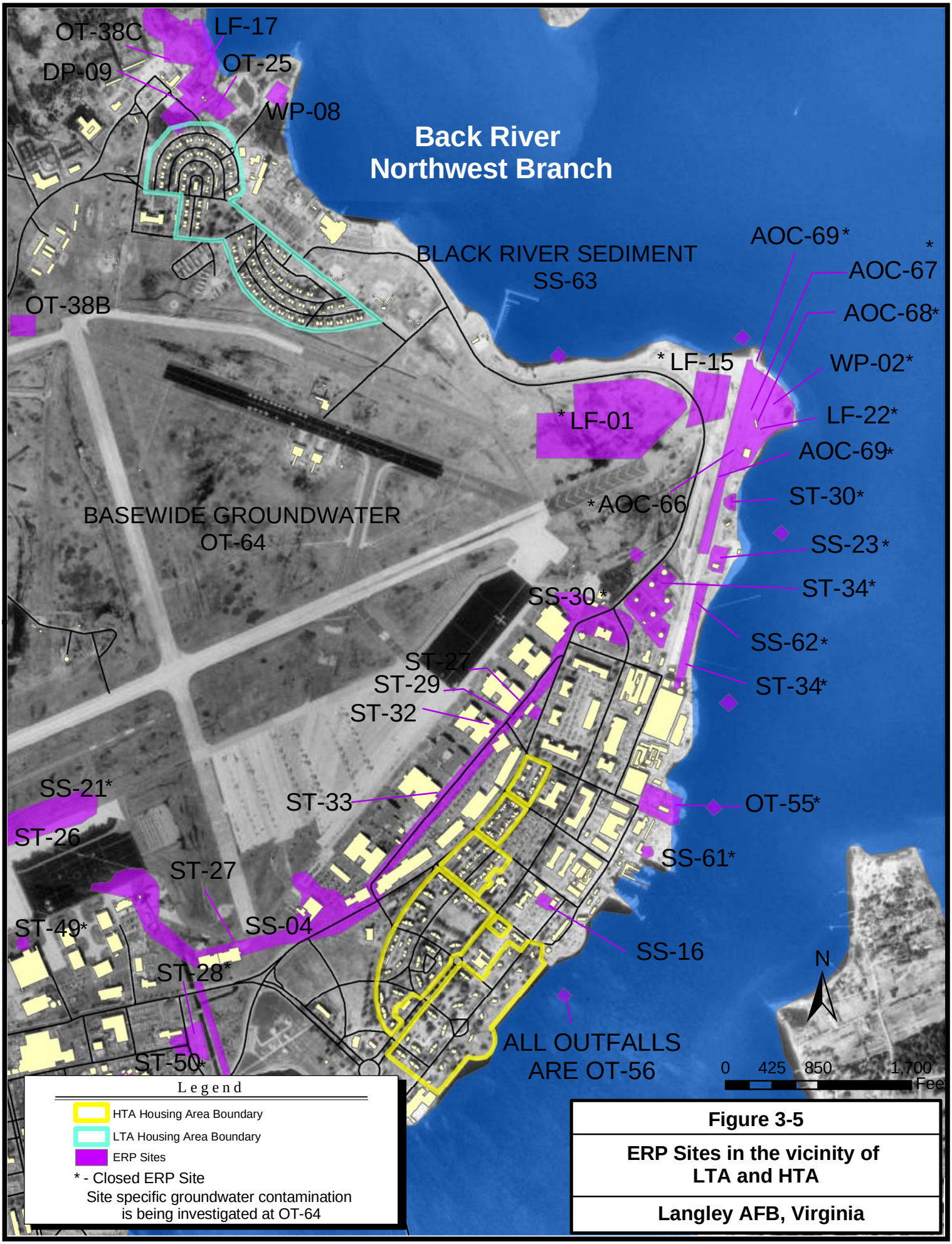


Figure 3-5

ERP Sites in the vicinity of LTA and HTA

Langley AFB, Virginia

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Figure 3-6

UST and AST Map
HTA Housing

Langley AFB, Virginia

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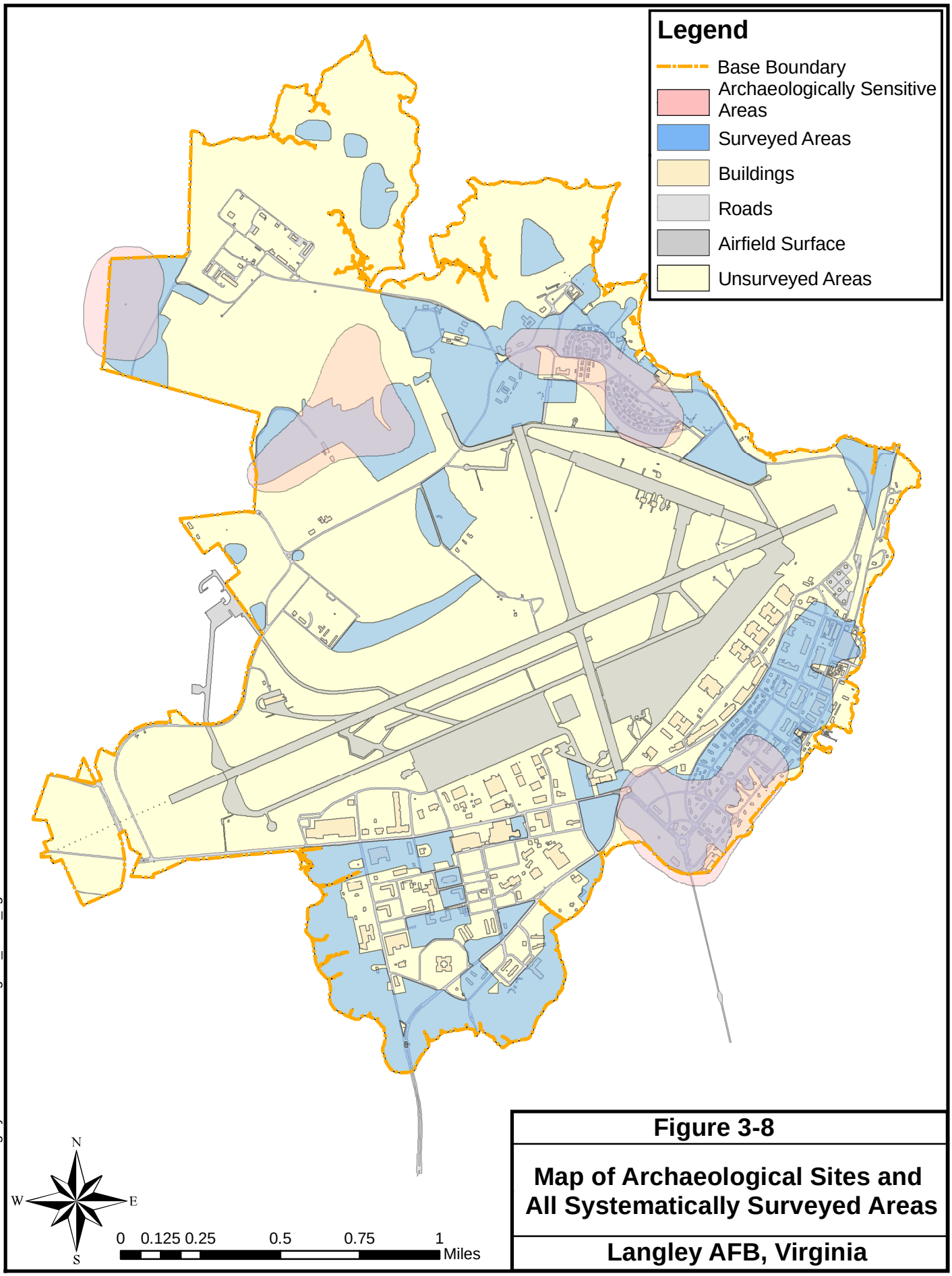
Figure 3-7

UST and AST Map for LTA Housing

Langley AFB, Virginia

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Figure 3-8

Map of Archaeological Sites and All Systematically Surveyed Areas

Langley AFB, Virginia

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CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

This chapter provides analysis of the environmental consequences of the No Action Alternative, Proposed Action, and Maximum Development Alternative.

4.1 NOISE

The following evaluation criteria were used to determine the impacts of noise:

- The degree to which noise levels generated by demolition and construction activities would be greater than the ambient noise levels;
- The degree to which there would be annoyance, speech interference, and loss of sleep; and
- The proximity of noise-sensitive receptors, such as MFH units, to the noise source.

4.1.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. However, 55 units built in 1960 in Bethel Manor would be demolished. No construction, renovation, or demolition activity would occur in the LTA and HTA housing areas on-Base.

Assuming that noise from equipment radiates equally in all directions, the sound intensity would diminish inversely as the square of the distance from the source. Therefore, in a free field (no reflections of sound), the sound pressure level decreases 6 decibels with each doubling of the distance from the source. Under most conditions, reflected sound will reduce the attenuation due to distance. Therefore, doubling the distance may only result in a decrease of 4 to 5 dB, according to the American Industrial Hygiene Association (AIHA 1996). Table 4.1 shows the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment.

Table 4.1 Heavy Equipment Noise Levels Measured at 50 Feet

Equipment Type	Number Used [1]	Generated Noise Levels, [2] L_p (dB)
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Asphalt Spreader	1	80
Roller	1	80
Flat Bed Truck (18 wheel)	1	75
Scraper	1	89
Trenching Machine	1	85

1 Estimated number in use at any time.
2 L_p = sound pressure level
Source: CERL 1978

Off-Base Housing

Housing units would be demolished at Bethel Manor under the No Action Alternative. The primary source of noise from this activity would be from equipment and vehicles involved in demolition work. Typical noise levels generated by these activities range from 75 to 89 dBA at 50 feet from the source. Sensitive receptors in the vicinity of these short-term activities could include occupied housing units not yet demolished and near the equipment being operated.

For analysis purposes, it is estimated the shortest distance between a demolition noise source and a residence would be about 50 feet. Conservatively, outdoor noise at an occupied residence could range from as high as 75 to 89 dB at 50 feet from the source. Indoor noise levels from the No Action activities could be 18 to 27 dBA lower than outdoor noise levels because building structures attenuate the outdoor noise levels. It is anticipated that demolition activities would occur between 7:30 a.m. and 4:30 p.m., 5 days per week for the duration of the project. The noise would be temporary and occur only during the hours that demolition activity would occur and would cease when the project is completed.

Based on data in Table B-1 in Appendix B, 61 percent of the persons exposed to DNL greater that 80 dBA could be highly annoyed from the demolition noise. No hearing loss would be anticipated for persons outdoors because they would not be exposed to DNL equal to or greater than 75 dBA for 40 years of exposure at 16 hours per day, the level at which hearing loss could occur. Sleep interference is unlikely because demolition activities would occur during daytime.

Elevated noise levels can interfere with speech, causing annoyance or communication difficulties. Based on a variety of studies, DNL 75 dBA indicates a good probability for frequent speech disruption. This level produces ratings of "barely acceptable" for intelligibility of spoken material. Persons conducting conversations within the project area could have their speech disrupted by demolition-generated noise. Speech disruption would be temporary, lasting only as long as the noise-producing event.

It is expected that noise in the Bethel Manor neighborhoods would be very similar to the baseline because the types and levels of activities that would occur in the neighborhoods after the No Action Alternative demolition activities are completed and in the areas surrounding the neighborhoods would be the same as the existing condition. Therefore, noise in the Bethel Manor MFH areas would range from approximately 50 dBA (quiet urban daytime) to about 80 dBA (noisy urban daytime) and interior noise levels would be reduced by approximately 18 to 27 dB due to the NLR properties of the units' construction materials.

On-Base Housing

Under the No Action Alternative, no MFH units would be constructed, renovated, or demolished. The primary source of noise at the LTA and HTA housing areas would continue to be from aircraft operations. Except for some of the units in the LTA housing

area built after 1978, nearly all the housing units were constructed prior to initiation of Air Force NLR policy and were not constructed to NLR standards.

4.1.2 Proposed Action

MFH units would be demolished and constructed under the Proposed Action at Bethel Manor. Two new MFH units would be constructed in the HTA housing area and existing MFH units in the LTA and HTA areas would be renovated. The equipment operating conditions, noise receptors, analysis conditions, assumptions, and methodologies used for the No Action Alternative noise analysis were used for the Proposed Action analysis.

For both the off-Base and on-Base housing areas, outdoor noise at an occupied residence could range from as high as 75 to 89 dBA at 50 feet from the source. Indoor noise levels would generally be 18 to 27 dBA lower than outdoor noise levels. The noise would be temporary and occur only during hours that construction, demolition, or renovation activity would occur and would cease when the project is completed.

Off-Base Housing Area

Similar to the No Action Alternative, noise in the MFH areas would be very similar to the baseline because the types and levels of activities that would occur in the neighborhoods after demolition activities are completed would be the same as the existing condition. Noise levels would range from approximately 50 dBA to about 80 dBA. As with the No Action Alternative, no hearing loss would be anticipated for persons outdoors, sleep interference is unlikely, and there is good probability for frequent speech disruption. However, speech disruption would be temporary, lasting only as long as the noise-producing event.

On-Base Housing Area

The primary source of noise in the LTA and HTA housing areas would continue to be from aircraft operations. The HTA and LTA neighborhoods are within the DNL 70-80 dBA noise contours for the F-15 and F/A-22. Fifty HTA units and 72 LTA units have been renovated and are likely compatible with NLR standards. The 11 units in the LTA Area constructed in 2003 would have been subject to NLR standards, and are likely compatible with NLR standards. The 109 units to be remodeled within the HTA and LTA Areas would be subject to NLR standards. It is anticipated the two new units to be constructed in the HTA area would not be located in the DNL 75 dBA and greater noise exposure area. The aircraft operations assumptions and masking described for the No Action Alternative apply to the Proposed Action.

As with the No Action Alternative, no hearing loss would be anticipated for persons outdoors, sleep interference is unlikely, and there is good probability for frequent speech disruption. However, speech disruption would be temporary, lasting only as long as the noise-producing event.

4.1.3 Maximum Development Alternative

Demolition and construction activities under the Maximum Development Alternative would be the same as those for the No Action Alternative and the Proposed Action. However, under this alternative, a greater number of units would be demolished and constructed within the same 10-year period resulting in the likelihood that more heavy equipment may be used than in the No Action Alternative and the Proposed Action. Assuming that two pieces of equipment could be operating at any one time and taking into account that noise would not be reflected, outdoor noise at an occupied residence could range from as high as 78 to 91 dBA at 50 feet from the source. The analysis and conclusions associated with equipment operation for the No Action Alternative and the Proposed Action apply to the Maximum Development Alternative. The development plan for the Maximum Development Alternative would establish MFH units in the same neighborhoods as the Proposed Action. Therefore, the NLR policy discussion for the Proposed Action applies to the Maximum Development Alternative.

4.1.4 Mitigation

No mitigation would be required because no noise impacts would be anticipated.

4.1.5 Cumulative Impacts

It is estimated that the shortest distance between one of the other actions and an MFH neighborhood (Bethel Manor) would be approximately 50 feet (Projects 1, 4, and demolition of the 55 surplus units shown in Figure 2-4 at the end of Chapter 2). Assuming that two of the loudest pieces of construction equipment (see Table 4.1) would operate at the same time, it is estimated that noise levels generated by each of the scrapers would be 89 dBA at 50 feet from the source. Combining the noise levels of the equipment would increase the overall noise level by 3 dBs to 92 dBA at 50 feet. When considering the 100-foot distance between the source and the receptor and the doubling effect from distance, the conservative, reflected noise level at a receptor would be approximately 88 dBA.

Noise from construction and renovation activities at Bethel Manor, the LTA, and the HTA housing areas would be temporary and intermittent, lasting only as long as the No Action Alternative, Proposed Action, or Maximum Development and the other actions. The analyses and conclusions for the No Action Alternative and Proposed Action apply.

4.2 LAND USE

Factors considered in land use analysis include:

- Would the action require a new land use category in the Base General Plan?
- Would re-categorization of land as a result of the action cause incompatible land uses?

4.2.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and would continue to be maintained by the Air Force. There would be no change in management

of the remaining land use resources, as described in Subchapter 3.2. Demolition of 55 surplus units would occur on Bethel Manor to reduce the MFH inventory to the HRMA-established level of 1,430 units. Therefore, there would be minimal disturbance to existing vegetation and wildlife during demolition activities. Under the No Action Alternative, 16 of the 55 units would be demolished in the Bethel Manor MFH neighborhood to make way for the new AAFES gas station/mini mall and would be re-categorized as community commercial. The rezoning for the AAFES gas station/mini mall has already been reflected in the installation zoning document. This re-categorization would be compatible with the land use category for MFH accompanied. It is anticipated the area vacated by demolition of the other 39 units would be left as open space within the MFH neighborhood. There would be no change in management of the remaining land use resources, as described in Subchapter 3.2.

No construction or demolition activity would occur in the LTA and HTA housing areas on-Base. The existing housing units are consistent with the Langley AFB General Plan.

4.2.2 Proposed Action

It is anticipated that no additional land would be needed to accommodate the activities associated under privatization. The Bethel Manor, LTA, and HTA neighborhoods are designated as housing-accompanied in the Langley AFB General Plan (Langley AFB 2003a). Thus, continued use of these neighborhoods for MFH would be compatible with the General Plan and would not need to be recategorized to accommodate the Proposed Action. As discussed under the No Action Alternative, rezoning for the AAFES gas station/mini mall has already been reflected in the installation zoning document. Additionally, the two new housing units to be constructed in the HTA area would be compatible with the surrounding housing area.

4.2.3 Maximum Development Alternative

As with the Proposed Action, MFH units would be located in the same areas within the neighborhoods as the existing units, and renovation, demolition, and construction activities would be the same. Therefore, the analysis and conclusions for the Proposed Action apply to the Maximum Development Alternative.

4.2.4 Mitigation

No land use impacts were identified for either the on- or off-Base housing areas. No mitigation actions would be required at these locations.

4.2.5 Cumulative Impacts

Other facilities would be constructed on Langley AFB and some would be in the general area associated with the Proposed Action and Maximum Development Alternative. As with the Proposed Action facilities, the other facility actions would be compatible with the Langley AFB General Plan. Thus, the facility construction anticipated would be consistent with existing and future land use plans and programs identified in the General Plan.

4.3 COASTAL ZONE

Bethel Manor and Langley AFB are part of Virginia's Coastal Management Area. Therefore, a CZMA Consistency Determination is required for the proposed privatization project. The criteria used to determine consistency and the significance of impacts to the coastal zone are based on the policies of the VCP.

4.3.1 No Action

Under the No Action Alternative, the Bethel Manor, LTA, and HTA family housing areas would not be privatized. Fifty-five surplus housing units would be demolished in Bethel Manor. No new or replacement units would be no constructed in Bethel Manor or on Langley AFB.

Work associated with the No Action Alternative would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Resource Protection Act and goals of the VCP. The privatization contractor would be required to obtain a general stormwater construction permit from VDCR and develop and implement a SWPPP and Erosion and Sediment Control Plan prior to any demolition activities. Best management practices described below in Subchapter 4.3.2 would be used. Since demolition activities would not occur in wetlands, RPAs, or RMAs, the No Action Alternative would have no reasonably foreseeable effect on the Coastal Lands Management policy of the VCP. As discussed in Subchapter 2.4, 39 of the 55 surplus housing units that would be demolished are located in the 100-year floodplain in the southern portion of Bethel Manor. It is anticipated the privatization contractor would not construct new or replacement units in the floodplain.

4.3.2 Proposed Action

As discussed in Section 3.3, the following policies of the VCP are applicable to the Proposed Action: Wetlands Management, Non-point Source Pollution Control, Air Pollution Control, and Coastal Lands Management. Air Force consistency with the first three policies is summarized below, with appropriate cross-references to resource-specific analyses presented later in this chapter:

- Wetlands Management – As discussed in Section 4.6.2 below, the Proposed Action would not result in the filling of tidal or non-tidal wetlands or any other direct disturbances. The Virginia Marine Resources Commission reviewed a description of the proposed privatization project during the initial coordination and review process with the Air Force and stated the project does not appear to involve any encroachments channel-ward of mean low water along any natural rivers and streams. Appendix D contains a copy of the letter from the Virginia Department of Transportation (VDOT). Sediment and erosion control measures and stormwater BMPs would be used to minimize potential impacts to wetlands from runoff and sedimentation. A wetlands delineation would be conducted by the privatization contractor to confirm the location of potential wetlands along the southern property boundary to ensure

that these areas are avoided. The Proposed Action would have no reasonably foreseeable effect on this policy.

- Non-point Source Pollution Control – Non-point source pollution control issues and potential impacts are analyzed in Section 4.5.2 - Stormwater Management and Section 4.6.2 - Surface Water. The contractor would be required to obtain a general stormwater construction permit from VDCR and develop and implement a SWPPP and Erosion and Sediment Control Plan prior to any demolition and construction activities. The Proposed Action would have no reasonably foreseeable effect on this policy.
- Air Pollution Control – The analysis of impacts to air quality presented in Subchapter 4.3.1 indicates the Proposed Action would not have a significant impact on air quality. Therefore, the Proposed Action would have no reasonably foreseeable effect on this policy.

Consistency with the Coastal Lands Management policy is discussed in the following paragraphs. Approximately 20 acres at Bethel Manor are designated as part of the Chesapeake Bay Preservation Area pursuant to the Chesapeake Bay Preservation Area Designation and Management Regulations. Appendix H contains a U.S. Geological Survey (USGS) topographical maps showing the Bethel Manor, LTA, and the HTA housing areas.

Development in the RPAs may be allowed only if it is water-dependent or constitutes redevelopment. The Proposed Action would be classified as redevelopment because Bethel Manor is currently developed. The general performance standards applicable to the Proposed Action are summarized below and details are provided in Appendix A:

- No more land shall be disturbed than necessary.
- Impervious cover shall be minimized consistent with the use or development allowed.
- Better site designs and low impact development techniques for new development and redevelopments shall be applied to reduce stormwater runoff volumes and peak flows, to increase groundwater recharge, and to increase preservation of undisturbed areas.
- Indigenous vegetation shall be preserved to the maximum extent possible.
- Erosion and sediment control measures shall be used for any redevelopment activity that would cause more than 1 acre of land disturbance.
- Stormwater runoff shall be controlled by use of BMPs that achieve at least a 10 percent reduction in the existing non-point source pollution load. Examples of suitable BMPs include extended detention ponds, grassed swales, and bioretention areas.
- Establishment of a maintenance plan to ensure continued long-term function of BMPs.

Detailed site plans for the proposed location of the replacement construction at Bethel Manor would not be developed until after selection of the privatization contractor. Work associated with the Proposed Action would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Resource Protection Act and goals of the VCP. Therefore, the Proposed Action would have no reasonably foreseeable effect on the Coastal Lands Management policy of the VCP. A copy of the Air Force's CZMA Consistency Determination is provided in Appendix A.

4.3.3 Maximum Development Alternative

The analysis and discussion presented for the Proposed Action is applicable to the Maximum Development Alternative due to the similarities of the alternatives. The Maximum Development Alternative would involve more demolition and replacement construction of 14 more units than the Proposed Action. The Maximum Development Alternative would be consistent to the maximum extent practicable with the policies of the VCP. Consequently, the Maximum Development Alternative would not have a significant impact on coastal resources.

4.3.4 Cumulative Impacts

The construction projects proposed under the No Action Alternative, Proposed Action, and Maximum Development, along with the other actions discussed in Subchapter 2.7 include various measures and BMPs to avoid and minimize short- and long-term impacts. There would be no change in consistency; therefore, cumulative impacts would not be expected.

4.3.5 Mitigation

No mitigation would be required beyond the BMPs for impervious cover and storm water runoff discussed in Subchapter 4.5.1.

4.4 AIR QUALITY

Evaluation criteria considered in air quality analysis for nonattainment areas include:

- Would emissions from the action cause a net change in proposed pollutant emissions or contribute to a violation of any national, state, or local ambient air quality standard?
- Would emissions from the action increase the frequency or severity of a violation of any ambient air quality standard?
- Would emissions from the action delay the attainment of any standard or other milestone contained in the SIP? or
- Would emissions from the action increase a nonattainment or maintenance area's emissions inventory by 10 percent or more for individual nonattainment pollutants; or exceed *de minimis* threshold levels established in 40 CFR 93.152(b) for individual nonattainment pollutants?

4.4.1 No Action

Emissions would continue to be generated by Langley AFB activities such as aircraft operations, aircraft maintenance, vehicle, boiler, generator, and fueling operations, and industrial processes. Emissions from these activities would continue at approximately the baseline levels. Additionally, emissions would be generated by demolition of the 55 MFH units in Bethel Manor.

Fugitive dust from ground disturbing activities and combustive emissions would be generated by equipment operation during MFH demolition. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These emissions would be greatest during initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. The USEPA has estimated that uncontrolled fugitive dust emissions from ground-disturbing activities would be emitted at a rate of 80 lbs of total suspended particles (TSP) per acre per day of disturbance (USEPA 1995). In a USEPA study of air sampling data at a distance of 50 meters downwind from construction activities, PM_{10} emissions from various open dust sources were determined based on the ratio of PM_{10} to TSP sampling data. The average PM_{10} to TSP ratios for top soil removal, aggregate hauling, and cut and fill operations is reported as 0.27, 0.23, and 0.22, respectively (USEPA 1988). Using 0.24 as the average ratio for purposes of analysis, the emission factor for PM_{10} dust emissions becomes 19.2 lbs per acre per day of disturbance. Fugitive dust emissions from demolition activities would be generated primarily from building dismemberment, debris loading, and debris hauling. The USEPA has established a recommended emission factor of 0.011 lbs of PM_{10} per square foot of demolished floor area. This emission factor is based on air sampling data taken from the demolition of a mix of commercial brick, concrete, and steel buildings (USEPA 1988).

The USEPA also assumes that 230 working days are available per year for construction (accounting for weekends, weather, and holidays), and that only half of these working days would result in uncontrolled fugitive dust emissions at the emitted rate described above (USEPA 1995). The demolition emissions presented in Table 4.2 include the estimated annual PM_{10} emissions associated with the No Action Alternative at Langley AFB. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. The USEPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce TSP emissions as much as 50 percent (USEPA 1995).

Table 4.2 No Action Alternative Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM 2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions(1)	32,752	6,203	32,067	89,018	6,247	5,333
No Action						
Demolition	0.28	1.29	3.29	0.28	1.70	0.63
No Action Alternative Emissions as Percent of AQCR Emissions	<0.01%	0.01%	<0.01%	<0.01%	0.02%	0.01%

(1) Summarized from USEPA AirData Emissions for AQCR 223 (AirData 2005).
Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant.

Specific information describing the types of equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established cost estimating methodologies for construction and experience with similar types of construction projects (Means 2003). Combustive emissions from equipment exhausts were estimated by using USEPA-approved emissions factors for heavy-duty diesel-powered equipment (USEPA 1985). The emissions presented in Table 4.2 include the estimated annual emissions from equipment exhaust associated with the No Action Alternative at Langley AFB. It is estimated the demolition activity would last one year. Emissions are calculated for a 1-year period to align with baseline emissions data, which are for 1 year. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Based on the requirements outlined in the USEPA's General Conformity Rule published in 58 Federal Register 63214 (November 30, 1993) and codified in 40 CFR Part 93, Subpart B (for federal agencies), a conformity analysis is required to analyze whether the applicable criteria air pollutant emissions associated with the project equal or exceed the threshold emission limits (*de minimis*) that trigger the need to conduct a formal conformity determination. The intent of the conformity rule is to encourage long range planning by evaluating the air quality impacts from federal actions before the projects are undertaken. This rule establishes a process for analyzing and determining whether a proposed project in a nonattainment area conforms to the SIP and federal standards. A federal action would be considered regionally significant when the net change in emissions from the No Action Alternative equal or exceed 10 percent of the nonattainment or maintenance area's emissions inventory for any criteria air pollutant. A full conformity determination is not required if a federal action meets *de minimis* requirements and is *not* considered a regionally significant action. Ongoing activities currently being conducted are exempt from the rule so long as there is no increase in emissions equal to or greater than the *de minimis* thresholds as the result of the federal

action. *De minimis* levels for criteria pollutants in nonattainment areas are presented in Table C-2 in Appendix C.

Although the Langley AFB No Action Alternative would occur within an air basin designated as marginally nonattainment for 8-hour ozone, the net change in emissions for NO_x and VOC (the pollutants of concern), as well as other criteria pollutants, would be less than 10 percent of the emissions inventory, and the action would not be considered regionally significant (see Table 4.2). Additionally, the net change in emissions would not exceed the *de minimis* threshold levels for criteria pollutants (see Table C-2 in Appendix C). Review of data in Table 4.2 for AQCR 223 indicates that the greatest volume of emissions from No Action Alternative activities would occur to PM_{10} (1.70 tpy), which equates to less than 0.02 percent of the PM_{10} emissions within AQCR 223.

The No Action Alternative has been demonstrated by USEPA standards not to cause or contribute to new violations of any NAAQS in the affected area, nor increase the frequency or severity of an existing violation. Implementation of the No Action Alternative would not delay timely attainment of the ozone standards in the air basin, and the No Action Alternative is in compliance or consistent with all relevant requirements and milestones contained in the applicable SIP.

4.4.2 Proposed Action

Military family housing units would be demolished, constructed, and renovated under the Proposed Action. Fugitive dust from ground-disturbing activities, combustive emissions from construction equipment, and emissions from asphalt paving operations would be generated during construction and demolition. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These emissions would be greatest during initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

The methods identified and used to estimate the emissions for demolition and equipment operation for the No Action Alternative were used for the Proposed Action. The total estimated project emissions were calculated and then divided by seven to get the anticipated average annual emissions to align with baseline emissions data, which are for 1 year. Table 4.3 details the anticipated annual emissions for the Proposed Action.

Table 4.3 Proposed Action Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions(1)	32,752	6,203	32,067	89,018	6,247	5,333
Proposed Action						
Proposed Action Annual Emissions	14.16	4.81	38.8	4.20	104.5	89.2
Proposed Action Emissions as Percent of AQCR Emissions	0.08%	0.05%	0.12%	<0.01%	1.67%	1.67%

(1) AIRData 2005.
Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant. $PM_{2.5}$ included for information only.

The construction emissions presented in Table 4.3 include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action at Langley AFB. It is estimated that construction, demolition, and renovation activity would last about 7 years and that ground-disturbing activities would occur for about half of the project duration. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Emissions would also be expected from asphalt paving operations. The primary pollutant from asphalt paving is CO; however, minor emissions of other criteria pollutants can be expected. To determine potential emissions from asphalt paving operations, the unit weight of asphalt concrete was assumed to be 149 pounds per cubic foot (lbs/ft^3). The quantity of asphalt concrete required for each construction project is based on an assumed pavement depth of 6 inches. The USEPA established emission factors for CO, VOCs, sulfur oxides (identified as SO_x), NO_x, and PM_{10} of 0.340, 0.017, 0.005, 0.025, and 0.020 lbs of pollutant per ton of asphalt concrete, respectively. Expected emissions from asphalt paving are included in the Proposed Action construction emissions in Table 4.3. Emissions from paving would last only as long as the duration of construction activity and fall off rapidly with distance from the construction site. Additionally, per 9 VAC 5-40-5490, *Regulations for the Control and Abatement of Air Pollution*, 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, driveways, and parking areas associated with the Proposed Action. The asphalt must be emulsified (predominately 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 (VDEQ 2006).

Review of data in Table 4.3 for AQCR 223 indicates that the greatest annual emissions and greatest percentage of emissions within the county from the Proposed Action activities would be PM_{10} (104.5 tpy), which equates to 1.67 percent of the PM_{10} emissions inventory. Emissions from the Proposed Action in AQCR 223 fall below

10 percent of the emissions inventory. Additionally, as with the No Action Alternative, the net change in emissions would not exceed the *de minimis* threshold levels for criteria pollutants; therefore, the conclusion of the No Action Alternative applies.

4.4.3 Maximum Development Alternative Action

The types of demolition, construction, and paving activities for the Maximum Development Alternative would be identical to the Proposed Action. The only difference between the two alternatives is that a greater number of houses would be demolished and constructed under the Maximum Development Alternative than the Proposed Action. The methodologies identified and used to estimate the No Action Alternative and Proposed Action emissions were used for the Maximum Development Alternative. Table 4.4 details the anticipated annual emissions for the Maximum Development Alternative.

