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Environmental Impact Statement

Comprehensive Base Realignment/Closure and Fort Belvoir Development

August 1991

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
Baltimore District

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NOTICE

This analysis includes discussions of two separate proposals that are in the development stage: the Engineer Proving Ground initiative and the Fort Belvoir Concept Development Plan. Neither of these proposals is sufficiently developed for making a decision. Each will be the subject of separate analysis under the National Environmental Policy Act before a decision is made by the Army. The two proposals are included in this EIS to provide the most highly developed context within which to assess the proposed base realignment and closure actions.

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FINAL
ENVIRONMENTAL IMPACT STATEMENT
COMPREHENSIVE BASE REALIGNMENT/CLOSURE
AND FORT BELVOIR DEVELOPMENT

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(Environment, Safety, and Occupational Health)

Environmental Impact Statement

Comprehensive Base Realignment/Closure and Fort Belvoir Development

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Prepared by:

U.S. ARMY CORPS OF ENGINEERS

Baltimore District

Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement

Execution of some of the decisions analyzed in this document are subject to change because of the Defense Base Closure and Realignment Act of 1990. Specifically, the Secretary of Defense has recommended to the newly formed Defense Base Closure and Realignment Commission that selected Information Systems Command elements be relocated from Fort Belvoir to Fort Ritchie or another location within the National Capital Region, rather than to Fort Devens. The Secretary also recommended that the Army Materials Technology Laboratory activities be relocated from Watertown, Massachusetts, to Aberdeen Proving Ground, Maryland, instead of Fort Belvoir. These proposals will be subject to additional environmental impact analyses.

ENVIRONMENTAL IMPACT STATEMENT

COMPREHENSIVE BASE REALIGNMENT/CLOSURE AND FORT BELVOIR DEVELOPMENT

LEAD AGENCY: Department of the Army, Headquarters, Military District of Washington

TITLE OF THE PROPOSED ACTION: Comprehensive Base Realignment/Closure and Fort Belvoir Development

AFFECTED JURISDICTIONS: Fort George G. Meade, Anne Arundel County, Maryland; Fort Holabird, Baltimore City, Maryland; Cameron Station, City of Alexandria, Virginia; Fort Myer, Arlington County, Virginia; Fort McNair, Washington, DC; Fort Belvoir, Fairfax County, Virginia; Fort Devens, Middlesex County, Massachusetts; and Army Material Technology Laboratory, Watertown, Massachusetts.

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REVIEWED BY: Theodore R. Coberly, Colonel, U.S. Army, Chief of Staff, Headquarters, Military District of Washington

RECOMMENDED FOR APPROVAL: Thomas M. Montgomery, Brigadier General, General Staff, Director of Management, Office of the Chief of Staff, Department of the Army

APPROVED BY: Lewis D. Walker, Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health)

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ABSTRACT: This document addresses the environmental effects resulting from the closure of Cameron Station and associated realignments to Fort Belvoir, Fort, Myer, and Fort McNair. This document also addresses the realignments from Fort Meade, Fort Holabird, Army Materials Technology Laboratory (AMTL), and leased space to Fort Belvoir. The effects on Fort Belvoir of the realignment of the Information Systems Command to Fort Devens are included in this document. These realignments and the closure of Cameron Station are a few of the many realignments and closures approved by the Secretary of Defense.

This document also describes the effect the realignment of personnel will have on Fort Belvoir, Fort Myer, and Fort McNair. The planned closures will produce personnel relocations as follows: 3,641 personnel from Cameron Station to Fort Belvoir, 192 to Fort Myer, and two to Fort McNair; 178 from AMTL to Fort Belvoir; 131 from Forts Meade and Holabird to Fort Belvoir; from leased space in northern Virginia, 220 to Fort Belvoir and 106 to Fort Devens; and 320 Information System Command personnel from Fort Belvoir to Fort Devens. Numbers of personnel may fluctuate and are therefore approximate. The Army is coordinating reuse options for Cameron Station with the City of Alexandria through the Task Force to Monitor the Closing of Cameron Station. At this time, the best option* proposes a privately developed, primarily residential, mixed-use development. Actions at Fort Belvoir include 10 preferred alternatives directly related to the realignment, and more than 60 projects proposed as part of the Fort Belvoir Concept Development Plan. The most significant result of the realignment will be an increase in traffic volume at Fort Belvoir. Effects of the proposed Concept Development Plan projects can best be minimized by re-examining preliminary proposed siting of these activities, which will be the subject of separate environmental analyses. Public review comments on the draft Environmental Impact Statement were accepted until July 29, 1991.

*As determined by Delta Research Corporation, *Market Determined Highest and Best Use Study of Cameron Station*, 1989.

WDCR504/001.51

SUMMARY

INTRODUCTION

This document addresses the environmental effects resulting from the closure of Cameron Station and associated realignments to Fort Belvoir, Fort Myer, and Fort McNair. This document also addresses the realignments from Fort Meade, Fort Holabird, Army Materials Technology Laboratory (AMTL), and leased space to Fort Belvoir. The effects on Fort Belvoir of the realignment of the Information Systems Command (ISC) to Fort Devens are also included in this document. These realignments and the closure of Cameron Station are a few of the many realignments and closures approved by the Secretary of Defense.

The Secretary of Defense established the Base Realignment and Closure Commission (the Commission) on May 3, 1988, to recommend military installations within the United States, its commonwealths, territories, and possessions for realignment and closure. The Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Public Law 100-526) authorized such realignments and closures. The Commission presented its recommendations to the Secretary of Defense on December 29, 1988.

The Commission recommended the closure of Cameron Station in Alexandria, Virginia, and the realignment of its personnel to Fort Belvoir, Fairfax County, Virginia; Fort Myer, Arlington County, Virginia; and Fort McNair, Washington, D.C. In addition, the Commission recommended the closure of the AMTL in Watertown, Massachusetts, and the relocation of the corrosion prevention and control research activities to Fort Belvoir.

The Commission also recommended the partial closure of Fort Meade and Fort Holabird in Maryland. The Criminal Investigation Command (CIDC) and the Crime Records Center (CRC) from these installations will be consolidated at Fort Belvoir along with additional CIDC and ISC support personnel currently located in leased space. The Commission also recommended the realignment of the ISC activities currently located at Fort Belvoir, to Fort Devens, Massachusetts.

The Environmental Impact Statement (EIS) for the Comprehensive Base Realignment and Closure and Fort Belvoir Development addresses the environmental impacts of the closure of Cameron Station and the realignments to Fort Belvoir, Fort Myer, and Fort McNair. It also addresses the effects on Fort Belvoir of the realignments from AMTL, Fort Meade, Fort Holabird, and leased space. The effects of these actions on their originating installations are being addressed in separate EISs. The Fort Belvoir EIS also examines the effects on Fort Belvoir of the realignment of ISC to Fort Devens. The effects of this realignment on Fort Devens are being addressed in a separate EIS.

In addition to the effects of the closures and realignments recommended by the Commission, this EIS also addresses the potential effects of the proposed Concept Development Plan (CDP) on Fort Belvoir. The CDP is included in this document to provide a basis for evaluating the cumulative effects of the base realignment and closure (BRAC) projects at Fort Belvoir. This EIS, however, is not the decision document for the CDP.

The CDP was developed as a way to plan for future growth at Fort Belvoir. More than 60 projects, many of which to date have not been approved or funded, are proposed in the CDP. The CDP will be incorporated into the Fort Belvoir Master Plan that is scheduled to be completed in fiscal year 1993. The Master Plan update and its associated EIS will provide the cumulative environmental analyses and documentation required for the CDP projects.

PROPOSED ACTION

Base Realignment and Closure

The realignments discussed above involve the transfer of personnel, positions, and equipment among installations. Table S-1 presents a summary of the numbers of personnel being realigned to and from each of the affected installations covered by this EIS.

Table S-1
Summary of Personnel Realignments*

From Originating Installation	To Receiving Installation			
	Fort Belvoir	Fort Myer	Fort McNair	Fort Devens
Cameron Station	3,641	192	2	0
Fort Belvoir	---	---	---	320
AMTL	178	---	---	---
Fort Meade and Fort Holabird	131	---	---	---
Leased Space	220	---	---	106

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

In addition to the realignment of personnel and positions, BRAC requires the renovation of existing facilities and the construction of new facilities at Fort Belvoir and Fort Myer. Ten construction projects are planned at Fort Belvoir and four are planned at Fort Myer to accommodate the BRAC activities. These projects are listed in Table S-2. Site-specific decisions for all proposed construction projects will be supported by subsequent NEPA analysis.

Table S-2
BRAC Construction Projects

Installation	Construction Project
Fort Belvoir	Headquarters Complex (BRAC 1)
	Industrial Park (BRAC 2)
	BRAC Roads (BRAC 3)
	Commissary Warehouse Addition (BRAC 4)
	Post Exchange (BRAC 5)
	Commissary (BRAC 6)
	CIDC Administration Facility (BRAC 7)
	AMTL Material Research Facility (BRAC 8)
	Exchange Branch (BRAC 9)
	Modify Buildings 1466 and 1445 for Base Closure (BRAC 10)
Fort Myer	PX Expansion
	Shoppette
	Commissary
	Logistics Complex

Public Law 100-526 also requires that potential reuse options for Cameron Station be identified. The U.S. Army has been working with the public and with the City of Alexandria through the Task Force to Monitor the Closing of Cameron Station on the future reuse of the property. The City of Alexandria has zoned the property for a mixed-use development, which is primarily residential development, interspersed with some commercial and industrial development. However, Public Law 100-526 requires that a formal screening process, as set forth in the Federal Real Property Act of 1949, be used to dispose of military installations designated for closure. Under this process, the disposal options for Cameron Station are, in order of priority:

1. Transfer the facility to another department or agency within the Department of Defense.

2. If no interest is expressed in option 1, then screen the property for transfer to other federal, state, or local government agencies.

3. If no interest is expressed in option 2, then offer the property for sale to private purchasers through a competitive bidding process.

Concurrently, if the property is suitable for use by the homeless under Section 501 of the Stewart B. McKinney Homeless Assistance Act, 42 USC, Section 11411, determine whether a qualified homeless assistance provider is willing to accept the property for use by the homeless. If interest is expressed by both a federal, state, or local government agency and a homeless assistance provider, determine whether the needs of the homeless outweigh the needs of the particular federal, state, or local agency. Once the "needs-based" decision is made, dispose of the property accordingly.

Studies have been initiated to define the extent of any environmental contamination at Cameron Station. These studies will help in adequately assessing the health and environmental risks associated with closure; in determining the necessity for remedial action; and in developing and evaluating the remedial alternatives necessary to prepare the property for release. Remediation, if determined to be necessary, would be coordinated and conducted in compliance with federal, state, and local standards and regulations to remove any health and environmental threats.

Fort Belvoir Concept Development Plan

More than 60 projects have been proposed as part of the CDP. These projects include office and administration centers; child care, community, and recreational facilities, test facilities and laboratories; new housing and housing improvements; utility upgrades; and transportation improvements. Although proposed, many of these projects have not been approved or funded to date. These projects are divided into four categories, Military Construction Activity (MCA); Non-Appropriated Funds (NAF); Army and Air Force Exchange Services (AAFES); and Army Family Housing (AFH).

Potential sites for the CDP projects have been identified by Fort Belvoir planners. The alternatives for these projects will include project justification, final siting, timing of project initiation, and the no-action alternative. Final siting will be completed as the National Environmental Policy Act (NEPA) documentation for each project is completed. The Master Plan, which is scheduled for completion in fiscal year 1993, will contain the cumulative environmental analyses and documentation required for these projects.

ENVIRONMENTAL ISSUES AND CONCERNS

The Army met with resource agencies in the summer and fall of 1989 to develop the scope for this EIS and initiate formal coordination. Two meetings were held to inform the public of the Army's CDP activities and intentions for base closure. Both written and oral comments were received about the wide ranging issues, the most common concern being how the Army would address the effects of development at Fort Belvoir on transportation. Other comments were received on environmental issues, including wildlife, wetlands, floodplains, and endangered species. The public also wanted to be kept informed about the studies being initiated in order to evaluate the potential effects of the Army's proposals. The Army worked closely with public agencies to develop this EIS.

CONSEQUENCES OF THE PROPOSED ACTIONS

Closure of Cameron Station

No significant adverse effects are expected as a result of the closure of Cameron Station. The loss of 3,835 military and civilian positions is not considered to be a significant adverse effect because most of the people affected by the closure will be relocated within the region. Upon closure, local traffic volumes should decrease slightly. Table S-3 presents a summary of the effects expected to result from the closure of Cameron Station.

The most visible effect of the closure will be the change in land use once Cameron Station is sold. Contamination assessments and any required remediation will be completed before this occurs.

Realignment of Activities to Fort Belvoir

The most significant adverse effects of the BRAC projects at Fort Belvoir will be the increase in traffic volumes and potential changes in commuter patterns. To assess the effects of these developments, future-year traffic forecasts were prepared using a region-wide transportation model. Land use assumptions were based on current-year estimates and future-year forecasts that were developed by individual jurisdictions and refined and compiled by the Metropolitan Washington Council of Governments into the *MWCOG Cooperative Forecasts, Round IV.*

Baseline transportation systems were defined for each of the analysis years (i.e., 1995, 2000, and 2010) in order to provide a benchmark for determining the impact of the proposed development. The baseline systems contain improvements that are planned or programmed by public agencies to be in place, and any other improvements required to accommodate future-year baseline traffic conditions. The baseline transportation systems encompass the principal travel modes in northern Virginia. These include the roadway network, the high-occupancy vehicle (HOV) lane network, and the existing and planned transit systems (rail and bus).