Table 4.4 Maximum Development Alternative Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions(1)	32,752	6,203	32,067	89,018	6,247	5,333
Maximum Development Alternative						
Maximum Development Alternative Action Annual Emissions	16.87	5.29	45.33	4.9	111.3	95.01
Maximum Development Alternative Action Emissions as Percent of AQCR Emissions	0.05	0.09	0.14	0.01	1.78	1.78

(1) AIRData 2005.

Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant. $PM_{2.5}$ included for information only.

Review of data in Table 4.4 for AQCR 223 indicates that the greatest annual emissions and greatest percentage of emissions within the county from the Maximum Development Alternative activities would be PM_{10} (111.3 tpy), which equates to 1.78 percent of the PM_{10} emissions inventory. Emissions from the Maximum Development Alternative in AQCR 223 fall below 10 percent of the emissions inventory. Additionally, the net change in emissions would not exceed the *de minimis* threshold levels for criteria pollutants; therefore, the conclusions of the No Action Alternative and Proposed Action apply.

4.4.4 Mitigation

Emissions would not exceed or violate air quality standards. Neither a conformity determination nor mitigation would be required.

4.4.5 Cumulative Impacts

The same criteria used to calculate the No Action Alternative and the Proposed Action air emissions were used to determine cumulative emissions should the No Action Alternative, Proposed Action, or Maximum Development Alternative be implemented.

The total estimated emissions for the other actions were calculated and then divided by seven to get the anticipated average annual emissions used in the analysis. Emissions are calculated for a one-year period to align with baseline emissions data, which are for one year. As indicated in Subchapter 2.7, 10 other projects would be accomplished during the same time period as these alternatives.

No Action Alternative Cumulative Emissions

Table 4.5 presents the cumulative emissions from the No Action Alternative and the 10 other construction projects. Review of data in Table 4.5 indicates that the greatest annual emissions should the No Action Alternative be implemented would be PM_{10} (11.74 tpy), which equates to 0.19 percent of the PM_{10} emissions within AQCR 223. Cumulative emissions in AQCR 223 fall below 10 percent of the Bay County emissions inventory, and the net change in emissions would not exceed *de minimis* threshold levels for criteria pollutants. Therefore, the conclusions and analysis for the No Action Alternative apply.

Table 4.5 No Action Alternative Cumulative Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions[(1)]	32,752	6,203	32,067	89,018	6,247	5,333
No Action Alternative Cumulative Emissions						
No Action Alternative	0.28	1.29	3.29	0.28	1.70	0.63
Other Actions	1.98	0.50	5.09	0.56	10.04	8.57
Total Annual Emissions	2.26	1.79	8.38	0.84	11.74	9.20
Proposed Action Emissions as Percent of AQCR Emissions	<0.01%	0.03%	0.02%	<0.01%	0.19%	0.17

a AirData 2005.
Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant

Proposed Action Cumulative Emissions

Table 4.6 presents the cumulative emissions from the Proposed Action and the 10 other construction projects. Review of data in Table 4.6 indicates that the greatest annual emissions should the Proposed Action be implemented would be PM_{10} (114.5 tpy), which equates to 1.83 percent of the PM_{10} emissions within AQCR 223. Cumulative emissions in AQCR 223 fall below 10 percent of the Bay County emissions inventory, and the net change in emissions would not exceed *de minimis* threshold levels for criteria pollutants. Therefore, the conclusions and analysis for the Proposed Action apply.

Table 4.6 Proposed Action Cumulative Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions[(1)]	32,752	6,203	32,067	89,018	6,247	5,333
Proposed Action Cumulative Emissions						
Proposed Action	14.16	4.81	38.8	4.20	104.5	89.2
Other Actions	1.98	0.50	5.09	0.56	10.04	8.57
Total Annual Emissions	16.14	5.31	43.89	4.7	114.54	97.77
Proposed Action Emissions as Percent of AQCR Emissions	0.05%	0.09%	0.14%	<0.01%	1.83%	1.83%

a AirData 2005.
Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant

Maximum Development Alternative Cumulative Emissions

Table 4.7 presents the cumulative emissions from the Maximum Development Alternative and the 10 other projects. Review of data in Table 4.7 indicates that the greatest annual emissions should the Maximum Development Alternative be implemented would be PM_{10} (121.34 tpy), which equates to 1.94 percent of the PM_{10} emissions within AQCR 223. Cumulative emissions in AQCR 223 fall below 10 percent of the emissions inventory, and the net change in emissions would not exceed *de minimis* threshold levels for criteria pollutants. Therefore, the conclusions and analysis for the Maximum Development Alternative apply.

Table 4.7 Maximum Development Alternative Cumulative Emissions, Langley AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)
Hampton Roads Intrastate AQCR Annual Emissions[(1)]	32,752	6,203	32,067	89,018	6,247	5,333
Maximum Development Alternative Cumulative Emissions						
Maximum Development Alternative	16.87	5.29	45.33	4.90	111.30	95.01
Other Actions	1.98	0.50	5.09	0.56	10.04	8.57
Total Annual Emissions	18.85	5.79	50.42	5.46	121.34	103.58
Total Annual Emissions as Percent of AQCR Emissions	0.06%	0.09%	0.16%	<0.01%	1.94%	1.94

a AirData 2005.
Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant

4.5 INFRASTRUCTURE AND UTILITIES

Effects on the infrastructure and utilities were evaluated using the following criteria:

- Changes in consumption, generation, and usage; and
- Demand on existing system.

4.5.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Based on the total MFH requirement of 1,430 units, there would be a surplus of 55 MFH units. Therefore, 55 units would be demolished under the No Action Alternative. As discussed in Subchapter 2.4, it is estimated that 55 three-bedroom units would be demolished.

Off-Base Housing

It is estimated the number of people residing in Bethel Manor would decrease by 220 to a total residential population of 4,900 persons.

Water Supply

It is assumed that demolition of the 55 surplus units would be phased over a period of 12 months and that persons living in the units would relocate to other units in Bethel Manor or to temporary living quarters in the vicinity. It is assumed these persons would consume water at the same rate they previously did and water they consume would be supplied by Newport News Waterworks, the same entity that supplies Bethel Manor and the Base. Since there would be no net change in the number of assigned personnel at Langley AFB under the No Action Alternative, it is estimated regional water consumption would not exceed baseline levels. Off-Base water consumption in Bethel Manor associated with the No Action Alternative would decrease due to the reduction in residents. Assuming the baseline consumption rate of 68 gallons per day per person, the decrease of off-Base water consumption would be 14,960 gallons per day (0.015 mgd) or 4.1 per cent less than baseline conditions.

Water would be used for dust suppression during demolition. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities are completed.

Wastewater Treatment

As a result of a decrease in off-Base population in Bethel Manor, and using the baseline generation rate of 72 gallons per day per person, wastewater generation under the No Action Alternative would decrease by 15,840 gallons per day (0.016 mgd) or 4.1 percent less than baseline conditions.

Energy

Under the No Action Alternative, building space would decrease by the 69,960 ft^2 (1,272 x 55 = 69,960). The resulting decrease in square footage would have a beneficial impact on energy consumption. Based on the baseline consumption of 0.033 kWH of electricity per square foot per day and the reduction in space, the No Action Alternative would decrease usage by 2,308 kWH per day. This would equate to an approximate 3.4 percent decrease when compared to the average daily baseline electrical consumption of 61,033 kWH per day.

Based on the baseline consumption of $1.1x10^{-4}$ mcf per square foot per day, the No Action Alternative would decrease natural gas usage by 7.7 mcf per day. This would equate to an approximate 3.8 percent decrease when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

The analysis of storm water management addresses potential impacts during demolition and construction activities, as well as impacts following completion of construction. Grading, heavy equipment operation, and other activities during demolition and construction would disturb the ground surface and soils within the housing area. These ground-disturbing activities would temporarily increase the potential for soil erosion and subsequent discharge of sediments to surface water via storm water runoff. The Virginia Storm Water Management Program requires operators of construction sites greater than or equal to one acre to obtain authorization to discharge under a general storm water construction permit from VDCR. The VDCR permit would require development and implementation of a SWPPP, which includes standard erosion and sediment control practices, to minimize potential impacts to soils and surface water resources. The privatization contractor would be required to obtain VDCR authorization prior to initiating work. Development and implementation of the required storm water pollution prevention plan would help to ensure that demolition and construction activities do not result in impacts to surface water. The contractor would develop the SWPPP during the design phase, using guidance provided in the Virginia Storm Water Management Handbook. The plan would include various BMPs such as using silt fences and other erosion and sediment control devices, and re-vegetation plans. In addition, the plan would address performance standards associated with redevelopment in Chesapeake Bay Preservation Areas (refer to Subchapters 3.3 and 4.3). It is anticipated the No Action Alternative would have no reasonably foreseeable effect on the non-point source pollution control and coastal lands management policies of the VCP.

The demolition of the 55 units would occur in the Bethel Manor Capehart Area neighborhood. Using information provided in Table 2.1, Subchapter 2.3, and Subchapter 2.4, the total amount of impervious cover would decrease by 140,085 ft^2 (69,960 ft^2 from the 55 housing units and 70,125 ft^2 from other impervious streets), or 3.2 acres. The decrease in impervious cover equates to 3 percent of the baseline 106.5 acres (4,637,610 ft^2) of impervious cover at Bethel Manor which would correspondingly decrease storm water runoff in the Capehart neighborhood.

As discussed previously, since demolition activities would disturb more than 1 acre, the privatization contractor would prepare a SWPPP prior to initiating any activities. The SWPPP likely would include the following erosion control techniques that would be used during demolition and construction to minimize erosion.

- The construction sites would have silt fences surrounding the perimeters of the construction areas.

- Hay bales or other absorbent materials would be installed around storm drainage system inlets to prevent sediment or other contaminants from entering the storm water system during the project.
- The rate of runoff from the construction site would be retarded and controlled mechanically.
- Diversion ditches would be constructed to retard and divert runoff to protected drainage courses. If site characteristics present the potential for storm water sediment to enter the storm water system, drains in the area would be protected with silt fences, hay bales, or an approved equivalent.
- Storm water runoff would be minimized to prevent off-site transport of sediments into Big Bethel Reservoir, neighboring streams, and ponds using natural vegetation (existing trees, brushes, and grasses) as much as possible to provide a buffer zone to aid in benefiting water quality.
- All entrances to construction sites would be stabilized before construction and further disturbance of the site begins. If a construction site entrance crosses a stream, swale, or other depression, a bridge or culvert would be provided to prevent erosion from unprotected banks.

Solid Waste Management

The MFH units would not be conveyed to a privatization contractor, and the existing units would continue to be used for MFH. Demolition of 55 surplus units would occur to reduce the MFH inventory to the HRMA-established level. Analysis of the impacts associated with the proposed demolition activities is based on the following assumptions:

- Approximately 92 pounds of demolition debris are generated for each ft^2 of floor area of demolished structures (U.S. Army Corps of Engineers [USACE] 1976);
- Debris would be disposed 6 days per week (312 days per year) over the 7-year project.

It is estimated 69,960 ft^2 of housing units would be demolished and 3,218 tons of debris would be generated by the No Action Alternative. This waste would consist of building debris and construction materials such as concrete, metals (roofing, reinforcement bars, conduit, piping, *etc*.), fiberglass (roofing materials and insulation), cardboard, plastics (polyvinyl chloride piping, packaging material, shrink wrap, *etc*.), and lumber.

It is assumed the demolition debris would be disposed in the King and Queen Sanitary Landfill. As mentioned in Subchapter 3.5.5, the landfill has a remaining projected life expectancy of 25 years, with an average disposal rate of 2,755 tons per day. Based on an average disposal of 312 days per year (*i.e.*, 6 days per week) for 25 years, there would be 7,800 days when debris could be disposed in the landfill. The total remaining capacity of the landfill is estimated at 14,500,000 tons. This estimate is considered low because it assumes the landfill is receiving waste daily at a rate equal to

its maximum daily capacity. It is estimated the projected disposal associated with demolition of the 55 surplus units equates to 0.02 percent of the total remaining capacity.

Although 3,218 tons of debris would be generated, this amount is conservative because it suggests that all waste could be disposed in a landfill. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Additionally, some of the waste would be incinerated, as discussed in Subchapter 3.5.5. The assumptions and calculations above provide the most conservative estimate of solid waste generated under the No Action Alternative.

It is estimated there would be about 220 less residents in the Bethel Manor MFH neighborhood under the No Action Alternative. Thus, on-Base solid waste generation would decrease because there would be less MFH residents. The reduction of the estimated 220 residents would result in a reduction of 506 pounds of solid waste produced on a daily basis. This would result in a reduction of approximately 92 tons of solid waste per year.

Transportation

Under the No Action Alternative, 55 housing units would be demolished in Bethel Manor thereby reducing the number of vehicles entering and exiting the housing area. Assuming that one person per household works on-Base and there would be 55 fewer housing units in Bethel Manor, 55 less vehicles would enter and exit the housing area. Traffic flow should remain the same within Bethel Manor after all activity is complete. Commuting patterns of residents would change as they are displaced to temporary housing during demolition. However, local traffic patterns or traffic to and from Langley AFB would not be altered. The number of entries and exits at the Base gates would be similar to baseline conditions because personnel currently living at Bethel Manor commute to the Base. Traffic congestion that could occur from the MFH demolition projects would be short-term and would be eliminated when the demolition activities are completed.

On-Base Housing

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. There would be no demolition or replacement of units. The existing units would continue to be used to house military families and there would be no change in the water supply, wastewater discharge, volume of storm water runoff, energy demand, volume of solid waste generation, and transportation from baseline conditions.

4.5.2 Proposed Action

Under the Proposed Action, the number of MFH units would decrease by 66 units to a total of 1,430 units. The privatization contractor would demolish 1,104 of the units in Bethel Manor and construct 1,049 replacement units, construct two units in the HTA area, and renovate 109 units (47 units in the LTA and 62 units in the HTA area). Based on the bedroom mix of the remaining units and the following occupancy assumptions, it

is estimated the number of people residing in MFH would decrease by 478 (425 from Bethel Manor and 53 from the LTA and HTA housing areas) to a total residential population of 5,624 persons.

- Three people would occupy a two-bedroom unit.
- Four people would occupy a three bedroom unit.
- Five people would occupy a four bedroom unit.

Off-Base Housing

The number of MFH units in Bethel Manor would decrease by 55 units to a total of 1,197. The number of residents in the MFH under the Proposed Action would decrease by 425 to a total residential population of 4,695 persons.

Water Supply

Off-Base water consumption associated with the Proposed Action would decrease due to the reduction in off-Base residents. Assuming the baseline consumption rate of 68 gallons per day per person, the decrease in off-Base water consumption would be 28,900 gallons per day (0.029 mgd) or 7.8 per cent less than baseline conditions (0.37 mgd). The resulting water usage for the off-Base MFH would be approximately 0.34 mgd.

Water would be used for dust suppression during demolition. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground-disturbing activities are completed.

Wastewater Treatment

Under the Proposed Action, it is estimated the number of residents in MFH would decrease by 425 to a total of 4,695 persons. As a result of a decrease in off-Base population, wastewater generation under the Proposed Action Alternative would decrease by 30,600 gallons per day (0.03 mgd) or 8.1 percent less than baseline conditions. Newly constructed units associated with the Proposed Action would have water saving toilets, shower heads, and faucets installed, reducing indoor consumption of water, and corresponding to a reduction in wastewater generation.

Energy

Under the Proposed Action, building space would increase by 647,308 ft^2 (2,165,500 – 1,518,192 = 647,308) due to increases in living space requirements of the units (see total square footages in Tables 2.3 and 2.4). Based on the baseline consumption of 0.033 kWH/ft^2 per day and the addition in space, the Proposed Action would increase electricity usage by 21,361 kWH per day. This would equate to an approximate 35 percent increase when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the addition of space, the Proposed Action would increase natural gas usage by 71.2 mcf

of natural gas per day. This would equate to an approximate 35 percent increase when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

Using the information provided in Subchapter 2.5.5 concerning impervious cover of 2,225 ft^2 for existing units and 1,650 ft^2 for replacement units, and Table 2.7, it is anticipated that total impervious cover within the Bethel Manor neighborhoods would decrease by approximately 177,912 ft^2 (4.1 acres). The decrease of 4.1 acres of impervious cover equates to 3.9 percent less than the baseline 106.5 acres of impervious cover at Bethel Manor, which would correspondingly decrease storm water runoff in the housing area. Curbs and gutters installed during any street and off-street parking construction would be connected to the existing storm water system. If required, a new storm water system or connections would be designed and constructed to comply with current VDES regulations. The No Action discussion for a storm water construction permit from the VDCR, the storm water system design and control, and SWPPP requirements applies. The BMPs described in Subchapter 4.5.1 would be used. It is anticipated the Proposed Action would have no reasonably foreseeable affect on the non-point source pollution control and coastal lands management policies of the VCP.

Solid Waste Management

Under the Proposed Action, the Air Force proposes to convey 1,496 existing MFH units to a privatization contractor. The contractor would then demolish 1,104 units and construct 1,049 replacement units. Analysis of the impacts associated with the proposed demolition and construction activities is based on the following assumptions:

- Approximately 92 pounds of demolition debris are generated for each ft^2 of floor area of demolished structures (USACE 1976).
- Approximately 96 pounds of debris are generated for each square foot of floor area renovated;
- Approximately 4 pounds of construction debris are generated for each square foot of floor area for new structures (Davis 1995).

Solid waste would be generated from implementation of the Proposed Action. Based on information in Subchapter 2.5 and Tables 2.3 and 2.4, 2,165,500 ft^2 would be constructed, 1,518,192 ft^2 would be demolished. Based on these data and assumptions, it is estimated that 74,168 tons of debris would be generated by the Proposed Action.

It is assumed the debris would be disposed in the King and Queen Sanitary Landfill. The total remaining capacity of the landfill is estimated at 14,495,229 tons. The projected disposal from the Proposed Action (74,168 tons) equates to 0.51 percent of the estimated total remaining capacity.

Although 74,168 tons of debris would be generated, this amount is conservative because it suggests that all waste could be disposed in a landfill. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the

amount of construction and demolition debris disposed in the landfill. Additionally, some of the waste would be incinerated, as discussed in Subchapter 3.5.5.

Transportation

The Proposed Action would decrease the overall number of units off-Base by 55, thereby reducing the number of vehicles entering and exiting the housing area by 55 vehicles. The CDP would consider traffic patterns to and from the housing area and would attempt to separate pedestrian traffic from vehicular traffic, as well as reduce on-street parking. Traffic flow should remain the same within Bethel Manor after all activity is complete. Commuting patterns of residents would change as they are displaced to temporary housing during construction. However, local traffic patterns or traffic to and from Langley AFB would not be altered. The VDOT reviewed a description of the proposed privatization project during the initial coordination and review process with the Air Force and stated the project would not conflict with current and future transportation construction projects. Appendix D contains a copy of the letter from the VDOT.

Construction workers would commute to and from Bethel Manor and equipment would be transported to and from the site during construction. However, traffic associated with these activities would be offset by the reduction in residents living at Bethel Manor during construction. Streets within some of the housing areas could be closed at various times throughout the project due to demolition and construction activities. Efforts would be taken to keep construction related traffic off the main streets. It is anticipated construction-related traffic impacts would be localized to a specific area and would be temporary, lasting as long as the project activity in that area. In summary, no significant transportation impacts would occur.

On-Base Housing

The majority of the construction work in the LTA and HTA housing areas would be the renovation of 109 housing units. Two new units would be constructed in the HTA area. There would be no demolition or replacement of units, and the existing units would continue to be used to house military families. The number of residents living in the LTA and HTA areas under the Proposed Action would decrease by 53 people to a total residential population of 929 persons.

Water Demand

On-Base water consumption associated with the Proposed Action would decrease due to the reduction in on-Base residents. Assuming the baseline consumption rate of 170 gallons per day per person, the decrease in on-Base water consumption would be 9,010 gallons per day (0.009 mgd) or 5.6 per cent less than baseline conditions (0.16 mgd). The resulting water usage for the on-Base MFH would approximately remain the same at 0.16 mgd.

Water would be used for dust suppression during construction activities. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities are completed.

Wastewater Treatment

Under the Proposed Action, it is estimated the number of residents in MFH would decrease by 53 to a total of 929 persons. As a result of a decrease in on-Base population, wastewater generation under the Proposed Action Alternative would decrease by 5,512 gallons per day (0.0055 mgd) or 5.5 percent less than baseline conditions.

Energy

Under the Proposed Action, building space would increase by 37,416 ft^2 (246,990 + 5,400 – 214,974 [square footage of existing 109 units] = 37,416; see Tables 2.1, 2.5, and 2.6). Based on the baseline consumption of 0.032 kWH per square foot per day and the reduction in space, the Proposed Action would increase electricity usage by 1,197 kWH per day. This would equate to an approximate 7.3 percent increase when compared to the average daily baseline electrical consumption of 16,339 kWH per day.

When considering the baseline average daily use of $9.7x10^{-5}$ mcf per square foot and the addition of space, the Proposed Action would increase natural gas usage by 3.6 mcf of natural gas per day. This would equate to an approximate 7.4 percent increase when compared to the average daily baseline natural gas consumption of 49.06 mcf.

Storm Water Management

Using the information provided in Subchapter 2.5.5 and Table 2.7, it is anticipated that total impervious cover within the on-Base MFH neighborhoods would decrease by 146,675 ft^2 (3.4 acres). The decrease in impervious cover equates to 12.9 percent of the baseline 26.4 acres of impervious cover at on-Base MFH neighborhoods, which would correspondingly decrease storm water runoff in the housing areas. The Proposed Action discussion for off-Base housing curbs and gutters, off-street parking, and storm water system design and control applies. A general storm water construction permit from the VDCR and SWPPP mentioned in the No Action Alternative would also be required since the estimated size of the total construction area is greater than 1 acre. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

Under the Proposed Action, the Air Force proposes to convey 1,496 existing MFH units to a privatization contractor. The contractor would renovate 109 units of the existing units that are deemed unsuitable and construct two new units. Based on information in Subchapter 2.5, 246,990 ft^2 of space would be renovated and 5,400 ft^2 would be constructed. Using data and assumptions previously discussed in this subchapter, it is estimated that 11,866 tons of debris would be generated by the Proposed Action.

It is assumed the debris would be disposed in the King and Queen Sanitary Landfill. The total remaining capacity of the landfill is estimated at 14,495,229 tons. The projected disposal from the Proposed Action (11,866 tons) equates to 0.08 percent of the estimated total remaining capacity.

Although 11,866 tons of debris would be generated, this amount is conservative because it suggests that all waste could be disposed in a landfill. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Additionally, some of the waste would be incinerated, as discussed in Subchapter 3.5.5.

Transportation

Construction equipment and contractor vehicle operations would not be as great on-Base as is Bethel Manor. Construction activities in the LTA and HTA areas would mostly be renovation of existing housing units, which would likely involve less vehicles and construction equipment. Disruption to traffic within the existing housing areas would not be anticipated. There would be no change in traffic patterns and traffic flow should remain the same as the baseline conditions, as construction activity would be spaced-out over 7 years. Traffic congestion that could occur from the MFH construction and renovation projects would be short-term and would be eliminated when the construction activities are completed.

Construction workers would commute to and from Langley AFB and equipment would be transported to and from the site during construction. Streets within the housing area could be closed at various times throughout the project due to renovation and construction activities. Efforts would be taken to keep construction related traffic off the main streets. It is anticipated construction-related traffic impacts would be localized to a specific area and would be temporary, lasting as long as the project activity in that area. In summary, no significant transportation impacts would occur.

4.5.3 Maximum Development Alternative

Under the Maximum Development Alternative, the privatization contractor would demolish all 1,252 units in Bethel Manor and construct 1,211 replacement units. The 39 units located in the 100-year floodplain in the Capehart Area would not be replaced with new units. This area is expected to remain undeveloped. Construction and renovation activities in the LTA and HTA housing areas would remain the same as the Proposed Action.

Off-Base Housing

The total number of MFH units would decrease to 1,211 units. The number of residents in the MFH under the Maximum Development Alternative would decrease by 398 people to a total residential population of 4,722 persons when using the occupancy assumptions listed for the No Action Alternative.

Water Supply

Off-Base water consumption associated with the Maximum Development Alternative would decrease due to the reduction in off-Base residents. Assuming the baseline consumption rate of 68 gallons per day per person, the decrease of off-Base water consumption would be 27,064 gallons per day (0.027 mgd) or 7.3 per cent less than

baseline conditions (0.37 mgd). Resulting in the water usage for the off-Base MFH would be approximately 0.34 mgd.

Water would be used for dust suppression during demolition. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities are completed.

Wastewater Treatment

Under the Maximum Development Alternative, it is estimated the number of residents in MFH would decrease by 398 to a total of 4,722 persons. As a result of a decrease in off-Base population, wastewater generation under the Maximum Development Alternative would decrease by 28,656 gallons per day (0.028 mgd) or 7.4 percent less than baseline conditions. Newly constructed units associated with the Maximum Development Action would have water saving toilets, shower heads, and faucets installed, reducing indoor consumption of water, and corresponding to a reduction in wastewater generation.

Energy

Under the Maximum Development Alternative, building space would increase by 892,830 ft^2 due to increases in living space requirements of the units (see total square footages in Tables 2.9). Based on the baseline consumption of 0.033 kWH per square foot per day and the addition in space, the Maximum Development Alternative would increase electricity usage by 29,463 kWH per day. This would equate to an approximate 48.3 percent increase when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the addition of space, the Maximum Development Alternative would increase natural gas usage by 98.2 mcf of natural gas per day. This would equate to an approximate 48.6 percent increase when compared to the average monthly baseline natural gas consumption of 202 mcf.

Storm Water Management

As mentioned in Subchapter 2.5.5 concerning impervious cover of 2,225 ft^2 for existing units and 1,650 ft^2 for replacement units and Table 2.9, it is anticipated that total impervious cover within Bethel Manor would increase by approximately 105,280 ft^2 (2.5 acres). The additional 2.5 acres of impervious cover equate to 2.3 percent of the baseline 106.5 of impervious cover at Bethel Manor, which would correspondingly increase storm water runoff in the areas where there would be new development. The Proposed Action discussion for curbs and gutters, off-street parking, storm water system design and control, and SWPPP requirements applies. The BMPs described in Subchapter 4.5.1 would be used. It is anticipated the Maximum Development Alternative would have no reasonably foreseeable effect on the non-point source pollution control and coastal lands management policies of the VCP.

Solid Waste Management

Under the Maximum Development Alternative, the Air Force proposes to convey 1,496 existing MFH units to a privatization contractor. The contractor would then demolish 1,252 units and construct 1,211 replacement units. Analysis of the impacts associated with the proposed demolition and construction activities is based on the following assumptions:

- Approximately 92 pounds of demolition debris are generated for each ft^2 of floor area of demolished structures (USACE 1976).
- Approximately 4 pounds of construction debris is generated for each ft^2 of floor area for new structures (Davis 1995).

Solid waste would be generated from implementation of the Maximum Development Alternative. Based on information in Subchapter 2.6.3 and Table 2.9, 2,744,740 ft^2 would be constructed, 1,851,910 ft^2 would be demolished. Based on these data and assumptions, it is estimated that 90,677 tons of debris would be generated by the Maximum Development Alternative.

It is assumed the debris would be disposed in the King and Queen Sanitary Landfill. The total remaining capacity of the landfill is estimated at 14,495,229 tons. The projected disposal from the Maximum Development Alternative (90,677 tons) equates to 0.63 percent of the estimated total remaining capacity.

Although 90,677 tons of debris would be generated, this amount is conservative because it suggests that all waste could be disposed in a landfill. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Additionally, some of the waste would be incinerated, as discussed in Subchapter 3.5.5.

Transportation

The Maximum Development Alternative would decrease the overall number of units off-Base by 41, thereby reducing the number of vehicles entering and exiting the housing area by 41 vehicles. Depending on the privatization contractor's CDP, traffic patterns could change due to street alignments.

Discussions from the Proposed Action concerning traffic patterns, flow of traffic, and construction workers commuting to and from Bethel Manor apply. Traffic congestion that could occur from the MFH construction and renovation projects would be short-term and would be eliminated when construction activities are completed. In summary, no significant transportation impacts would occur.

On-Base Housing

The number of MFH units would remain the same as the Proposed Action. There would be no demolition or replacement of units, and the existing units would continue to be used to house military families. Two new four-bedroom units would be constructed in vacant areas of the HTA housing area. As with the Proposed Action, 109 of the existing on-Base units would be renovated under the Maximum Development Alternative. The

Maximum Development Alternative is identical to Proposed Action for the on-Base housing. The analysis for the resource areas in the Proposed Action would apply to the Maximum Development Alternative. Therefore, the water supply, wastewater discharge, volume of storm water runoff, energy demand, solid waste generation, and transportation would not change.

4.5.4 Mitigation

The action would increase demands on the existing systems, but would not exceed the capacities of existing utility systems. Therefore, no mitigation would be required.

4.5.5 Cumulative Impacts

The criteria used to calculate the impacts for the No Action Alternative, Proposed Action, and Maximum Development Alternative were used for cumulative impact analysis. As indicated in Subchapter 2.7, 10 other projects (five for off-Base consideration and five for on-Base consideration) would be accomplished during the same time period as the No Action, Proposed Action, and Maximum Development Alternative. The following data and assumptions apply to the cumulative impact analysis.

- No additional personnel would be added or would relocate to Langley AFB.
- A total of about 87,284 ft^2 of space would be constructed and 45,759 ft^2 of space would be demolished under other actions on Langley AFB (excludes the two renovation projects listed in Table 2.10).
- A total of 56,585 ft^2 of space would be constructed and 45,429 ft^2 of space would be demolished under other actions on Bethel Manor.

No Action Alternative Cumulative Condition

Off-Base Housing

Water Supply

Water consumption would be the same as described in the No Action Alternative because no additional personnel would be added under the other actions. Water would be used for dust suppression during construction. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities from No Action Alternative Cumulative Condition are completed.

Wastewater Treatment

Wastewater generation would be the same as described in the No Action Alternative because no additional personnel would be added under the other actions.

Energy

A net increase of 11,156 ft^2 of building space would be added by the other actions. Thus, a decrease of 58,804 ft^2 of building space (69,960 ft^2 decrease from the No Action

Alternative and 11,156 ft^2 increase from the other actions) would occur at Bethel Manor under the No Action Alternative cumulative condition.

When considering the baseline consumption of 0.033 kWH per square foot per day and the decrease in building space, the No Action Alternative cumulative condition would decrease electricity usage by 1,941 kWH per day. This would equate to an approximate 3.2 percent decrease or savings when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the decrease in space, the No Action cumulative condition would decrease natural gas usage by 6.5 mcf per day. This would equate to a savings of 3.2 percent when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

Impervious cover would be reduced at Bethel Manor by 126,140 ft^2 (140,085 ft^2 decrease from the No Action Alternative and 13,945 ft^2 increase from the other actions), or 2.9 acres, under the No Action Alternative cumulative condition. The reduction in impervious cover equates to a 2.7 percent decrease when compared to the baseline condition of 106.5 acres of impervious cover at Bethel Manor. Therefore, the amount of storm water runoff would correspondingly decrease. The Proposed Action discussion for curbs and gutters, off-street parking, storm water system design and control, and SWPPP requirements applies. Requirements for a general storm water construction permit from the VDCR mentioned for the No Action Alternative apply. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

A total of 56,585 ft^2 of space would be constructed and 45,429 ft^2 would be demolished under the other actions and 69,960 ft^2 would be demolished under the No Action Alternative. Based on these data and the assumptions in Subchapters 3.5.5 and 4.5.1, it is estimated that 2,203 tons of debris would be generated by the other actions. Cumulatively, a total of 5,421 tons of solid waste would be generated (3,218 tons from the No Action Alternative, 2,203 from the other actions), which equates to 0.04 percent of the estimated total capacity of the King and Queen Sanitary Landfill. As with the No Action Alternative, the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Therefore, the discussion and analyses for the No Action Alternative apply to the cumulative condition.

Solid waste generation by personnel would be the same as described in the No Action because no additional personnel would be added under the other actions.

Transportation

Short-term congestion could occur from construction and demolition-related activity. However, this congestion would be eliminated when the activity is completed. The long-

term transportation discussion would be the same as described for the No Action Alternative because no additional personnel would be added under the other actions.

No Action Alternative Cumulative Condition

On-Base Housing

Water Supply

Water supply would be the same as described in the No Action Alternative for on-Base housing units because on-Base MFH units would not be privatized and the units would continue to be maintained by the Air Force. Therefore, there would be no change from baseline conditions.

Wastewater Treatment

Wastewater generation would be the same as described in the No Action Alternative for on-Base housing units because no additional personnel would be added under the other actions.

Energy

A net increase of 249,289 ft^2 of building space would be added by other actions under the No Action Alternative cumulative condition.

When considering the baseline consumption of 0.033 kWH per square foot per day and the decrease in building space, the No Action Alternative cumulative condition would increase electricity usage by 8,227 kWH per day. This would equate to an approximate 13.5 percent decrease or savings when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the increase in space, the No Action cumulative condition would increase natural gas usage by 27.4 mcf per day. This would equate to an approximate 13.6 percent increase when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

Impervious cover would increase on-Base by 311,611 ft^2 from other actions, or 7.2 acres, under the No Action Alternative cumulative condition. Since new units would not be constructed in the LTA or HTA areas, there would be no increase in impervious cover in those housing areas. The increase in impervious cover equates to a 2.2 percent increase when compared to the total estimated amount of 325.5 acres of impervious cover for Langley AFB. Therefore, the amount of storm water runoff would correspondingly decrease. The No Action Alternative discussion for curbs and gutters, off-street parking, general storm water construction permit from the VDCR, storm water system design and control, and SWPPP requirements applies. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

A total of 283,892 ft^2 of space would be constructed and 45,759 ft^2 would be demolished under the No Action Alternative cumulative condition for on-Base housing. Based on these data and the assumptions in Subchapters 3.5.5 and 4.5.1, it is estimated that 2,673 tons of debris would be generated by the other actions, which equates to 0.02 percent of the estimated total capacity of the King and Queen Sanitary Landfill. As with the No Action Alternative, the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Therefore, the discussion and analyses for the No Action Alternative apply to the cumulative condition.

Transportation

Since no demolition or construction activity would occur in the LTA and HTA housing areas under the No Action cumulative condition, there would be no change in traffic patterns and traffic flow would remain the same as baseline conditions.

Proposed Action Cumulative Condition

Off-Base Housing

Water Supply

Water consumption would be the same as described in the Proposed Action because no additional personnel would be added under the other actions. Water would be used for dust suppression during demolition. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities are completed.

Wastewater Treatment

Wastewater generation would be the same as described in the Proposed Action because no additional personnel would be added under the other actions.

Energy

A net increase of 11,156 ft^2 of building space would be added by the other actions. Thus, an additional 658,464 ft^2 of building space (647,308 ft^2 increase from the Proposed Action and 11,156 ft^2 from the other actions) would be added at Langley AFB under the Proposed Action cumulative condition.

When considering the baseline consumption of 0.033 kWH per square foot per day and the additional space, the Proposed Action cumulative condition would increase electricity usage by 21,729 kWH per day. This would equate to an approximate 35.6 percent increase when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the additional space, the Proposed Action cumulative condition would increase natural gas usage by 72.4 mcf per day. This would equate to an approximate 35.9 percent

increase when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

A decrease of 163,967 ft^2 (a decrease of 177,912 ft^2 from the Proposed Action and increase of 13,945 ft^2 from the other actions), or 3.8 acres, would be expected at Bethel Manor under the Proposed Action cumulative condition. This equates to a 3.6 percent decrease when compared to the baseline condition of 106.5 acres of impervious cover at Bethel Manor. Therefore, the amount of storm water runoff would decrease correspondingly. The Proposed Action discussion for curbs and gutters, off-street parking, storm water system design and control, and SWPPP requirements applies. A general storm water construction permit from the VDCR would also apply. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

A total of 56,585 ft^2 of space would be constructed and 45,429 ft^2 would be demolished under the other actions and 2,165,500 ft^2 would be constructed and 1,518,192 ft^2 would be demolished under the Proposed Action. Based on these data and the assumptions in Subchapters 3.5.5 and 4.5.2, it is estimated that 2,203 tons of debris would be generated by the other actions. Cumulatively, a total of 76,371 tons of solid waste would be generated (74,168 tons from the Proposed Action, 2,203 from the other actions), which equates to 0.53 percent of the estimated total capacity of the King and Queen Sanitary Landfill. As with the Proposed Action, the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Therefore, the discussion and analyses for the Proposed Action apply to the cumulative condition.

Solid waste generation by personnel would be the same as described in the Proposed Action because no additional personnel would be added under the other actions.

Transportation

Short-term congestion could occur from construction related activity. However, this congestion would be eliminated when the construction activity is completed. The long-term transportation discussion would be the same as described for the Proposed Action because no additional personnel would be added under the other actions.

On-Base Housing

Water Supply

Water consumption would be the same as described in the Proposed Action because no additional personnel would be added under the other actions. Water would be used for dust suppression during demolition. The additional water for dust control represents a small fraction of the Newport News Waterworks maximum output of 120 mgd. Water application for dust control would be discontinued when ground disturbing activities are completed.

Wastewater Treatment

Wastewater generation would be the same as described in the Proposed Action because no additional personnel would be added under the other actions.

Energy

A net increase of 238,133 ft^2 of building space would be added by the other actions. Thus, an additional 275,549 ft^2 of building space (37,416 ft^2 increase from the Proposed Action and 238,133 ft^2 from the other actions) would be added at Langley AFB under the Proposed Action cumulative condition.

When considering the baseline consumption of 0.032 kWH per square foot per day and the additional space, the Proposed Action cumulative condition would increase electricity usage by 8,817 kWH per day. This would equate to an approximate 54 percent increase when compared to the average daily baseline electrical consumption of 16,339 kWH per day.

When considering the baseline average daily use of $9.7x10^{-5}$ mcf per square foot and the additional space, the Proposed Action cumulative condition would increase natural gas usage by 26.7 mcf per day. This would equate to an approximate 54.5 percent increase when compared to the average daily baseline natural gas consumption of 49.06 mcf.

Storm Water Management

A decrease of 100,916 ft^2 of impervious cover (a decrease of 146,675 ft^2 from the Proposed Action and an increase of 45,759 ft^2 from the other actions), or 2.3 acres, would result at Langley AFB under the Proposed Action cumulative condition. The decrease in impervious cover equates to a 8.8 percent decrease when compared to the baseline condition of 26.4 acres of impervious cover at Langley AFB. Therefore, the amount of storm water runoff would decrease correspondingly. The Proposed Action discussion for curbs and gutters, off-street parking, storm water system design and control, and SWPPP applies. A general storm water construction permit from the VDCR would also apply. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

A total of 87,284 ft^2 of space would be constructed, 45,759 ft^2 would be demolished, and 196,608 ft^2 would be renovated under the other actions and 246,990 ft^2 would be renovated and 5,400 ft^2 would be constructed under the Proposed Action. Based on these data and the assumptions in Subchapters 3.5.5 and 4.5.1, it is estimated that 11,717 tons of debris would be generated by the other actions. Cumulatively, a total of 23,583 tons of solid waste would be generated (11,866 tons from the Proposed Action, 11,717 from the other actions), which equates to 0.16 percent of the estimated total capacity of the King and Queen Sanitary Landfill. As with the Proposed Action, the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Therefore, the discussion and analyses for the Proposed Action apply to the cumulative condition.

Solid waste generation by personnel would be the same as described in the Proposed Action because no additional personnel would be added under the other actions.

Transportation

Short-term congestion could occur from construction related activity. However, this congestion would be eliminated when the construction activity is completed. The long-term transportation discussion would be the same as described for the Proposed Action because no additional personnel would be added under the other actions.

Maximum Development Alternative Cumulative Condition

Off-Base Housing

Water Supply

Water consumption would be the same as described in the Maximum Development Alternative because no additional personnel would be added under the other actions. However, water would be used for dust suppression during construction. Discussions and analysis for water used for dust suppression described in the Proposed Action and Maximum Development cumulative condition apply.

Wastewater Treatment

Wastewater generation would be the same as described in the Maximum Development Alternative because no additional personnel would be added under the other actions.

Energy

A net increase of 11,156 ft^2 of building space would be added by the other actions. Thus, an additional 903,986 ft^2 of building space (892,830 ft^2 from the Maximum Development Alternative and 11,156 ft^2 from the other actions) would be added at Langley AFB under the Maximum Development Alternative cumulative condition.

Based on the baseline consumption of 0.033 kWH per square foot per day and the additional space, the Maximum Development Alternative cumulative condition would increase electricity usage by 29,831 kWH per day. This would equate to an approximate 48.9 percent increase when compared to the average daily baseline electrical consumption of 61,034 kWH per day.

When considering the baseline average daily use of $1.1x10^{-4}$ mcf per square foot and the additional space, the Maximum Development Alternative cumulative condition would increase natural gas usage by 99.4 mcf per day. This would equate to an approximate 49.2 percent increase when compared to the average daily baseline natural gas consumption of 202 mcf.

Storm Water Management

An additional 119,225 ft^2 (105,280 ft^2 from the Maximum Development Alternative and 13,945 ft^2 from the other actions), or 2.7 acres, would be added at Langley AFB under the Maximum Development Alternative cumulative condition. The additional

impervious cover would equate to a 2.6 percent increase when compared to the baseline condition of 106.5 of impervious cover. Therefore, the amount of storm water runoff would increase correspondingly. The Proposed Action discussion for curbs and gutters, off-street parking, storm water system design and control, and SWPPP requirements applies. A general storm water construction permit from the VDCR would also apply. The BMPs described in Subchapter 4.5.1 would be used.

Solid Waste Management

A total of 56,585 ft^2 of space would be constructed and 45,759 ft^2 would be demolished under the other actions and 2,744,740 ft^2 would be constructed and 1,851,910 ft^2 would be demolished under the Maximum Development Alternative. Based on these data and the assumptions in Subchapters 3.5.5 and 4.5.1, it is estimated that 2,203 tons of debris would be generated by the other actions. Cumulatively, a total of 92,880 tons of solid waste would be generated (90,677 tons from the Maximum Development Alternative, 2,203 tons from the other actions), which equates to 0.64 percent of the estimated total capacity of the King and Queen Sanitary Landfill. As with the Proposed Action, the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Therefore, the discussion and analyses for the Maximum Development Alternative apply to the cumulative condition.

Solid waste generation by personnel would be the same as described in the Maximum Development Alternative because no additional personnel would be added under the other actions.

Transportation

Short-term congestion could occur from construction related activity. However, this congestion would be eliminated when the construction activity is completed. The long-term transportation discussion would be the same as described for the Proposed Action.

On-Base Housing

The number of MFH units in the LTA and HTA housing areas would be 233 units, the same as the Proposed Action. There would be no demolition or replacement of units. As with the Proposed Action Cumulative Condition, 109 of the existing on-Base units would be renovated and two new units would be constructed under the Maximum Development Alternative Cumulative Condition. The existing units would continue to be used to house military families. The Maximum Development Alternative Cumulative Condition is identical to Proposed Action Cumulative Condition for the on-Base housing. Therefore, the water supply, wastewater discharge, energy, volume of storm water runoff, solid waste generated, and transportation would be the same. The analysis for the resource areas in the Proposed Action Cumulative Condition would apply to the Maximum Development Alternative Cumulative Condition.

4.6 BIOLOGICAL RESOURCES

Biological resources analyses used the following evaluation criteria to assess the impacts of the alternatives:

- Action would diminish habitat for a plant or animal species;
- Action would adversely affect endangered species; or
- Action would cause development within a wetlands area.

4.6.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Demolition of 55 surplus units would occur to reduce the MFH inventory to the HRMA-established level of 1,430 units. Demolition of the units would occur in the Bethel Manor MFH area. No demolition or construction would occur in the on-Base housing areas.

Demolition conducted under the No Action Alternative would disturb vegetation primarily consisting of lawns, urban trees, and ornamental shrubs. Due to its developed nature, the Bethel Manor housing area generally lacks suitable wildlife habitat. The activities would not substantially change habitat for plant or animal species, nor would they diminish an important plant or animal species. The VDCR reviewed a description of the proposed privatization project during the initial coordination and review process with Langley AFB. Although there is documentation on the presence of natural heritage resources in the project area, the agency stated that due to the scope of the activity and the distance to the resources, it does not anticipate this project would adversely impact the natural heritage resources. 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. The VDCR further stated that the current activity would not affect any documented state-listed plants or insects. Appendix D contains a copy of the letter from the VDCR.

The Wildlife Diversity Division of the Virginia Department of Game and Inland Fisheries (VDGIF) also contacted the Base during the initial coordination and review process and stated that it had two issues of concern with respect to project activities at Bethel Manor. The agency followed up on documentation of a bald eagle siting and a waterbird nesting colony near the Big Bethel Reservoir.

On September 30, 2005, the VDGIF contacted the Base to advise that documentation of a bald eagle at Big Bethel Reservoir was an observation and that there were no data to suggest the presence of an eagle nest. Additionally, VDGIF does not anticipate significant adverse impacts to the federal T&E or state-threatened bald eagle as a result of this project. A copy of the communication is contained in Appendix D.

During their review, the agency determined that there did not appear to be an active nesting colony in the project area. However, the agency recommended that a site visit be performed at Bethel Manor prior to the beginning of the project to determine if a nesting colony exists, where it is in relation to the proposed construction and demolition

activities, and determine what recommendations would be warranted to limit impacts to such a colony, if it did exist. The site visit would be coordinated by the privatization contractor on this requirement and follow up with the VDGIF to ensure the site visit was conducted. A copy of the email communication is contained in Appendix D.

Trees and shrubs would be retained to the greatest extent possible. Areas of natural vegetation would not be disturbed. Use of BMPs, silt fences, and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites.

There would be no changes in wetlands, as no wetlands appear to be present in the developed areas of Bethel Manor that would be disturbed during demolition activities. Additionally, given that the MFH units would be maintained in their present location, there would be no change in the floodplain status for the MFH areas. Demolition of the 39 surplus housing units located in the 100-year floodplain would occur; however, no new units would be constructed to replace them. Therefore, the No Action Alternative would have no significant impact on vegetation and wildlife, T&E, or state-threatened species, or wetlands.

4.6.2 Proposed Action

Vegetation and Wildlife

Off-Base Housing

The Proposed Action construction and demolition activities associated with the Bethel Manor neighborhood would occur within developed, maintained areas with highly modified and disturbed landscape typical of urban residential or recreational areas. Similar to the No Action, there would be disturbances to vegetation consisting primarily of lawns, urban trees, and ornamental shrubs. Most of the existing areas of Bethel Manor would be disturbed, except for the 2000 housing area where 148 units would be conveyed as-is. Trees and shrubs would be retained to the greatest extent possible. Areas of natural vegetation would not be disturbed. Use of BMPs, silt fences, and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites.

As previously discussed, the VDCR and VDGIF stated they did not anticipate this project would adversely impact the natural heritage resources, any documented state-listed plants or insects, or federal or state T&E species.

On-Base Housing

Similar to Bethel Manor, Proposed Action construction and demolition activities associated with the LTA and HTA neighborhoods would occur within developed, maintained areas with highly modified and disturbed landscape typical of urban residential or recreational areas. Additionally, the level of ground disturbance activity would be substantially less in the on-Base housing areas than at Bethel Manor. The activities would not substantially change habitat for plant, nor would they diminish an important plant species. Since the land use is the same for both the Proposed Action and

No Action Alternative, the analysis for the No Action Alternative would be the same for the Proposed Action.

Threatened and Endangered Species

Off-Base Housing

Due to its developed nature, the Bethel Manor housing areas generally lack suitable wildlife habitat. The activities would not substantially change habitat for animal species, nor would they diminish an important animal species. As stated in Subchapter 3.6.2, no federal T&E, or special status species are documented within the housing area; however, some species were identified within proximity of the housing area. Discussions concerning federal T&E species in the No Action Alternative apply. The VDCR and VDGIF stated they did not anticipate the Proposed Action would adversely impact the natural heritage resources, any documented state-listed plants or insects, or federal or state T&E species. Use of BMPs, silt fences, and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites.

On-Base Housing

The Proposed Action construction, renovation, and demolition activities associated with the LTA and HTA MFH neighborhoods would occur within the existing MFH neighborhoods where the land has been previously disturbed. No federal T&E, or special status species are documented within the housing areas; however, some species were identified within close proximity of the housing areas. The VDCR and VDGIF stated they did not anticipate the Proposed Action would adversely impact the natural heritage resources, any documented state-listed plants or insects, or Federal or state T&E species. Since the land use is the same for both the Proposed Action and No Action Alternative, the analysis for the No Action Alternative would be the same for the Proposed Action.

Wetlands

Off-Base Housing

NWI mapping for Bethel Manor indicates that approximately 1.6 acres of non-tidal wetlands are located along the southern property boundary adjacent to Big Bethel Reservoir. These potential wetlands are outside the area that would be disturbed by the proposed demolition and construction. The nearest tidal wetlands are located east of the property and are associated with Brick Kiln Creek. No tidal wetlands are located within the property boundary. A wetland delineation would be conducted by the privatization contractor during the project design phase to accurately identify and map jurisdictional wetlands. The site plan would be designed to avoid disturbances to wetlands and other waters of the U.S. Furthermore, to prevent indirect impact to the wetlands, a silt fence would be installed between any identified jurisdictional wetlands and the project area. As necessary, fencing would be used to establish a buffer to separate equipment operations and other activities from the wetlands. As discussed in Subchapter 4.3.2 and Appendix A, the Proposed Action would have no reasonably foreseeable effect on the wetlands management policy of the VCP and no significant impact on wetlands.

On-Base Housing

As discussed in Subchapter 3.6.3, there are no wetlands in the vicinity of the housing areas.

4.6.3 Maximum Development Alternative

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that a greater number of units would be constructed in the Bethel Manor neighborhood. No additional land, vacant or occupied would be used under the Maximum Development Alternative. Therefore, the analysis for the No Action Alternative and Proposed Action would be the same for the Maximum Development Alternative.

4.6.4 Mitigation

No adverse effects would be anticipated. Therefore, no mitigation would be necessary.

4.6.5 Cumulative Impacts

As with the No Action Alternative, Proposed Action, and Maximum Development Alternative, other actions would take place in developed areas. Additionally, other actions would not take place on wetlands areas or within T&E habitat areas. Therefore, no cumulative effects to biological resources would be anticipated.

4.7 WATER RESOURCES

In considering the impacts on water resources, the following evaluation criteria were examined:

- The degree to which the groundwater levels could be impacted; and
- The potential for contamination of groundwater and surface water.

4.7.1 No Action

Groundwater

Off-Base Housing

Under the No Action Alternative, MFH units would not be privatized and the units would continue to be maintained by the Air Force. Demolition of 55 surplus units would occur to reduce the MFH inventory to the HRMA-established requirement of 1,430 units. Construction activities would not involve groundwater withdrawals or use of groundwater. Therefore, groundwater levels would not be affected. Inadvertent spills of petroleum products during construction would have the potential to contaminate groundwater. However, only limited quantities of fuel would be on-site and the contractor would be required to implement spill prevention, controls, and countermeasures. Activities in the MFH areas do not contaminate groundwater systems. Therefore, the potential for groundwater contamination is considered minor.

On-Base Housing

Baseline conditions for groundwater would not change under the No Action Alternative.

Surface Water

Off-Base Housing

The analysis of surface water addresses potential impacts during demolition activities, as well as impacts following completion of construction. Grading, heavy equipment operation, and other activities during demolition and construction would disturb the ground surface and soils within the housing area. These ground-disturbing activities would temporarily increase the potential for soil erosion and subsequent discharge of sediments to surface water via storm water runoff. As discussed above for storm water management (see Subchapter 4.5.1), the privatization contractor would be required to obtain VDCR authorization prior to initiating work. Development and implementation of the required SWPPP would ensure that demolition and construction activities would not result in significant impacts to surface water.

Demolition of 55 units would occur therefore, the amount of impervious cover in Bethel Manor would decrease and along with storm water runoff. Sedimentation control would still be required to control storm water runoff during demolition activities. Erosion control techniques would be used during demolition to minimize erosion as described in Subchapter 4.5.1.

On-Base Housing

Baseline conditions for surface water would not change under the No Action Alternative.

Floodplains

Off-Base Housing

Demolition of 39 of the 55 surplus housing units would occur in the 100-year floodplain; therefore, baseline conditions for most of the floodplains would not change under the No Action Alternative. It is anticipated the privatization contractor would not construct new or replacement units in the floodplain.

On-Base Housing

Baseline conditions for floodplains would not change under the No Action Alternative.

4.7.2 Proposed Action

Groundwater

Off-Base Housing

The Proposed Action would not involve groundwater withdrawals or use of groundwater. Therefore, groundwater levels would not be affected. The existing MFH

areas proposed units in Bethel Manor would be served by asphalt roadways. Construction and use of these roads would generate oils and other pollutants that could be carried by storm water runoff to adjacent shallow groundwater recharge areas. Storm water management practices and permits for construction of roadways would be implemented to reduce potential infiltration of point source and non-point source pollutants. Inadvertent spills of petroleum products during construction would have the potential to contaminate groundwater. However, only limited quantities of fuel would be on-site and the contractor would be required to implement spill prevention, controls, and countermeasures. Therefore, the potential for groundwater contamination is considered minor.

On-Base Housing

As with the Proposed Action for off-Base, the existing MFH areas and the proposed units in the LTA and HTA housing areas would be served by asphalt roadways. Construction and use of these roads would generate oils and other pollutants that could be carried by storm water run-off to adjacent shallow groundwater recharge areas. Storm water management practices and permits for construction of roadways would be implemented to reduce potential infiltration of point source and non-point source pollutants. Therefore, the potential for groundwater contamination is considered minor.

Surface Water

Off-Base Housing

Construction of the new housing units at Bethel Manor would result in changes to the existing configuration and area of impervious surfaces (*e.g.*, roads, parking areas, and buildings), which could affect storm water runoff and management. Specific changes to the configuration and area of impervious surfaces cannot be quantified at this time because site plans and designs have not yet been completed. Although the total number of units would decrease by 55 units, a slight increase in impervious surfaces is anticipated under the Proposed Action due to increases in building square footage and other improvements. Increases in impervious surfaces tend to increase storm water runoff and non-point source pollution to surface water. As discussed above under storm water management, the privatization contractor would be required to design and build a new storm water management system that complies with the Virginia Storm Water Management Law and Virginia Storm Water Management Regulation. Storm water runoff would be minimized to prevent off-site transport of sediments into neighboring streams and ponds using natural or established vegetation (existing trees, brushes, and grasses) as much as possible to provide a buffer zone to aide in benefiting water quality. Additionally, the use of retention ponds or swales would be used to reduce discharges of pollutants to improve the quality of storm water runoff. Therefore, the Proposed Action would not result in significant impacts to surface water.

On-Base Housing

Demolition of housing units would not occur under the Proposed Action. Construction activities would include renovating 109 existing housing units and

constructing two new units. Although the extent of construction activities would not be as great as those in Bethel Manor, the discussion and analysis for the Proposed Action off-Base apply. As with the Proposed Action off-Base, it is anticipated construction activities would not result in significant impacts to surface water.

Floodplains

Off-Base Housing

As shown in Figure 3-2 at the end of Chapter 3, FEMA Q3 flood data indicate that 32.7 acres of the southern portion of Bethel Manor are located in the 100-year floodplain associated with Brick Kiln Creek and Big Bethel Reservoir. This area includes approximately 39 existing structures that would be demolished. As discussed in Subchapter 2.5.2, it is anticipated the privatization contractor would not construct new or replacement units in the floodplain.

Detailed site plans for the proposed location of the replacement construction at Bethel Manor would not be developed until after selection of the privatization contractor. The privatization contractor would be required to address development constraints associated with the floodplain during the project design phase, which would include topographic mapping and more accurate determination of floodplain boundaries. New housing units would be constructed outside the 100-year floodplain.

For the analysis in this EA, it was assumed the total area of developed land within the floodplain would not change under the Proposed Action. Based on this assumption, the Proposed Action would not have a long-term significant impact on floodplains. The size and frequency of floods would not be expected to increase compared to baseline conditions. New construction would only occur in currently developed portions of the floodplain. Therefore, important floodplain functions such as stream energy dispersion, aquifer recharge, vegetation cover, and wildlife habitat would not change compared to baseline conditions.

On-Base Housing

Demolition of housing units would not occur under the Proposed Action. The two new units that would be constructed in the HTA housing area would be located in the 100-year floodplain. There is no practicable alternative, however, that would not involve construction in the floodplain. Therefore, the first floor of these units would be elevated above the 100-year flood elevation. Discussions on the impact on floodplains and the size and frequency of floods mentioned in the off-Base housing area apply. Therefore, important floodplain functions would not change compared to baseline conditions.

4.7.3 Maximum Development Alternative

Groundwater

Off-Base Housing

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that an additional 14 housing units would be constructed in the existing neighborhoods. The discussion,

analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

On-Base Housing

The project area and activities associated with the Maximum Development Alternative are identical to that for the Proposed Action. The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

Surface Water

Off-Base Housing

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that an additional 14 housing units would be constructed in the existing neighborhoods. The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

On-Base Housing

The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

Floodplains

Off-Base Housing

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that an additional 14 housing units would be constructed in the existing previously developed neighborhoods. No units would be constructed in the 100-year floodplain. The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

On-Base Housing

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that a greater number of units would be constructed in the existing Bethel Manor neighborhoods. The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

4.7.4 Mitigation

No impacts would be anticipated. Therefore, no mitigation would be required.

4.7.5 Cumulative Impacts

Off-Base Housing

It is estimated that the shortest distance between one of the other actions in Bethel Manor and a MFH neighborhood would be approximately 100 feet. However, the other action projects would occur during the earlier development phases of the privatization

initiative and would be completed prior to any of the alternative actions. Additionally, none of the other action projects are located in the floodplains. Therefore, cumulative surface water and floodplain impacts would be minimized and it is not anticipated ground water would be withdrawn for any of the actions.

On-Base Housing

It is estimated that the shortest distance between one of the other actions in the LTA and HTA housing areas and a MFH neighborhood would be approximately 100 feet and 800 feet, respectively. Additionally, two of the other action projects in the LTA area are renovation type projects where ground disturbance activities would be minimal. None of other action project are located in the 100-year floodplain except for the Bay View Towers; however, only renovation type activities would occur and, thus, would not affect or change floodplains. Therefore, cumulative surface water and floodplain impacts would be minimized and it is not anticipated ground water would be withdrawn for any of the actions.

4.8 EARTH RESOURCES

The following are evaluation criteria to assess impacts on earth resources:

- The potential to disrupt the ground surface and destroy the soil profile through excavation and removal of rock and soil in the construction of facilities; and
- The potential to increase erosion caused by the disturbance of the ground surface during the construction and demolition of facilities.

4.8.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Demolition of 55 surplus units would occur to reduce the MFH inventory to the HRMA-established level of 1,430 units. Demolition of the units would only occur in the Bethel Manor MFH area. Soil surrounding the surplus units has been previously disturbed and soil profile destruction would not be anticipated. Use of BMPs such as rock berms, silt fences, and single point construction entries would minimize erosion during demolition. Grass and other landscaping would be reestablished in the disturbed areas immediately after completion of demolition, thereby reducing the potential for erosion. Activities that disturb 10,000 ft^2 or more of land (2,500 ft^2 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. Additionally, the Virginia Erosion Soil Handbook would be used as standard erosion and sedimentation guidance.

The remaining units would continue to be used to house military families. Facilities activities in the MFH areas would be limited to routine maintenance, and no large-scale construction activities would be anticipated. Thus, there would be no additional soil disturbance.

4.8.2 Proposed Action

The Proposed Action would not alter topography during construction of the new MFH units in Bethel Manor or in the HTA area where two four-bedroom units would be constructed. Geology would not change as a result of the Proposed Action. Construction activity would occur within an area in which the soil has been disturbed and modified by prior MFH construction. The contractor would ensure a SWPPP is completed and approved before initiating activities. The plan likely would include the following erosion control techniques that would be used during demolition and construction to minimize erosion.

- Earthwork would be planned and conducted in such a manner to minimize the duration of the exposure of unprotected soil.
- Side slopes and back slopes would be protected immediately upon completion of rough grading. Protection would be provided by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting.
- Slopes too steep for stabilization by other means would be stabilized by hydroseeding, mulch anchored in place, covering by anchored netting, sodding, or such combination of these and other methods as may be necessary for effective erosion control.
- Use of BMPs such as rock berms, silt fences, and single point construction entries would minimize erosion during demolition and construction.
- Grass and other landscaping would be reestablished in the disturbed areas immediately after completion of construction, thereby reducing the potential for erosion.
- Standard erosion and sedimentation control measures provided in the Virginia Erosion Soil Handbook would be used.

Additionally, the Department of Mines, Minerals, and Energy for the Commonwealth of Virginia reviewed a description of the proposed privatization project during the initial coordination and review process with the Air Force and stated the project would have no anticipated impacts to the geology or mineral resources of the site. Appendix D contains a copy of the letter from the Department of Mines, Minerals, and Energy.

4.8.3 Maximum Development Alternative

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that a greater number of MFH units would be constructed in the existing Bethel Manor neighborhood. The discussion, analysis, and conclusions for the Proposed Action apply to the Maximum Development Alternative.

4.8.4 Mitigation

No impacts would occur and no mitigation would be required.

4.8.5 Cumulative Impacts

It is estimated that the other actions would occur in areas were soil has been previously disturbed and soil profile destruction would not be anticipated. This would eliminate the potential for cumulative earth resources impacts because the actions associated with the No Action Alternative, Proposed Action, and Maximum Development Alternative and the other actions would occur in areas were the soil has been previously disturbed.

4.9 HAZARDOUS MATERIALS AND WASTE

The following evaluation criteria were used to assess the alternatives with regard to hazardous materials and waste:

- Could the action require materials that could not be accommodated by existing guidance?
- Would the action cause waste generation that could not be accommodated by current Langley AFB waste management capacities?
- Would the action interfere with the Langley AFB ERP?
- Would the action cause non-compliance with existing LBP, ACM, and pesticide management practices?

4.9.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Demolition of 55 surplus units would occur to reduce the MFH inventory to the HRMA-established level of 1,430 units. Demolition of the units would occur in the Bethel Manor MFH area. No demolition or construction would occur on-Base. Under other actions (see Subchapter 2.7), 16 of the 55 units would be demolished in the Bethel Manor MFH neighborhood to make room for the new AAFES gas station/mini mall. It is anticipated the area vacated by demolition of the other 39 units would be left as open space within the MFH neighborhood.

Hazardous Materials

The demolition contractor could use products containing hazardous materials for equipment operation (*e.g.*, hydraulic fluid) during demolition activities. Contractors would be required to use and store hazardous materials in accordance with Base procedures. Any hazardous materials to be used or maintained on Base would be coordinated and approved by the HAZMO. Residents in the MFH units would continue to purchase hazardous materials for household uses, which would be considered residential waste as exempted by RCRA and would not impact the Base's hazardous waste management program. If the privatization contractor anticipates using portable fuel ASTs with a capacity of greater than 660 gallons, the tank(s) must be registered with VDEQ.

Hazardous Waste

The demolition contractor would maintain records of all waste determinations, including appropriate results of analysis performed, substances and sample locations, date and time of collection, and other pertinent data as required by 40 CFR Part 280, Section 74 and 40 CFR, Part 262, Subpart D. Any hazardous waste generated would be handled in accordance with all federal, state, and local laws and regulations, including RCRA requirements for waste management and USDOT requirements for waste transport and coordinated with the Langley AFB Environmental Flight.

In the event of a spill of any amount or type of hazardous material or waste (petroleum products included), the contractor would take immediate action to contain and clean up the spill, in accordance with the Spill Prevention Control and Countermeasures Plan. Contractor spill cleanup personnel would be trained and certified to perform spill cleanup. The contractor would be responsible for proper characterization and disposal of any waste and cleanup materials generated. All waste and associated cleanup material would be removed from the project site and transported and/or stored in accordance with regulations until final disposal. Fueling and lubrication of equipment would be conducted in a manner that affords maximum protection against spills. Secondary containment is required around temporary fuel oil or petroleum storage tanks larger than 55 gallons.