Table S-3
SUMMARY OF EFFECTS OF CLOSURE ON CAMERON STATION*

Resource	Effect
Physiography & Topography	No significant effects expected.
Geology & Groundwater	No significant effects expected. However, reuse could be affected by the 100-year floodplain that encompasses 97 percent of the site.
Soils	No significant effects expected. Implementation of best management practices during redevelopment will minimize potential effects.
Surface Water	No impact
Climate & Air Quality	No impact
Vegetation	No impact
Wildlife	No impact
Wetlands	No impact
Aquatic Biota	No impact
Threatened & Endangered Species	No impact
Land Use	The land use at Cameron Station will change significantly under the proposed reuse scenario.
Population	3,835 positions will be realigned as part of the closure of Cameron Station. However, this is not significant because the personnel shifts occur within the same region. The loss of 112 civilian and 2 military positions is not considered to be a significant regional impact.
Housing	No significant effects expected
Employment	3,949 positions will be lost when Cameron Station is closed. However, all but 114 of these positions are being realigned to other posts within the region and no significant effects are expected.
Income	No significant effects expected because the personnel being realigned are expected to remain in the region.
Community & Army Facilities	No significant effects expected because additional facilities will be constructed to replace those eliminated
Traffic & Transportation	The closure should reduce traffic volumes somewhat. Additional traffic analysis will be needed when a specific reuse plan is developed.
Cultural Resources	NHPA Section 106 and 110 coordination will be completed by the Army before disposal.
Hazardous Materials	Contamination assessments are being conducted. Remediation will be completed as necessary.

*All numbers for personnel in this table are subject to slight fluctuations and are therefore approximate.

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The development scenarios that were evaluated for the traffic analyses are:

- Cameron Station--760,000 gross square feet of commercial space and 1,800 dwelling units to replace existing development; in place by 2000
- Fort Belvoir Base Realignment and Closure--a net increase of 3,856 jobs on the North Post and the Main Post; in place by 1995
- Fort Belvoir Concept Development Plan--a net increase of 1,500 jobs and 1,500 dwelling units on the North Post and the Main Post; in place by 2000
- EPG--a total of 1,165,000 gross square feet of commercial space and 525 dwelling units in 1995; 4.1 million square feet of commercial space and 2,275 dwelling units in 2000; and 9.7 million square feet of commercial space and 5,600 dwelling units in 2010

As the Washington, D.C., metropolitan area continues to grow during the next 20 years, there will be a need to improve and enhance the current transportation system in northern Virginia. The Virginia Department of Transportation, Fairfax County, City of Alexandria, Metropolitan Washington Council of Governments, and the Washington Metropolitan Area Transit Authority have developed plans to address the anticipated needs. Construction of the Fairfax County Parkway and the Franconia-Springfield Parkway, the extension of the Shirley Highway HOV express lanes, the planned extension of the Metrorail system to Franconia-Springfield, initiation of regional commuter rail service, and the widening of the Capital Beltway are examples of actions geared to improve the region's mobility.

Traffic generated by the planned development at Fort Belvoir, EPG, and Cameron Station will affect area traffic conditions. Determining the number of trips each of these developments will generate, as well as the travel patterns these trips will create, is relatively straightforward. See Figure S-1 for baseline and BRAC traffic impacts. Determining the specific off-site improvements that these new developments will require, as well as the additional needs continually being created by other regional development, is more difficult. Many of the off-site improvements, which are identified as being needed to support one or more of the Army developments, would be required within several years even without any Army development. The Army's developments account for merely a part of the total development-related transportation needs in northern Virginia and, in most cases, merely accelerate the need for an improvement that would be required at a later date regardless of Army activity.

Mitigation

Practicable highway improvements necessitated by construction of the BRAC projects at Fort Belvoir will be determined jointly and will be funded as negotiated by the

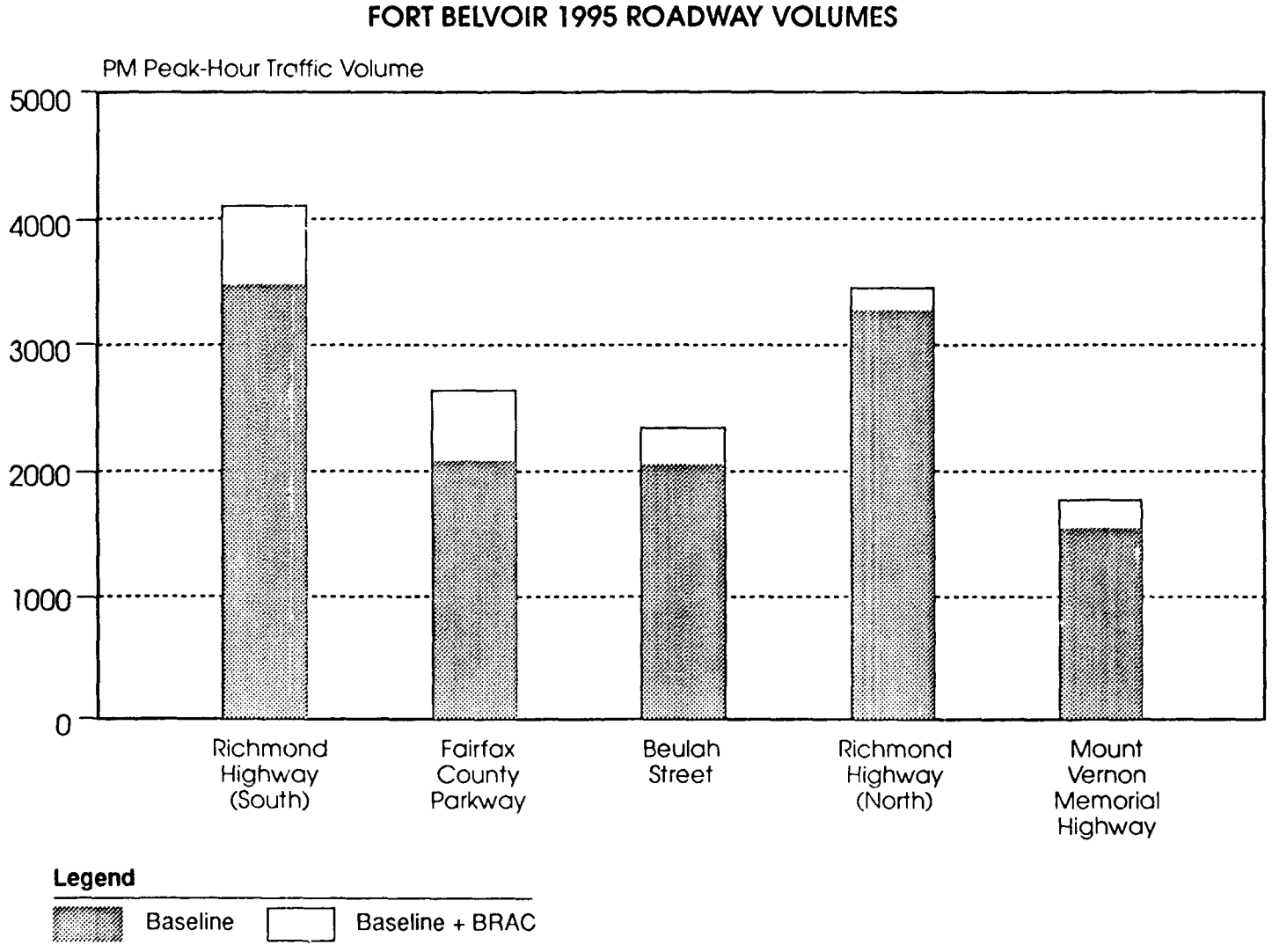


Figure S-1
Impact of BRAC Traffic

Virginia Department of Transportation, Fairfax County, and the Department of the Army. These improvements include the addition of left- and right-turn lanes, traffic signals or signal upgrades, and traffic lanes or participation in new highway projects. These improvements will help to alleviate traffic generated by the Army development south of Telegraph Road, between Backlick Road and Beulah Street.

Approximately 2.8 acres of nontidal wetlands lost by the construction of the Headquarters Complex and BRAC Roads will be replaced in keeping with the President's policy of "no net loss of wetlands." Chesapeake Bay Preservation Areas have been mapped for all of the proposed BRAC sites, and the Army will comply with the provisions of the Chesapeake Preservation ordinance adopted by Fairfax County to minimize the effects of these projects on the Chesapeake Bay and its tributaries. Best management practices (BMPs), including stormwater management, will reduce the amount of sedimentation during and after construction of the new projects.

Oversized box culverts, which allow the safe movement of wildlife between habitat areas in the genetic corridor, will be incorporated into the design of BRAC Roads. A genetic corridor is defined as a band of native vegetation that allows for the movement of species between larger patches of habitat, thus, allowing species to survive in landscapes where they would not normally occur. In addition to the box culverts, a 250- to 300-foot buffer of native vegetation will be maintained to the north and west of the Headquarters Complex to ensure that the genetic corridor is not severed in this area. All cultural resource surveys will be completed for each of the BRAC project sites before construction begins.

The BRAC Roads, the commissary, post exchange, and exchange branch projects will provide some of the road improvements and additional services necessary to accommodate the net population increase of 3,856 people expected at Fort Belvoir as a result of the BRAC activities.

Table S-4 presents a summary of the effects of the preferred alternative for each project and Table S-5 summarizes the cumulative effects of all of the BRAC actions at Fort Belvoir. Figure S-2 shows the approximate location of each of the BRAC projects at Fort Belvoir. Table S-6 summarizes the status of compliance with environmental quality protection statutes for each BRAC project. Environmental effects will be mitigated. All federal, state, and local regulations will be complied with during the development of the BRAC projects. All required permits will be obtained.

Realignment of Activities to Fort Myer

No significant adverse effects are expected to result from realignment of activities to Fort Myer. Final site design for each of the four planned construction projects will minimize cut and fill. Cultural resource surveys and subsurface soil investigations will be completed for each of the sites before construction begins.

Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 1 Headquarters Complex Effect
Physiography & Topography	Minor impact because final site design will minimize cut & fill.
Geology & Groundwater	No impact.
Soils	No impact because soils have no building constraints.
Surface Water	Minor impact because of an eph al stream on site.
Climate & Air Quality	No impact.
Wildlife Genetic Corridor	Minor impact because construction will constrict corridor. However, site design will include 250- to 300-foot vegetated buffer to maintain corridor.
Vegetation	No impact.
Wildlife	Minor impact because road kills could increase; vegetated buffer (see "Wildlife Genetic Corridor" above) can minimize.
Game Species	Same as above.
Wetlands	Minor impact because .4 acres of nontidal wetlands were identified during the jurisdictional delineation as being affected. The affected wetlands will be replaced.
Aquatic Biota	No impact.
Threatened & Endangered Species	No impact.
Land Use	No impact because project is compatible with existing land use.
Population	Minor impact because project will increase population at Fort Belvoir by 3,208 employees.
Housing	No impact.
Employment	Minor impact because project will increase employment at Fort Belvoir by 3,208 employees.
Community & Army Facilities	Minor impact because project will increase demand on some facilities; will generate an additional 6 tons per day of solid waste, will participate in recycling program.
Traffic & Transportation	Major impact because a road network will be needed. BRAC 3, north, will mitigate effect.
Cultural Resources	Impacts will be minimal because a Phase I survey will be completed on the site.
Hazardous Materials**	No impacts anticipated. Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

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Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 2 Industrial Park Effect
Physiography & Topography	Minor impact because site is located adjacent to closed debris landfill.
Geology & Groundwater	No impact.
Soils	Minor impact because soils are 100 percent high water table; may present engineering constraints that could affect site layout.
Surface Water	No impact.
Climate & Air Quality	No impact.
Wildlife Genetic Corridor	No impact.
Vegetation	No impact.
Wildlife	No impact.
Game Species	No impact.
Wetlands	No impact.
Aquatic Biota	No impact.
Threatened & Endangered Species	No impact.
Land Use	No impact because project is compatible with existing land use.
Population	Minor impact because project will increase population at Fort Belvoir by 155 employees.
Housing	No impact.
Employment	Minor impact because project will increase employment at Fort Belvoir by 155 employees.
Community & Army Facilities	Minor impact because project will increase demand on some facilities; will generate an additional 0.32 tons per day of solid waste, will participate in recycling program.
Traffic & Transportation	Minor impact because a local road network will be needed. BRAC 3, south, will mitigate effect.
Cultural Resources	Impact will be minimal because a Phase I survey will be completed on the site.
Hazardous Materials**	No impacts anticipated. Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

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**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

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Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 3, North BRAC Roads Effect	BRAC 3, South BRAC Roads Effect
Physiography & Topography	Minor impact because final site design will minimize cut & fill.	Minor impact because final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	7 percent hydric soil. 19 percent high water table; 11 percent steep slopes; may present engineering constraints that could affect site layout.	5 percent high water table; may present engineering constraints that could affect site layout.
Surface Water	Minor impact, will need culverts to minimize effects.	Minor impact will need culverts to minimize effects.
Climate & Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	Minor impact because the road will be designed with bridges and box culverts to permit safe movement of wildlife within corridor.	No impact; outside corridor.
Vegetation	Minor impact because clearing will be required in the right-of-way.	Minor impact because minimal clearing will be required.
Wildlife	Minor impact because road kills could increase; box culverts (see above) could minimize numbers of road kills.	Minimal effects are expected because of the developed nature of most of the right-of-way.
Game Species	Same as above.	Same as above.
Wetlands	Minor impact because approximately 2.1 acres of nontidal wetlands will be affected. All of the affected wetlands will be replaced.	Minor impacts expected because approximately .3 acres of nontidal wetlands will be affected. All of the affected wetlands will be replaced.
Aquatic Biota	Minor impact because of temporary construction impacts; best management practices will be used to minimize downstream sedimentation.	Minor impact because of temporary downstream effects during construction; best management practices will be used to minimize downstream sedimentation.
Threatened & Endangered Species	Minor impact expected, however, a complete survey required for final right-of-way; wood turtles located near intersection with Woodlawn Road.	No impact.
Land Use	No impact.	No impact.
Population	No impact.	No impact.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Community & Army Facilities	Will mitigate effects of BRAC 1.	Will mitigate effects of BRAC 2.
Traffic & Transportation	Should improve traffic locally.	Should improve traffic locally and isolate truck traffic.
Cultural Resources	Impacts will be minimal because a Phase I survey will be completed for the right-of-way.	Impacts will be minimal because a Phase I survey will be completed for the right-of-way.
Hazardous Materials**	No impact.	No impact.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 4 Commissary Warehouse Addition Effect	BRAC 5 Post Exchange Effect	BRAC 6 Commissary Effect
Physiography & Topography	No impact.	No impact.	Final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.	No impact.
Soils	No impact.	Minor impact 100 percent high water table; possible building constraints that could affect site layout.	Minor impact 100 percent high water table; possible building constraint that could affect site layout.
Surface Water	No impact.	No impact.	No impact.
Climate & Air Quality	No impact.	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact.	No impact.
Vegetation	No impact.	No impact; site already cleared.	No impact.
Wildlife	No impact.	No impact.	No impact.
Game Species	No impact.	No impact.	No impact.
Wetlands	No impact.	No impact.	No impact.
Aquatic Biota	No impact.	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.	No impact.
Land Use	No impact.	No impact because site is compatible with existing land use.	No impact because site is compatible with existing land use.
Population	No impact.	Will increase population.	Will increase population.
Housing	No impact.	No impact.	No impact.
Employment	No impact.	Will increase employment.	Will increase employment.
Community & Army Facilities	No impact.	Minor impact; however, project will mitigate effects of BRAC (Cameron Station Post Exchange closure); will increase solid waste generation, will participate in recycling program (specifically cardboard recycling).	Minor impact; however, project will mitigate effects of BRAC (Cameron Station Commissary closure); will increase waste generation, design will accommodate cardboard recycling.
Traffic & Transportation	No impact.	Minor impact because project will increase local traffic.	Minor impact because project will increase local traffic.
Cultural Resources	No impact.	No impact.	No impact.
Hazardous Materials**	No impact.	No impact.	No impact.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 7 Administration Facility Effect	BRAC 8 Material Research Laboratory Effect
Physiography & Topography	No impact.	Minor impact because final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	No impact.	Minor impact because soils are 15 percent high water table; may present engineering constraints that affect site layout.
Surface Water	No impact.	No impact.
Climate & Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	No impact because project is compatible with existing land use.	No impact because project is compatible with existing land use.
Population	Minor impact because project will increase population at Fort Belvoir by 351 employees.	Minor impact because project will increase population at Fort Belvoir by 200 employees.
Housing	No impact.	Minor impact because project will increase area demand slightly.
Employment	Minor impact because project will increase employment at Fort Belvoir by 351 employees.	Minor impact because project will increase employment at Fort Belvoir by 200 employees.
Community & Army Facilities	No impact on most facilities; will generate an additional 0.72 tons per day of solid waste, will participate in recycling program.	Minor impact because project will increase demand on some facilities; will generate an additional 0.38 tons per day of solid waste, will participate in recycling program.
Traffic & Transportation	Minor impact because project will increase local traffic.	Minor impact because project will increase local traffic.
Cultural Resources	No impact.	Impacts will be minimized because a Phase I survey will be completed on the site.
Hazardous Materials**	No impact because asbestos in building will be removed before renovation.	The site will be cleared before construction. No impact because minimal amounts of hazardous materials will be generated and disposed of according to regulations.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table S-4
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR*

Resource	BRAC 9 Exchange Branch Effect	BRAC 10 Modify Buildings 1466 & 1445 for Base Closure Effect
Physiography & Topography	Minor impact because final site design will minimize cut & fill.	No impact.
Geology & Groundwater	No impact.	No impact.
Soils	No impact.	No impact.
Surface Water	No impact.	No impact.
Climate & Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	Minor impact because of the change in land use from troop cantonment to community facility.	No impact.
Population	Minor impact because project will increase population slightly.	Minor impact because project will increase population at Fort Belvoir by 206 employees.
Housing	No impact.	No impact.
Employment	Minor impact because project will increase employment slightly.	Minor impact because project will increase employees at Fort Belvoir by 206 employees.
Community & Army Facilities	Will mitigate effects of BRAC (Cameron Station closure).	No impact.
Traffic & Transportation	Minor impact because project will increase local traffic.	Minor impact because project will increase local traffic.
Cultural Resources	Needs Phase I survey.	No impact.
Hazardous Materials**	No impact, even though project will have underground storage tanks (fuel oils, degreasers).	No impact because asbestos in building will be removed before renovation.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

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Table S-5
SUMMARY OF CUMULATIVE EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR

Resource	Effect
Physiography & Topography	Minor impact, final site designs will minimize cut and fill.
Geology & Groundwater	No impact.
Soils	Minor impact because BRACs 2, 3, 5, 6, and 8 contain soils that may present engineering constraints that could affect site layout.
Surface Water	Minor impact because BRACs 1 and 3 will require culverts.
Climate & Air Quality	No impact.
Wildlife Genetic Corridor	Minor impact because the buffer at BRAC 1 and the box culverts at BRAC 3 will minimize the effects of these projects.
Game Species	Same as above
Wetlands	Minor effects expected. Approximately 2.8 acres of wetlands will be affected by these projects. Wetlands will be constructed on other areas of the post.
Aquatic Biota	Minor temporary construction impacts will occur at BRAC 3; best management practices will be used to minimize downstream sedimentation.
Threatened & Endangered Species	Minor effects expected. A survey for wood turtles will be completed along the entire right-of way for BRAC 3. Box culverts in road design will allow safe movement of wildlife.
Land use	No impact.
Population	Minor impact because of a net increase of 18% (3,856 people) on post.
Housing	No impact.
Employment	Minor impact because of an increase of 24% (3,856 employees) on post.
Community & Army Facilities	Minor impacts are expected because of the proposed BRAC projects. Solid waste generation will increase by approximately 18% (7.42 tons per day). All of the eligible BRAC projects will be included in the post-wide recycling program. BRACs 5, 6, and 9 will mitigate closure of similar facilities at Cameron Station.
Traffic & Transportation	Major impacts even though BRAC 3 will mitigate for BRACs 1 and 2 locally. BRACs 1, 2, 4, 5, 6, 7, 8, 9, and 10 will increase traffic around the post. The Army will coordinate its traffic improvement plans with state and local highway departments to mitigate the regional transportation impacts generated by both the Army and local growth. The improvements will include the addition of left- and right-turn lanes, traffic signals or signal upgrades, and additional lanes or participation in new highway projects.
Cultural Resources	Phase I surveys will be completed before construction begins on BRAC projects. The potential effects on historic properties will be assessed in accordance with the Army Programmatic Agreement of February, 1990.
Hazardous Materials**	The site will be cleared of hazardous materials. No impacts are expected because the minimal amounts of hazardous wastes that are generated or stored at BRACs 1, 2, and 8, and the asbestos encountered during the completion of BRACs 7 and 10 will be handled according to regulations. BRAC 9 will have underground storage tanks.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.
**If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

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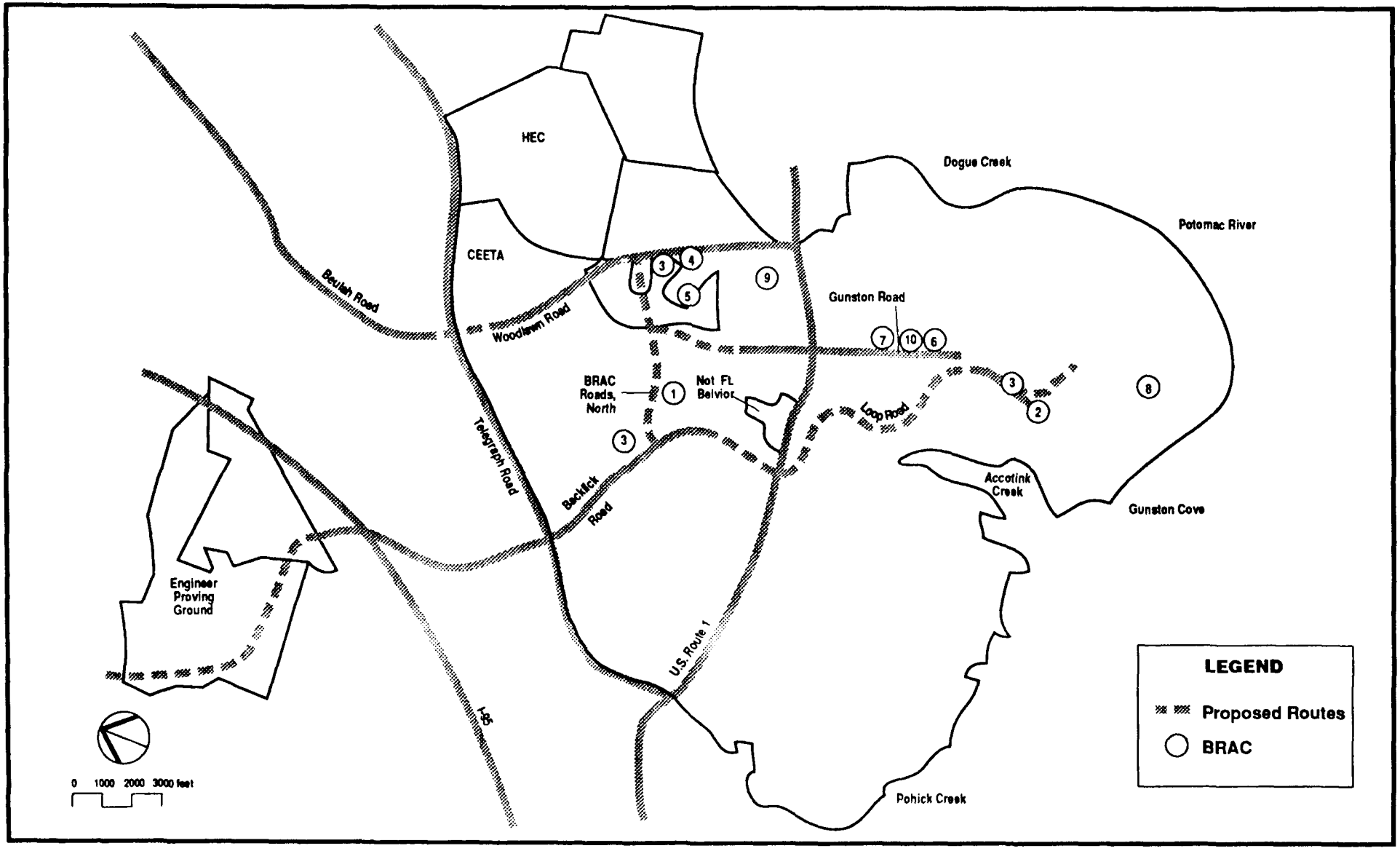


Figure S-2
Locations of Fort Belvoir BRAC Sites

Table S-6
COMPLIANCE WITH ENVIRONMENTAL QUALITY PROTECTION STATUTES AND OTHER ENVIRONMENTAL REVIEW REQUIREMENTS FOR BASE CLOSURE ACTIONS, MDW

Installation	Proposed Action	Historic Preservation Acts	Clean Air Act	Clean Water Act & CBPA	Endangered Species Act	Harbors, Scenic River Acts	Watershed Protection Act	E.O. 11988, Floodplain Management	E.O. 11990, Wetlands Protection	RCRA
Cameron Station	Closure	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
Fort Belvoir	Headquarters Complex	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Industrial Park	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	BRAC Roads	1	Complies	2	1 and 2	2	2	2	2	2
	Commissary Warehouse Addition	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Post Exchange	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Commissary	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Administration Facility	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Material Research Facility	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Exchange Branch	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Modify Buildings 1466 & 1445	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	ISC Personnel Realignment	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies
Fort Myer	DOL	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Commissary	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	PX Expansion	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Shoppette	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
Fort McNair	MDW Information Management Personnel Realignment	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies

Legend:
E.O. = Executive Order
CBPA = Chesapeake Bay Preservation Act
1 = Coordination in process, full compliance anticipated
2 = Detailed studies in process, full compliance anticipated

Increases in stormwater runoff at each of the project locations will be mitigated by BMPs and the implementation of a stormwater management plan that will contain post-construction runoff at pre-construction levels. Wetlands, Chesapeake Bay Preservation Areas, threatened and endangered species, wildlife, game species, and aquatic biota will not be affected by any of the proposed actions.