Asbestos

The demolition contractor would be responsible for all ACM removal as discussed in Subchapter 2.5.1. All friable ACM would be removed by a licensed asbestos abatement contractor using glove bag techniques just prior to actual demolition of the building. If this procedure were used, asbestos-containing areas would not require polyethylene containment and negative pressure. Non-friable ACM could be disposed as solid waste along with other construction debris as long as the landfill is permitted to accept non-friable ACM. Non-friable ACM would be moistened just prior to removal to minimize airborne fibers. All debris mixed with ACM debris must be kept wet and must be sent to an asbestos-approved landfill. ACM that occurs in any of the remaining units would be managed in accordance with existing directives.

Lead-Based Paint

Lead-based paint would be removed and disposed of by the demolition contractor in accordance with existing regulations. The Base would continue to manage LBP as described in Subchapters 3.9.4.

Pesticides

The demolition contractor would take care to disturb as little soil as possible. Of particular concern would be earth-disturbing activities such as grading and leveling. Soil would not be removed from the site without appropriate environmental testing and without written consent from the Base Commander or designee. The Base would continue to manage pesticides in accordance with the procedures described in Subchapter 3.9.5.

Environmental Restoration Program

As mentioned in Subchapter 3.9.6, there are 16 ERP sites (OT-25, OT-38B, OT-38C, OT-56, OT-64, DP-09, LF-17, WP-08, SS-04, SS-16, SS-63, ST-26, ST-27, ST-29, ST-32, and ST-33) located adjacent to the LTA and HTA MFH neighborhoods and two ERP sites (WP-42 and ST-48) in the area of the Bethel Manor MFH neighborhood. ERP sites adjacent to the subject properties are not considered an environmental risk due to their distance from the subject properties and regulatory status.

Historically, each duplex unit and single housing unit on Base had one UST for storing fuel oil. The USTs were located underground near the housing units and not in the basements with the boilers. There are still units in the HTA neighborhood that have not had USTs removed or abandoned in place. The HTA neighborhood has 40 buildings (36 duplexes, four single units) that according to the EBS that was conducted for MFH privatization in 2004 never had fuel oil USTs. Property records indicate these buildings had a 1- to 2-inch steam line connecting them to a central boiler at Building 180 (Langley AFB 2005b). Figures 3-6 and 3-7 at the end of Chapter 3 detail where fuel oil USTs in the HTA and LTA neighborhoods have been removed or abandoned in place.

4.9.2 Proposed Action

Hazardous Materials

Products containing hazardous materials would be procured and used during the proposed demolition and construction of the MFH units in Bethel Manor and the on-Base housing areas. The types of construction and demolition activities for the Proposed Action would be identical to the No Action Alternative demolition activities. Therefore, the discussion and analysis for the No Action Alternative apply.

Hazardous Waste

The types of construction and demolition activities for the Proposed Action would be identical to the No Action Alternative demolition activities. Therefore, the discussion and analysis for the No Action Alternative apply.

Asbestos

The ACM discussion for the No Action Alternative applies. Additionally, the proposed new and renovated MFH units would be constructed without any ACM.

Lead-Based Paint

As part of the privatization process, the government prepares an environmental baseline survey, disclosing all known information on LBP in the MFH units to be conveyed. Results from any LBP hazard risk assessment would also be provided to potential privatization contractors.

Under the Proposed Action, privatization contractors would manage LBP remaining in the privatized MFH units in accordance with applicable regulations. This includes providing a disclosure statement on LBP to new tenants, and abating LBP hazards that develop if the LBP is not properly maintained. Removal of LBP during demolition and

maintenance activities, and disposal of LBP debris would be the responsibility of the contractor. Maintenance and construction activities would not use LBP.

Pesticides

Although a privatization contractor would manage the housing units under the Proposed Action, it is anticipated the contractor would apply pesticides similar to those applied by the Air Force. Pesticides would be applied according to the instructions for the product and would be applied by certified personnel. New foundations would have soil treated for termites in accordance with state law, to include a certificate of termite treatment by the provider. VDEQ recommends the least toxic pesticides that are effective in controlling the target species should be used. In addition, the use of pesticides or herbicides containing volatile organic compounds as their active ingredient would be avoided to the maximum extent practicable in order to protect air quality. Otherwise, their use should be applied outside of the ozone season.

The privatization contractor would exhibit caution during demolition, disturbing as little soil as possible. Of particular concern would be earth disturbing activities such as grading, leveling, and trenching. The privatization contractor would not remove any soil from the site without appropriate environmental testing and without written consent from the Base Commander or designee. Prior to occupancy of newly constructed housing where soil was disturbed, the privatization contractor would be responsible for having a competent risk assessor carry out a representative sampling for pesticides in the soil immediately surrounding the housing, gardens, and likely children's play areas. The results of sampling or a risk assessment would be provided to the Air Force for approval prior to occupancy.

Environmental Restoration Program

The discussion, analysis, and conclusions for the No Action Alternative apply to the Proposed Action.

4.9.3 Maximum Development Alternative

The project area and activities associated with the Maximum Development Alternative are similar to that for the Proposed Action except that a greater number of units would be constructed in the Bethel Manor neighborhoods. Construction of two new housing units in the HTA area and renovation of 109 units would occur in the on-Base housing areas. Therefore, the discussion, analyses, and conclusions for hazardous material, hazardous waste, ACM, LBP, pesticides, and ERP for the Proposed Action apply to the Maximum Development Alternative.

4.9.4 Mitigation

Neither the No Action Alternative, Proposed Action, nor the Maximum Development Alternative would cause noncompliance with environmental quality regulations, generate waste that could not be accommodated by current Langley AFB hazardous materials and waste management capacities, nor interfere with ERP management. ACM, LBP, and pesticides would be managed according to Base or Air

Force policies. All structures being demolished, renovated, or removed would be checked for ACM and LBP prior to demolition. If ACM or LBP are found, State regulation 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP would be followed. In addition, the following state laws and regulations would be applicable: 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 20-1 10).

No mitigation would be required.

4.9.5 Cumulative Impacts

The types of construction projects anticipated under the other actions would be similar to those expected under the No Action Alternative, Proposed Action, and Maximum Development Alternative; therefore the discussions and analysis would apply. As shown in Figure 2-2 at the end of Chapter 2 and Figure 3-5 at the end of Chapter 3, Project ID No. 7 (see Table-2.10) would be constructed near ERP Site OT-55. The OT-55 site includes underground petroleum contamination beneath a paved storage yard covering approximately 2.5 acres directly east of Building 633 at the edge of the Back River in the southeast portion of the Base. Building 633 was previously used as a sea plane hangar from the 1920s to the 1950s, and a concrete ramp that led to the Back River still exists approximately 4.5 feet underground. This area was progressively expanded by dumping fill material into the Back River in front of the sea plane hangar from the early 1950s to 1960s. A record of decision and decision document was completed on the site in November 2002 and the site is now officially closed (Langley AFB 2003c).

The construction contractor for the other projects would comply with the applicable regulatory guidance described for the No Action Alternative and the Proposed Action. The activities at the other facilities would be managed in accordance with applicable Langley AFB plans for hazardous materials, hazardous waste, ACM, LBP, pesticides, and ERP.

4.10 CULTURAL RESOURCES

The following evaluation criteria were used to assess the impacts of the actions on cultural resources:

- The potential for construction activities to directly or indirectly affect historical or archaeological resources;
- The potential for discovery of archaeological sites during construction; and
- The potential for adverse impacts on known and unknown archaeological sites.

4.10.1 No Action Alternative

Under the No Action Alternative, the MFH units would not be privatized and the units would continue to be maintained by the Air Force. Demolition of 55 surplus units

in Bethel Manor would occur in order to reduce the MFH inventory to the HRMA-established level of 1,430 units. The Air Force would follow the Program Comment (ACHP 2004) by the Advisory Council on Historic Preservation, adopted pursuant to 36 CFR 800.14(e), regarding Section 106 compliance for demolition of the surplus Capehart housing units in Bethel Manor. Appendix F contains a copy of this document.

4.10.2 Proposed Action

Historic Resources

Off-Base

The analysis and conclusions for the No Action Alternative apply to the Proposed Action.

On-Base

Under the Proposed Action, the developer would make whole-house renovations on 47 units in the LTA area and 62 units in the HTA area. These units are part of the LFHD. All planned renovations of LTA and HTA housing units would be consistent with the Secretary of the Interior's Standards, as noted in the Langley AFB CRMP. Proposed new housing units would be constructed in accordance with these standards and designed to be compatible with the LFHD. To address these issues comprehensively, the Air Force would enter into a Memorandum of Agreement (MOA) with the contractor-developer and the VA SHPO to establish procedures and conditions for the developer-contractor to use to reduce the potential for adverse effects for future actions. The MOA addresses renovation and maintenance of historical properties, site improvements, demolition, and new construction. Appendix D contains a copy of the letter from the Department of Historic Resources, and Appendix G contains a copy of the draft MOA dated June 30, 2005.

Archaeological Resources

Off-Base

There are no known archaeological sites located in the proposed project areas on Bethel Manor. However, an MOA would be prepared between Langley and the SHPO that would include provisions for the transfer of property to the privatization contractor and to follow procedures in the event of discovery during construction.

On-Base

Under the Proposed Action, renovation of housing units would not occur in the three archaeological sites in the LTA or HTA housing areas. The two new units in the HTA area would be located in vacant areas that would not impact the archaeological sites. An MOA would address procedures and conditions for the privatization contractor to avoid adverse impacts in the case of unanticipated discovery of archaeological resources during activities associated with privatization.

4.10.3 Maximum Development

The project area and activities associated with the Maximum Development Alternative are similar to that for the No Action Alternative and the Proposed Action except that a greater number of MFH units would be constructed in the existing Bethel Manor neighborhood. The discussion, analysis, and conclusions for the No Action Alternative and Proposed Action apply to the Maximum Development Alternative.

4.10.4 Mitigation

Mitigation to reduce the potential adverse effects on historic or archaeological resources is described in the Langley AFB CRMP. Houses in the LFHD would be renovated in accordance with the Secretary of the Interior's Standards and mitigations agreed upon by signatories to the MOA.

4.10.5 Cumulative Impacts

Cumulative impacts would occur if other actions resulted in removal or impact on historic facilities or archaeological sites that would affect the character of the LHFD. Other actions include the demolition of seaplane hangar (Building 633) and the four White Houses (Buildings 868, 869, 948, and 949). MOAs Preliminary Assessments were completed for the Adverse Effect actions regarding the four white houses and the seaplane hangar. EAs were also completed for these actions resulting in a finding of no cumulative effects. The Air Force will conduct a detailed study on cumulative impacts to the LFHD resulting from recent and proposed demolitions, privatizations, and other actions within the historic district.

4.11 SOCIOECONOMIC RESOURCES

The DoD standard (operations and maintenance) and construction models of the USACE Economic Impact Forecast System (EIFS) were used to forecast the impacts of the Proposed Action and Maximum Development Alternative. The standard model estimates the impacts of ongoing mission and operations as well as assessment of changes in operations. The construction model predicts the economic impacts of the expenditures and employment from construction activities. Using a technique termed the rational threshold value (RTV), EIFS estimates are compared to historic trends for each economic indicator (business volume [using non-farm income], personal income, employment, and population) to determine impacts. The RTV model analyzes annual changes since 1969, and establishes analysis criteria based on historic deviations in the value of these four socioeconomic indicators. The EIFS calculates both positive and negative RTVs.

This assessment assumes impacts associated with the project would occur within a designated ROI for Bethel Manor and Langley AFB, as discussed in Subchapter 3.11.

An impact to socioeconomic resources would occur if the existing housing, education, and economic sectors could not accommodate the population, housing, education, and economic changes resulting from the action.

4.11.1 No Action Alternative

Population

Under the No Action Alternative, the off-Base population residing in Bethel Manor would decrease by approximately 220 people as a result of the surplus 55 units to a total residential population of 4,900 persons. On-Base population would not change from baseline conditions.

It is likely these 220 persons would relocate within the ROI area. Additionally, it is assumed the local labor pool is more than sufficient to supply the necessary labor for project demolition and there would be no in-migration of construction workers. For these reasons, there would be no overall change in the county population.

Housing

Housing for military families who would be displaced due to demolition of the 55 surplus units could be accommodated by the vacant units in ROI. It is anticipated there would be no in-migration or temporary relocation of construction laborers into the area. Thus, there would be no additional off-Base housing demand resulting from project demolition.

Education

Although it is anticipated there would be a slight decrease in the number of students attending the York County Public School due to the reduction of 55 MFH units, the overall number of students would remain at or very close to the baseline condition because not all the students who would relocate would attend schools outside the ROI. It is anticipated there would be no additional students associated with construction workers since there would be no in-migration or temporary relocation of construction laborers into the area. For these reasons, there would be no change in the number of students attending York County or Hampton City schools.

Economy

Direct and indirect short-term beneficial economic impacts would be realized by the regional and local economy during the demolition phase of the No Action Alternative. Employment generated by construction activities would result in wages paid, an increase in business sales volume, and expenditures for local and regional services, materials and supplies.

Using employment and income multipliers developed with a comprehensive regional/local database combined with economic export base techniques, the EIFS model estimates the regional economic impacts with respect to changes in employment generated, and expenditures directly and indirectly resulting from project construction. The EIFS model evaluates economic impacts in terms of regional change in sales (business) volume, employment and personal income.

As indicated in Table 4.8, the direct annual regional economic impacts of project demolition consist of increases of $525,000 in business volume (sales); 10 jobs in the construction, retail trade, services and industrial sectors; and, $277,260 in direct personal

income. Direct employment reflects those workers who would accomplish demolition activities. Personal income represents the earnings of employees in the demolition, retail, wholesale and service establishments who are initially or directly affected by the project activity. The increase in business volume reflects increases in the sales of goods, services, and supplies associated with project construction activity.

Table 4.8 EIFS Annual Economic Impacts, No Action Alternative

	Direct Impacts	Indirect Impacts	Total
Construction Impacts			
Sales (Business) Volume	$525,000	$895,500	$1,420,500
Income	$277,260	$177,095	$454,355
Employment	10	5	15

Source: Economic Impact Forecast System.

Table 4.8 also portrays the indirect annual regional impacts on secondary sales, employment and income generated by the employment and business activity directly associated with project construction. The direct increase in sales and employment generates secondary sales of $895,500; creates an additional five jobs indirectly in the retail trade, services and industry sectors; and results in an additional $177,095 in indirect income. Indirect employment pertains to those jobs in the retail, wholesale, and service industries generated as a result of the No Action Alternative. Income is indirectly impacted as a result of the indirect increase in sales and employment resulting from the initial economic impacts.

The EIFS model also includes an RTV profile used in conjunction with the forecast models to assess the significance of impacts of an activity for a specific geographic area. For each variable (sales volume, employment, income, and population), the current time-series data available from the U.S. Department of Commerce Bureau of Economic Analysis (USDOC 2000, 2001) are calculated along with the annual change, deviation from the average annual change, and the percent deviation for each of these variables, which then defines a threshold for significant annual regional economic impacts for a variable. Within the EIFS model, the RTV is calculated for each of these variables when assessing the regional economic impacts of a specific project. If the RTV for a particular variable associated with the impacts of a specific project exceeds the maximum annual historic deviation for that variable, then the economic impacts are considered to be significant. If the RTV for a variable is less than the maximum annual historic deviation for that variable, then the regional economic impacts are not considered significant. With respect to the EIFS model assessment of the economic impacts of construction under the No Action Alternative, the RTVs for each of the four variables (population, sales volume, income, employment) were found to be significantly less than the regional RTVs. For this reason, project construction associated with the No Action Alternative would not result in significant annual local or regional economic impacts.

4.11.2 Proposed Action

Population

The total MFH population would decrease by 478 people to a total population of 5,624 residents. It is likely these people live in the ROI under the baseline. Additionally, it is assumed the local labor pool is more than sufficient to supply the necessary labor for project construction and there would be no in-migration of construction workers. For these reasons, there would be no overall change in the county population.

Housing

Housing for military families who would be displaced due to the 66-unit reduction (reduction of 68 surplus units and construction of two new units = 66) in MFH could be accommodated by the vacant units in the ROI. It is anticipated there would be no in-migration or temporary relocation of construction laborers into the area. Thus, there would be no additional off-Base housing demand resulting from project construction.

Education

The net change in MFH population would be about 478 persons and not all these persons would be elementary school age. Therefore, it is anticipated the number of students attending the area elementary schools would remain at or very close to the baseline condition and that any additional students likely would be living off-Base and attending schools in the ROI under the baseline. The students associated with the 66 families who currently attend York and Hampton County schools and who would relocate off base due to the overall reduction in MFH units would continue to attend schools in the these counties. It is anticipated there would be no additional students associated with construction workers since there would be no in-migration or temporary relocation of construction laborers into the area. For these reasons, there would be no change in the number of students attending schools in the ROI.

Economy

The method described for the No Action Alternative was also used to estimate economic impacts under the Proposed Action. The estimated construction cost (capital costs) for project implementation and annual average income for construction laborers were the inputs used in the execution of the EIFS construction model. The estimated construction cost is $240 million. Since the economic projections generated by the EIFS model are on an annual basis, the primary model input for construction costs ($240 million) was pro-rated over an estimated 10-year construction period.

As indicated in Table 4.9, the direct annual regional economic impacts of project construction over this 10-year period consist of increases of $12,960,000 in business volume (sales); 245 jobs in the construction, retail trade, services and industrial sectors; and, $6,785,340 in direct personal income. Direct employment reflects those workers who would accomplish demolition and construction activities. Personal income represents the earnings of employees in the construction, retail, wholesale and service establishments who are initially or directly affected by the construction activity. The

increase in business volume reflects increases in the sales of goods, services, and supplies associated with project construction activity.

Table 4.9 EIFS Annual Economic Impacts, Proposed Action

	Direct Impacts	Indirect Impacts	Total
Construction Impacts			
Sales (Business) Volume	$12,960,000	$21,902,402	$34,862,402
Income	$6,785,340	$4,647,490	$11,432,830
Employment	245	126	371

Source: Economic Impact Forecast System.

Table 4.9 also portrays the indirect annual regional impacts on secondary sales, employment and income generated by the employment and business activity directly associated with project construction. The direct increase in sales and employment generates secondary sales of $21,902,402; creates an additional 126 jobs indirectly in the retail trade, services and industry sectors; and results in an additional $4,647,490 in indirect income. Indirect employment pertains to those jobs in the retail, wholesale, and service industries generated as a result of the proposed project. Income is indirectly impacted as a result of the indirect increase in sales and employment resulting from the initial economic impacts.

With respect to the EIFS model assessment of the economic impacts of construction under the Proposed Action, RTVs for each of the four variables (population, sales volume, income, and employment) were found to be significantly less than the regional RTVs. For this reason, project construction associated with the Proposed Action would not result in significant annual local or regional economic impacts.

4.11.3 Maximum Development Alternative

Population

The MFH population would decrease by 451 people to a total population of 5,651 residents. It is likely these 674 persons live in the ROI under the baseline. Additionally, it is assumed the local labor pool is more than sufficient to supply the necessary labor for project construction and there would be no in-migration of construction workers. For these reasons, there would be no overall change in the county population.

Housing

There would be a net loss of 4 MFH units under the Maximum Development Alternative. Thus, housing would be near existing baseline conditions. Similar to the Proposed Action, housing for military families who would be displaced due to the reduction in units could be accommodated by the vacant units in the ROI. It is anticipated there would be no in-migration or temporary relocation of construction laborers into the area.

Education

The net change in MFH population would be about 451 persons and not all these persons would be elementary school age. Therefore, it is anticipated the number of students attending the area elementary schools would remain at or very close to the baseline condition and that any additional students likely would be living off-Base and attending schools in the ROI under the baseline. The students associated with the families who currently attend York and Hampton County schools and who would relocate due to the overall reduction in MFH units would continue to attend schools in the these counties. It is anticipated there would be no additional students associated with construction workers since there would be no in-migration or temporary relocation of construction laborers into the area. For these reasons, there would be no change in the number of students attending schools in the ROI.

Economy

The method described for the Proposed Action was also used to estimate economic impacts under the Maximum Development Alternative. The estimated construction cost is $274 million pro-rated over a 10-year construction period.

As indicated in Table 4.10, the direct annual regional economic impacts of project construction over this 10-year period consist of increases of $14,774,400 in business volume (sales); 279 jobs in the construction, retail trade, services and industrial sectors, and $7,735,280 in direct personal income. The latter value represents the earnings of employees in the construction, retail, wholesale, and service establishments who are initially or directly affected by construction activity. The increase in business volume reflects increases in the sales of goods, services, and supplies associated with project construction activity.

Table 4.10 EIFS Annual Economic Impacts, Maximum Development Alternative

	Direct Impacts	Indirect Impacts	Total
Construction Impacts			
Sales (Business) Volume	$14,774,400	$24,968,730	$39,743,130
Income	$7,735,280	$5,437,562	$8,272,842
Employment	279	145	424

Source: Economic Impact Forecast System.

Table 4.10 also portrays the indirect annual regional impacts on secondary sales, employment and income generated by the employment and business activity directly associated with project construction. The direct increase in sales and employment generates secondary sales of $24,968,730; creates an additional 145 jobs indirectly in the retail trade, services, and industry sectors, and results in an additional $5,437,562 in indirect income. Income is indirectly impacted as a result of the indirect increase in sales and employment resulting from the initial economic impacts.

With respect to the EIFS model assessment of the economic impacts of construction under the Maximum Development Alternative, RTVs for each of the four variables (population, sales volume, income, and employment) were found to be significantly less

than the regional RTVs. For this reason, project construction associated with the Maximum Development Alternative would not result in significant annual local or regional economic impacts.

4.11.4 Mitigation

The York and Hampton County housing inventory would accommodate the need for off-Base units during construction and demolition activities under the No Action, Proposed Action, and the Maximum Development Alternative. The privatization project would not cause a shortage of classroom space nor increase the population to a level that would require local communities to increase services. All three alternatives would benefit the local sales, income, and employment sectors. Therefore, no mitigation would be necessary.

4.11.5 Cumulative Impacts

Population

As with the No Action Alternative, Proposed Action, and Maximum Development Alternative, there would be no additional personnel assigned to Langley AFB under the other actions and there would be no in-migration of construction workers for the other actions. Therefore, there would be no population cumulative impacts and York County and Hampton County population would not change for any of the alternatives and other actions.

Housing

There would be no in-migration of construction workers for the other actions and no housing would be required for the workers. Therefore, there would be no housing cumulative impacts for any of the alternatives and other actions.

Education

Since there is no increase in population from other action projects, there would be no change in student enrollment in the York and Hampton County School Districts. Additionally, there would be no net increase or decrease in student enrollment in the York and Hampton County School Districts under the No Action Alternative, Proposed Action, or the Maximum Development Alternative. For these reasons, there would be no education cumulative impacts for any of the alternatives and other actions.

Economy

The cumulative impacts represent the combined impacts of the construction under each alternative and other actions. The cumulative impacts of each alternative combined with other actions are presented in Table 4.11. As indicated in the table, positive economic impacts would be anticipated when combining the No Action Alternative, Proposed Action, and Maximum Development Alternative, respectively, with the other actions. The EIFS Model uses an employment/income multiplier of 2.69 for the ROI as the multiplier effect on total sales volume.

Table 4.11 Annual Cumulative Economic Impacts, Langley AFB

	Direct Impacts	Indirect Impacts	Total
No Action Alternative and Other Actions Cumulative Impacts			
Sales (Business Volume)			
No Action Alternative	$525,000	$895,500	$1,420,500
Other Actions	$1,089,300	$1,840,917	$2,930,217
Cumulative Impact	$1,614,300	$2,736,417	$4,350,717
Income			
No Action Alternative	$277,260	$177,095	$454,355
Other Actions	$567,856	$388,307	$956,163
Cumulative Impact	$845,116	$565,402	$1,410,518
Employment			
No Action Alternative	10	5	15
Other Actions	22	11	33
Cumulative Impact	32	16	48
Proposed Action and Other Actions Cumulative Impacts			
Sales (Business Volume)			
Proposed Action	$12,960,000	$21,902,402	$34,862,402
Other Actions	$1,089,300	$1,840,917	$2,930,217
Cumulative Impact	$14,049,300	$23,743,319	$37,792,619
Income			
Proposed Action	$6,785,340	$4,647,490	$11,432,830
Other Actions	$567,856	$388,307	$956,163
Cumulative Impact	$7,353,196	$5,035,797	$12,388,993
Employment			
Proposed Action	245	126	371
Other Actions	22	11	33
Cumulative Impact	267	137	402
Maximum Development Alternative and Other Action Cumulative Impacts			
Sales (Business Volume)			
Maximum Development Alternative	$14,774,400	$24,968,730	$39,743,130
Other Actions	$1,089,300	$1,840,917	$2,930,217
Cumulative Impact	$15,863,700	$26,809,647	$42,673,347
Income			
Maximum Development Alternative	$7,735,280	$5,437,562	$8,272,842
Other Actions	$567,856	$388,307	$956,163
Cumulative Impact	$8,303,136	$5,825,869	$14,129,005
Employment			
Maximum Development Alternative	279	145	424
Other Actions	22	11	33
Cumulative Impact	301	156	457

Source: Economic Impact Forecast System.

4.12 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Unavoidable impacts would result from implementation of the Proposed Action and the Maximum Development Alternative. However, none of the impacts would be significant. Noise from demolition and construction activities would occur. However, the activities would take place during daytime hours and would be at levels that would not cause hearing impairment. Air pollutant emissions associated with demolition and construction would be an unavoidable condition, but is not considered significant and would be eliminated after construction is complete. Site grading would remove minimal vegetation. The affected sites are in an area of the Base that was previously disturbed and does not provide significant habitat for many species. The use of nonrenewable energy resources is an unavoidable impact, but the amount used would be insignificant.

4.13 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects the uses of these resources would 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 and could have been used for other purposes. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action.

Material resources used for the Proposed Action and Maximum Development Alternative include building materials (for construction), wood, cement for the house slabs, driveways, and sidewalks, asphalt for the streets, and other various materials. The materials that would be consumed may be in short supply and may not be readily available from suppliers in the region, given that China is consuming large quantities of most of these materials and the most recent events from Hurricanes Katrina and Rita. Use of these materials may also limit other unrelated construction activities.

The Proposed Action and Maximum Development would require the use of fossil fuel energy resources that would be irretrievably lost. These include petroleum-based products such as gasoline and diesel fuel, natural gas, and electricity. During construction, gasoline and diesel fuel would be used for operation of construction equipment and other vehicles. Natural gas and electricity would be used in the housing units after completion. However, because the units would be more energy efficient than those replaced, consumption of these resources would be expected to decrease. Consumption of these energy resources would not place a significant demand on their availability in the region.

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CHAPTER 5
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CHAPTER 6
PERSONS AND AGENCIES CONSULTED

The following persons and agencies were consulted during preparation of this EA.

Federal Agencies

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U.S. Census Bureau (website)

Other Agencies

Virginia State Clearinghouse (Virginia Single Point of Contact)

Virginia Department of Environmental Quality

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Appendix A
Coastal Zone Management Act
Consistency Determination

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COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION April 12, 2006

This document provides the Commonwealth of Virginia with the United States Air Force's Consistency Determination and necessary data and information under the Coastal Zone Management Act section 307(c)(3)(A) and 15 CFR Part 930, sub-part D, for Housing Demolition, Construction, Renovation, and Leasing at Bethel Manor, Lighter Than Air, and Heavier Than Air Housing Areas, Langley AFB, Virginia. A detailed description of the No Action Alternative, the Proposed Action, and Maximum Development Alternative is provided in Chapter 2 of the Environmental Assessment (EA) dated April 2006, which was prepared by the Air Force for this action in accordance with the National Environmental Policy Act.

Certification:

The Air Force has determined that the Proposed Action and Maximum Development would have minor adverse effects on the following resources: noise, air quality, and water resources. However, the Proposed Action would have no significant impacts on any resources. Detailed discussions of the impact analysis are presented in Chapter 4 of the EA prepared for the Action Alternative, the Proposed Action, and Maximum Development Alternative.

The Virginia Coastal Resources Management Program contains the following policies that are applicable to the Proposed Action:

- Wetlands Management.
- Non-point Source Pollution Control.
- Air Pollution Control.
- Coastal Lands Management.

Based on the analysis presented in Chapter 4 of the EA, the No Action Alternative, the Proposed Action, and Maximum Development Alternative would have no reasonably foreseeable effect on these policies. Based upon the information, data, and analysis presented in the EA, the Air Force finds the work associated with the No Action Alternative, Proposed Action, and Maximum Development Alternative would, as a matter of comity, be conducted as much as possible so as to be consistent with the Chesapeake Bay Resource Protection Act and with the goals of the VCP.

Pursuant to 15 CFR Section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the Air Force on the 60th day from receipt of this determination. The state's response should be sent to:

Matthew Goss
1 CES/CEVC
Langley AFB, Virginia 23665

Appendix B
Noise Information

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NOISE INFORMATION

Noise is defined as sound that is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying. Noise levels often change with time. To compare sound levels over different time periods, several descriptors have been developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various impacts of noise on humans.

The day-night average sound level (DNL) metric is a measure of the total community noise environment. DNL is the average A-weighted sound level over a 24-hour period, with a 10 dBA (A-weighted sound level measured in decibels) adjustment added to the nighttime levels (between 10:00 p.m. and 7:00 a.m.). This adjustment is an effort to account for increased human sensitivity to nighttime noise events. DNL was endorsed by the United States Environmental Protection Agency (USEPA) for use by federal agencies and has been adopted by the Department of Housing and Urban Development (HUD), Federal Aviation Administration, and DoD. DNL is an accepted unit for quantifying annoyance to humans by general environmental noise, including aircraft noise. The Federal Interagency Committee on Urban Noise (FICON) developed land use compatibility guidelines for noise (USDOT 1980). Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

Methods used to quantify the impacts of noise, such as annoyance, speech interference, and health and hearing loss, have undergone extensive scientific development during the past several decades. The most reliable measures are noise-induced annoyance and hearing loss. The impacts of noise exposure are summarized in the following paragraphs.

Annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction to noise by an individual or group. Table B-1 presents the results of over a dozen studies of the relationship between noise and annoyance levels. This relationship has been suggested by the National Academy of Sciences (NAS 1977) and was reevaluated (Fidell *et al.* 1988) for use in describing people's reaction to semi-continuous (transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed on a long-term basis to DNL of 65 to 70 dBA would be expected to be highly annoyed by noise events.

Speech Interference. One of the ways noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding speech is diminished when speech signals are masked by intruding noises. Reduced speech intelligibility also may have other impacts. For example, if speech understanding is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Elevated noise levels can interfere with speech, causing annoyance or communication difficulties. Based on a variety of studies, a DNL of 75 dBA indicates a good probability for frequent speech disruption. This level produces ratings of "barely

acceptable" for intelligibility of spoken material. Increasing the level of noise to 80 dB reduces the intelligibility to zero, even if people speak in loud voices.