The realignments will increase the population at Fort Myer by 192 people. This additional population will increase the amount of solid waste generated at the post. The increased solid waste will be mitigated by including the new activities in Fort Myer's post-wide recycling program. The increased population will require additional parking areas on post and may require that some on-post roads be upgraded.

The solvents, fuels, battery acids, greases, and oils generated and stored by the logistics complex will be handled in accordance with all applicable county, state, and federal regulations.

Table S-7 presents a summary of the effects of the proposed BRAC actions at Fort Myer.

Realignment of Activities to Fort McNair

The realignment of two people to Fort McNair will not have any significant adverse effect on any resource.

ARMY COMMITMENTS

In order to minimize the effects of the proposed BRAC actions on the environment the Army will:

1. Mitigate public highway impacts by contributing their fair share; encourage car pooling and mass transit to reduce Army traffic impacts.

2. Provide and monitor oversized culverts for wood turtle and other small animal's use in the wildlife genetic corridor. Develop a wildlife genetic corridor management plan and revise the Natural Resources Management Plan.

3. Ensure no net loss of wetlands.

4. Perform no work for BRAC projects in the streams between March 15 and June 30 at Fort Belvoir or between March 15 and June 1 at Fort Myer.

5. Prepare additional NEPA analyses for BRAC projects before construction.

6. Prepare NEPA analyses for the disposal and reuse of Cameron Station.

7. Coordinate with the appropriate agencies under Section 106/110 of the National Historic Preservation Act before beginning BRAC construction.

Table S-7
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT MYER*

Resource	Commissary Effect	Shoppette Effect
Physiography & Topography	Minor impact because final site design will minimize cut & fill.	Minor impact because final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed to determine impact.	Subsurface investigations needed to determine impact.
Surface Water	Minor impact because stormwater runoff will increase. This will be mitigated by a stormwater management plan.	No impact.
Climate & Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	Minor impact because project will change land use from open space to community facilities.	No impact.
Population	Minor impact because project will increase population at Fort Myer by 28 employees.	Minor impact because project will increase population at Fort Myer slightly.
Housing	No impact.	No impact.
Employment	Minor impact because project will increase employment by 28.	Minor impact because project will increase employment at Fort Myer slightly.
Income	No impact.	No impact.
Community & Army Facilities	Minor impact because a project will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program.	Minor impact because project will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program.
Traffic & Transportation	Minor impact because additional parking areas needed, onpost road upgrades may be required.	Minor impact because additional parking areas needed, onpost road upgrades may be required.
Cultural Resources	Phase I surveys will be completed before construction begins on BRAC projects. The potential effects on historic properties will be assessed in accordance with the Army Programmatic Agreement of February, 1990.	Phase I surveys will be completed before construction begins on BRAC projects. The potential effects on historic properties will be assessed in accordance with the Army Programmatic Agreement of February, 1990.
Hazardous Materials	No impact because minimal amounts will be generated and disposed of according to regulations.	No impact.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

Table S-7
SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT MYER*

Resource	Post Exchange Expansion Effect	Logistics Complex Effect
Physiography & Topography	Minor impact because final site design will minimize cut & fill.	Minor impact because final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed to determine effects.	Subsurface investigations needed to determine effects.
Surface Water	No impact.	Minor impacts because surface-water runoff will increase. This will be mitigated by a stormwater management plan.
Climate & Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	No impact.	No impact.
Population	Minor impact because project will increase population at Fort Myer slightly.	Minor impact because project will increase population at Fort Myer by 161 employees.
Housing	No impact.	No impact.
Employment	Minor impact because project will increase employment at Fort Myer slightly.	Minor impact because project will increase employment at Fort Myer by 161 employees.
Income	No impact.	No impact.
Community & Army Facilities	Minor impact because project will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program.	Minor impact because project will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program.
Traffic & Transportation	Minor impact because additional parking areas needed, onpost road upgrades may be required.	Minor impact because additional parking areas needed, onpost road upgrades may be required.
Cultural Resources	Phase I surveys will be completed before construction begins on BRAC projects. The potential effects on historic properties will be assessed in accordance with the Army Programmatic Agreement of February, 1990.	Phase I surveys will be completed before construction begins on BRAC projects. The potential effects on historic properties will be assessed in accordance with the Army Programmatic Agreement of February, 1990.
Hazardous Materials	No impact.	Minor impacts because multiple solvents, fuels, battery acids, greases, and oils will be handled in accordance with all applicable county, state, and federal regulations.

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

8. Consult with the U.S. Fish and Wildlife Service as required under the Endangered Species Act before constructing the Ammunition Storage Facility (MCA 25), Reserve Center/OMA (80th Div) (MCA 38S), and the Tompkins Basin Armed Forces Recreation Area (NAF 2).

9. Revise the Master Plan for Fort Belvoir, including:

   - Preparing cumulative NEPA analyses for all proposed projects
   - Addressing the change in mission from predominantly training and testing to predominantly administration
   - Addressing the projected employment increase
   - Addressing the parking standard of 1.5 employees per parking space
   - Elevating approval for all Fort Belvoir projects required before the Master Plan is revised
   - Preparing a transportation management program
   - Addressing school infrastructure requirements

10. Revise the Master Plan for Fort Myer, including:

   - Designating special streets and special places
   - Minimizing impacts to the buffer and screen between Fort Myer and Arlington National Cemetery
   - Preparing a transportation management program

11. Prepare a site-specific NEPA analysis for the Engineer Proving Ground Initiative.

12. Minimize impacts to Resource Protection Areas.

13. Comply with Superfund Amendment and Reauthorization Act (SARA), Title III (Emergency Planning and Community Right-to-Know) according to Department of Defense guidelines. This will emphasize recycling and minimize the generation of hazardous waste.

14. Coordinate pesticide storage with the Virginia Pesticide Control Board.

Fort Belvoir Concept Development Plan

Several of the CDP projects planned at Fort Belvoir have the potential to affect physical, biological, and cultural resources. The analysis of the effects of these projects on resources at Fort Belvoir has been limited to the preliminary sites presented in this document and is included to provide, to the extent possible, a cumulative context for the BRAC projects. This EIS is not the decision document for the CDP projects. The cumulative environmental analyses and documentation for these projects will be included in the Master Plan and its associated EIS. These analyses could result in one or more of the CDP projects being re-sited. The following discussion of the effects of the Fort Belvoir CDP projects includes only those resources that appear to be adversely affected at this time.

Soils

Several facilities have been proposed for areas where soil may present building constraints. Hydric soil, high water tables, and steep slopes may impose both physical and regulatory constraints on development. Site-specific subsurface investigations will be necessary before the final design is developed for those facilities. Even the sites that are not identified as having soil that could constrain site configuration and design could affect the environment. Grading and excavation will make sediments more susceptible to erosion and dispersal by wind and surface water runoff. BMPs and a regional stormwater-management system will be used to control erosion.

Surface Waters

Tompkins Basin Armed Forces Recreation Area (NAF 2) has the potential for affecting the quality of surface water because of the proposed shoreline development and channel dredging for the marina. The effects caused by the remaining sites associated with surface water will be minimized by observing required buffer areas. The BMPs used to control erosion will also help protect the quality of surface water.

Genetic Corridor

A genetic corridor is a band of native vegetation between large areas of habitat that allows the movement of animals between the habitat areas. In addition, genetic corridors enable species with large home range requirements to populate areas, which would not otherwise occur (Redford and Fonseca, 1986). If constructed, the 1,500 housing units (AFH 3) are expected to have the greatest effect on the wildlife genetic corridor. Site development would virtually eliminate all of the remaining unfenced wooded corridor. Several other facilities will also have an effect on this corridor: the Old Guard Horse Stables (MCA 10), the Golf Course (NAF 5), the Defense Reutilization and Marketing Office (MCA 36), and the Ammunition Storage Facility (MCA 25).

The extension of Gunston Road (MCA 16) could also have a detrimental effect on the dispersal of species across the roadways.

It will be important to maintain a contiguous buffer of native vegetation throughout the corridor that will allow wildlife to pass freely between the wildlife refuges that are north and south of the installation. Suitable alignments and widths for the buffer will be adopted from Fort Belvoir's Natural Resources Management Plan.

Vegetation

AFH 3 and NAF 5 will require the clearing of large amounts of vegetation. Fort Belvoir will comply with Fairfax County's tree preservation ordinance. The objective of the ordinance is to retain canopy areas on development sites to minimize fragmentation. A significant beautification program, including planting trees and landscaping throughout Fort Belvoir, has been conducted and will continue for these projects.

Wildlife

Increased use of herbicides and pesticides to maintain NAF 5 could lead to increased animal mortality. However, Fort Belvoir will develop an EPA-reviewed, integrated pest management program to minimize the effects of the herbicides, fungicides, and pesticides used on the golf course. Overall, competition for food and territories may increase as animals are displaced by construction activities, resulting in stressed populations. As part of the Natural Resources Development Plan, Fort Belvoir will undertake an integrated protection program for wildlife habitat. Brush shelters will be used to enhance wildlife habitat and to restore disturbed sites.

Wetlands

Large areas of wetlands are associated with AFH 3 and NAF 5, which may significantly reduce the scope of the proposed projects. In addition, the Fixed-Wing Runway Extension (MCA 9); Headquarters, U.S. Air Force Intelligence (MCA 13); Virginia National Guard Armory/Headquarters (MCA 15); MCA 16; D.C. Army National Guard Academy (MCA 21); EPG Test/Storage Facilities (MCA 24); D.C. Army National Guard Cantonment Area (MCA 28); Loop Road (MCA 31); MCA 36; and the 500-person Administrative Facility (MCA 42) either have wetlands on the site or are affected by the Resource Protection Area (RPA) boundaries required for wetlands located off the site.

Fort Belvoir, or the appropriate tenant, will secure a Clean Water Act Section 404 wetlands permit for activities in wetlands that require permits. Where required, wetlands will be enhanced, restored, or created to compensate for affected wetlands. The objective will be no net loss of wetland habitat.

Aquatic Biota

NAF 2 has the potential for having effects, particularly on Gunston Cove biota. In addition, the dredging required for NAF 2 and the Reserve Center/OMA (MCA 38) will have a temporary negative effect on the aquatic biota of Gunston Cove. Runoff of pesticides and herbicides from NAF 5 may affect aquatic biota. Aquatic species will also be affected by surface particulates, nutrients, or other pollutants of water quality. BMPs will be used to control runoff and to reduce soil erosion.

Threatened and Endangered Species

Boat traffic from both MCA 38, and NAF 2, could affect three nesting pairs of federally listed endangered bald eagles in the area. Fort Belvoir will prepare an eagle management plan, as part of the Natural Resource Management Plan, which will outline the steps required to minimize the effects of boat traffic on the birds. This plan may require that boating and other similar activities be curtailed in parts of Gunston Cove at critical times during the year.

Construction of AFH 3 may affect a population of wood turtles, a species that is a candidate for listing by the state as a threatened species. Site-specific surveys will be completed during the design phase of this project to determine the critical habitat requirements of the turtles on the site. Additional coordination with appropriate agencies will also be completed at that time.

Under the Natural Resources Management Plan, protection strategies will be developed to minimize effects on these and other protected species on the post. CDP sites will require adjustment if the threatened or endangered species are at risk.

Community and Army facilities

The CDP projects will include infrastructure to offset the demand on existing facilities created by the proposed population increase. However, these effects will be mitigated by the proposed construction of new infrastructure and Army facilities at Fort Belvoir, which will be consistent with the current Fort Belvoir Land Use Plan.

Traffic and Transportation

Traffic volumes on area roadways will increase above baseline levels. Additional highway construction and realignments, beyond what is currently needed to ease the existing traffic congestion, will be necessary to meet the increase in traffic volume and the change in traffic patterns. Improvements will be funded as agreed by VDOT, Fairfax County, and the U.S. Army.

Cultural Resources

NAF 2 has the potential for directly affecting an archeological site eligible for the National Register of Historic Places. Several other projects may affect sites that require further evaluation. Direct effects will be prevented by detailed site design. In areas where Phase I (investigative) surveys have not been completed, the surveys will be completed before construction begins, as will the coordination under Section 106 of the National Historic Preservation Act (NHPA).

Renovations of historic buildings or construction in the Historic District must be compatible with the architecture of the district. Several projects will require standing-structure surveys and will have design constraints because of their siting either within or next to the Historic District. The structures include the Operations Building Renovations (MCA 7); North Post Fire Station (MCA 12); Physical Fitness Center (MCA 14); warehouses (MCA 34); Consolidated Maintenance Shop (MCA 39); and Belvoir Village Whole-House Renewal (AFH 7), Gerber Village Whole-House Renewal (AFH 8), and Jadwin Loop Whole-House Renewal (AFH 10).

All historic properties will be identified and the effects of BRAC undertakings will be considered in accordance with NHPA, Section 106. This will be done after considering the comments of the Virginia State Historic Preservation Office and the Advisory Council on Historic Preservation about the location, design, and construction of the facilities.