Table B-1 Percentage of Persons Highly Annoyed by Noise Exposure

Noise Exposure Zone (DNL dBA)	Percentage of Persons Highly Annoyed
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52
>80	61

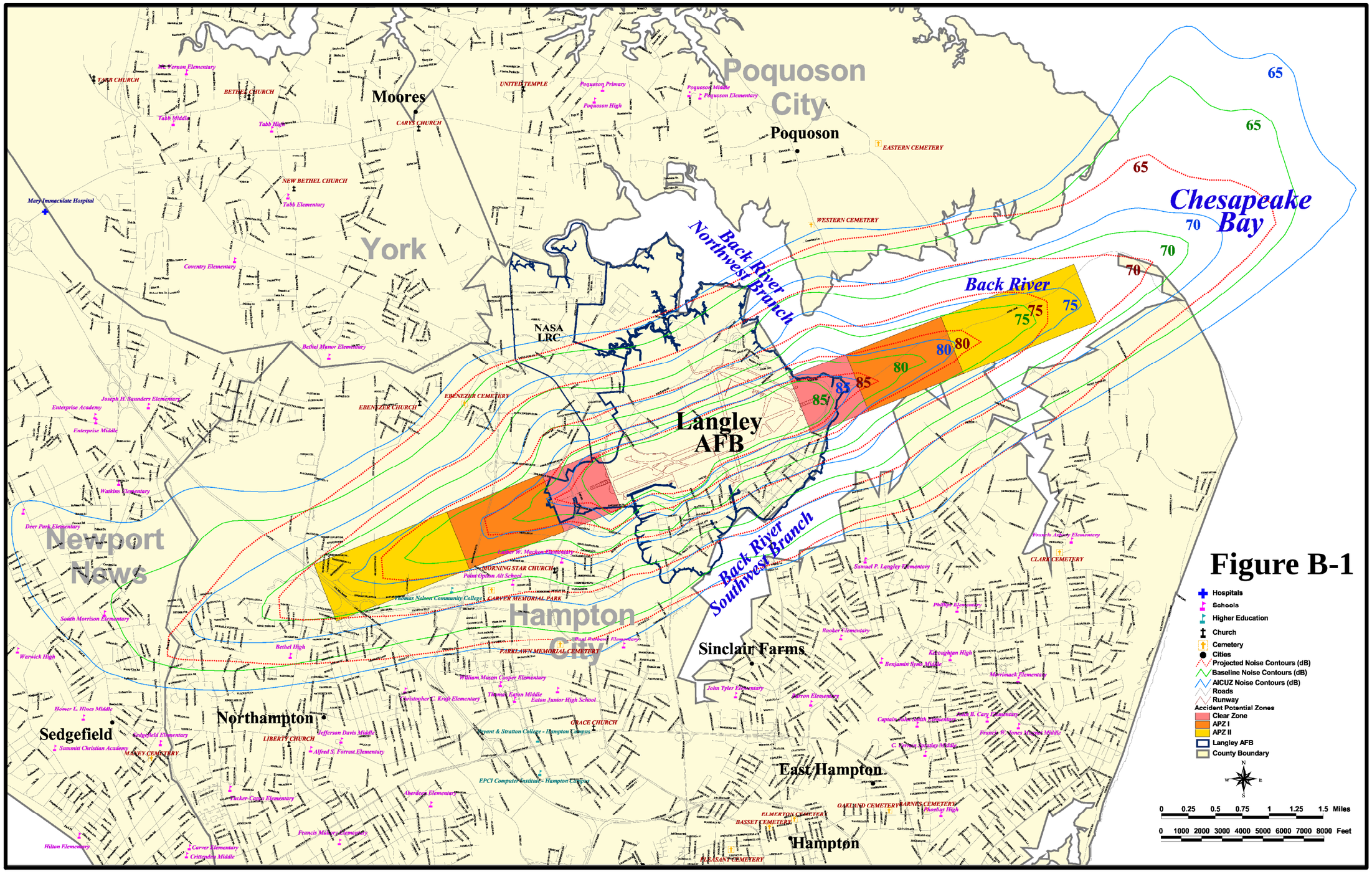
Note: Noise impacts on individuals vary. The "low" numbers above indicate individuals with higher tolerance of noise while the "high" numbers indicate individuals with higher sensitivity to noise.
Source: Adapted from NAS 1977.

Hearing Loss. Hearing loss is measured in decibels and refers to a permanent auditory threshold shift of an individual's hearing. The USEPA (USEPA 1974) recommended a limiting daily equivalent energy value or equivalent sound level of 70 dBA to protect against hearing impairment over a period of 40 years. This daily energy average would translate into a DNL value of approximately 75 dBA or greater. Based on a USEPA study, hearing loss is not expected in people exposed to a DNL of 75 dBA or less (USEPA 1974). The potential for hearing loss involves direct exposure to DNL levels above 75 dBA on a regular, continuing, long-term basis. FICON states that hearing loss due to noise: 1) may begin to occur in people exposed to long-term noise at or above a DNL of 75 dBA; 2) will not likely occur in people exposed to noise between a DNL of 70 and 75 dBA; and 3) will not occur in people exposed to noise less than a DNL of 70 dBA (USDOT 1980).

An outdoor DNL of 75 dBA is considered the threshold above which the risk of hearing loss is evaluated. Following guidelines recommended by the Committee on Hearing, Bioacoustics, and Biomechanics, the average change in the threshold of hearing for people exposed to DNL equal to or greater than 75 dBA was evaluated. Results indicated that an average of 1 dBA hearing loss could be expected for people exposed to DNL equal to or greater than 75 dBA. For the most sensitive 10 percent of the exposed population, the maximum anticipated hearing loss would be 4 dBA. These hearing loss projections must be considered conservative as calculations are based on an average daily outdoor exposure of 16 hours (7:00 a.m. to 10:00 p.m.) over a 40-year period. It is doubtful any individual would spend this amount of time outdoors within the DNL equal to or greater than 75 dBA noise exposure area.

Land Use Compatibility. FICON developed land use compatibility guidelines for noise in terms of DNL (USDOT 1980). DNL is the metric used by the Air Force in determining noise impacts of military airfield operations for land use planning. Air Force land use compatibility guidelines (relative to DNL values) are documented in the Air Installation Compatible Use Zone (AICUZ) *Program Manager's Handbook* (USAF 1999). Four noise zones are used in AICUZ studies to identify noise impacts from aircraft operations. These noise zones range from DNL of 65 dBA to DNL of

80 dBA. For example, it is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks be located where the noise is expected to exceed a DNL of 65 dBA. If noise sensitive structures are located in areas within a DNL range of 65 to 75 dBA, the structures should be designed to achieve a 25 to 30 dBA interior noise reduction. For outdoor activities, the USEPA recommends a DNL of 55 dBA as the sound level below which there is no reason to suspect the general population will be at risk from any noise impacts (USEPA 1974). The latest F-15 noise contours and projected F/A-22 noise contours are shown in the figure below.


Poquoson City
Poquoson
Moores
York
Newport News
Hampton City
Northampton
Sedgefield
Sinclair Farms
East Hampton
Hampton
NASA LRC
Langley AFB
Chesapeake Bay
Back River
Back River Northwest Branch
Back River Southwest Branch
65
65
65
70
70
70
75
75
75
80
80
80
85
85
85
Figure B-1
Hospitals
Schools
Higher Education
Church
Cemetery
Cities
Projected Noise Contours (dB)
Baseline Noise Contours (dB)
AICUZ Noise Contours (dB)
Roads
Runway
Accident Potential Zones
Clear Zone
APZ I
APZ II
Langley AFB
County Boundary
N
W
E
S
0 0.25 0.5 0.75 1 1.25 1.5 Miles
0 1000 2000 3000 4000 5000 6000 7000 8000 Feet

Appendix C
Air Quality Information

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AIR QUALITY INFORMATION

Air Pollutants and Regulations

The Clean Air Act (CAA) directed the USEPA to develop, implement, and enforce strong environmental regulations that would ensure cleaner air for all Americans. To protect public health and welfare, the USEPA developed concentration-based standards called National Ambient Air Quality Standards (NAAQS). The promulgation of the CAA was driven by the failure of nearly 100 cities to meet the NAAQS for ozone and carbon monoxide and by the inherent limitations in previous regulations to effectively deal with these and other air quality problems. The USEPA established both primary and secondary NAAQS under the provisions of the CAA. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare (*i.e.*, soil, vegetation, property, and wildlife) from any known or anticipated adverse impacts.

The six criteria pollutants are ozone (O_3), particulate matter (PM_{10}), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb). Even though ozone is a regulated criteria pollutant, it is not directly emitted from sources. Ozone forms as a result of volatile organic compound (VOC) and nitrogen oxides (NO_x) reacting with sunlight in the atmosphere.

Ozone is not emitted directly into the air but is formed through chemical reactions between natural and man-made emissions of VOC and NO_x in the presence of sunlight. Thus, VOC and NO_x are referred to as "precursors" of ozone. The level of ozone in the air depends on the outdoor levels of these organic gases, the radiant energy of the sun, and other weather conditions. The biggest concern with high ozone concentrations is the damage it causes to human health, vegetation and many common materials used everyday. High ozone concentrations can cause shortness of breath, coughing, wheezing, headaches, nausea, eye and throat irritations, and lung damage.

There are two categories of particulate matter: particles with diameters less than 10 microns and particles with diameters less than 2.5 microns in diameter. Currently, there are area designations only for PM_{10}. The sources of PM_{10} emissions include industrial and agricultural operations, automobile exhaust, and construction. Since PM_{10} is so small, it is not easily filtered and can penetrate to the deeper portions of the lungs. Chronic and acute respiratory illnesses may be caused from inhalation of PM_{10}.

Nitrogen dioxide is a reddish-brown to dark brown poisonous gas that produces an irritating odor. It is a byproduct of high combustion sources. Health effects include damage to lungs, bronchial and respiratory system irritation, headaches, nausea, coughing, choking and chest pains.

Carbon monoxide is a colorless, odorless and tasteless toxic gas found naturally in trace quantities in the atmosphere and emitted from any form of combustion. At low concentrations, the central nervous system is affected. At higher concentrations, irritability, headaches, rapid breathing, blurred vision, lack of coordination, nausea and

dizziness can all occur. It is especially dangerous indoors when ventilation is inadequate; unconsciousness or death can occur.

Sulfur dioxide is a colorless gas with a strong suffocating odor. It is a gas resulting from the burning of sulfur-containing fuels. Exposure to SO_2 can irritate the respiratory system including lung and throat irritations and nasal bleeding. In the presence of moisture, SO_2 can form sulfuric acid that can cause damage to vegetation.

Lead is a bluish-white to silvery gray solid. Lead particles can originate from motor vehicle exhaust, industrial smelters and battery plants. Health effects include decreased motor function, reflexes and learning; as well as, damage to the central nervous system, kidneys and brain. At high levels of exposure, seizures, coma or death may occur.

The CAA does not directly enforce the NAAQS, but requires each state to promulgate regulatory requirements necessary to implement the NAAQS. The CAA also allows states to adopt air quality standards that are more stringent than the federal standards. The state ambient air standards, as promulgated in 9 Virginia Administrative Code Agency 5 Chapter 30, are listed in Table C-1. The state of Virginia air quality program is administered by the VDEQ.

Table C-1 National and State Ambient Air Quality Standards

Air Pollutant	Averaging Time	Primary NAAQS[a,b,c]	Secondary NAAQS[a,b,d]	VA AAQS[a]
Carbon Monoxide	1-hour 8-hour	35 ppm 9 ppm	No standard No standard	35 ppm 9 ppm
Lead	Quarterly	1.5 μg/m3	1.5 μg/m3	1.5 μg/m3
Nitrogen Dioxide	Annual	0.053 ppm	0.053 ppm	0.053 ppm
Ozone	1-hour 8-hour	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm
Particulate Matter (measured as PM10)	Annual 24-hour	50 μg/m3 150 μg/m3	50 μg/m3 150 μg/m3	50 μg/m3 150 μg/m3
Particulate Matter (measured as PM2.5)	Annual 24-hour	15 μg/m3 65 μg/m3	15 μg/m3 65 μg/m3	15 μg/m3 65 μg/m3
Sulfur Oxides (measured as SO_X)	Annual 24-hour 3-hour	0.03 ppm 0.14 ppm No standard	No standard No standard 0.50 ppm	0.03 ppm 0.14 ppm 0.50 ppm

[a] National and Virginia state standards, other than those based on an annual or quarterly arithmetic mean, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is less than or equal to one over three years.

[b]The NAAQS and Virginia state standards are based on standard temperature and pressure of 25 degrees Celsius and 760 millimeters of mercury, respectively. Units of measurements are parts per million (ppm) and micrograms per cubic meter (μg/m3).

[c]National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the state implementation plan is approved by the USEPA.

[d]National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse impacts of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the state implementation plan is approved by the USEPA.

Air quality management at Air Force installations is established in AFI 32-7040, *Air Quality Compliance*. AFI 32-7040 requires installations to achieve and maintain compliance with all applicable federal, state, and local standards for air quality compliance. Air quality compliance involves prevention, control, abatement, documentation, and reporting of air pollution from stationary and mobile sources. Maintaining compliance with air quality regulations may require reduction or elimination of pollutant emissions from existing emission sources, and control of new pollution sources.

Regional Air Quality

The USEPA classifies the air quality within an AQCR according to whether or not the concentrations of criteria air pollutants in the atmosphere exceed primary or secondary NAAQS. On July 16, 1997, the USEPA updated the NAAQS for ozone and $PM_{2.5}$. Central to the updated standards, the USEPA has developed an implementation package that calls for a new round of review of particulate matter to be completed before areas are designated as nonattainment and before any pollution controls would be required. The new standards will not require local controls until 2005 for particulate matter, with compliance determinations delayed until 2008, and with possible extensions.

All areas within each AQCR are assigned a designation of either attainment, nonattainment, unclassifiable attainment, or not designated attainment for each criteria air pollutant. An attainment designation indicates that the air quality within an area is as good as or better than the NAAQS. Nonattainment indicates that air quality within a specific geographical area exceeds applicable NAAQS. Unclassifiable and not designated indicates that the air quality cannot be or has not been classified on the basis of available information as meeting or not meeting the NAAQS and is therefore treated as attainment. Before a nonattainment area is eligible for reclassification to attainment status, the state must demonstrate compliance with NAAQS in the nonattainment area for three consecutive years and demonstrate, through extensive dispersion modeling, that attainment status can be maintained in the future even with community growth.

Federal actions must comply with the USEPA Final General Conformity Rule published in 40 CFR 93, subpart B (for Federal agencies) and 40 CFR 51, subpart W (for state requirements). The Final Conformity Rule, which took effect on January 31, 1994, requires all Federal agencies to ensure that proposed agency activities conform with an approved or promulgated state implementation plan (SIP) or Federal implementation plan (FIP). Conformity means compliance with a SIP or FIP for the purpose of attaining or maintaining the NAAQS. Specifically, this means ensuring the Federal activity does not: 1) cause a new violation of the NAAQS; 2) contribute to an increase in the frequency or severity of violations of existing NAAQS; 3) delay the timely attainment of any NAAQS; or 4) delay interim or other milestones contained in the SIP for achieving attainment.

The Final General Conformity Rule applies only to Federal actions in designated nonattainment or maintenance areas, and the rule requires that total direct emissions (emissions of a criteria pollutant or its precursor caused by a federal action which occurs at the same time/place of the action) and indirect emissions (emissions of a criteria

pollutant or its precursor caused by a federal action, but may occur later in time and/or may be removed in distance from the action, but are still reasonably foreseeable) of nonattainment criteria pollutants, including ozone precursors, be considered in determining conformity. The rule does not apply to actions that are not considered regionally significant and where the total direct and indirect emissions of nonattainment criteria pollutants do not equal or exceed *de minimis* threshold levels for criteria pollutants established in 40 CFR 93.153(b). A Federal action would be considered regionally significant when the total emissions from the Proposed Action equal or exceed 10 percent of the nonattainment area's emissions inventory for any criteria air pollutant. If a Federal action meets *de minimis* requirements and is not considered a regionally significant action, then it does not have to undergo a full conformity determination. Ongoing activities currently being conducted are exempt from the rule so long as there is no increase in emissions above the *de minimis* levels as the result of the Federal action. Table C-2 lists the *de minimis* levels for criteria pollutants in nonattainment areas.

Table C-2 De Minimis Levels for Criteria Pollutants in Nonattainment Areas

Pollutant	Designation	Tons/Year
Ozone*	Serious Nonattainment	50
	Severe Nonattainment	25
	Extreme Nonattainment	10
	Other nonattainment areas outside of ozone transport region	100
	Marginal and moderate nonattainment areas inside ozone transport region	50/100
Carbon Monoxide	All nonattainment areas	100
Sulfur Dioxide	All nonattainment areas	100
Lead	All nonattainment areas	25
Nitrogen Dioxide	All nonattainment areas	100
Particulate Matter	Moderate nonattainment	100
	Serious Nonattainment	70
includes precursors: VOCs or NO_X *Source: 40 CFR 51.853*		

The quantities of air pollutants are generally measured in pounds per year or tons per year (tpy). All emission sources may be categorized as either mobile or stationary sources. Typical mobile emission sources from Air Force installations include aircraft, surface vehicles, aerospace ground equipment, and weapons testing, whereas stationary emission sources may include boilers, generators, fueling operations, industrial processes, and burning activities. Accurate air emissions inventories are needed for estimating the relationship between emissions sources and air quality.

APPENDIX D
INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING

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Interagency and Intergovernmental Coordination for Environmental Planning

Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*, provides the procedures to comply with applicable federal, state, and local directives for Interagency and Intergovernmental Coordination for Environmental Planning (IICEP). The AFI implements the following:

- Air Force Planning Document 32-70, *Environmental Quality*;
- Department of Defense (DoD) Directive 4165.61, *Intergovernmental coordination of DoD Federal Development Programs and Activities*;
- Executive Order 12372, *Intergovernmental Review of Federal Programs*;
- Title IV of the *Intergovernmental Coordination Act (ICA) of 1968*; and
- Section 204 of the *Demonstration Cities and Metropolitan Development Act of 1966*.

Section 401(b) of the ICA states that, "All viewpoints-national, regional, state, and local…will be fully considered…when planning Federal or federally assisted development programs and projects. To comply with the IICEP, Langley AFB distributed the Description of Proposed Action and Alternatives for Military Family Housing Privatization on July 15, 2005. The transmittal letters and responses from the agencies are included in this appendix.

This draft environmental assessment (EA) was distributed to the same list of agencies as the DOPAA requesting review and comments. Responses from these agencies are included in Appendix E of this EA.

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Ms. Karen L. Mayne
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
P.O. Box 99
Gloucester VA 23061

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9686

Dear Ms. Mayne

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

The Air Force proposes to lease the underlying land and convey to a private developer all MFH units on Langley AFB with associated utilities, and other infrastructure improvements for a period of 50 years. It is anticipated the private developer would demolish 1,104 of the units in the Bethel Manor area and construct 1,049 replacement units, construct 2 new units in the HTA area, renovate 112 units (44 units in the LTA and 62 units in the HTA area), and convey as is 273 units (148 units in the 2000 area of Bethel Manor, 75 units in the LTA area, and 50 units in the HTA area).

In addition to the proposed action, one alternative and a no-action alternative will be analyzed in the EA. Figures 1 through 4 show the proposed action areas.

Pursuant to analysis of the proposed action, as well as compliance with the Endangered Species Act, we request information regarding listed threatened, endangered, and candidate species that occur or may occur in the potentially affected area. Please identify a point of contact for any follow-up questions we may have concerning the data you provide and we look forward to receiving your comments as part of this process.

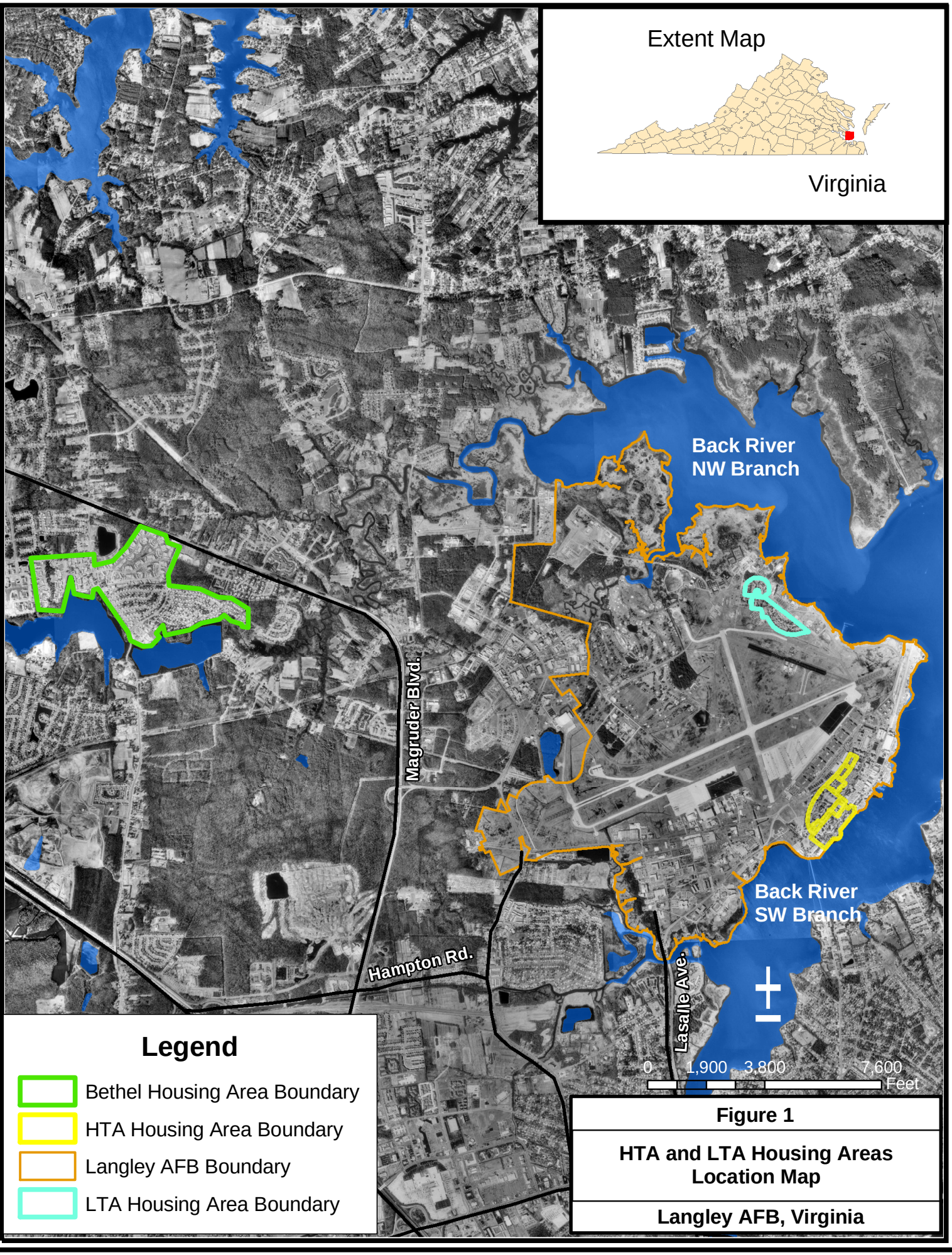
Please provide your comments or any requests for additional information to Mr. Matt Goss of the Environmental Flight. Mr. Goss can be reached at the above address, or at (757) 764-1095. Your response before 22 August 2005 will allow us to ensure your contribution is included in the draft EA.

Sincerely

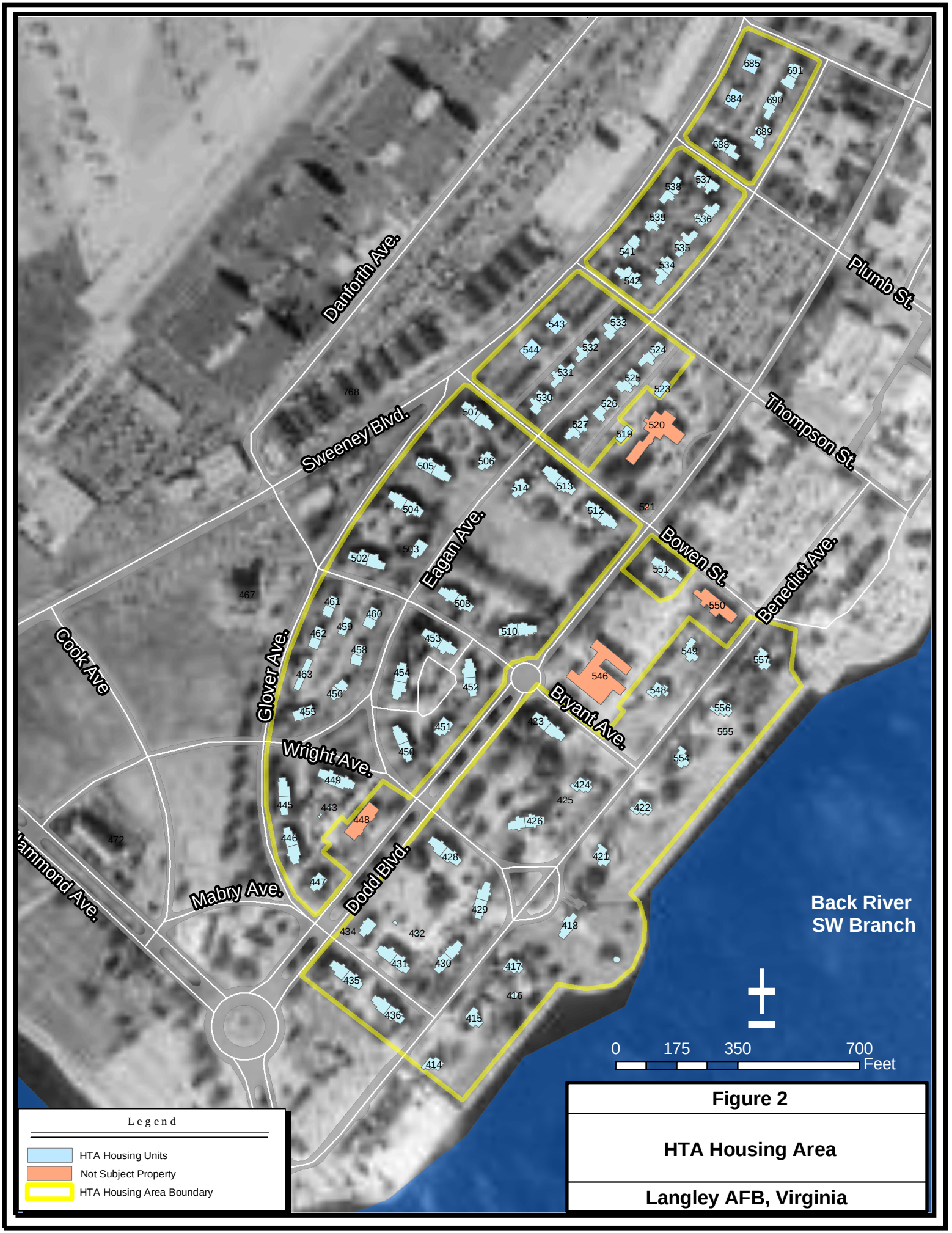
Matthew C. Goss

MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

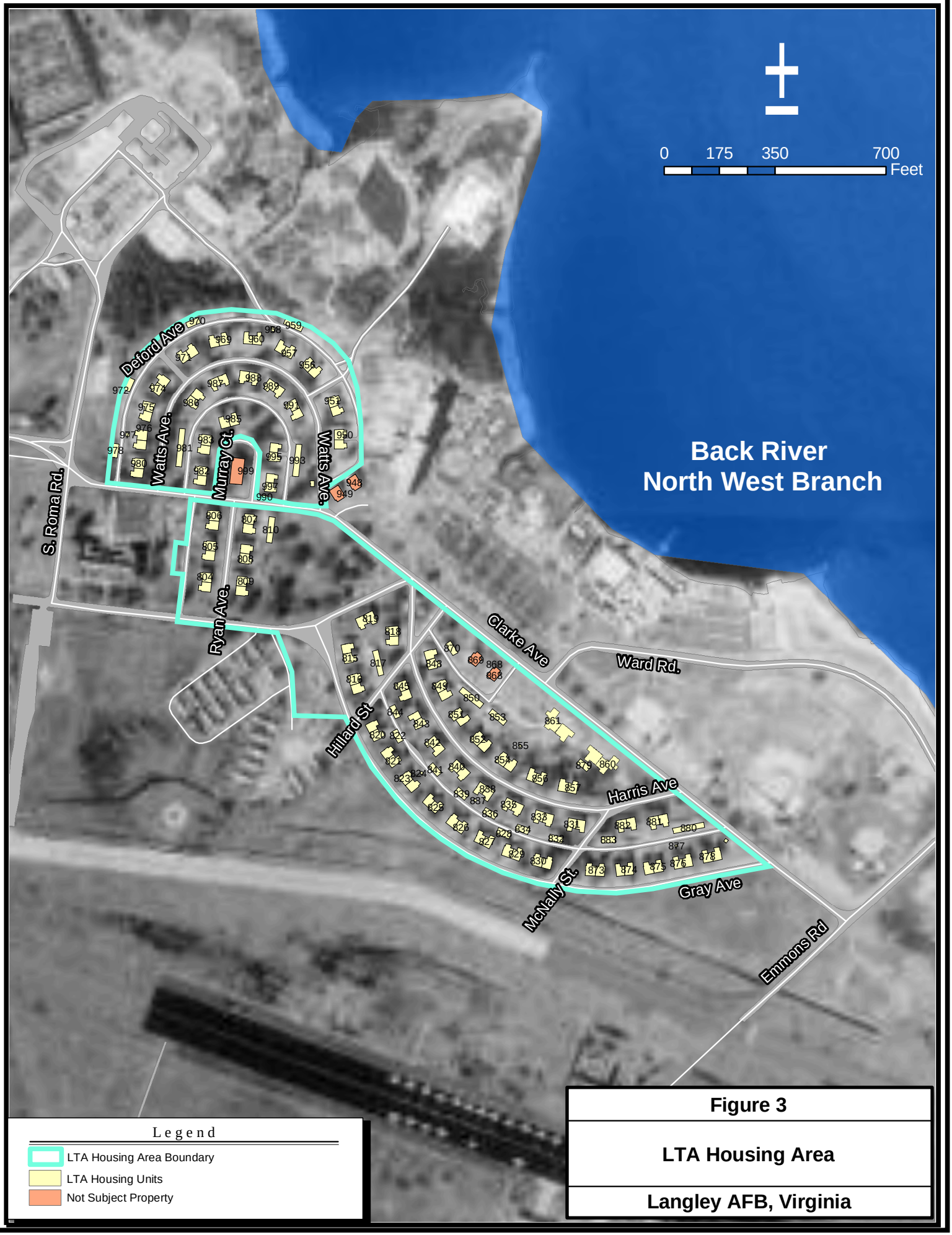
4 Attachments:
1. Location Map
2. HTA Housing Area
3. LTA Housing Area
4. Bethel Manor Housing Area



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path: J:\744\744113 - Langley AFB\GIS\LTAHOUSING_mz.mxd

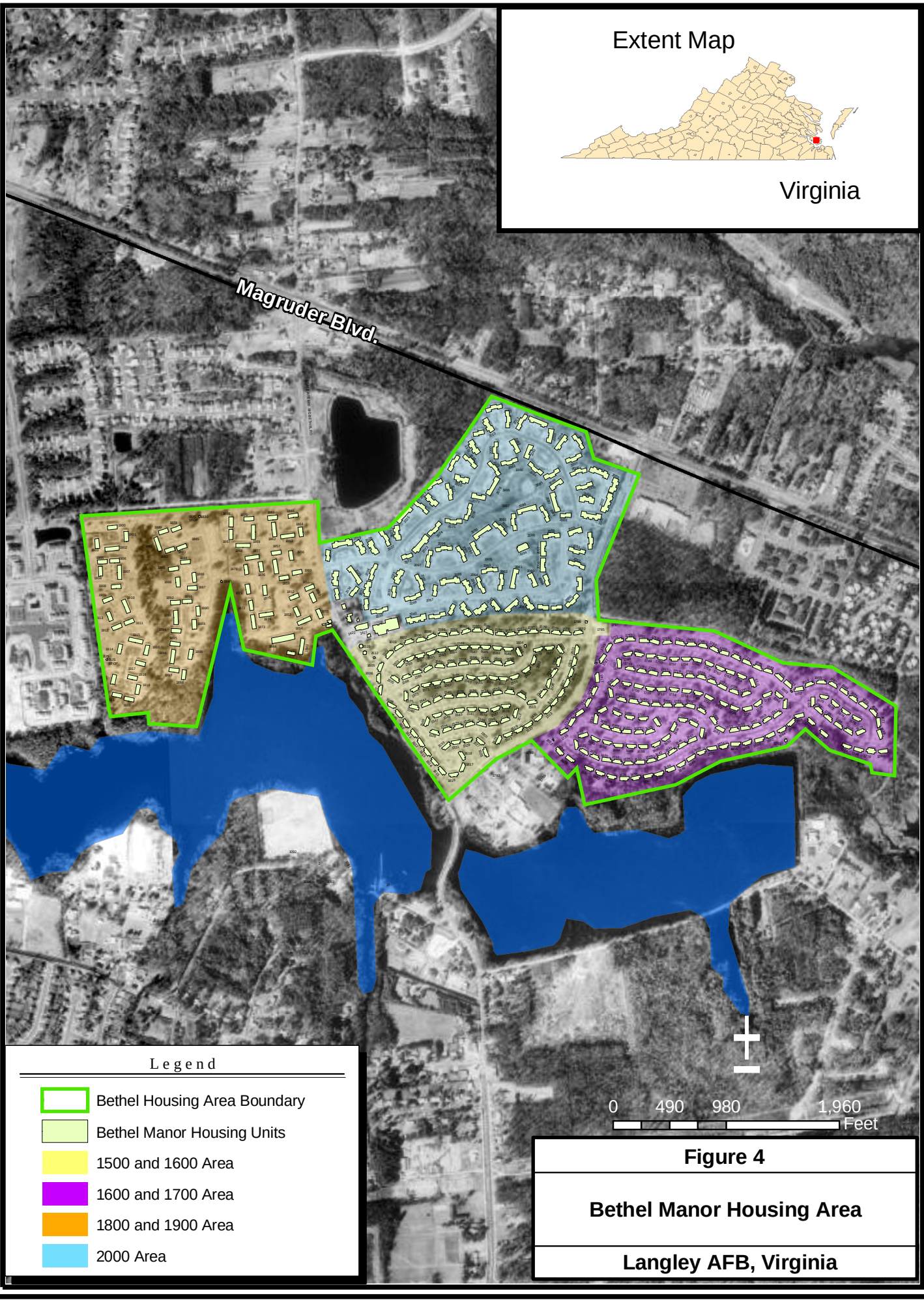


Figure 4

Bethel Manor Housing Area

Langley AFB, Virginia

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Ms. Ellie Irons
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9693

Dear Ms. Irons

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

The Air Force proposes to lease the underlying land and convey to a private developer all MFH units on Langley AFB with associated utilities, and other infrastructure improvements for a period of 50 years. It is anticipated the private developer would demolish 1,104 of the units in the Bethel Manor area and construct 1,049 replacement units, construct 2 new units in the HTA area, renovate 112 units (44 units in the LTA and 62 units in the HTA area), and convey as is 273 units (148 units in the 2000 area of Bethel Manor, 75 units in the LTA area, and 50 units in the HTA area).