Hazardous Materials

Because many of the CDP projects are still in the planning stage, determining the specific effects of hazardous materials is difficult. Activities that will require handling, storing, or disposing of hazardous materials will be required to comply with federal and state regulations and Fort Belvoir's spill prevention, containment, and control plan.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAFES	Army and Air Force Exchange Services
AFH	Army Family Housing
AMC	Headquarters, U.S. Army Materiel Command
AMTL	Army Materials Technology Laboratory
AQCR	Air Quality Control Region
BATES	Biological Assessment of Threatened and Endangered Species
BMP	best management practice
BRAC	base realignment and closure
BRDEC	Belvoir Research, Development and Engineering Center
CDP	Concept Development Plan (Fort Belvoir)
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIDC	Criminal Investigation Command
CO	carbon monoxide
DAPC	Virginia Department of Air Pollution Control
DCAA	Defense Contract Audit Agency
DCSLOG	Deputy Chief of Staff for Logistics
DEH	Directorate of Engineering and Housing
DLA	Defense Logistics Agency
DOD	Department of Defense
DOL	Directorate of Logistics
DRMO	Defense Reutilization and Marketing Office in base section
EBS	Environmental baseline study
EIFS	Economic Impact Forecast System
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
EPG	Engineer Proving Grounds
EQC	Environmental Quality Corridor
FCWA	Fairfax County Water Authority
gal/min	gallons per minute
gpd	gallons per day
gpm	gallons per minute
GSA	General Services Administration
HEC	Humphreys Engineer Center
HOV	high-occupancy vehicles
HQUSACE	Headquarters, U.S. Army Corps of Engineers
ISC	Information Systems Command
ISEC	Information Systems Engineering Command
IWR	Institute for Water Resources
JPPSPOWA	Joint Personal Property Shipping Office, Washington Area
lb/hr	pounds per hour
LOS	level-of-service

LPPCP	Lower Potomac Pollution Control Plant (Fairfax County)
MACOM	Major Command
MAI	MAAR Associates, Inc.
MCA	Military Construction Activity
MDW	Military District of Washington
mgd	million gallons per day
MOA	Memorandum of Agreement
MSA	Washington, D.C., Metropolitan Statistical Area
MSL	mean sea level
MSW	municipal solid waste
MY Plan	Multi-Year Plan
NAF	Non-Appropriated Funds
NCO	Noncommissioned Officer
NCR	National Capital Region
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NO_2	nitrogen dioxide
NOV	notice of violation
NRHP	National Register of Historic Places
O_3	ozone
PA	Preliminary Assessment
PCBs	polychlorinated biphenyls
PEPCO	Potomac Electric Power Company
ppm	parts per million
PX	post exchange
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
RMA	Resource Management Area
ROD	Record of Decision
RPA	Resource Protection Area
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SO_2	sulphur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SWCB	Virginia State Water Control Board
TSP	total suspended particulates
µg/l	micrograms per liter
USAEHA	U.S. Army Environment and Hygiene Agency
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
UST	underground storage tank
VDOT	Virginia Department of Transportation

Chapter 1.0
INTRODUCTION

1.1 BASE REALIGNMENT AND CLOSURE

The Defense Secretary's Commission on Base Realignments and Closures, the Commission, was chartered on May 3, 1988, by the Secretary of Defense to recommend military installations within the United States, its commonwealths, territories, and possessions for realignment and closure. Subsequently, the Defense Authorization Amendments and Base Closure and Realignment Act (P.L. 100-526, October 24, 1988) required the Secretary of Defense to implement the Commission's recommendations unless he rejected them in their entirety or the Congress passed, and the President signed, a joint resolution disapproving the Commission's recommendations.

The primary criterion used by the Commission for identifying candidate installations was the military value of the installation. However, cost savings were also considered, as were the current and projected plans and requirements for each military service. Lastly, the Commission focused its review on military properties and their uses, not military units or organizational or administrative issues.

On December 29, 1988, the Commission recommended changes at 145 military installations. Of this number, 86 are to be closed, five are to be closed in part, and 54 are to be changed, either an increase or decrease, as units and activities are relocated.

On January 5, 1989, the Secretary of Defense approved these recommendations and announced that the Department of Defense would implement them. The Congress did not pass a joint resolution disapproving the recommendations within the time allotted by the Act.

Therefore, the Act now requires the Secretary of Defense, as a matter of law, to implement these base realignments and closures (BRACs). Implementation must be initiated by September 30, 1991, and must be completed no later than September 30, 1995.

In accordance with its mandate, the Commission recommended Cameron Station for closure, largely because of a substantial lack of administrative space and problems with security, maintenance, electrical equipment, health, and safety related to its old and inefficient facilities. The Commission recommended in *Base Realignments and Closures Report of the Defense Secretary's Commission, December, 1988,* that the major activities at Cameron Station be relocated to Fort Belvoir, Virginia, which is within commuting distance. The Commission also recommended closure of the Army Material Technology Laboratory (AMTL) in Watertown, Massachusetts, and partial closure of Fort Meade and Fort Holabird, Maryland, with the realignment of those affected activities to Fort Belvoir. Information Systems Command (ISC) is to be realigned to Fort

Devens, Massachusetts, from Fort Belvoir, Fort Huachuca, and Fort Monmouth. The areas vacated by ISC at Fort Belvoir will be used for Criminal Investigation Command (CIDC) activities transferred from Fort Meade, Fort Holabird, and leased space in northern Virginia. The closure issues at the Massachusetts and Maryland facilities and the relocation of ISC activities to Fort Devens are addressed in separate environmental impact statements (EISs). Realignment of activities from these facilities to Fort Belvoir, Fort Myer, and Fort McNair is addressed in this study.

1.2 CONCEPT DEVELOPMENT PLAN

Realignments to Fort Belvoir because of base closures, the relocation of the Army Engineer School to Fort Leonard Wood, and the continued interest in Fort Belvoir as an administration center, have increased the need for planning growth at Fort Belvoir in a sound manner. Therefore, a Concept Development Plan (CDP) is being prepared to reflect the realignment actions as well as other future growth. The Fort Belvoir Master Plan will be revised to include the CDP, and appropriate National Environmental Policy Act (NEPA) analysis, beginning in fiscal year 1991.

Potential sites have been identified by Army planners for many of the projects proposed at Fort Belvoir. The alternatives for these CDP projects include changes in final siting, as well as the timing of project initiation. An evaluation of environmental constraints will be used to determine the actual locations of structure "footprints" for the proposed actions. To date, the CDP has shown the proposed locations for these projects. The site location and the "footprint" within the site could change if the new site is compatible with the land use plan at Fort Belvoir. Detailed NEPA documentation will be prepared for each of these actions, if appropriate, when they are nearer to completion.

Many of the projects discussed as part of the CDP are part of the Military District of Washington (MDW) Multi-year Plan (MY Plan). Projects on the MDW MY Plan have been approved by the Major Command (MACOM) for Fort Belvoir and have funding mechanisms in place through fiscal year 1997. In addition to the Fort Belvoir MACOM-approved projects, there are projects shown on the CDP that are either approved plans for other MACOMs (e.g., Army, National Guard, and CIDC) and other services or are projects that are currently planned and considered to be needed at Fort Belvoir.

1.3 PURPOSE AND SCOPE OF THE EIS

This EIS is being prepared in accordance with the provisions of NEPA, Army Regulation 200-2 (Environmental Effects of Army Actions), and the Council on Environmental Quality (CEQ) (40 CFR, Part 1500). NEPA provisions apply to two phases of the BRAC process:

- After the installation to be closed (or the activity to be realigned) is chosen, but before realignment and closure activities commence
- During the process of relocating functions to a receiving installation

The P.L. 100-526 dictates, however, that documents for base closure need not consider:

- The need for realigning or closing a military installation that has been selected for realignment or closure by the Commission
- The need for transferring functions to another military installation that has been selected as the receiving installation
- Alternative military installations to those selected (Section 204 (c) (2))

The primary purpose for this EIS is to identify the environmental impacts and adverse consequences of realignment and closure. The scope of this analysis is comprehensive in its inclusion of the social, economic, and environmental effects the closure of Cameron Station and the realignment of activities to Fort Belvoir and Fort Myer, Virginia, as well as Fort McNair, Washington, DC (Figure 1-1). The EIS also addresses the realignment of activities to Fort Belvoir from the AMTL in Massachusetts and from Fort Meade and Fort Holabird in Maryland, and the relocation of the ISC activities from Fort Belvoir. In addition, the EIS addresses the relocation of CIDC activities, and Defense Logistics Agency (DLA) and other Department of Defense activities from leased space within the National Capital Region (NCR) to Fort Belvoir, and the relocation of non-appropriated funds (NAF) and contractor personnel from Cameron Station to Fort Belvoir and Fort Myer. Environmental implications of reuse options at Cameron Station, to the extent that such options can be foreseen at this time, are also addressed. The proposed locations of the base-closure-related construction actions at Fort Belvoir are shown in Figure 1-2. Site-specific decisions on all proposed construction actions will be supported by subsequent NEPA analyses

The second major activity addressed in this EIS is the Fort Belvoir Concept Development Plan and its associated regional transportation plan. The CDP proposes more than 60 projects at Fort Belvoir through the year 2000 (Figure 1-2) (Keyes Condon Florance, et al. 1990). The analysis of the Concept Development Plan in this EIS focuses on the cumulative effects of future growth as projected in the CDP and considers existing and recent development activities. In addition, some agencies are consolidating activities currently in leased space with those being relocated to Fort Belvoir as part of P.L. 100-526. Further environmental impact analysis will be provided to accompany the Master Plan currently being prepared.

Special legislation approving a public-private development initiative for the Engineer Proving Grounds (EPG), the western portion of Fort Belvoir, opened the way for a