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Please provide your comments or any requests for additional information to Mr. Matt Goss of the Environmental Flight. Mr. Goss can be reached at the above address, or at (757) 764-1095. Your response before 22 August 2005 will allow us to ensure your contribution is included in the draft EA.

Sincerely

Matthew C. Goss

MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

4 Attachments:
1. Location Map
2. HTA Housing Area
3. LTA Housing Area
4. Bethel Manor Housing Area

DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Harold Winer
Virginia Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach VA 23462

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9709

Dear Mr. Winer

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Sincerely

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

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

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9716

Dear Mr. Grimes

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The Air Force proposes to lease the underlying land and convey to a private developer all MFH units on Langley AFB with associated utilities, and other infrastructure improvements for a period of 50 years. It is anticipated the private developer would demolish 1,104 of the units in the Bethel Manor area and construct 1,049 replacement units, construct 2 new units in the HTA area, renovate 112 units (44 units in the LTA and 62 units in the HTA area), and convey as is 273 units (148 units in the 2000 area of Bethel Manor, 75 units in the LTA area, and 50 units in the HTA area).

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Please provide your comments or any requests for additional information to Mr. Matt Goss of the Environmental Flight. Mr. Goss can be reached at the above address, or at (757) 764-1095. Your response before 22 August 2005 will allow us to ensure your contribution is included in the draft EA.

Sincerely

Matthew C. Goss

MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

4 Attachments:
1. Location Map
2. HTA Housing Area
3. LTA Housing Area
4. Bethel Manor Housing Area

DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Kotus S. Narasimhan
Virginia Department of Environmental Quality
Air Data Analysis Program
629 East Main Street, 8th Floor
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9723

Dear Mr. Narasimhan

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Matthew C. Goss

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Tom Modena
Virginia Department of Environmental Quality
Waste Division
629 East Main Street, 4th Floor
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9730

Dear Mr. Modena

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Ms. Ellen Gilinsky
Virginia Department of Environmental Quality
Virginia Water Protection Program
629 East Main Street, 9th Floor
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9747

Dear Ms. Gilinsky

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Keith Tignor
Virginia Department of Environmental Quality
Office of Plant & Pest Services
1100 Bank Street
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9754

Dear Mr. Tignor

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Matthew C. Goss

MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Ms. Catherine Harold
Chesapeake Bay Local Assistance Department
101 N. 14th Street, 17th Floor
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9761

Dear Ms. Harold

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Matthew C. Goss

MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. John Davy
Virginia Department of Conservation & Recreation
203 Governor Street
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9778

Dear Mr. Davy

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Michael Foreman
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville VA 22903

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9785

Dear Mr. Foreman

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Ray Fernald
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond VA 23230

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9792

Dear Mr. Fernald

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Alan Weber
Virginia Department of Health
109 Governor Street, 6th Floor
Division of Drinking Water
Richmond VA 23219

CERTIFIED MAIL
RETURN RECEIPT
7004 0750 0001 7466 9808

Dear Mr. Weber

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

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

CERTIFIED MAIL
RETURN RECEIPT
7004 2510 0005 8067 9185

Dear Mr. Wilkes

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Sincerely

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MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Thomas A. Barnard, Jr.
Virginia Marine Resources Commission
P.O. Box 1346
Gloucester Point VA 23062

CERTIFIED MAIL
RETURN RECEIPT
7004 2510 0005 8067 9192

Dear Mr. Barnard

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

Mr. Tony Watkinson
Virginia Marine Resources Commission
2600 Washington Avenue, 3rd Floor
Newport News VA 23607

CERTIFIED MAIL
RETURN RECEIPT
7004 2510 0005 8067 9208

Dear Mr. Watkinson

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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Environmental Impact Analysis Program

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1ST FIGHTER WING
LANGLEY AIR FORCE BASE VA

1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

JUL 15 2005

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

CERTIFIED MAIL
RETURN RECEIPT
7004 2510 0005 8067 9215

Dear Ms. Eaton

Langley Air Force Base (AFB) is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to privatize military family housing (MFH) at Langley AFB. The MFH areas include Bethel Manor, which is approximately 3 miles west of the base in Yorktown, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas on Langley AFB.

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MATTHEW C. GOSS, GS-11
Environmental Impact Analysis Program

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COMMONWEALTH of VIRGINIA

Department of Historic Resources

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatr
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.state.va.us

August 8, 2005

Mr. Matthew C. Goss
Environmental Impact Analysis Program
1 CES/CEV
37 Sweeney Boulevard, Langley Air Force Base
Hampton, Virginia 23665-2107

Re: Privatization of On Base Housing
Langley Air Force Base
Hampton, Virginia
DHR File No. 2004-0014

Dear Mr. Goss:

We have received your request for our review and comment regarding the above referenced project. It is our understanding that the Air Force is preparing an Environmental Assessment (EA) for its proposal to enter into an agreement with a civilian developer in order to privatize the management of on base housing at Langley Air Force Base. As described in your July 15, 2005 letter, the Military Family Housing (MFH) areas included in the EA study are Bethel Manor, which is approximately 3 miles west of the base in Hampton, Virginia, and the Lighter Than Air (LTA) and Heavier Than Air (HTA) housing areas at Langley AFB. It is anticipated that the civilian developer would demolish 1,104 housing units in the Bethel Manor area and construct 1,049 replacement units; construct 2 new units in the HTA; renovate 112 units in the HTA and LTA areas; and convey 273 units (148 units in the 2000 area of Bethel Manor, 75 units in the LTA area, and 50 units in the HTA area).

The privatization of on base housing at Langley AFB and Bethel Manor by the Air Force is a federal undertaking and, therefore, will require the Air Force 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 800. Additionally, as the Air Force has identified an historic district at Langley AFB, which includes the HTA and LTA housing areas, that is potentially eligible for the National Register of Historic Places, the proposed action has the possibility to affect significant historic properties. In fact, the transfer of property from

federal ownership or control without adequate preservation covenants is defined as having an adverse effect according to 36 CFR 800.5.

The DHR has already assisted many military installations located within the Commonwealth in meeting their Section 106 responsibilities regarding on base housing privatization. These installations include Forts Belvoir, Story, and Eustis, Quantico Marine Corps Base, Dahlgren Naval Surface Warfare Center, and the various Naval facilities in the Hampton Roads vicinity. It is our experience that the development of a project specific Programmatic Agreement (PA) for military housing privatization is the most effective means to meet the service's schedule and mission needs, and to ensure proper consideration for historic resources. We have already been in contact with Ms Laura Baie, Community Planner at Langley AFB, in order to discuss general concepts for such an agreement. We anticipate further discussions with Ms Baie once the Air Force selects a civilian partner for the undertaking.

With regards to the expressed scope of the privatization activities, in our consultation with other military installations concerning on base privatization, we have found that once the civilian partner is selected and has the opportunity to survey the housing units, that the project scope often changes. We recommend that the Air Force select as soon as possible its civilian partner for this undertaking, and be flexible regarding the treatment of its existing housing units. Please continue to consult with us on this project.

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma

Marc Holma, Architectural Historian
Office of Review and Compliance

Cc: Ms Laura Baie, Community Planner, Langley Air Force Base
Ms Martha Catlin, Advisory Council on Historic Preservation

O. GENE DISHNER
DIRECTOR

DIVISIONS
ENERGY
GAS AND OIL
MINED LAND RECLAMATION
MINERAL MINING
MINERAL RESOURCES
MINES
ADMINISTRATION

COMMONWEALTH of VIRGINIA

Department of Mines, Minerals and Energy
Division of Mineral Resources
P.O. Box 3667
Charlottesville, Virginia 22903-0667
(434) 951-6340

3 August 2005

Mr. Matthew C. Goss
1 CES/CEV
37 Sweeney Boulevard
Langley AFB VA 23665-2107

Re: EA for privatization of military family housing at Langley AFB

Dear Mr. Goss:

The Department of Mines, Minerals and Energy finds the proposed project would have no anticipated impact to the geology or mineral resources of the site.

Please contact me if further information is required.

Sincerely,

Gerald Wilkes
Geologist

EQUAL OPPORTUNITY EMPLOYER
TTY / TDD (800) 828-1120 — Virginia Relay Center

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Robert G. Burnley
Director

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

July 29, 2005
ODA-097-05

Matthew C. Goss, GS – 11
Environmental Impact Analysis Program
Department of the Air force
Headquarters 1st Fighter Wing
Langley Air Force Base
37 Sweeney Boulevard
Langley AFB VA 23665 - 2107

Dear Mr. Goss:

RE: **Privatize Military Family Housing**

Thank you for providing an opportunity to DEQ-AIR to comment on the above project vide your letter dated July 15, 2005.

Concerning the project, the following Virginia Air Regulations may be kept in view while carrying out an environmental assessment of the project:

1. **9 VAC 5-40-5600 et seq. – Open Burning**
2. **9 VAC 5-50-60 et seq. Fugitive Dust Emissions**

Besides, 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.

If you have any questions, please do not hesitate to contact me.

K. S. Narasimhan

(Kotur S. Narasimhan)
Environmental Engineer Senior
Air Data Analysis

COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

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Robert G. Burnley
Director

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July 26, 2005

Mr. Matthew C. Goss
Environmental Impact Analysis Program
Department of the Air Force
Headquarters, 1st Fighter Wing
1 CES/CEV
37 Sweeney Boulevard
Langley Air Force Base, Virginia 23665

RE: Proposal to Privatize Military Family Housing at Langley AFB
(Certified Mail Return Receipt #7004-0750-0001-7466-9693)

Dear Mr. Goss:

This is in response to your July 15 letter announcing the preparation of an Environmental Assessment for the proposed privatization of military family housing at Langley Air Force Base, and soliciting comments on the scope of the document.

According to the letter, the Air Force proposes to lease the land at three military family housing areas to a developer for 50 years. Anticipated developments include:

- Bethel Manor Area, situated west of the base in Yorktown: demolish 1,104 residential units and construct 1,049 new ones, and convey 148 units "as is;"

- Lighter-than-Air Area, situated on the base near the Northwest Branch of the Back River: renovate 44 units, and convey 75 units "as is:"

- Heavier-than-Air area, situated on the base near the Southwest Branch of the Back River: construct 2 new units, renovate 62 units, and convey 50 units "as is."

by the Federal Consistency Regulations (15 CFR Part 930, section 930.41(a)). We recommend this 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 letter 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

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
York County.

In order to ensure an effective coordinated review of the Environmental Impact Statement or Environmental Assessment and the consistency determination, we will require 17 copies of the document when it is published. The document should include one or more U.S. Geological Survey topographic maps 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 to comply with the Enforceable Policies. In addition, we

invite your attention to the Advisory Policies of the VCP (second enclosure). The federal consistency determination may be provided as part of the NEPA documentation; as indicated above, we recommend this approach. Section 930.39 of the Federal Consistency Regulations and Virginia's Federal Consistency Information Package (see below) give content requirements for the consistency determination.

The Federal Consistency Information Package is available on DEQ's web site, http://www.deq.state.va.us. Select "Programs" on the left, then scroll to "Environmental Impact Review/Federal consistency" and select this heading. Select "federal consistency reviews" on the left. This gives you access to the document.

Recommendations on Project Planning and Content of Documents

Based on recent correspondence, it appears 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. A Plan or a Programmatic EIS should show, 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. This idea presupposes that the Programmatic EIS would be prepared prior to individual project reviews. Also, 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 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
Andrew K. Zadnik, DGIF
Scott Bedwell, DCR
C. Lee Hill, DCR-DSWC
Alice R. T. Baird, DCR-DCBLA
Alan D. Weber, VDH
Tony Watkinson, MRC
Ethel R. Eaton, DHR
Arthur L. Collins, Hampton Roads PDC
James Freas, City of Hampton
James O. McReynolds, York County

COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

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Robert G. Burnle
Director

(804) 698-400
1-800-592-548

Attachment 1

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

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

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

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

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

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

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

d. Dunes Management - Dune protection is carried out pursuant to The Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission; Virginia Code sections28.2-1400 through 28.2-1420.

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

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

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

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

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

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

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

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

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

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

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

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

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

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

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

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

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

Advisory Policies for Shorefront Access Planning and Protection

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

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

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

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

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

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

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

GREGORY A. WHIRLEY
ACTING COMMISSIONER

August 9, 2005

Matthew C. Goss
1 CES/CEV
37 Sweeney Boulevard
Langley AFB, VA 23665-2107

Re: Langley Air Force Base (Military Housing Construction/Improvements and Privatization)

Dear Mr. Goss:

Mr. Eric Stringfield of the Virginia Department of Transportation has reviewed the information provided for the referenced project. Our review covers impacts to existing and proposed transportation facilities. After checking the Six Year Plan and the 2026 Plan, we have concluded that there are no conflicts with the current or future construction projects.

This improvement/construction should note close coordination with VDOT, especially the remodeling of the Bethel Manor Housing on Magruder Blvd. All work with the potential to effect roadways or other transportation facilities should be coordinated with VDOT's Williamsburg Residency (757-253-4832).

Thank you for the opportunity to comment on this project.

Sincerely,

Nicholas M. Nies

Nicholas Nies
Environmental Specialist
Virginia Department of Transportation
(804) 786-1092

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.
Commissi

August 19, 2005

Department of the Air Force
1 CES/CEV
37 Sweeney Blvd.
Langley AFB, Virginia 23665-2107
Attn: Mr. Matthew C. Goss

Re: Privatization military family housing

Dear Mr. Goss;

In accordance with your letter dated July 15, 2005, we have reviewed the above-referenced plan for privatization of military family housing at Langley Air Force Base.

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.

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

Sincerely,

Traycie L. West
Environmental Engineer

HM
TLW/

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

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: August 19, 2005

TO: Matthew C. Goss, GS-11
1 CES/CEV
37 Sweeney Boulevard
Langley AFB, VA 23665
Matthew.goss@langley.af.mil

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

SUBJECT: DCR-05-011: Langley Air Force Base – Housing Privatization Proposal

After review of the above referenced project, the Department of Conservation and Recreations' (DCR) Division of Planning and Recreation Resources has determined that the above-mentioned project is acceptable as proposed.

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 area. 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.

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.

In addition, our 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. 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, or contact Shirl Dressler at (804) 367-6913.

DCR's Division of Chesapeake Bay Local Assistance has reviewed the proposed Housing Privatization at Langley Air Force Base and offers the following comments:

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 (RPA). 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 (RMA).

Please note that per §9 VAC 10-20-130 c, redevelopment is permitted only if there is no increase in the amount of impervious cover and no further encroachment within the RPA, and it shall conform to applicable erosion and sediment control and stormwater management criteria set forth in subdivision 6 and 8, respectively, of §9 VAC 10-20-120, as well as all applicable stormwater management requirements of other state and federal agencies.

RMAs are subject to the general performance criteria § 9 VAC 10-20-110 through § 9 VAC 10-20-120 of the *Chesapeake Bay Preservation Area Designation and Management Regulations*, including minimizing land disturbance, preserving indigenous vegetation, and minimizing impervious surfaces. 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, and for land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992.

Thank you for the opportunity to comment on this project.

Sincerely,



Robert S. Munson
Planning Bureau Manager

COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

Colonel W. Gerald Massengill
Interim Director

September 6, 2005

Matthew C. Goss, GS-11
Environmental Impact Analysis Program
Department of the Air Force
1 CES/CEV
37 Sweeney Boulevard
Langley AFB, Virginia 23665-2107

RE: ESSLOG #20893, Privatizing the Military Family Housing (MFH) Areas of Bethel Manor, Lighter Than Air (LTA), and Heavier Than Air (HTA), Langley AFB and York County, VA.

Dear Mr. Goss:

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 areas.

1. **HTA MFH on Langley AFB:**
The *state endangered* canebrake rattlesnake (*Crotalus horridus*) has been documented approximately 1.25 miles from this project area. Therefore, the applicant should coordinate with the VDGIF Environmental Services Section (804-367-6913) concerning potential impacts to this species.

Also, the *federal species of concern* northern diamond-backed terrapin (*Malaclemys terrapin terrapin*) has been documented approximately 2 miles from this project area. Additionally, the following *state special concern* species have been documented at approximately the given distances from this project area:

Forster's tern (*Sterna forsteri*) at 0.75 mile,
least tern (*Sterna antillarum*) at 1.25 miles,
Caspian tern (*Sterna caspia*) at 0.75 mile,
northern harrier (*Circus cyaneus*) at 1 mile,
great egret (*Ardea alba*) at 1 mile,
yellow-crowned night-heron (*Nyctanassa violacea*) at 1 mile, and
glossy ibis (*Plegadis falcinellus*) at 1 mile.

However, the classifications of *federal species of concern* and *state special concern* are not legal designations and do not require further coordination.

2. **LTA MFH on Langley AFB:**
The *state endangered* canebrake rattlesnake (*Crotalus horridus*) has been documented approximately 1.5 miles from this project area. Therefore, the applicant should

coordinate with the VDGIF Environmental Services Section (804-367-6913) concerning potential impacts to this species.

Also, the *federal species of concern* northern diamond-backed terrapin (*Malaclemys terrapin terrapin*) has been documented approximately 1.25 miles from this project area. Additionally, the following *state special concern* species have been documented at approximately the given distances from this project area:

Forster's tern (*Sterna forsteri*) at 0.75 mile,
least tern (*Sterna antillarum*) at 0.75 mile,
Caspian tern (*Sterna caspia*) at 1 mile,
northern harrier (*Circus cyaneus*) at 1.5 miles,
great egret (*Ardea alba*) at 0.5 mile,
yellow-crowned night-heron (*Nyctanassa violacea*) at 1.75 miles, and
saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*) at 2 miles.

However, the classifications of *federal species of concern* and *state special concern* are not legal designations and do not require further coordination.

3. **Bethel Manor MFH in York County:**

The *federal threatened/state threatened* bald eagle (*Haliaeetus leucocephalus*) has been documented within 0.25 mile of the easternmost portion of this project area. Also, the *state endangered* canebrake rattlesnake (*Crotalus horridus*) has been documented approximately 1 mile from the westernmost portion of this project area. Additionally, the westernmost portion of this project area is approximately 0.5 mile from a documented waterbird colony containing great blue heron (*Ardea herodias*) and *state special concern* great egret (*Ardea alba*). Therefore, the applicant should coordinate with the VDGIF Environmental Services Section (804-367-6913) and with the U.S. Fish and Wildlife Service concerning potential impacts to these species and resources. Contact information for the U.S. Fish and Wildlife Service is as follows: Eric Davis, 6669 Short Lane; Gloucester, VA 23061, (804) 693-6694 ext. 104 (phone), and (804) 693-9032 (fax).

Also, the following *state special concern* species have been documented within 0.25 mile of the easternmost portion of this project area:

Forster's tern (*Sterna forsteri*),
barn owl (*Tyto alba*),
golden-winged warbler (*Vermivora chrysoptera*),
red-breasted nuthatch (*Sitta canadensis*),
brown creeper (*Certhia americana*),
winter wren (*Troglodytes troglodytes*),
hermit thrush (*Catharus guttatus*),
golden-crowned kinglet (*Regulus satrapa*),

little blue heron (*Egretta caerulea*),
great egret (*Ardea alba*),
yellow-crowned night-heron (*Nyctanassa violacea*),
mourning warbler (*Oporornis philadelphia*),
purple finch (*Carpodacus purpureus*),
dickcissel (*Spiza americana*),
northern river otter (*Lontra canadensis lataxina*), and
star-nosed mole (*Condylura cristata parva*).

However, the classification of *state special concern* is not a legal designation and does not require further coordination.

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, 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.

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

Sincerely,

Susan H. Watson
Research Specialist Senior

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

DSN 574-1095

-----Original Message-----
From: Amy Martin [mailto:Amy.Martin@dgif.virginia.gov]
Sent: Wednesday, September 21, 2005 8:51 AM
To: Goss Matthew C Civ 1 CES/CEVC
Subject: ESSLog# 20893. Privatizing Military Family Housing

Mr. Goss,

I looked more closely at this project yesterday after we spoke and found two issues of concern with respect to the Bethel Manor site. There is a bald eagle documentation and a colonial waterbird colony very close to this site - along the reservoir. I have asked the two field biologists most knowledgeable about these issues to review the project for impacts. I have not heard back about the bald eagle. However, with respect to the colonial waterbird nesting colony, our biologist has the below questions.

1. What is the time frame for this project? When would you like to start and how long will the entire re-development of Bethel Manor take? *It is very early in the process, but it is expected that the conveyance to the privatization contractor will occur sometime in FY06 and that construction/demo/reno activities would be equally distributed over a 10-year period.* 2. What is the proposed method for demolishing the existing homes - bulldozer, wrecking ball, etc. *Bulldozer or steam shovel (no burning).*

If you are able to provide any insight regarding her questions, that may help us make some decisions about possible impacts that your project may have on these resources. Any information would be helpful. I will get back to you once I hear about the bald eagle. Thank you.

Amy Martin
Environmental Services Biologist
Wildlife Diversity Division, VDGIF
4010 W. Broad Street
Richmond, VA 23230
phone: 804-367-2211
fax: 804-367-2427
amy.martin@dgif.virginia.gov

-----Original Message-----
From: Amy Martin [mailto:Amy.Martin@dgif.virginia.gov]
Sent: Friday, September 30, 2005 11:14 AM
To: Goss Matthew C Civ 1 CES/CEVC
Cc: Jeff Cooper
Subject: RE: ESSLog# 20893. Privatizing Military Family Housing

Mr. Goss,

I just spoke to Jeff Cooper, our biologist that deals with bald eagles. We discussed your project of privatizing the housing on Langley base and at the Bethel site. He has informed me that the documentation of eagle at Big Bethel Reservoir is an observation of a bird, but that he does not have any data suggesting that it is an eagle nest. In this case, we do not anticipate significant adverse impacts upon Federal Threatened State Threatened bald eagle as a result of this project. I am still waiting to hear from Ruth Boettcher about any concerns she may have regarding the colonial waterbird nesting location also located adjacent to the reservoir. I will contact you about that as soon as I hear from her. Thank you. Amy

Amy Martin
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Wildlife Diversity Division, VDGIF
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amy.martin@dgif.virginia.gov

Original Message-----
From: Amy Martin [mailto:Amy.Martin@dgif.virginia.gov]
Sent: Tuesday, October 11, 2005 9:11 AM
To: Goss Matthew C Civ 1 CES/CEVC
Subject: RE: ESSLog# 20893. Privatizing Military Family Housing

Matt,

I heard from the biologist, Ruth Boettcher, that I had asked to provide comments regarding the waterbird nesting colony adjacent to Bethel Manor. She has determined from more recent data than I reviewed that there does not appear to be an active nesting colony in the location I described. However, even these data are a few years old. And, knowing that these birds will re-use colony locations from year to year, she recommends performing a site visit at Bethel Manor prior to the beginning of this project. Upon that visit, she will determine if a nesting colony exists, where it is in relation to proposed construction/demolition activities and what our recommendations would be in order to limit impacts on such a colony.

We recommend that you contact Ruth Boettcher, VDGIF Eastern Shore Biologist, at 757-442-2429 or ruth.boettcher@dgif.virginia.gov to set up a site visit prior to the commencement of activities associated with the privatizing of military family housing at the Bethel Manor site. If you need further guidance regarding this, please contact me using the information that follows. Thank you, Amy

Amy Martin
Environmental Services Biologist
Wildlife Diversity Division, VDGIF
4010 W. Broad Street
Richmond, VA 23230
phone: 804-367-2211
fax: 804-367-2427
amy.martin@dgif.virginia.gov

>>> "Goss Matthew C Civ 1 CES/CEVC" <Matthew.Goss@langley.af.mil>
>>> Thursday, September 22, 2005 8:24:19 AM >>>
Amy,
Answers below, let me know if you need anything else.
Thanks,
Matt

Matt Goss
1 CES/CEVQA
Environmental Analysis/Natural Resources
(757) 764-1095

APPENDIX E
PUBLIC INVOLVEMENT

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Public Involvement

The Air Force Environmental Impact Analysis Process (32 CFR 989), 15 Jul 99, and amended 28 Mar 01, states that the environmental assessment and Finding of No Significant Impact should be made available to government agencies under the IICEP (see Appendix D) and the public for comment. A notice announcing the 30-day public comment period and the availability of the draft EA was published in *The Daily Press* on April 23, 2006. The draft EA was available for public review at the Poquoson Public Library, the Hampton Public Library, the York County Public Library, and the Bateman Library on Langley AFB. Responses from the public are included in this appendix.

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COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
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David K. Paylor
Director

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

June 20, 2006

Mr. Matthew C. Goss
1 CES/CEVQP
37 Sweeney Boulevard
Langley AFB, Virginia 23665-2107

RE: Draft Environmental Assessment and Consistency Determination for the Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air Military Family Housing Areas, Langley Air Force Base, City of Hampton, Virginia (DEQ 06-088F).

Dear Mr. Goss:

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 Health
Department of Historic Resources
City of Hampton
Hampton Roads Planning District Commission

York County was also invited to comment on the proposal.

Project Description

The U.S. Air Force proposes to demolish and renovate existing military family housing (MFH), and construct new housing in the Bethel Manor, Lighter-Than-Air (LTA) and Heavier-Than-Air (HTA) neighborhoods serving Langley Air Force Base in the City of Hampton and York County. LTA and HTA are located at Langley AFB in the City of Hampton, while Bethel Manor is located approximately 3 miles west of the on-Base housing areas in York County. Under the Proposed Action Alternative, the Air Force would convey 1,496 existing MFH units and associated infrastructure to a privatization contractor who would:

- demolish 1,104 units in Bethel Manor and construct 1,049 replacement units;
- construct two units in the HTA area;
- renovate 109 units in the LTA (47 units) and HTA (62 units) areas; and
- convey "as is" 270 units (148 units in Bethel Manor, 72 units in the LTA area, and 50 units in the HTA area).

The privatization contractor would manage a total of 1,430 units for a minimum of 50 years. The Air Force has submitted a draft Environmental Assessment (EA) with a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FNPA), and a federal consistency determination that finds the proposed action consistent, to the maximum extent practicable, 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 4-40) construction of new housing units at Bethel Manor would result in changes to the existing configuration and area of impervious surfaces (e.g. roads, parking areas, and buildings), which could affect stormwater runoff and management. Renovation activities at the on-base HTA and LTA housing areas are not anticipated by the Air Force to result in significant impacts to surface waters. Stormwater runoff would be minimized to prevent off-site transport of sediments into neighboring streams and ponds using natural or established vegetation as much as possible, and through the use of retention ponds or swales (EA, page 4-40).

The EA (page 4-37) states that National Wetland Inventory (NWI) mapping indicates that no tidal or nontidal wetlands are located within the Bethel Manor property boundary, and that no wetlands are in the vicinity of the on-base HTA and LTA housing areas. A wetland delineation would be conducted by the privatization contractor during the project design phase to identify and map jurisdictional wetlands (EA, page 4-37).

The document states that the site plan would be designed to avoid disturbances to wetlands and other waters of the U.S.

DEQ reviewed the EA with respect to its authority under the Virginia Water Protection (VWP) Permit Program and concurs with the document findings that no surface water or wetland impacts are proposed. As such, it appears that no authorization from DEQ would be required for possible water quality or wetland impacts from this proposal.

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).

2. Subaqueous Impacts. 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. According to the EA (page 4-6) VMRC reviewed a description of the proposed privatization project during the initial coordination and review process and found the project does not appear to involve any encroachments channel-ward of mean low water along any natural rivers and streams. After review of the EA submitted for the proposed action, VMRC had no significant additional comments.

3. Erosion and Sediment Control and Stormwater Management. The EA finds that total impervious cover at Bethel Manor would decrease by approximately 4.1 acres (page 4-20) and by 3.4 acres (page 4-23) at the HTA and LTA housing areas. If required, the EA asserts that a new stormwater system would be designed and constructed to comply with Virginia Pollutant Discharge Elimination System (VPDES) regulations. The document (page 4-17) discusses the development and implementation of a stormwater pollution prevention plan (SWPPP) which would identify necessary erosion and sediment control practices designed to minimize potential impacts to soils and surface water resources.

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. According to the EA (page 4-7), approximately 20 acres at Bethel Manor are designated as part of the Chesapeake Bay Preservation Area (CBPA) pursuant to the *Chesapeake Bay Preservation Area Designation and Management Regulations*. The document does not discuss areas analogous to CBPAs for the HTA and LTA on-base housing areas.

According to DCR's Division of Chesapeake Bay Local Assistance (DCBLA), federal actions on installations located within Tidewater Virginia must be consistent to the maximum extent practicable with the enforceable policies of the VCP. The Coastal Lands Management enforceable policy incorporates certain provisions of the *CBPA Designation and Management Regulations*. Accordingly, activities on areas analogous to locally designated CBPAs must be consistent to the maximum extent practicable with those provisions of the Regulations. In the City of Hampton and in York County, 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 (RPA).

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 (RMA) in the City of Hampton and for a distance of 500-feet in York County.

The EA incorrectly states (page 3-17) that "Only under certain restrictive circumstances may these riparian buffers be reduced to 50 feet if additional stormwater quality improvement measures (i.e. stormwater BMPs including detention ponds) are incorporated into facility site designs." The current Regulations, as implemented in both the City of Hampton and York County, clearly states that, "Notwithstanding permitted uses, encroachments, and vegetation clearing, as set forth in this section, **the 100-foot buffer is not reduced in width**. To minimize the adverse effects of human activities on the other components of the Resource Protection Area, state waters, and aquatic life, **a 100-foot buffer of vegetation that is effective in retarding runoff, preventing erosion, and filtering non-point source pollution from runoff shall be retained if present and established where it does not exist** (9 VAC 10-20-130 3)." There are

no circumstances under which the buffer is reduced in width, regardless of how many stormwater quality improvements are proposed.

Please note that per §9 VAC 10-20-130, redevelopment is permitted only if there is **no increase in the amount of impervious cover and no further encroachment within the RPA**, and it shall conform to applicable erosion and sediment control and stormwater management criteria set forth in subdivision 6 and 8, respectively, of §9 VAC 10-20-120, as well as all applicable stormwater management requirements of other state and federal agencies.

RMAs are subject to the general performance criteria § 9 VAC 10-20-110 through § 9 VAC 10-20-120 of the Chesapeake Bay Preservation Area Designation and Management Regulations, including:

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

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, and for land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992.