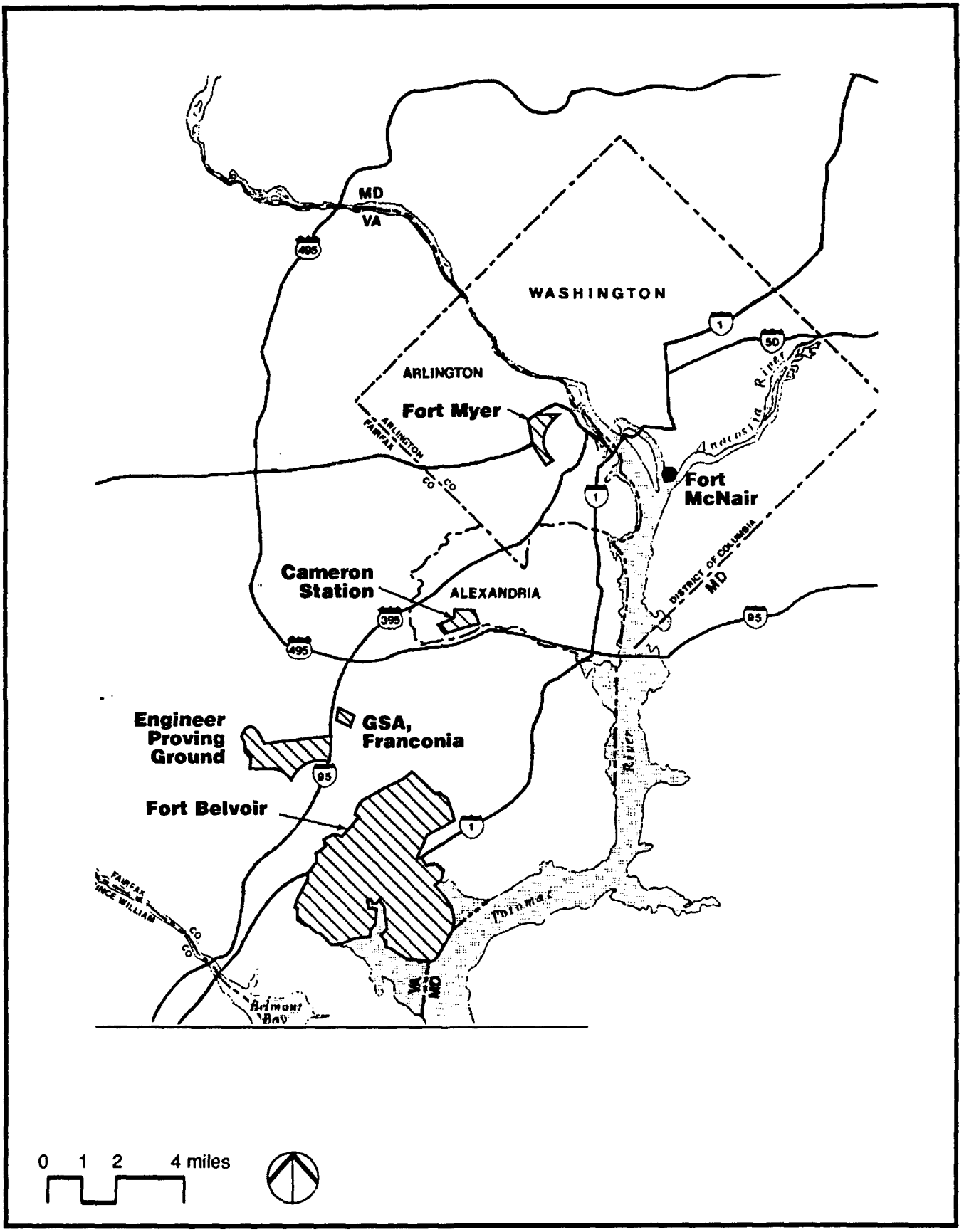


Figure 1-1
Project Area

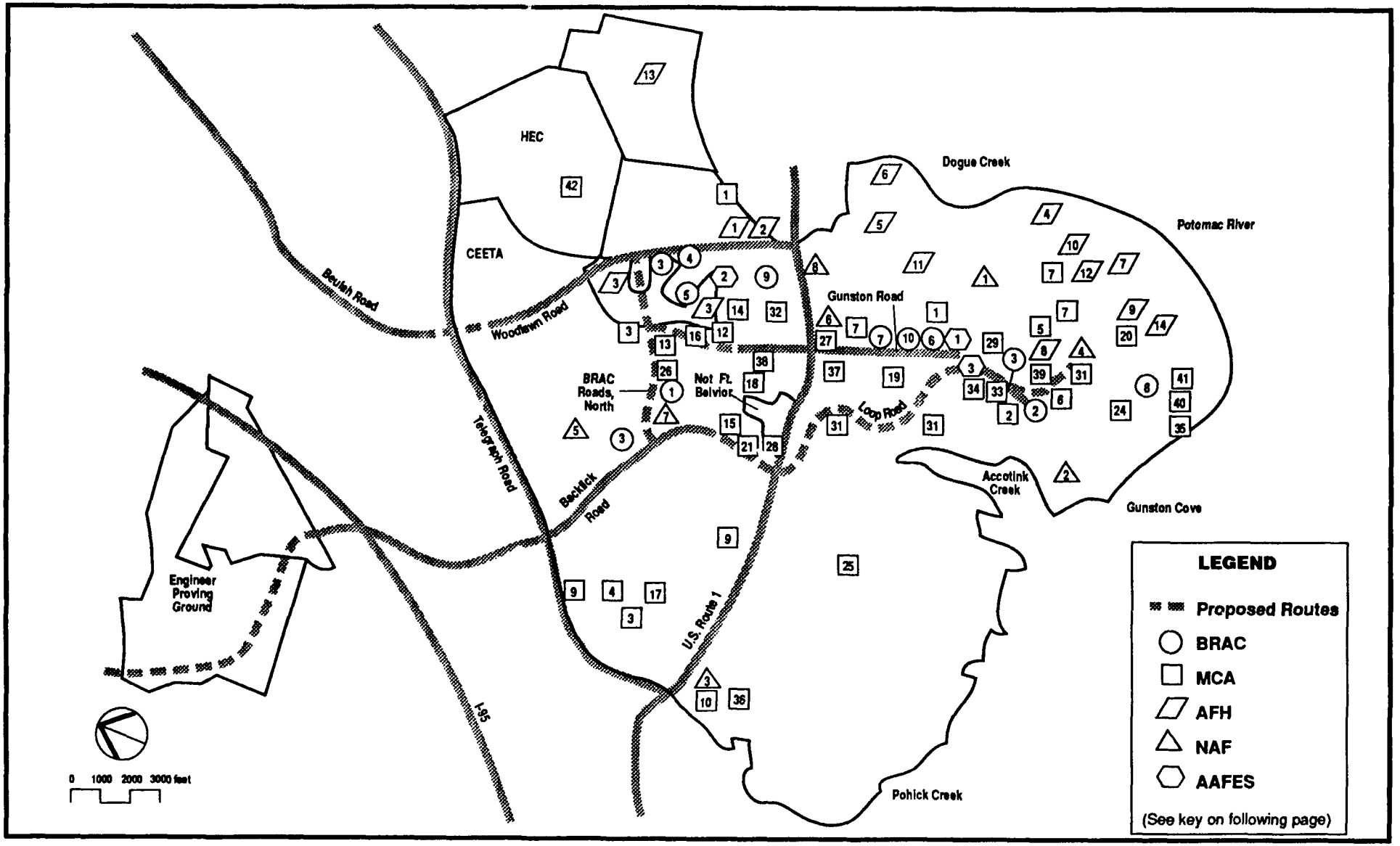


Figure 1-2
Locations of Fort Belvoir BRAC and Concept Development Plan Sites

Key to Figure 1-2
LOCATIONS OF FORT BELVOIR BRAC AND DEVELOPMENT PLAN SITES

Base Realignment and Closure (BRAC) Actions

1. Headquarters Complex
2. Industrial Park
3. BRAC Roads
4. Commissary Warehouse Addition*
5. Post Exchange
6. Commissary
7. Administration Facility (1465)
8. Material Research Facility
9. Exchange Branch
10. Modify Buildings 1466 and 1445 for Base Closure

Concept Development Plan Actions

Military Construction Activity (MCA)**

1. Child Development and Religious Education Centers
2. Electronics Supply and Maintenance Facility
3. D.C. Army National Guard Armory
4. D.C. Army National Guard Aircraft Parking Apron
5. Convert Buildings 206 and 208 to Classrooms
6. Veterinary Clinic
7. Operations Building Renovation, Engineer School Backfill
8. Telephone Switch Upgrade, Post-wide
9. Fixed-Wing Runway Extension
10. Old Guard Horse Stables
11. Main Sewer Line Upgrade, Post-wide
12. North Post Fire Station
13. Headquarters, Air Force Intelligence Agency
14. Physical Fitness Center
15. Virginia Army National Guard Armory/Headquarters (29th Light Infantry Division)
16. Gunston Road Extension
17. D.C. Army National Guard Hangar Addition
18. Seabee Operational Storage Facility
19. Renovate Heat Plant
20. Renovate Building 361 for ADP
21. D.C. Army National Guard Academy
22. Electrical Upgrade, Post-wide, Phase I
23. Lateral Sewer Line Repair, Post-wide
24. Relocate EPG Test/Storage Facilities
25. Ammunition Storage Facility
26. Information Systems Facility
27. CIDC Field Operations Building
28. D.C. Army National Guard Cantonment Area
29. Main Post Library
30. (There is no MCA 30)
31. Loop Road
32. Community Center/Welcome Center
33. Facility Engineer Maintenance Shop
34. Warehouses
35. Tactical Energy Systems Lab
36. Conforming Storage Building (DRMO)
37. Military Police Station
38. Reserve Center/OMA (80th Div)
39. Consolidated Maintenance Shop (DOL)
40. Electro-Optics Laboratory
41. Fatigue Test Facility
42. Potential 500-person Administrative Facility, HEC

Non-Appropriated Funds (NAF)

1. Youth Center
2. Tompkins Basin Armed Forces Recreation Area
3. Horse Stables
4. Benyuard Pool Addition
5. Golf Course
6. Corporate Fitness Center
7. Child Development Center
8. Temporary Lodging Facility

Army and Air Force Exchange Services (AAFES)

1. Fast Food Facility (Burger King™)
2. Fast Food Facility (Chicken)
3. Car Care Facility

Army Family Housing (AFH)

1. Lewis Heights Renewal, Phase 1
2. Lewis Heights Renewal, Phase 2
3. 1,500 NCO Housing Units (New)
4. Dogue Creek Village Whole-House Renewal
5. George Washington Village Whole-House Renewal
6. River Village Whole-House Renewal
7. Belvoir Village Whole-House Renewal
8. Gerber Village Whole-House Renewal
9. Visiting Officers' Quarters Renovation
10. Jadwin Loop Whole-House Renewal
11. Colyer Village Whole-House Renewal
12. Rossell Loop Whole-House Renewal
13. Woodlawn Village Whole-House Renewal
14. Fairfax Village Whole-House Renewal

*Authorization and funding for this project has been withdrawn. It is included for informational purposes because it was part of the original scope.
**MCA in this context is not a funding appropriation.

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proposed mixed-use development on this 820-acre[1] parcel. Approximately 3 million square feet of administrative office space will be built for the Army in exchange for the right to develop the remainder of the property. A separate EIS is being prepared for this action. However, information concerning the EPG is included in this EIS to show cumulative effects.

Two large development projects originally scheduled for the Fort Belvoir area, Headquarters, U.S. Army Material Command (AMC) and Headquarters, U.S. Army Corps of Engineers (HQUSACE), are no longer planned for their original proposed sites. The AMC facility, originally planned for a site on North Post, is currently planned to be included in the EPG development. The HQUSACE facility, originally planned at the Humphreys Engineer Center (HEC), has not been resited. The AMC development is addressed in detail in the EIS for the EPG development and is mentioned here for informational purposes only. The HQUSACE facility is not specifically addressed in either this EIS or the EPG EIS because it is not under consideration for development within the regions covered by either EIS.

Similarly, the General Services Administration (GSA) had announced plans to redevelop a 70-acre parcel at Franconia near Springfield, Virginia. During the scoping for the Fort Belvoir EIS this parcel was identified as a potential project needing its own environmental impact analysis. The project was to be analyzed in this EIS for its cumulative effects on Fort Belvoir. GSA, however, has since dropped plans to redevelop the parcel. Therefore, the GSA project is not included in the cumulative effects addressed in this EIS.

1.4 SCOPING OF THE EIS

Environmental issues relevant to the realignment and closure of Cameron Station, the realignment to Fort Belvoir of other Army functions, and the Fort Belvoir CDP were solicited from the public and government agencies and representatives in the summer and the fall of 1989. The CDP will provide the basis for updating the Fort Belvoir Master Plan. The scoping process began with the transmittal of a notice of intent to prepare the Fort Belvoir EIS, published in the *Federal Register* on June 23, 1989. Public notices describing the proposed action and announcing two public meetings were published in local newspapers and were also mailed to U.S. Environmental Protection Agency (EPA), Region III (NEPA Compliance Section and the Regional Administrator), the U.S. Fish and Wildlife Service (Regional Director), U.S. Soil Conservation Service, the National Marine Fisheries Service, Commonwealth of Virginia, local city and county officials, and to various public and civic organizations and individuals.

[1]All numbers for acreage, square footage, and personnel within this EIS are subject to slight fluctuations and are therefore approximate.

Public scoping meetings were held at Hayfield Secondary School in Fairfax County on August 8, 1989, and at Patrick Henry Elementary School in Alexandria on October 16, 1989. Public scoping comments were recorded through the preparation of meeting transcripts. Additional comments were subsequently received in the form of letters, which were accepted even after the end of the established response period (Appendix A).

Written comments were received from the following:

Virginia Council on the Environment
Virginia Chesapeake Bay Local Assistance Department
Virginia Department of Air Pollution Control
Virginia Department of Agriculture and Consumer Services
Virginia Department of Historic Resources
Virginia State Water Control Board
Fairfax County Public Schools
Northern Virginia Planning District Commission
Metropolitan Washington Council of Governments
Fairfax County Board of Supervisors
National Capital Planning Commission
Baker Engineers

1.4.1 IDENTIFIED ENVIRONMENTAL ISSUES

A wide range of issues were identified during project scoping. Several comments dealt with the timing of the Fort Belvoir EIS in relation to the EISs to be prepared for the EPG; for the AMC, which has been resited; and for the GSA Franconia project, which is no longer being considered.

Some of those commenting questioned the "piece-meal" approach. Others expressed concerns that all of the required NEPA issues would be addressed. Traffic and transportation planning were the most frequently discussed issues. Several people wanted to see public transportation options addressed and to be assured that plans would be integrated with public transportation plans wherever possible.

Environmental constraints discussed included wildlife and genetic corridors, development in the Accotink Wildlife Refuge, threatened and endangered species, wetlands, floodplains, soil erosion, steep slopes, the deer population, and maintenance of tree cover. Several comments were also received regarding air quality, and archeological and cultural resources as well as the maintenance of the military history collection at Cameron Station. Socioeconomic impacts at the closing and receiving installations, tax benefits, the tax base, and the fair market value of the land were also issues. Several of those commenting wanted to see that Virginia's new Chesapeake Bay legislation also was addressed, including the effects of erosion controls.

The potential of hazardous wastes being at Cameron Station (e.g., the possible buried transformers containing polychlorinated biphenyls [PCBs] and leaking underground fuel tanks) and the potential of hazardous chemicals being used at the receiving base because of the realignment were concerns. A comment was also received regarding the use of pesticides at Fort Belvoir.

The public was concerned about being kept informed of the Army's plans and how the transfer of information (e.g., through the task forces) would occur. Comments were received requesting that the City of Alexandria be addressed and that a jail not be considered as a reuse at Cameron Station. Public-sector master planning was requested to be coordinated with the preparation of the EIS document.

Public input and information transfer continues through the task forces set up to recommend reuse at Cameron Station. Dialogue will continue among the Army, government agencies, and the general public as the specifics of all the proposed actions proceed. In accordance with P.L. 100-256, installation closures and realignments are to be completed by September 1995.

1.4.2 AGENCY COORDINATION

The Department of the Army initiated agency coordination in the summer of 1989. The coordination was initiated to solicit comments and concerns regarding base closure at Cameron Station, major realignments of activities to Fort Belvoir, minor function realignments to Fort Myer and Fort McNair, and the Concept Development Plan activities at Fort Belvoir. Formal coordination with the U.S. Fish and Wildlife Service under Section 7 of the Federal Endangered Species Act was also initiated by the Army in the form of a Biological Assessment of Threatened and Endangered Species (BATES). The BATES for this project is being coordinated with the appropriate federal and state agencies. Coordination has also been initiated with the National Capital Planning Commission.

1.5 EIS REVIEW AND APPROVAL PROCESS

During the scoping process for this EIS, it was explained that both the draft and final versions of the EIS document would be published, in accordance with CEQ regulations for implementing NEPA, for review and comment by federal, state, and local agencies and by the general public. Notices were placed in the *Federal Register* each time the document was submitted for public and agency review. The final EIS comprises the draft EIS, public and agency comments on the draft EIS, the Army's response to comments, and any amendments to the EIS that are warranted.

The draft EIS was available for public review from June 14 to July 29, 1991. Written comments were received and during the public hearing, held July 16, 1991, at the Edison High School on Franconia Road in Alexandria, Virginia, additional comments

were received. Approximately 65 people attended the public hearing and 5 people presented oral statements. No new issues were raised during the public hearing. The transcript of the public hearing, copies of all the letters received, and responses to those comments are included in Appendix A.