It appears that the majority of the construction proposed in Bethel Manor and at the on-base HTA and LTA housing areas will be redevelopment. Provided that, as stated in the EA, the impervious surface is being reduced by this redevelopment, and adherence to the above requirements, including the general performance criteria, § 9 VAC 10-20-120 *et seq.*, DCR-DCBLA finds the project to be consistent with the:

- Chesapeake Bay Preservation Act; (Virginia Code sections 10-1-2100 through 10.1-2114); and
- Chesapeake Bay Preservation Area Designation and Management Regulations (Virginia Code §9 VAC 10-20-10 *et seq.*).

5. Air Pollution Control. Air emissions identified for the proposed action includes fugitive dust from ground-disturbing activities, combustive emissions from construction equipment, and emissions from asphalt paving operations. The EA (page 4-12) concludes that the net change in emissions would not exceed the *de minimis* threshold levels for criteria pollutants. Therefore, the Air Force believes that the proposed alternative is in compliance with all relevant requirements and milestones contained in the applicable State Implementation Plan (SIP).

DEQ notes that Langley Air Force Base is located in the Hampton Roads ozone (O_3) 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_x). 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_x, 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, driveways, 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 and York County officials to determine what local requirements, if any, exist.

6. Solid and Hazardous Wastes and Hazardous Materials. It is estimated in the EA (page 4-21) that 74,168 tons of debris would be generated by the Proposed Action. It is assumed in the document that the debris would be disposed of in the King and Queen Sanitary Landfill. Any hazardous waste generated would be handled in accordance with all federal, state, and local laws and regulations (EA, page 4-45). Asbestos containing material (ACM) and lead-based paint (LBP) would be removed and disposed of by the demolition contactor in accordance with existing regulations (EA, page 4-46).

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 or
- 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 portion of the Proposed Action alternative that impacts the on-base housing areas (HTA and LTA) are the subject of the following analysis since there are no known ERP or CERCLA sites located in the off-base Bethel Manor housing area.

The renovation of the buildings in the LTA and HTA areas is expected to generate demolition-type debris. Due to the age of the buildings to be renovated, it is expected that asbestos containing materials (ACM) and lead-based paint (LBP) may be encountered at LTA, HTA, and Bethel Manor. The report acknowledges this (Section 2.5.1) and states that "demolition of buildings that contain these materials would be conducted in accordance with applicable regulatory requirements." The report (Section 2.5.3) addresses the renovation aspect of the Proposed Action and re-states the need to follow regulatory guidelines concerning ACM and LBP.

As for the ERP impacts associated with the Proposed Action, the LTA and HTA overlie ERP Site OT-64 (Basewide Groundwater). The LTA housing area is adjacent (within 150') to closed ERP Site DP-09 and near (within 500') ERP Sites WP-08, LF-17, and OT-25 that are currently under study. The HTA area is not adjacent to any active or closed ERP sites but is near the closed ERP Sites SS-04, ST-27, and ST-33. OT-64 may include expanded plumes of contaminants associated with individual ERP sites on Base. The existence or extent of possible groundwater contamination has not been fully determined. At this point, there is not believed to be any groundwater contamination beneath the LTA and HTA housing areas associated with known ERP sites.

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 ground water 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, or 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. Langley AFB (CEDS facility #5-001910) currently operates 13 underground storage tanks (USTs) and 70 aboveground storage tanks (ASTs) of various sizes and at several locations for the storage and dispensing of motor fuels, aviation fuels, heating oils and lubrication oils. Based on DEQ's review of the proposed project, no impacts to existing tanks are expected.

DEQ notes that only two of the housing areas (HTA and LTA) are located on the AFB. The third housing area (Bethel Manor) is located in an off base residential area. The EA outlines several areas of petroleum contamination associated with historical operation of petroleum storage tanks. Most of these areas are located on the base. However, one area is located at a former gasoline service station near Bethel Manor.

If the construction of this project will include the use of portable fuel AST(s) with a capacity of greater than 660 gallons, the tank(s) must be registered with DEQ using *AST Registration Form 7540-AST*. This form is available on DEQ's web site at http://www.deq.virginia.gov/tanks/dwnllib.html#forms. The registration should be mailed to the DEQ address listed on the form along with the listed registration fee.

DEQ records indicate that there have been 150 petroleum releases reported at Langley Air Force Base, 5 of which are currently active cases. Three of these active cases are located within the HTA military family housing area. These heating oil UST releases include PC#s 1992-0069, 1994-3577, and 1996-2276. Three closed cases are located within the Bethel Manor off-base military family housing area. These releases from various sources include PC#s 94-2189, 95-2288, and 97-2386. 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 3-36) states that demolition and construction activities associated with both on- and off-base housing areas would occur within developed, maintained areas with highly modified and disturbed landscape typical of urban residential or recreational areas.

The preparation of the draft EA for this proposal was coordinated with the Department of Conservation and Recreation's (DCR's) Division of Natural Heritage (DNH) (Appendix D, August 19, 2005 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.

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.

DGIF does not anticipate a significant adverse impact upon threatened and endangered wildlife resources under its jurisdiction to occur at the on-base MHA's (HTA and LTA). However, according to DGIF records, there is a bald eagle nest approximately 1.2 miles from the Bethel Manor project. As the project is outside the primary and secondary management zones of this nest, DGIF does not anticipate a significant adverse impact upon the eagles using this nest to occur.

DGIF records indicate a colonial waterbird nesting colony supporting great blue herons and State Special Concern great egrets less than 2,000 feet from the Bethel Manor project. DGIF is concerned that this project may result in adverse impacts upon the birds using this colony. DGIF previously recommended, in consultations with the Air Force, that Langley coordinate this proposal with Ruth Boettcher, VDGIF Eastern Shore Biologist, at (757) 787-5911. The Air Force should contact her to arrange for a site visit prior to the commencement of activities associated with this project. After the review of the site, DGIF will provide additional comments regarding any potential adverse impacts and mitigation measures.

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 result in 478 fewer residents in the project area, thus reducing water consumption and wastewater treatment. Currently, Langley AFB purchases potable water from the City of Newport News, and discharges wastewater into the Hampton Roads Sanitation District collection system. VDH has no objection to the proposal. For more information, contact Susan Douglas, VDH, at (804) 864-7490.

12. Historic Structures and Archaeological Resources. According to the EA (page 4-49), for activities in Bethel Manor, the Air Force would follow the Program Comment (ACHP 2004) by the Advisory Council on Historic Preservation, adopted pursuant to 36 CFR 800.14(e), regarding Section 106 compliance. Renovations in the HTA and LTA areas are part of the Langley Field Historic District (LFHD). The Air Force plans to make the renovations in accordance to the Secretary of the Interior's Standards. For new construction, the Air Force would enter into a Memorandum of Agreement (MOA) with the Virginia State Historic Preservation Officer (SHPO) to establish procedures and conditions for the developer/contractor. There are no known archaeological sites in the Bethel Manor housing area and the three known on-base sites would not be affected by activities at HTA and LTA (EA, page 4-50).

The Virginia Department of Historic Resources (DHR) reminds the Air Force that, as a federal agency it 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). The Air Force must consult directly with DHR on this undertaking. While 36 CFR 800.8 allows federal agencies to coordinate Section 106 compliance with the National Environmental Policy Act (NEPA), the Air Force must inform the SHPO (DHR) early in the process that it intends to do so. The Air Force 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.

13. 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.

14. Energy Conservation. DEQ recommends that new buildings 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.

15. 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 believes that the renovation and redevelopment projects are an opportunity to improve the quality of life for military families stationed a Langley. In particular, the redevelopment of the Bethel Manor area poses a great opportunity to utilize the latest community design ideas, as was done when the LTA and HTA areas were developed, to create an attractive place for military families to live. The City also encourages the preservation of the LTA and HTA areas for their historic assets to the AFB, City, and region.

The City supports the consideration of innovative environmental design in both the site layout and the individual building designs. These building standards will contribute towards lower operating costs, higher quality living environments, higher morale, improved health, and lower healthcare costs for residents. For any additional information, contact James Freas, City of Hampton, at (757) 728-5233.

16. 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, HRPDC determined that the proposed action involves the demolition of fifty-five Capehart units in the Bethel Manor neighborhood. These units are eligible for inclusion in the National Register of Historic Places. Furthermore, there is a Programmatic Agreement in place with the Virginia Department of Historic Resources (DHR) regarding treatment of these buildings. The information provided in the EA does not appear to fully address that economic feasibility of relocating the structures proposed for demolition, as provided for in the Programmatic Agreement. There is also no documentation that the Air Force requested proposals form parties interested in reusing the structures at off-base locations. HRPDC encourages the Air Force to provide additional information in the final EA that addresses these issues. 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 A) 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, 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. Should the wetland delineation proposed by the Air Force identify that jurisdictional wetlands would be affected by this proposal, a Virginia Water Protection (VWP) permit issued by DEQ's Tidewater Regional Office (TRO) may be required. 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. 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 Virginia Pollution Discharge

Elimination System (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.

3. Chesapeake Bay Preservation Areas. Federal actions on installations located within Tidewater Virginia are required to be consistent to the maximum extent practicable with applicable performance criteria of the Regulations on lands analogous to locally designated Chesapeake Bay Preservation Areas (CBPAs). 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.

4. 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.

5. 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.

6. 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.

7. Wildlife Resources. The Air Force should coordinate this project with the Virginia Department of Game and Inland Fisheries (DGIF) with regard to possible impacts to a colonial waterbird nesting colony supporting great blue herons and State Special Concern great egrets less than 2,000 feet from the Bethel Manor project. The Air Force should contact Ruth Boettcher, VDGIF Eastern Shore Biologist, at (757) 787-5911, to arrange for a site visit prior to the commencement of activities associated with this project. After the review of the site, DGIF will provide additional comments regarding any potential adverse impacts and mitigation measures.

8. Historic Resources. To ensure compliance with *Section 106 of the National Historic and Preservation Act of 1966*, and address the Programmatic Agreement in place with the Virginia Department of Historic Resources (DHR) regarding treatment of the fifty-five Capehart units in the Bethel Manor neighborhood, the Air Force must coordinate project activities with the SHPO, which in Virginia is DHR. For additional information and coordination, contact Marc Holma, DHR, at (804) 367-2323, ext. 114.

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
Susan Douglas, VDH
Ethel Eaton, DHR
George Wallace, City of Hampton
Albert Maddalena, York County
Arthur L. Collins, Hampton Roads PDC

Fisher,John

From: Winer,Harold
Sent: Tuesday, May 23, 2006 11:38 AM
To: Fisher,John
Cc: Borton,David; Johnston,Milton; Parolari,Bert
Subject: EIR #06-088F, Housing Demolition, Constrcution, Renovation, & Leasing Bethel Manor....

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

Regarding VWP issues, we have reviewed this document from the perspective of the Virginia Water Protection Permit Program and note that it clearly states that no surface water or wetland impacts are proposed. As such, no further authorization is required from our program.

Concerning Remediation issues:

Petroleum Storage Tank Compliance/Inspections: Langley AFB (CEDS facility # 5-001910) currently operates 13 underground storage tanks (USTs) and 70 aboveground storage tanks (ASTs) of various sizes and at several locations for the storage and dispensing of motor fuels, aviation fuels, heating oils and lubrication oils. Based on our review of the proposed project, no impacts to existing tanks are expected.
We noted that only two of the housing areas (Lighter Than Air & Heavier Than Air) are located on the Air Force Base itself. The third housing area (Bethel Manor) is located in an off base residential area. The EA / CD outlined several areas of petroleum contamination associated with historical operation of petroleum storage tanks. Most of these areas are located on the base itself. However, one area is located at a former gasoline service station near Bethel Manor (see Cleanups comments below).

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)** 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**

Petroleum Storage Tank Cleanups: There have been 150 petroleum releases reported at Langley Air Force Base, 5 of which are currently active cases. Three of these active cases are located within the Heavier-Than-Air military family housing area. These heating oil UST releases include PC#s 1992-0069, 1994-3577, and 1996-2276. Three of these closed cases are located within the Bethel Manor off base military family housing area. These releases from various sources include PC#s 94-2189, 95-2288, and 97-2386. 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.

Concerning Waste issues, all demolition and construction debris generated must be characterized in accordance with the Virginia Hazardous Waste Management Regulations prior to disposal at an appropriate facility.

Until the property is formally transferred, the responsibility for the proper disposal of all waste generated by the demolition and construction of the base housing remains with the U.S. Air Force.

Due to possible petroleum and pesticide contamination all excess soil that is removed from the site must be characterized prior to disposal.

Due to the close proximity of the ERP sites review of the project needs to be conducted by DEQ's Federal Facility program.

The report states that the CDD material is to be recycled as much as possible at the beginning but then in the body of the document it is indicated that the CDD will be disposed of at the King and Queen Landfill. King and Queen Landfill is a disposal facility and only does a minimal amount of CDD recycling.

Within closer proximity LAFB there are several permitted material recovery facilities that recycle CDD. These include: Waterway Marine Terminal, Chesapeake; John C. Holland Enterprises, Suffolk, Bay Disposal, Norfolk, United Disposal, Norfolk. Of these, Waterway Marine and John C. Holland Enterprises have the capacity to manage this large amount of debris through their normal operations.

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

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 E. 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) _____ (date) 4/28/06

(title) Environmental Engineer

(agency) Virginia Marine Resources Commission

PROJECT # 06-088F **8/98**

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

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: May 25, 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
(804) 698-4339

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

SUBJECT: DEQ-06-088F: DOD/Department of Air Force – Bethel Manor Military Housing Area

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 area. 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.

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. The current activity will not affect any documented state-listed plants or insects.

In addition, our 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. 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, or contact Shirl Dressler at (804) 367-6913.

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

We have reviewed the proposed Housing Demolition, Construction, Renovation and Leasing Bethel Manor, Lighter-Than-Air and Heavier-Than-Air Military Housing Areas at Langley Air Force Base and Bethel Manor and have the following comments:

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 the City of Hampton and in York County, 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 (RPA). 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 (RMA) in the city of Hampton and for a distance of 500-feet in York county.

The EA incorrectly states on page 3-17, that "Only under certain restrictive circumstances may these riparian buffers be reduced to 50 feet if additional stormwater quality improvement measures (called Storm Water BMPs, *e.g.,* detention ponds) are incorporated into facility/site designs." The current *Chesapeake Bay Preservation Area Designation and Management Regulations,* as implemented in both the City of Hampton and York County, clearly states in 9 VAC 10-20-130 3 that "Notwithstanding permitted uses, encroachments, and vegetation clearing, as set forth in this section, **the 100-foot buffer is not reduced in width**. To minimize the adverse effects of human activities on the other components of the Resource Protection Area, state waters, and aquatic life, **a 100-foot buffer of vegetation that is effective in retarding runoff, preventing erosion, and filtering non-point source pollution from runoff shall be retained if present and established where it does not exist.**"
There are **no** circumstances under which the buffer is reduced in width, regardless of how many storm water quality improvements are proposed.

Please note that per §9 VAC 10-20-130 c, redevelopment is permitted only if there is **no increase in the amount of impervious cover and no further encroachment within the RPA**, and it shall conform to applicable erosion and sediment control and stormwater management criteria set forth in subdivision 6 and 8, respectively, of §9 VAC 10-20-120, as well as all applicable stormwater management requirements of other state and federal agencies.

RMAs are subject to the general performance criteria § 9 VAC 10-20-110 through § 9 VAC 10-20-120 of the *Chesapeake Bay Preservation Area Designation and Management Regulations*, including minimizing land disturbance, preserving indigenous vegetation, and minimizing impervious surfaces. 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, and for land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992.

It appears that the majority of the construction proposed in Bethel Manor and on Langley Air Force Base will be redevelopment. Provided that, as stated in Table 2.7, the impervious surface is being reduced by this redevelopment, and adherence to the above requirements, including the general performance criteria, § 9 VAC 10-20-120 et seq, We concur that the project would be consistent with the Chesapeake Bay Preservation Act; Virginia Code sections 10-1-2100 through 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Code §9 VAC 10-20-10 et seq.

Thank you for the opportunity to comment on this project.

Sincerely,

Robert S. Munson
Planning Bureau Manager

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

RECEIVED
APR 28 2006
DEQ-Office of Environmental Impact Review

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: 06 – 088F**

PROJECT TYPE: ☐ STATE EA / EIR / FONSI **X FEDERAL EA / EIS** ☐ SCC

X CONSISTENCY DETERMINATION

PROJECT TITLE: HOUSING DEMOLITION, CONSTRUCTION, RENOVATION, & LEASING BETHEL MANOR, LIGHTER-THAN-AIR, & HEAVIER-THAN-AIR MILITARY FAMILY HOUSING AREAS

PROJECT SPONSOR: DOD / DEPARTMENT OF THE AIR FORCE

PROJECT LOCATION: X OZONE NON ATTAINMENT AREA

REGULATORY REQUIREMENTSMAY 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.

K.S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: April 28, 2006

RECEIVED
MAY 10 2006
DEQ-Office of Environmental Impact Review

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: May 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, Housing Demolition, Construction, Renovation, & Leasing--Bethel Manor, Lighter-Than-Air, & Heavier-Than-Air Military Family Housing Areas, DEQ Project #06-088F

The Waste Division has completed its review of the Environmental Impact Assessment and Consistency Determination for Langley Air Force Base's proposed housing demolition, construction, renovation, and leasing at the Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air military family housing areas in Hampton, 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 or http://www.epa.gov/enviro/html/rcris/rcris_query_java.html . Paul Herman of DEQ's Federal Facilities Program has been contacted for his review of this determination and his comments, dated May 5, 2006, are attached.

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.

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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 – Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, Heavier-Than-Air Military Family Housing Area

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MAY 10 2006
DEQ-Office of Environmental Impact Review

TO: Allen Brockman

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

DATE: May 5, 2006

COPIES: John Fisher, File

The Langley Air Force Base report entitled *Draft Environmental Assessment Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, Heavier-Than-Air Military Family Housing Areas* dated April 2006 has been reviewed as requested by Allen Brockman, Waste Division Environmental Review Manager. The document presents the "No Action" alternative and the "Proposed Action" alternative. The Bethel Manor housing area is located 3 miles west of the main base while the Lighter-Than-Air (LTA) and Heavier-Than-Air (HTA) housing areas are located on base.

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 portion of the Proposed Action alternative that impacts the "on base" housing areas are the subject of this review as there are no known ERP/CERCLA sites located in the Bethel Manor housing area.

The "Proposed Action" alternative is to select a private contractor to "plan, design, develop, demolish, construct, own, operate, maintain, and manage for 50 years a 1430-unit housing development." The bulk of the "Proposed Action" is to occur in Bethel Manor. However, the contractor is expected to "construct two units in the HTA area, renovate 109 units (47 units in the LTA and 62 units in the HTA area), and convey 270 units "as is" (148 units of Bethel Manor, 72 units in LTA area, and 50 units in HTA area)."

The renovation of the buildings in the LTA and HTA areas is expected to generate demolition-type debris. Due to the age of the buildings to be renovated, it is expected that asbestos containing materials (ACM) and lead-based paint (LBP) may be encountered at LTA, HTA, and Bethel Manor. The report acknowledges this possibility in Section 2.5.1 and states that "demolition of buildings that contain these materials would be conducted in accordance with applicable regulatory requirements". Section 2.5.3 of the report addresses the renovation aspect

of the "Proposed Action" and re-states the need to follow regulatory guidelines concerning ACM and LBP.

As for the ERP impacts associated with the "Proposed Action", the LTA and HTA overlie ERP Site OT-64, Basewide Groundwater. The LTA housing area is adjacent (within 150') to closed ERP Site DP-09 and near (within 500') ERP Sites WP-08, LF-17, and OT-25 that are currently under study. The HTA area is not adjacent to any active or closed ERP sites but is near the closed ERP Sites SS-04, ST-27, and ST-33. OT-64 may include expanded plumes of contaminants associated with individual ERP sites on Base. The existence or extent of possible groundwater contamination has not been fully determined. At this point, there is not believed to be any groundwater contamination beneath the LTA and HTA housing areas associated with known ERP sites.

The Federal Facilities Restoration Program recommends the facility contact Ms. 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.

Fisher,John

From: Andrew Zadnik [Andrew.Zadnik@dgif.virginia.gov]
Sent: Monday, May 08, 2006 4:57 PM
To: Fisher,John
Cc: nhreview@dcr.virginia.gov; John Kleopfer; ProjectReview.Richmond_PO.DGIF@dgif.virginia.gov; Ruth Boettcher
Subject: 06-088F_ESSLOG 20893_Family Housing_Langley AFB

The proposed action is for the Air Force to convey 1,496 existing housing units and associated infrastructure to a private contractor, who will then demolish 1,104 units in Bethel Manor and construct 1,049 replacement units, construct 2 units on Langley Base, renovate 109 units on Langley Base, and convey 270 units on and off-base. The project location is on Langley base and at the Bethel Manor housing area, located in York County along the northern shoreline of Big Bethel Reservoir.

RE: the proposed activities on Langley Base, we do not anticipate a significant adverse impact upon threatened and endangered wildlife resources under our jurisdiction to occur.

According to our records, there is a bald eagle nest approximately 1.2 miles from the Bethel Manor project. As the project is outside the primary and secondary management zones of this nest, we do not anticipate a significant adverse impact upon the eagles using this nest to occur.

Our records indicate a colonial waterbird nesting colony supporting great blue herons and State Special Concern great egrets less than 2,000 ft from the Bethel Manor project. We are concerned that this project may result in adverse impacts upon the birds using this colony. To address these impacts, we previously recommended coordination with Ruth Boettcher, VDGIF Eastern Shore Biologist (757-787-5911), to arrange for a site visit prior to the commencement of activities associated with this project. This continues to be our recommendation. Upon Ruth's review of the site, we will provide additional comments regarding any potential adverse impacts and measures to mitigate these impacts.

To further minimize potential adverse impacts to wildlife due to all proposed actions, we recommend that stormwater controls be designed to replicate and maintain the hydrographic condition of the site prior to the original 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-recommended stormwater controls, and strict erosion and sediment control measures, we find this project 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)

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 E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

The proposed military Family Housing Privatization will result in 478 sewer residents in the project area, thus reducing the water consumption. Langley AFB provides water to this housing area through a purchase agreement with the City of Newport News. We have no objections to the proposed project.

(signed) Susan C. Douglas (date) 5-2-06

(title) Field Services Engineer

(agency) Department of Health

PROJECT # 06-088F **8/98**

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DEQ-Office of Environmental Impact Review

COMMONWEALTH of VIRGINIA

L. Preston Bryant, 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

May 5, 2006

Mr. Matthew C. Goss
Environmental Impact Analysis Program
1 CES/CEV
37 Sweeney Boulevard, Langley Air Force Base
Hampton, Virginia 23665-2107

Re: Draft EA for Housing Demolition, Construction, Renovation, and Leasing Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air Military Family Housing
Langley Air Force Base, Hampton
VDHR File No. 2004-0014

Dear Mr. Goss:

Through the Virginia Department of Environmental Quality (DEQ) we were made aware 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: Mr. John E. Fisher, DEQ

Administrative Services
10 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 863-1624
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Tidewater Region Office
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Newport News, VA 23608
Tel: (757) 886-2807
Fax: (757) 886-2808

Roanoke Region Office
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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

City of Hampton

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MAY 16, 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 -
Housing Demolition, Construction, Renovation, & Leasing Bethel Manor, Lighter-Than-Air, & Heavier-Than-Air Military Family Housing Areas
Langley Air Force Base, Virginia
Project number – 06-088F

Dear Mr. Fisher:

Planning staff has received and reviewed the draft Environmental Assessment (EA) for the demolition, construction, and renovation of military housing at Langley Air Force Base (LAFB), Virginia. The project is part of a DoD and Air Force effort to privatize military housing in order to improve the quality of housing and lower the cost.

These renovation and redevelopment projects appear to represent a great opportunity to improve the quality of life for military families stationed at Langley. In particular, the redevelopment of the Bethel Manor area poses a great opportunity to utilize the latest community design ideas, much as was done when the LTA and HTA areas were developed, to create a great place for military families to live. Preservation of the LTA and HTA areas is also encouraged as these places are both historic assets for the base, the City, and the region. The proposed projects do not conflict with any City of Hampton plans or policies.

As planning for these housing areas moves forward, consideration of innovative environmental design in both the site layout and the individual building designs could lead to much lower operating costs, higher quality living environments (and therefore higher morale), and improved health for residents (lowering healthcare costs).

Please let me know if I can be of further assistance regarding this project (728.5233 or jfreas@hampton.gov).

Sincerely,

James Freas
City Planner
City of Hampton

PLANNING DEPARTMENT (757) 727-6140 FAX: (757) 728-2449
ONE FRANKLIN STREET, SUITE 603, HAMPTON, VIRGINIA 23669-3522

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May 16, 2006

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MAY 19 2006
DEQ-Office of Environmental Impact Review

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

Re: Housing Demolition, Construction, Renovation, & Leasing Bethel Manor, Lighter-Than-Air, and Heavier-Than Air Military Family Housing Areas. DEQ 06-088F. (ENV:GEN)

Dear Mr. Fisher:

Pursuant to your request of April 25, 2006, the staff of the Hampton Roads Planning District Commission has reviewed the Environmental Assessment and Consistency Determination for the proposed housing demolition, construction, renovation, and leasing of military family housing areas (Bethel Manor, Lighter-Than-Air, and Heavier-Than-Air) currently owned and operated by Langley Air Force Base, Virginia. The purpose of the project is to provide adequate military family housing that meets Air Force housing standards by privatizing existing on and off-Base housing units for military personnel stationed at Langley AFB. The proposal includes three project alternatives for the housing areas of Bethel Manor, Lighter-Than-Air (LTA), and Heavier-Than-Air (HTA). We have contacted the City of Hampton regarding the project.

Based on this review, we offer the following comments. We understand that fifty-five Capehart units identified for demolition in the Bethel Manor neighborhood are eligible for inclusion in the National Register of Historic Places, and that there is a Programmatic Agreement in place with Virginia Department of Historic Resources regarding treatment of these buildings. The information provided by the applicant does not appear to fully address the economic feasibility of relocating the facilities proposed for demolition, as provided for in the accompanying Programmatic Agreement. There is also no documentation that the applicant requested proposals from parties interested in reusing the structures at off-base locations. We encourage the applicant to provide additional information that addresses these issues.

The City of Hampton has submitted additional comments to you in a separate letter (copy attached).

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

LMW/mkf

Enclosure

cc: Mr. James Freas, HA

Responses to Public Comments

Draft Environmental Assessment
Military Family Housing Privatization at Langley AFB, Virginia

Virginia Department of Environmental Quality (VDEQ), dated June 20, 2006.

The VDEQ is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. The following agencies, planning district commission, and locality took park in the review:

- Department of Environmental Quality
- Virginia Marine Resources Commission
- Department of Game and Inland Fisheries
- Department of Conservation and Recreation
- Department of Health
- Department of Historic Resources
- City of Hampton
- Hampton Roads Planning District Commission
- York County was invited to comment on the EA

The following paragraphs contain responses to the comments from VDEQ. Most of the comments contain information that was either already discussed in the EA, contained information for additional environmental consideration, or provided agency points of contact to be considered during implementation of the project.

Response to Comment #1, pages 2 and 3: Noted.

Response to Comment #2, pages 3 and 4: Noted.

Response to Comment #3, pages 4 and 5: Noted.

Response to Comment #4, pages 5 and 6: Noted. Additionally, the text on page 3-17 in Subchapter 3.7.2 that states the riparian buffers may be reduced to 50 feet if additional storm water quality improvement measures are incorporated into facility site designs was deleted.

Response to Comment #5, pages 6 and 7: Noted. Additionally, information from the comment concerning Regulations for the Control and Abatement of Air Pollution was inserted into the text on page 4-12 in Subchapter 4.4.2.

Response to Comment #6, pages 7, 8, and 9: Noted. VDEQ's comment stating the EA did not include a search of waste-related data bases is not relevant since the EA specifically discusses in Subchapter 3.9.6 and 4.9.2 that Langley AFB is under the Federal Facilities Installation Restoration Program and is currently providing clean-up measures under CERCLA and RCRA guidance. As part of this project an Environmental Baseline Survey (EBS), which follows the standards listed in ASTM 1527-05 for performing Phase I Environmental Site Assessments, was completed in August 2005 and referenced in the EA (Langley AFB 2005b). As part of the requirements for conducting the EBS, an extensive search of local, state, and federal environmental database searches was performed and included in the report. Mr. John Tice at Langley AFB was contacted as part of the EBS and EA for relevant information pertaining to the Federal Facilities Restoration Program. Therefore, these requirements have been met.

Response to Comment #7, pages 9 and 10: Noted. Additionally, information from the comment concerning the use of portable fuel above ground storage tanks with a capacity greater than 660 gallons was inserted into the text in Subchapter 4.9.1 of the EA.

Response to Comment #8, page 10: Noted. Information from the comment concerning the use of pesticides and herbicides was inserted into the text in Subchapter 4.9.2.

Response to Comment #9, pages 10 and 11: Noted.

Response to Comment #10, pages 11 and 12: Noted. Additionally, Langley AFB personnel have been in contact with the VDGIF concerning a colonial waterbird nesting colony that supports great blue herons and great egrets in Bethel Manor. The privatization contractor will be responsible for further consultation and coordination of a site visit with the agency prior to demolition activities.

Response to Comment #11, page 12: Noted.

Response to Comment #12, pages 12 and 13: Noted. Additionally, Langley AFB cultural resources personnel have consulted with the Virginia Department of Historic Resources concerning Section 106 compliance with historic properties on the base.

Response to Comment #13, page 13: Noted.

Response to Comment 14, page 14. Noted.

Response to Comment 15, page 14. Noted.

Response to Comment 16, pages 14, 15, 16, and 17. Noted. Additionally, the issue concerning demolition of 55 Capehart housing units was adequately addressed in the Programmatic Agreement in place with the Virginia Department of Historic Resources and in discussions with the SHPO during finalization of this EA.

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APPENDIX F
PROGRAM COMMENT BY THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

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Preserving America's Heritage

Program Comment

for

Wherry and Capehart Era Family Housing At Air Force and Navy Bases

I. Introduction

This Program Comment, adopted pursuant to 36 CFR § 800.14(e), demonstrates Department of the Air Force (Air Force) and Department of the Navy (Navy) compliance with their responsibilities under Section 106 of the National Historic Preservation Act with regard to the following actions in the management of the Wherry and Capehart Era family housing: maintenance, repair, layaway, mothballing, privatization and transfer out of federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Wherry and Capehart Era housing, associated structures and landscape features that may be eligible for listing on the National Register of Historic Places.

II. Treatment of Wherry and Capehart Properties

A. Eligibility

The Department of the Army (Army) conducted a historic context of its Wherry and Capehart properties and documented these in a report entitled *For Want of a Home: A Historic Context for Wherry and Capehart Military Family Housing.* On May 22, 2001, the Army sponsored a

symposium on Wherry and Capehart era housing management as it related to historic preservation. The symposium was attended by preservation experts, including the National Trust for Historic Preservation (Trust), the National Conference of State Historic Preservation Officers (NCSHPO), the Advisory Council on Historic Preservation (ACHP), and nationally recognized experts in the field of historic preservation from academia and industry. Symposium participants recommended a programmatic approach to complying with Section 106, and these approaches were part of the Army's Program Comment which was approved by the ACHP in 2002 (67 FR 39332; June 7, 2002).

The Air Force and the Navy have gathered data on their inventory of Wherry and Capehart properties which will be appended to the Army's context study, as outlined below, to provide a comprehensive understanding of the Department of Defense (DoD) inventory for this property type. As with the Army, the Air Force and the Navy consider their inventory of Wherry and Capehart properties, including any associated structures and landscape features, to be eligible for the National Register of Historic Places for the purposes of Section 106 compliance.

B. Treatment

The Air Force and the Navy have requested a Program Comment as a service-wide Section 106 compliance action related to management of Wherry and Capehart Era housing, associated structures and landscape features. This programmatic approach will facilitate management actions for maintenance, repair, layaway, mothballing, privatization and transfer out of Federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Wherry and Capehart Era housing, associated structures and landscape features. Such actions present a potential for adverse effects to historic properties.