Written comments were received from the following organizations:

Fairfax County Department of Health
Virginia Marine Resources Commission
National Oceanic and Atmospheric Administration
Arlington County, Office of the County Manager
U.S. Fish and Wildlife Service
National Park Service
U.S. Environmental Protection Agency, Region III
Mount Vernon Sierra Club
National Capital Planning Commission
Fairfax County Public Schools
Fairfax County, Office of Comprehensive Planning
Fairfax County, Highway Operations Division
Virginia Council on the Environment
Virginia Department of Health
Virginia Department of Waste Management
Virginia Department of Conservation and Recreation
Virginia Chesapeake Bay Local Assistance Department
Virginia Department of Agriculture and Consumer Services.

The *Comprehensive Base Realignment/Closure and Fort Belvoir Development EIS* will result in a Record of Decision (ROD) for the closure of Cameron Station and relocation of its activities to Fort McNair, Fort Myer, and Fort Belvoir. Also included in this ROD will be the activities realigned to Fort Belvoir from AMTL, Fort Meade, and Fort Holabird, as well as those realigned from Fort Belvoir to Fort Devens.

The ROD for base realignment and closure will be approved and signed by the Assistant Secretary of the Army.

1.6 DEFINITIONS OF CONCEPTS

Concepts defined by Army Regulation 200-2 and CEQ regulations, or derived from them to fit the content of this project, are used throughout this report. Key concepts are defined below.

Alternative Actions: P.L. 100-526 specifies that, in applying the provisions of NEPA to selected installations, the Army shall not have to consider "the need for closing or realigning a military

installation...the need for transferring functions to another military installation...or alternative military installations to those selected." Therefore, closure and realignment of Cameron Station, Fort Belvoir, Fort Myer, and Fort McNair are not given further consideration in this document. The only closure and realignment alternatives being considered by the Army are possible implementation alternatives.

Impact Significance: A substantial change in any of the physical or biological resources or socioeconomic conditions within the area affected by the action is considered a "significant impact." A "potentially significant impact" is one that has a reasonable likelihood, but not a certainty, of occurring. It is treated as a significant impact, requiring identification of possible mitigation measures.

Mitigation: "Mitigation" entails the avoidance or the reduction of impacts to acceptable levels. When implementation of the proposed action predicts significant, or potentially significant impacts, mitigation measures are formulated. Mitigation must be feasible and should take into account economic, environmental, legal, social, and technological factors. Mitigation must also have the potential for being accomplished successfully by the Army within a reasonable time frame. The level of significance of impacts, incorporating mitigation measures, is also addressed in the EIS.

Additional terms are defined in Chapter 8.0, Glossary.

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Chapter 2.0
ALTERNATIVES, INCLUDING THE PROPOSED ACTIONS

2.1 INTRODUCTION

This EIS addresses base realignment and closure and presents information on the Fort Belvoir Concept Development Plan.

The Defense Secretary's Commission on Base Realignment and Closure recommended the following realignment and closure actions, which will be addressed to some extent in this EIS.

- Closure of Cameron Station and relocation of major activities to Fort Belvoir.
- Partial closure and realignment of Fort Meade and Fort Holabird and the consolidation of CIDC activities at Fort Belvoir.
- Relocation of ISC activities from Fort Belvoir to Fort Devens, and the use of the facilities vacated by ISC at Fort Belvoir for CIDC activities.
- Closure of the AMTL and the relocation of corrosion prevention and control-related research to the Research, Development and Engineering Center at Fort Belvoir. (For the ease of the reader, this research is referred to as AMTL in this EIS.)

Also addressed in this EIS is the relocation of minor activities and NAF and contractor personnel from Cameron Station to Fort Belvoir, Fort Myer, and Fort McNair, and personnel from leased space to Fort Belvoir. The partial closures of Fort Meade and Fort Holabird, relocation of ISC to Fort Devens, and the closure of the AMTL will be addressed in other EISs.

The Fort Belvoir CDP was developed to direct future growth at the installation. A regional transportation study was prepared in concert with the CDP. Both of these documents provide supporting information for this EIS and are incorporated by reference. The CDP has been used for cumulative analyses of BRAC actions. The Fort Belvoir Master Plan will be revised to include the CDP and BRAC activities, along with appropriate NEPA documentation.

2.2 PURPOSE AND NEED

The purpose and need for this EIS are to satisfy the requirements of P.L. 100-526, as described in Chapter 1, for the closure of Cameron Station and the realignment of activities to and from Fort Belvoir, Fort Myer, and Fort McNair. These actions will

result in fiscal savings and mission consolidation for the Army. This EIS provides the environmental impact analysis and documentation for specific BRAC actions and related realignments.

The required Cameron Station closure will result in a relocation of 3,835 authorized personnel[1] from Cameron Station to another workplace. The project will relocate approximately 3,641 of these personnel to Fort Belvoir, 192 to Fort Myer, and two to Fort McNair. The reductions in operations at Fort Meade and Fort Holabird necessitate the movement of approximately 131 people to Fort Belvoir, and the closure of AMTL necessitates the movement of approximately 178 people to Fort Belvoir. In addition, approximately 320 people will be relocated from Fort Belvoir to Fort Devens; NAF and contractor personnel from Cameron Station will be moved to Fort Belvoir and Fort Myer.

In addition to complying with the statutory closure requirements, the base realignment and closure will reduce overall costs through a more efficient military base structure. After consideration of siting and no-action alternatives, 10 Fort Belvoir and four Fort Myer preferred alternatives have been identified that are directly related to the realignment.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

2.3.1 BASE REALIGNMENT AND CLOSURE

Section 204(c)2 of P.L. 100-526 specified that alternative installations to those selected shall not be considered.

> *(2) The provisions of the National Environmental Policy Act of 1969 shall apply to the actions of the Secretary (A) during the process of the closing or realigning of a military installation after such military installation has been selected for closure or realignment but before the installation is closed or realigned and the functions relocated, and (B) during the process of the relocating of functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated. In applying the provisions of such Act, the Secretary shall not have to consider--*
>
> *(i) the need for closing or realigning a military installation which has been selected for closure or realignment by the Commission;*
>
> *(ii) the need for transferring functions to another military installation whch has been selected as the receiving installation; or*

[1]All numbers for acreage, square footage, and personnel within this EIS are subject to slight fluctuations and are therefore approximate.

(iii) alternative military installations to those selected.

In accordance with the above provisions, the only options being considered by the Army concerning realignment and closure are the specific sites where realignment functions will be located at the receiving installation. No alternative options exist to closing or realigning Army functions at the installations recommended by the Defense Secretary's Commission on Base Realignment and Closure.

2.3.2 REUSE ALTERNATIVES

The Army has been working with the City of Alexandria and the public through the Task Force to Monitor the Closing of Cameron Station (hereinafter referred to as the Reuse Task Force). Options still exist for the ultimate reuse of the land on which Cameron Station stands. Formal screening must occur with federal and state agencies before the land can be offered for private sale. Ultimately, whatever is finally proposed for this land must conform with the City's designated zoning for the site if it is transferred out of the federal sector. The City has rezoned Cameron Station from I-1, Industrial, to Coordinated Development District. Zoning information for Cameron Station and the land adjacent to it are discussed in Chapter 3 of this EIS. The eventual reuse of the property will be a decision between the developer and the City of Alexandria after the property has been conveyed.

2.3.3 REALIGNMENT

Sites have been identified at Fort Belvoir, Fort McNair, and Fort Myer for accommodating the relocation of activities from Cameron Station and other BRAC actions. The environmental screening process will ensure that the most environmentally suitable locations are used. The Army has commissioned site studies (e.g., cultural, archeological, and wetlands) that will be used to determine the final siting for future development. This EIS and the preparation of the Fort Belvoir Concept Development Plan are the initial steps in the site identification process. Detailed site design engineering plans are expected to be commissioned in early 1991. Therefore, minor or even major changes can be made in the locations that have been identified to date for realignment. However, the movement of functions to Fort Belvoir, Fort McNair, and Fort Myer will not change.

2.3.4 NO-ACTION ALTERNATIVE

The No-Action Alternative is possible under P.L. 100-526 only if there are absolute environmental constraints, previously unknown, discovered during the preparation of the EIS. At this time, no such constraints are known.

2.4 CLOSURE OF CAMERON STATION

2.4.1 INTRODUCTION

P.L. 100-526 requires that the Army close all its property at Cameron Station (Figure 2-1) within the City of Alexandria, Virginia. Cameron Station is one of three major posts of the MDW Installation, which also includes Fort Myer and Fort McNair.

The 164-acre post includes 29 permanent buildings totaling 1,299,871 square feet, and four temporary buildings totaling 9,444 square feet. Although the post has nine warehouse structures, Cameron Station is primarily an administration facility. Most of the warehouse space has been converted to office space or commissary and post exchange (PX) facilities. Space is provided for many tenant organizations, including the Defense Department's DLA and ancillary activities; the Defense Contract Audit Agency (DCAA); the Engineer Activity Capital Area, and the Joint Personal Property Shipping Office, Washington Area (JPPSOWA).

The station was originally known as the Alexandria Quartermaster Depot, a Class II installation operated by the Quartermaster General. Quartermaster Department responsibilities included the operation of commissaries and PXs. The name was changed to Cameron Station and control was transferred from the Quartermaster General to MDW in 1950. In 1954 it became a permanent Department of the Army installation. The headquarters for the Defense Supply Agency (later redesignated the Defense Logistics Agency) was established about 1962, when most of the warehouses were converted to office space. Post staff positions were eliminated in 1971 with the reorganization of MDW, and the industrial functions of MDW (then located at Fort McNair) were moved to Cameron Station.

More than 80 percent of the land at Cameron Station is covered by either buildings or pavement. Industrial, commercial, and residential development surround the post.

2.4.2 ACTIVITIES AND MISSIONS

The current mission of Cameron Station is to provide logistical support to MDW and other government activities in the NCR, to provide administrative space and support services to tenant agencies with service-wide or worldwide missions, and retail support to the large population of active and retired military personnel in the area. The retail support is provided through the Army and Air Force Exchange Services (AAFES) and commissary operations. The DLA is the largest tenant on the post and employs about 3,000 people, which does not include an additional 586 people that are located off post in leased space within the NCR.

The JPPSOWA is responsible for shipping and receiving the personal belongings of military personnel moving in and out of the NCR. Some of the other smaller activities on post include the *Soldiers Magazine* publications office, and the Institute of Heraldry.

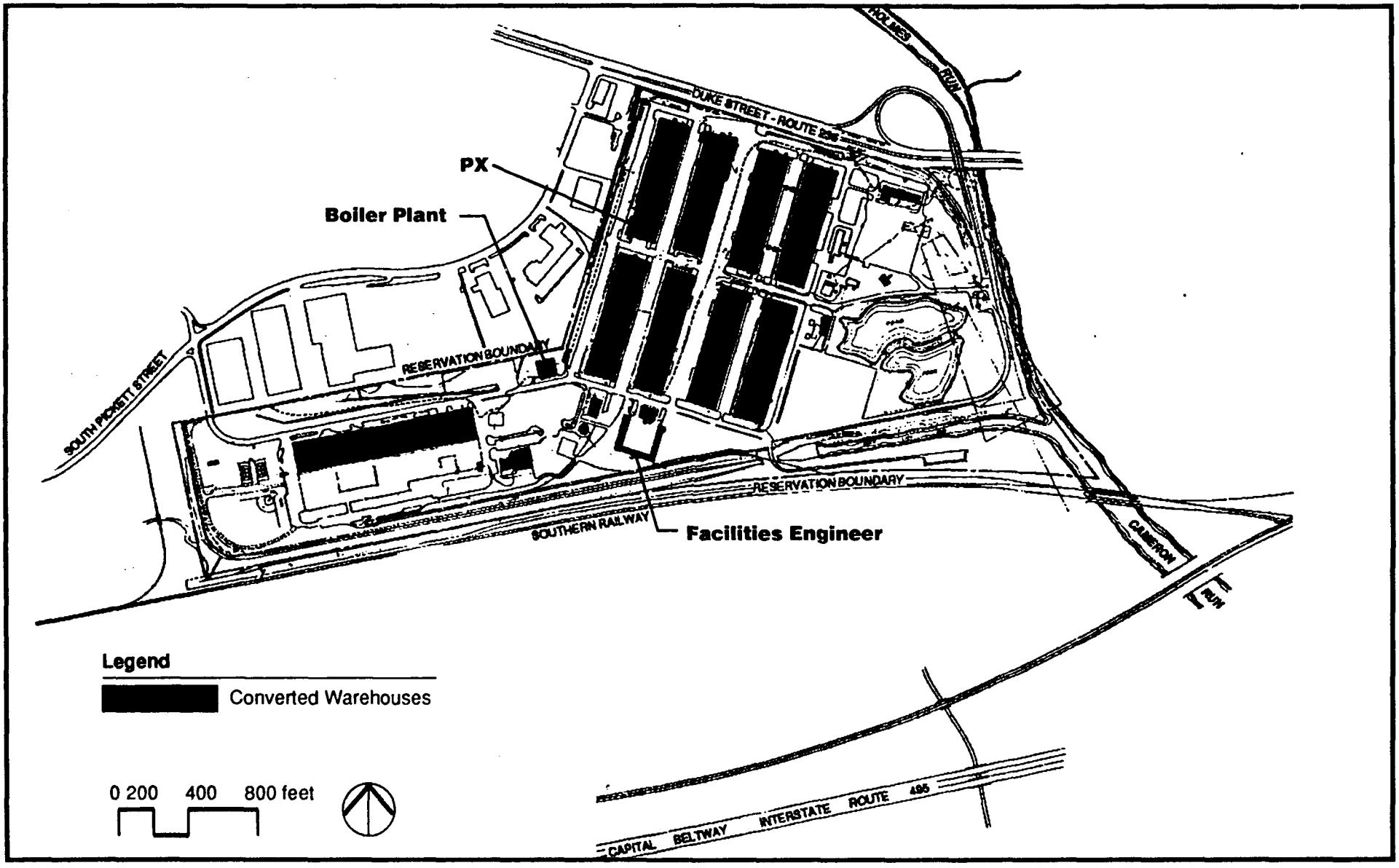


Figure 2-1
Cameron Station

2.4.3 PERSONNEL

Cameron Station has a personnel complement of 3,949, excluding contractor personnel and non-appropriated fund personnel working at commissary and post exchange facilities. The dislocation of personnel that will occur with the realignment and closure are presented in Table 2-1.