Based on the Program Comment previously approved for the Army for this property type, and following meetings with the ACHP, the Trust and NCSHPO, the Air Force and the Navy agree to the following six-step approach to the treatment of its Wherry and Capehart properties:

(i) The Air Force and the Navy will:

> (a) revise the Army's historic context, *The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949–1962): A Historic Context,* to include information pertinent to Air Force and Navy bases where this information differs from that provided in the Army's context study, including information on Navy and Air Force Capehart and Wherry Era Housing architects, sponsors and bidders, & projects. The expanded context study will provide a more complete picture of Wherry and Capehart Era family housing across DoD, and
>
> (b) upon completion of the revised context study, the Air Force and the Navy will use it and any resulting oral histories recorded in accordance with section II(B)(vi), below, to prepare a report suitable for release to the general public. The report to the public will extract that information which may be deemed sensitive or inappropriate for release to the public; the resulting context study will be placed on a publicly accessible web site and

copies of the report will be provided to all the SHPOs, NCSHPO, the Trust and the ACHP.

(ii) The Navy and Air Force will review the results of the expanded and revised context study and determine whether any of those properties identified under Section II(B)(i)(a) are of particular importance. The Navy and Air Force will notify the Council of the results of this review, and the Council will forward the results to the NCSHPO, and the Trust.

(iii) The Air Force and Navy will use, or modify for their own use, the Army's design guidelines: *Neighborhood Design Guidelines for Army Wherry and Capehart Housing.* Modified design guidelines will be provided to ACHP for review. Copies of the Air Force and Navy guidelines will be provided to the NCSHPO, the Trust and the ACHP. These Neighborhood Design Guidelines will be distributed by Headquarters, Air Force and Navy to those offices that manage and maintain this housing type and they will be encouraged to consider the design guidelines in planning actions that affect their Wherry and Capehart Era housing, associated structures and landscape features.

(iv) For Wherry and Capehart properties that have been determined to be of particular importance, as defined in the revised context study, the Air Force and the Navy will:

(a) consider the need to conduct additional historical documentation, and

(b) within funding and mission constraints, consider the preservation of these properties through continued use as military housing.

(v) The Air Force and the Navy will advise developers involved in housing privatization initiatives that Wherry and Capehart properties may be eligible for historic preservation tax credits.

(vi) The Air Force and the Navy will attempt to locate and conduct oral interviews with military families who lived in Wherry and Capehart housing (which may include Army families), and other people who were involved with design and construction of Capehart and Wherry Era housing. Prior to conducting any interviews, the Air Force and the Navy will seek advice from appropriate government offices such as the Library of Congress' *Veterans History Project* and the military service historical centers to develop a set of appropriate interview questions and proper formats in which interviews would be recorded. Upon completion of the oral histories, the Air Force and the Navy will provide a copy of all written and recorded documentation to the Library of Congress.

III. Applicability

This Program Comment does not apply to the following properties that are listed, or eligible for listing, on the National Register of Historic Places:

(i) archeological sites,

(ii) properties of traditional religious and cultural significance to federally recognized Indian tribes or Native Hawaiian organizations, or

(iii) historic properties other than Air Force and Navy Wherry and Capehart Era housing, associated structures and landscape features.

V. Schedule for Completion:

(i). Within 12 months from Council approval of the Program Comment, the Air Force and Navy shall complete:

(a). the expanded and revised context study for Capehart and Wherry Era housing as described in Section II(B)(i)(a), above;

(b). review of the context study for properties of particular importance as described in II(B)(ii), above; and

(c). adoption of the design guidelines as described in Section II(B)(iii), above.

(ii) Within 24 months from Council approval of the Program Comment, the Navy and Air Force shall complete:

(a). its consideration of properties of particular importance as described in Section II(B)(iv), above;

(b). completion of the oral history segment of the mitigation, as described in Section II(B)(vi), above, and

(c). completion of the context study suitable for release to the general public, as described in Section II(B)(i)(b), above.

IV. Effect of Program Comment

The ACHP believes that this six-step approach will ensure that the Air Force and the Navy take into account the effects of management of their Wherry and Capehart era housing. By following this comment and outlined six-step approach, the Air Force and the Navy will have met their responsibilities for compliance under Section 106 regarding management of their Wherry and Capehart era housing. Accordingly, Air Force and Navy bases will not have to follow the case-by-case Section 106 review process for each individual management action.

The Air Force and the Navy may carry out management actions prior to the completion of all of the six treatment steps outlined above, so long as such management actions do not preclude the eventual successful completion of those six steps.

This Program Comment will remain in effect until such time as the Air Force or the Navy determines that such comments are no longer needed and notifies ACHP, in writing, or the ACHP determines that the consideration of Wherry and Capehart properties is not being carried out in a manner consistent with this Program Comment. The ACHP may withdraw this Program Comment in accordance with 36 CFR §800.14(e)(6). Following such withdrawal, the Air Force and the Navy would comply with the requirements of 36 CFR §§ 800.3 through 800.7 for each individual management action.

The ACHP Membership approved this Program Comment on November 18, 2004.



John L. Nau, III
Chairman

November 18, 2004

Date

APPENDIX G
MEMORANDUM OF AGREEMENT

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DRAFT OF 30 JUN 2005

PROGRAMMATIC AGREEMENT
AMONG
LANGLEY AIR FORCE BASE,
THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE,
AND
[THE CONTRACTOR]
FOR THE
PRIVATIZATION OF MILITARY FAMILY HOUSING

WHEREAS, Langley Air Force Base (AFB), pursuant to the Military Housing Privatization Initiative (P.L. 104-106, 110 Stat. 544, Title XXVIII, Subtitle A, Section 2801), which amends 10 U.S.C. 169 by addition of a new Subchapter, IV- Alternative Authority for Acquisition and Improvement of Military Housing, has determined to privatize family housing at Langley AFB, VA, through the Military Housing Privatization Initiative (MHPI) (Undertaking); and

WHEREAS, under this Undertaking, (the contractor TBD), will implement the privatization of current and future family housing and ancillary facilities at Langley AFB; and

WHEREAS, the partnership will be granted a ground lease of the Langley AFB housing areas and other areas proposed for development (Atch A), for a term of fifty (50) years, beginning on (date inserted), and the stipulations of this programmatic agreement will be made an exhibit to the ground lease so that the stipulations become an integral part of the ground lease; and

WHEREAS, the privatization of the housing at Langley AFB will result in the transfer of a long-term interest in the construction, demolition, renovation, rehabilitation, operation, and maintenance of housing and other ancillary facilities at Langley AFB largely independent of direct government control, but intended for the use of airmen and their families; and

WHEREAS, Langley AFB shall convey to (the contractor), certain facilities, personal property and improvements now or hereafter located on or used in connection with family housing at Langley AFB (as defined in the Ground Lease and collectively termed, the "Improvements"), with the understanding that upon the Expiration Date, all Improvements located on the Premises shall be abandoned in place by (the contractor) and will be returned to the control of Langley AFB. These improvements shall include family housing, community centers, ancillary buildings, and amenities; and

WHEREAS, Langley AFB has determined that the implementation of the Undertaking has the potential to adversely affect the Langley Field Historic District, a property eligible for listing in the National Register of Historic Places (NRHP), and has consulted with the Virginia State Historic Preservation Officer (SHPO) in accordance with Sections 106 and 111 of the National Historic Preservation Act (the Act), as amended, (16 U.S.C. 470 et. seq.) and the implementing regulations found at 36 CFR Part 800; and

WHEREAS, Langley AFB has invited the Advisory Council on Historic Preservation (Council) to participate in the resolution of adverse effects to properties eligible for listing in the NRHP pursuant to 36 CFR 800.6(a)(1) and the Council has chosen not to participate in the consultation; and *(note this letter is going out at the same time as we are forwarding to you, so this paragraph will be updated when we hear back from the ACHP).*

WHEREAS, compliance with Section 106 of the Act for Capehart and Wherry Era housing in the Bethel Manor area of Langley AFB, as shown at Atch B, has been accomplished through issuance of Program Comments by the Council (Atch C); and

WHEREAS, the Area of Potential Affect (APE) for the Undertaking at Langley AFB includes approximately 66.7 acres of existing Langley housing areas located within the Langley Field Historic District, to include the Heavier-than-Air (HTA) housing area as well as the Lighter-than-Air (LTA) housing area; and

WHEREAS, Langley AFB has conducted archaeological investigations and identified NRHP eligible sites on the base, some within the proposed APE; and

WHEREAS, Langley AFB has given the Virginia Council on Indians, the City of Hampton and the Hampton Historical Society an opportunity to review and comment on the Undertaking and draft versions of this Agreement, and has incorporated the recommendations of these parties into this agreement; and *(Note coordination letters to these agencies are going out at the same time as this letter to you, so we will update this paragraph based on their response or lack thereof)*

WHEREAS, Langley AFB has provided the public an opportunity to comment on this Undertaking and has considered their comments in preparing this Agreement; *(This paragraph will also be updated when the public notification process occurs-we're waiting on this until we're further along in the process).*

NOW THEREFORE, Langley AFB, (contractor TBD), the SHPO, (and any other signatories) agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties found within the Area of Potential Effect (Atch A).

STIPULATIONS

1. Applicability, Baseline Information, and Professional Qualifications Standards

   A. Based on an analysis of the residential infrastructure, Langley AFB has determined in consultation with the SHPO that existing residential buildings, landscapes and structures listed in Atch A within the portion of the district affected by the Undertaking are NRHP-eligible under NRHP criteria.

   B. Langley AFB will provide an information package concerning the NRHP eligibility of the area affected by the undertaking to (the contractor, TBD). This information package describes contributing (NRHP eligible) and non-contributing (not NRHP eligible) structures, buildings and archeological sites present within or adjacent to the housing areas, and any areas proposed for the development of housing and supporting amenities. NRHP eligible properties will be subject to Stipulation 3 of this agreement, "Historic Property Management".

   C. Langley AFB and/or the (contractor, TBD) shall document existing interior and exterior conditions at all NRHP-eligible structures, buildings and landscapes in the historic housing areas prior to any major renovations of these facilities, in order to establish a baseline for reference. Documentation should include archival still photographs. Langley AFB will supplement the documentation to maintain accuracy and record modification to historic properties. One copy of the documentation and any supplemental materials, as they are developed, shall be provided to the SHPO, a second complete copy should be held at the office of the Langley AFB CRM, and a third at the office of (the Contractor). This documentation will serve as a reference throughout the term of the Agreement. Standards for documentation are included at Atch X.

   D. All SHPO review pursuant to this PA shall be completed within 30 days of receipt of documents for review. If the SHPO fails to respond within the time specified, SHPO review shall be deemed completed, and Langley AFB shall assume the SHPO's concurrence.

   E. No construction related to renovation or rehabilitation of historic buildings, structures, or landscapes shall begin until the SHPO completes its review and comment process relevant to that work. Construction on any building or group of buildings may begin once the SHPO review and comment on the drawings specific to that building or group of buildings is complete.

   F. For purposes of this agreement, the Langley AFB CRM will serve as the point of contact with the SHPO and the Council. In order to properly implement this Agreement, the (contractor, TBD) staff should include an individual who meets the qualification of 36 CFR 61 and can coordinate the preparation, development and review of rehabilitation plans, proposed projects and work requirements

than affect historic properties. The contractor's qualified staff would act on behalf of (the contractor) and participate in consultations between Langley AFB CRM and the SHPO concerning plans, projects and work requirements as listed above.

2. Conveyance Activities

A. Langley AFB will convey long-term interests in family housing units to (the contractor, TBD) by real estate instrument. After selection as MHPI contractor, but before execution of the ground lease, the contractor shall execute this Agreement. To ensure that the ground lease shall contain such terms and conditions as necessary and appropriate to meet the requirements of Section 106 and 111 of the Act to provide for adequate consideration and treatment of historic properties that may be affected by the privatization program, this programmatic agreement in its entirety shall be incorporated into and made part of the ground lease.

B. Before execution of any conveyance or finalization of the ground lease for the undertaking, Langley AFB shall provide (the contractor, TBD) access to all previously compiled information on historic properties within the area in question in order to guide (the contractor) in the management and use of the properties. Langley AFB shall indicate that historic properties are subject to alternate and more stringent management requirements than the Bethel Manor housing pursuant to stipulation XX.

C. Renewal or any modification to the ground lease shall be subject to consultation among the signatories to determine whether such renewal or modifications constitutes a new federal undertaking subject to the provisions of the Act.

3. Historic Property Management

A. (The contractor)'s management of the privatized historic housing will conform to the *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings (Treatment Standards).*

B. (The contractor) will provide residents of historic properties with information regarding restrictions, conditions and stipulations for their respective home, in order to improve upon public awareness on self-help efforts, as well as historic information about each respective home, and will endeavor to ensure that residents comply with those restrictions and conditions, and have an understanding of the historic nature of their residences.

C. Project Review and Consultation: The Langley AFB CRM will review the activities of (the contractor) using the review process specified below. The Langley AFB CRM will be responsible for keeping a record of each project review.

a. (The contractor) will submit to the Langley AFB CRM all proposed projects affecting historic facilities or involving ground disturbing activities in areas with known archeological resources. The Langley CRM will respond to (the contractor) within 20 working days with a determination regarding the potential for an adverse effect on historic properties. If a determination of No Adverse Effect is made by the Langley AFB CRM, the project may proceed as planned.

b. If the Langley AFB CRM makes a determination of Adverse Effect, he/she shall recommend alternatives to the project plans to avoid or minimize the adverse effect. These recommendations will be made in accordance with the treatment standards for rehabilitation noted in Stipulation 3A with the goal of minimizing the project to a determination of No Adverse Effect.

c. If the contractor does not accept these recommendations, Langley AFB will assist the contractor to initiate the process to resolve the adverse effect pursuant to 36 CFR 800.6. In such a case, the contractor shall provide documentation listing alternatives to the adverse

effect, identifying measures to mitigate the adverse effect, and shall work with the Langley CRM to provide appropriate documentation for affected resources for submittal to the SHPO.

d. After his/her review of a project and to expedite the review of routine activities, the Langley CRM may determine that certain actions, as outlined in Stipulation 4 below, are exempt from the project review process.

e. In the case of an emergency, the contractor is required to consult with the Langley AFB CRM prior to emergency actions affecting historic properties, to include federal disasters as identified in Section 800.12(a) of the National Historic Preservation Act. The contractor will notify the Langley AFB CRM, who will notify the SHPO, prior to execution of all emergency undertakings affecting historic properties. The SHPO and Langley CRM will be required to respond within 3 days of the emergency to allow for emergency actions to take place with an expedited review period. If the response to emergency conditions requires no ground lease modification, the contractor must act in conformance with contract terms previously reviewed by the Virginia SHPO, and there is no new federal undertaking as defined by this agreement.

f. The SHPO may at any time request to review and comment on a project submitted to Langley CRM pursuant of Stipulation 3Ca-b, if the SHPO has a reason to believe that a historic property may be adversely affected by a proposed undertaking.

g. In order to expedite project review for undertakings within the historic district, the contractor will adhere to Treatment Standards for Rehabilitation noted in Stipulation 3A. Certain actions are exempt from the review process outlined in Section 4 below.

h. If the contractor proposes substantial alteration or demolition of a historic property, and these actions are deemed Adverse Effects to the historic district, the contractor shall provide documentation listing alternatives to the demolition or alteration, identifying measures to mitigate the adverse effect, and shall work with the Langley CRM to provide appropriate recordation for affected resources, to include photo documentation. The Langley CRM will initiate consultation for the Adverse Effect with the SHPO and will initiate the process to resolve the adverse effect pursuant to 36 CFR 800.6.

i. If the contractor proposes new construction within the area identified in Atch A, the new construction must be consistent with the Langley AFB Architectural Standards and must be reviewed by the SHPO for compatibility within the historic district. If new construction is identified as an adverse effect to the historic district, the documentation measures listed in bullet 3C.h. above shall be followed.

j. (The contractor) shall submit to the Langley CRM, who then shall submit to the SHPO for review all proposed landscape and site improvement plans within the historic district to ensure the maintenance of the general topographic and landscape character of the historic district is maintained.

D. Langley AFB shall report to the SHPO and the Council on the status of the Langley AFB housing properties under control of (the contractor) annually in a report prepared by the contractor with the assistance of the Langley CRM. A draft of the first report shall be submitted to Langley AFB no later than eleven (11) months after the date of initiating the MPHI contract for Langley AFB. This report will include information on the current condition of historic properties, actions taken by the contractor to maintain the properties in accordance with the Treatment Standards, and descriptions of unanticipated problems that could affect the integrity or upkeep of the historic properties, or any other activities or policies that affect or may affect the historic properties.

E. Tax Credits: Langley AFB shall encourage (the contractor) to explore federal and state historic preservation tax credit benefits via the established application process with the SHPO and the National Park Service (NPS) prior to the start of any rehabilitation projects involving historic buildings.

Langley AFB CRM will coordinate the application process with (the contractor) prior to the start of rehabilitation projects involving historic buildings, if desired. In the event that (the contractor) seeks the historic preservation tax credits, the proposed project will, upon receipt of a Part III certification from the NPS, be exempt from stipulation C above. Should the historic district lose Part III certification eligibility, Langley AFB is under no obligation to support (the contractor) in an application for tax credit benefits.

4. Exempt Activities

A. The following activities may be carried out without further consultation with the SHPO if conducted according to the Treatment Standards and upon clearance from the Langley AFB CRM:

a. General operations, maintenance, and new construction in the Bethel Manor housing area.

b. General operation of, and routine and cyclical maintenance to NRHP eligible properties.

c. Temporary installation of facilities to provide access to NRHP eligible historic properties by disabled persons, provided those changes make no permanent modification to NRHP eligible architectural elements.

d. Any changes to mechanical, electrical or plumbing systems.

e. Any changes to kitchen, bathroom, basement and attic spaces of historic properties, as long as such a change does not affect any significant exterior or interior historic character-defining elements in other rooms of the quarters.

B. Activities not listed above shall be completed as directed in Stipulation 3C above. The replacement of existing doors and windows is not exempt and must be reviewed during the process outlined at 4A above, unless windows for replacement are non-original windows being replaced with historically appropriate windows appropriate to the architectural character of the structure. The contractor shall provide alternative window types to the SHPO for consideration and should copy the Langley AFB CRM on all correspondence.

C. In the event that the parties to this Agreement concur in writing that additional exemptions are appropriate, such exemptions may be enacted in accordance with Stipulation 4 of this agreement.

5. Archeological Resources

A. If National Register-eligible archeological resources in the Area of Potential Effect will be affected by the undertaking as determined by 36 CFR 800.5, Langley CRM will continue the consultation in accordance with 36 CFR 800.4 to determine how to avoid or resolve an adverse effect on the property.

B. In the event of discovery of archeological materials during any of its activities, (the contractor) shall immediately stop work in the area of discovery involving subsurface disturbance as well as the surrounding area where further subsurface resources may be reasonably expected to occur, and shall immediately notify the Langley CRM point of contact. The CRM and the SHPO shall inspect the work site to determine the nature and area of the affected resource. (The contractor) shall protect the discovery until Langley has complied with 36 CFR 800.13(b) and any other legal requirements. Construction work may continue in the project area outside of the archeological resource area. Within two working days of the original notification of the discovery, the Langley CRM, in consultation with the SHPO, shall determine the NRHP eligibility of the resource. If the resource does meet NRHP criteria, the Langley CRM shall ensure compliance with Section 800.13(b) of the ACHP's regulations. Work in the affected area shall not proceed until completion of appropriate data recovery or other recommended mitigation procedures. If it is determined that the resource does not meet NRHP criteria, work may continue. Langley AFB is responsible for the costs of any such archeological investigations and resulting artifact curation costs, if any.

C. Langley AFB will ensure that archaeological artifacts recovered from archaeological investigations or unexpected discoveries will be stored in a curatorial repository that meets federal standards stipulated in 36 CFR 79, The Curation of Federally Owned and Administered Archaeological Collections.

D. If human remains or associated funerary objects are encountered as a result of the undertaking, they shall be treated in the manner consistent with the provisions of the Native American Graves and Repatriation Act (25 USC 3001) and 43 CFR 10.

6. Consultation with Federally Recognized Indian Tribes

A. Tribes interested in developing consultation procedures for projects resulting from the undertaking may consult with Langley AFB to develop such procedures pursuant to 36 CFR 800.2(c)(2)(ii)(E).

7. Fiscal Requirements and Sources

A. The stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs Langley AFB's ability to implement the stipulations of this agreement, Langley AFB will consult in accordance with the dispute resolution and amendment stipulations as specified below.

8. Dispute Resolution

A. Should the Virginia SHPO, the Council, a federally recognized Indian tribe, or member of the public object within 30 days to any plans or other documents provided by Langley AFB or others for review pursuant to this agreement, (the contractor) and Langley AFB will consult with the objecting party to resolve the objection. If (the contractor) or Langley AFB determines it cannot resolve the objection, (the contractor) Langley AFB shall forward to the Council all dispute-relevant documentation and a recommended course of action. Within 30 days after receipt of the documentation, the Council will either:

a. Provide Langley AFB with recommendations, which Langley AFB will take into account in reaching a final decision regarding the dispute; or

b. Notify Langley AFB that it will or will not comment pursuant to 36 CFR 800.7(c). Langley AFB will take into account any comment that ACHP provides in response to such request and do so in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

B. Any recommendation or comment that the Council provides pertains only to the subject of the dispute. Langley AFB's responsibility to carry out all other actions under this agreement, other than those disputed, will not change.

9. Amendment and Termination

A. If a change occurs in the undertaking that creates new circumstances that (the contractor) and/or Langley AFB must address, or, if the contractor is unable to carry out the terms of this agreement, any party to this agreement may request an amendment in accordance with 36 CFR Part 800.6(c)(7).

B. Should the parties to this agreement not agree on an amendment or in the event of (the contractor's) and/or Langley AFB's failure to comply with the stipulations of this agreement prior to execution of the ground lease, this agreement shall be terminated. In such an event, Langley AFB shall not execute a ground lease that has the potential to adversely affect historic properties until applicable stipulations of the agreement are met or it obtains alternative documentation from the Council that it has met the requirements of the Act.

10. Effective Date, End Date, Applicability

A. This Agreement is effective on the last date that all signatories sign. The Air Force and (contractor) will comply with all terms and stipulations from that date forward.

B. This agreement will be incorporated into the ground lease as an exhibit and will become an integral part of the ground lease. The agreement will become applicable to (the contractor) after execution of the ground lease. The ground lease is expected to be a 50 year lease.

C. This agreement will be in affect so long as the ground lease is in effect, unless previously terminated under the provisions at 9 above. If the parties to the ground lease extend the ground lease, the parties to this agreement will consult on a need to renew or amend this agreement at the same time as the ground lease is being considered for renewal.

Execution of this Programmatic Agreement and implementation of its terms evidence that Langley AFB has afforded the SHPO and the ACHP an opportunity to comment on the Undertaking to privatize military family housing at Langley AFB, and its affect on historic properties, and that Langley AFB has taken into account the effects of the Undertaking on historic properties.

LANGLEY AFB, VA

By: _____ Date: _____
BURTON M. FIELD, Brigadier General, U.S.A.F.
1st Fighter Wing Commander

VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
KATHLEEN KILPATRICK
Virginia State Historic Preservation Officer

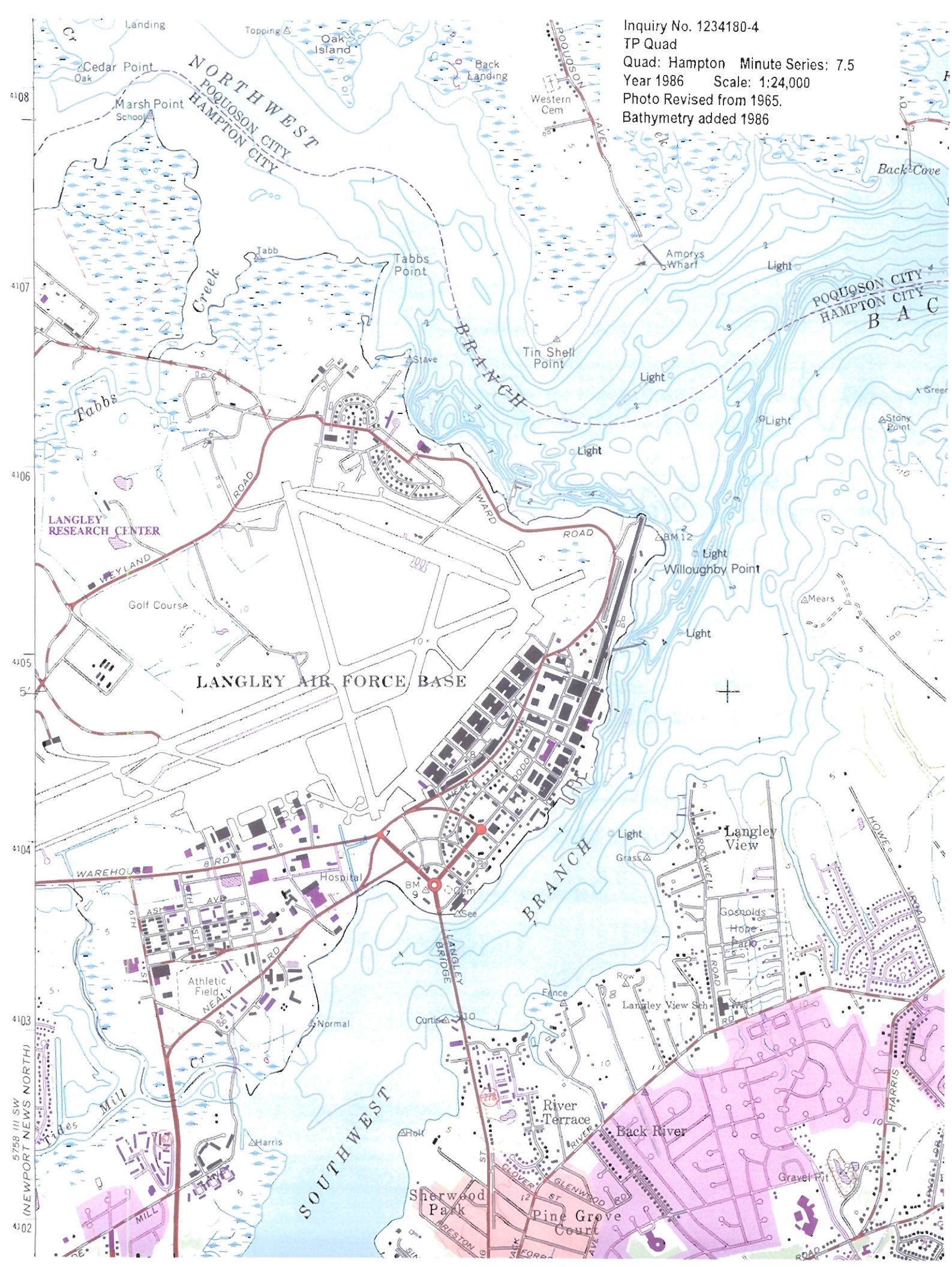
THE CONTRACTOR

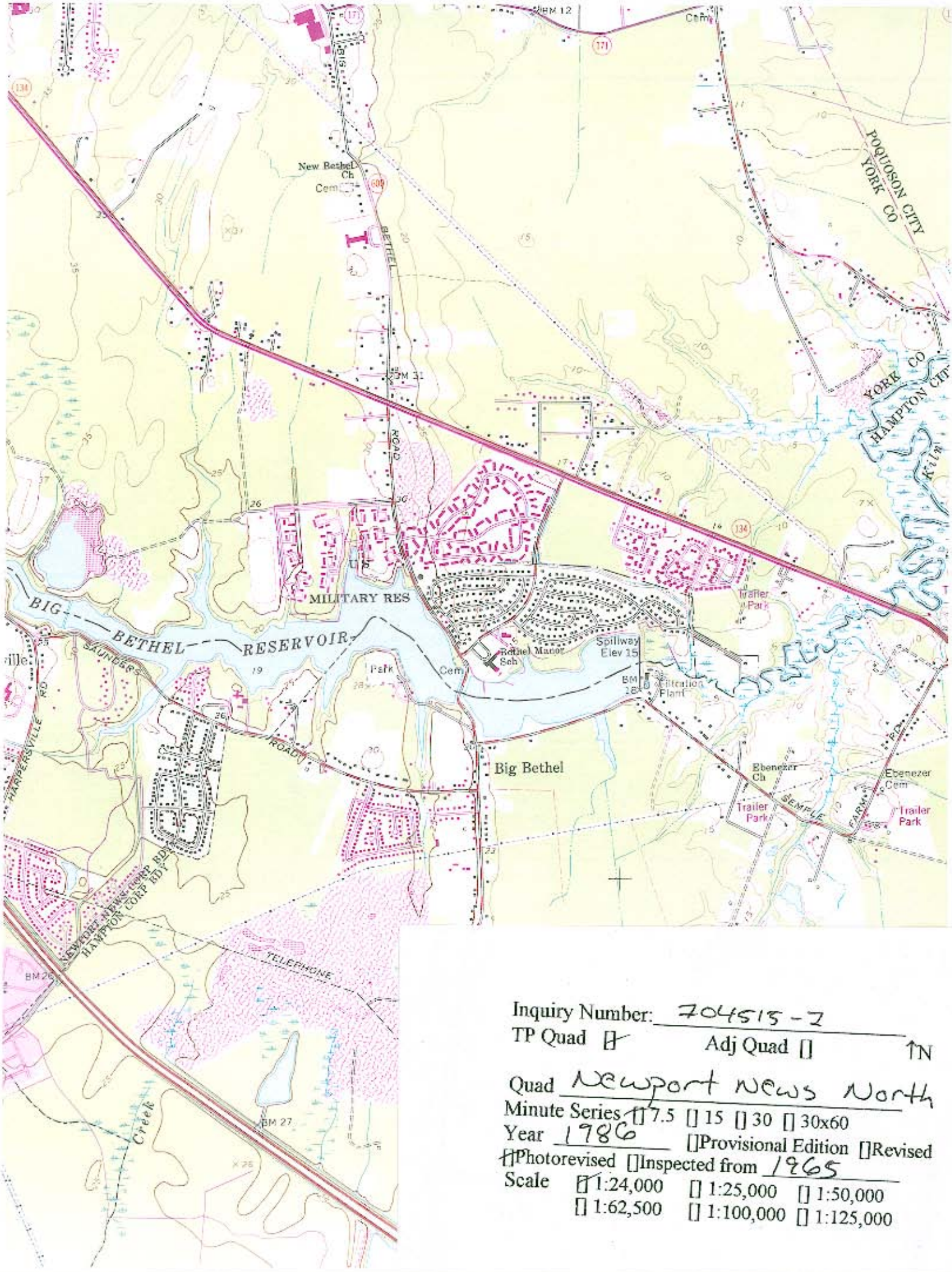
(The contractor) has reviewed the above terms and stipulations of this Programmatic Agreement. We acknowledge that the terms and stipulations will become part of the Ground Lease and that they will become binding on (the contractor) after the privatization of military housing at Langley AFB is approved by Congress.

By: _____ Date: _____

APPENDIX H
U.S. GEOLOGICAL TOPOGRAPHICAL MAPS

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Inquiry No. 1234180-4
TP Quad
Quad: Hampton Minute Series: 7.5
Year 1986 Scale: 1:24,000
Photo Revised from 1965.
Bathymetry added 1986
LANGLEY AIR FORCE BASE
LANGLEY RESEARCH CENTER
NORTHWEST
POQUOSON CITY
HAMPTON CITY
SOUTHWEST
BRANCH
Back Cove
Tabbs Point
Tin Shell Point
Willoughby Point
Amorys Wharf
Western Cem
Oak Island
Back Landing
Marsh Point
Cedar Point
Golf Course
Athletic Field
Hospital
Normal
Curtis
Harris
Holt
Langley View
Langley View Sch
Gosnolds Hope
Fence
Gravel Pit
River Terrace
Back River
Sherwood Park
Pine Grove Court
Mill Tides
Light
Grass
Mears
Stony Point
BM 12
BM 9
Tabb
Creek
Tabbs
ROAD
WARD
WEYLAND
BIRD
WAREHOUSE
LANGLEY BRIDGE
ROCKWELL
HOWE
HARRIS
RIVER
GLENWOOD
CLOVER
4108
4107
4106
4105
4104
4103
4102
5758 III SW
(NEWPORT NEWS NORTH)



Inquiry Number: 704515-7

TP Quad [X] Adj Quad [] ↑N

Quad Newport News North

Minute Series [X] 7.5 [] 15 [] 30 [] 30x60

Year 1986 []Provisional Edition []Revised

[X]Photorevised []Inspected from 1965

Scale [X] 1:24,000 [] 1:25,000 [] 1:50,000

[] 1:62,500 [] 1:100,000 [] 1:125,000