Table 2-1
REALIGNMENT OF PERSONNEL FROM CAMERON STATION*

	Military	Civilian	Total
Current	319	3,630	3,949
Realigned	317	3,518	3,835
Eliminated	2	112	114

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

Two military and approximately 112 civilian positions will be eliminated. Of the remaining approximately 3,835 positions being relocated, 3,641 will be assigned to Fort Belvoir, 192 will be assigned to Fort Myer, and 2 will be assigned to Fort McNair.

2.4.4 SCHEDULE

Personnel from Cameron Station will relocate to Fort Belvoir, Fort McNair, and Fort Myer beginning in 1991, after the ROD is signed, through 1995. Alternative schedules are not possible because of the statutory deadline for completing the realignment and the constraints imposed by the construction and renovation of facilities at the receiving installations.

2.5 REALIGNMENT OF ARMY ACTIVITIES

2.5.1 INTRODUCTION

Some base realignments and closures in other parts of the United States will also result in personnel relocations to and from Fort Belvoir. The ISC activity, which consists of approximately 320 personnel, will be relocated from Fort Belvoir to Fort Devens, Massachusetts. The migration of personnel because of base realignment and closure is shown on Figure 2-2. Table 2-2 lists BRAC and CDP actions proposed for Fort Belvoir.

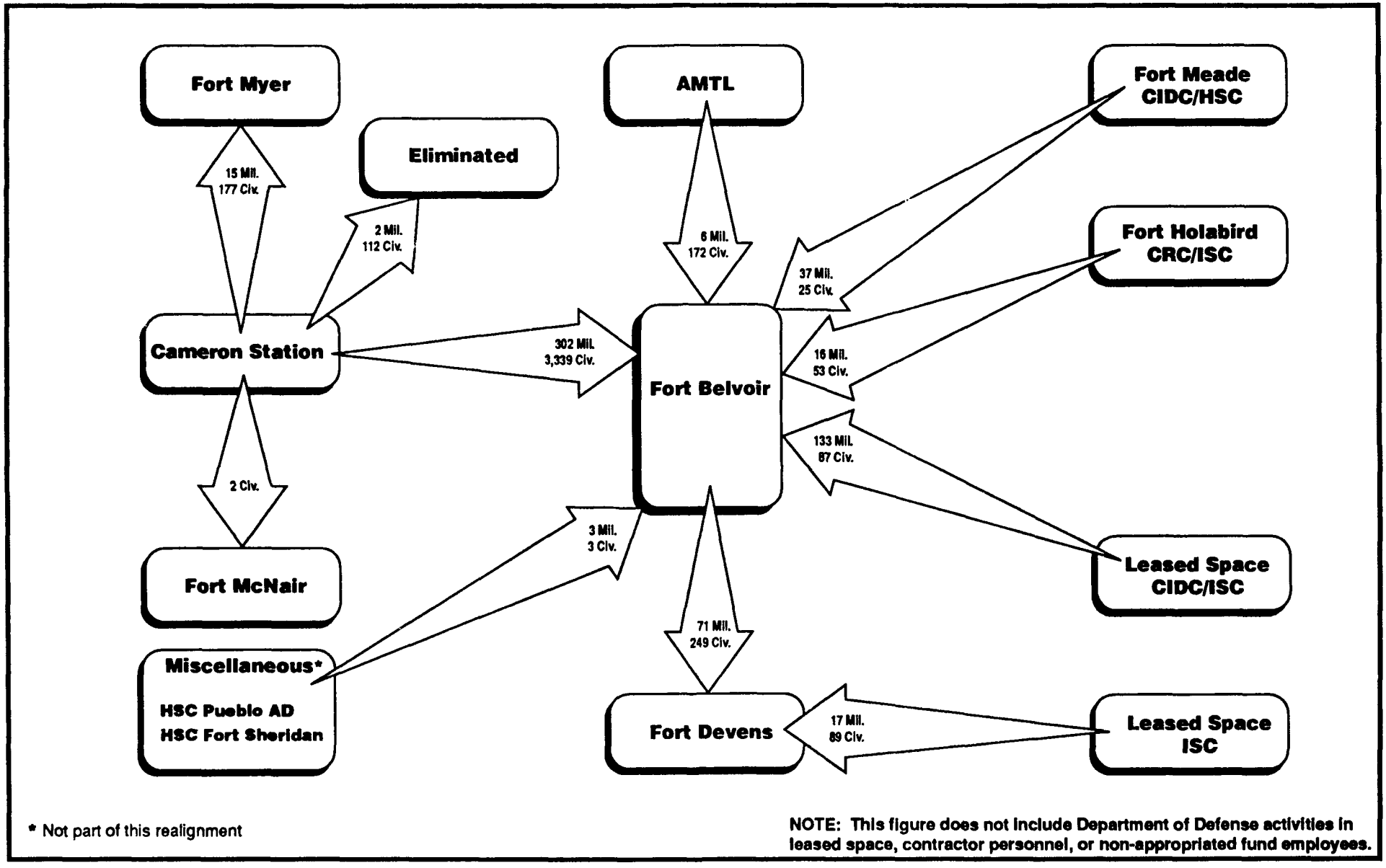


Figure 2-2
Base Realignment and Closure Migration,
U.S. Army, Military District of Washington

Table 2-2
PROPOSED BASE REALIGNMENT AND CLOSURE AND CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Base Realignment and Closure (BRAC) Actions

1. Headquarters Complex
2. Industrial Park
3. BRAC Roads
4. Commissary Warehouse Addition*
5. Post Exchange**
6. Commissary**
7. Administration Facility
8. Material Research Facility
9. Exchange Branch**
10. Modify Buildings 1466 and 1445 for Base Closure

Concept Development Plan Actions

Military Construction Activity (MCA)***

1. Child Development and Religious Education Centers
2. Electronics Supply and Maintenance Facility
3. D.C. Army National Guard Armory
4. D.C. Army National Guard Aircraft Parking Apron
5. Convert Buildings 206 and 208 to Classrooms
6. Veterinary Clinic
7. Operations Building Renovation, Engineer School Backfill
8. Telephone Switch Upgrade, Post-wide
9. Fixed-Wing Runway Extension
10. Old Guard Horse Stables
11. Main Sewer Line Upgrade, Post-wide
12. North Post Fire Station
13. Headquarters, Air Force Intelligence Agency
14. Physical Fitness Center
15. Virginia Army National Guard Armory/Headquarters (29th Light Infantry Division)
16. Gunston Road Extension
17. D.C. Army National Guard Hangar Addition
18. Seabee Operational Storage Facility
19. Renovate Heat Plant
20. Renovate Building 361 for ADP
21. D.C. Army National Guard Academy
22. Electrical Upgrade, Post-wide, Phase I
23. Lateral Sewer Line Repair, Post-wide
24. Relocate EPG Test/Storage Facilities
25. Ammunition Storage Facility
26. Information Systems Facility
27. CIDC Field Operations Building
28. D.C. Army National Guard Cantonment Area
29. Main Post Library
30. (There is no MCA 30)
31. Loop Road
32. Community Center/Welcome Center
33. Facility Engineer Maintenance Shop
34. Warehouses
35. Tactical Energy Systems Lab
36. Conforming Storage Building (DRMO)
37. Military Police Station
38. Reserve Center/OMA (80th Div)
39. Consolidated Maintenance Shop (DOL)
40. Electro-Optics Laboratory
41. Fatigue Test Facility
42. Potential 500-person Administrative Facility, HEC

(Development Plan: MCA, continued)

Non-Appropriated Funds (NAF)

1. Youth Center
2. Tompkins Basin Armed Forces Recreation Area
3. Horse Stables
4. Benyuard Pool Addition
5. Golf Course
6. Corporate Fitness Center
7. Child Development Center
8. Temporary Lodging Facility

Army and Air Force Exchange Services (AAFES)

1. Fast Food Facility (Burger King™)
2. Fast Food Facility (Chicken)
3. Car Care Facility

Army Family Housing (AFH)

1. Lewis Heights Renewal, Phase 1
2. Lewis Heights Renewal, Phase 2
3. 1,500 Housing Units (New)
4. Dogue Creek Village Whole-House Renewal
5. George Washington Village Whole-House Renewal
6. River Village Whole-House Renewal
7. Belvoir Village Whole-House Renewal
8. Gerber Village Whole-House Renewal
9. Visiting Officers Quarters Renovation
10. Jadwin Loop Whole-House Renewal
11. Colyer Village Whole-House Renewal
12. Rossell Loop Whole-House Renewal
13. Woodlawn Village Whole-House Renewal
14. Fairfax Village Whole-House Renewal

*Authorization and funding for this project has been withdrawn. It is included for informational purposes because it was part of the original scope.
**Funding for these projects will be provided by non-BRAC sources.
***MCA in this context is not a funding appropriation.

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2.5.2 ARMY MATERIALS TECHNOLOGY LABORATORY

The Commission's report to Congress recommended closure of AMTL. This facility supports other defense laboratories in the fields of material development research, technical assistance, and failure analyses. The Commission recommended dispersal of AMTL's activities to three facilities. Fort Belvoir is to receive the corrosion prevention and control research, to be located with facilities performing similar activities. The other existing AMTL activities will be realigned to the U.S. Tank-Automotive Research Development and Engineering Center at Detroit Arsenal and to the Development and Engineering Center at Picatinny Arsenal, New Jersey. The closure of AMTL is addressed in a separate EIS. Only the realignment of personnel to Fort Belvoir is addressed in the Fort Belvoir EIS. The realignment to Fort Belvoir involves approximately 6 military and 172 civilian positions. The Material Research Facility (BRAC 8) will be constructed to accommodate this realignment.

2.5.3 CAMERON STATION

A list of activities and personnel relocating to Fort Belvoir from Cameron Station because of base closure is presented in Table 2-3. Table 2-4 lists the activities relocating to Fort Myer from Cameron Station. Two of MDW Information Management's civilian employees will be relocated to the Mail Distribution Service at Fort McNair.

2.5.4 FORT BELVOIR

The mission and activity descriptions for Fort Belvoir are discussed in detail in the Fort Belvoir Concept Development Plan.

2.5.4.1 Relocated Personnel. Approximately six personnel realignments are planned as part of BRAC. Some of these realignments do not require the construction of additional facilities as the effected personnel are either being consolidated with similar functions at Fort Belvoir or being assigned to existing facilities.

2.5.4.1.1 Information Systems Engineering Command. The Information Systems Engineering Command (ISEC) of the ISC, currently at Fort Belvoir, will be realigned to Fort Devens, Massachusetts, as part of BRAC. Separate NEPA documentation is being prepared for the realignment to Fort Devens.

2.5.4.1.2 Criminal Investigation Command. The Commission's report to Congress recommended that the activities of the CIDC be consolidated at Fort Belvoir using space vacated by the ISC, which will relocate to Fort Devens, Massachusetts. The effect of the actions will be to consolidate a number of commands and activities whose operations are currently separated. This will improve efficiency, mission effectiveness, command, and control. Accordingly, the CIDC Headquarters, which was scheduled to relocate to Fort Meade under a previous decision, will be realigned to Fort Belvoir from leased space within the NCR and consolidated with the activities from Fort Meade and Fort Holabird. The realignment of personnel to Fort Belvoir is addressed

Table 2-3
MIGRATION OF CAMERON STATION PERSONNEL TO FORT BELVOIR

Activity	Destination	Number of Personnel*
Defense Logistics Agency		
Headquarters	Headquarters Complex	916
Management Support Activities	Headquarters Complex	330
Administrative Support Center	Headquarters Complex	642
Defense Technical Information Center	Headquarters Complex	383
Defense Fuel Supply Center	Headquarters Complex	743
Air Force Detachment 29	Headquarters Complex	19
Naval Petroleum Office	Headquarters Complex	30
Defense Contract Audit Agency	Headquarters Complex	135
United States Army		
Aeronautical Services Office	Building 1466	20
Institute of Heraldry	Building 1466	38
Soldiers Magazine	Building 1466	14
Recruiting Support Command	Industrial Park	76
Engineer Activity Capitol Area	Industrial Park	28
Baltimore Corps of Engineers	Industrial Park	17
Troop Support Agency	Commissary	51
Military District of Washington		
Deputy Chief of Staff for Personnel	Industrial Park	2
Deputy Chief of Staff for Logistics	Directorate of Logistics	18
Defense Supply Service, Washington	Industrial Park	36
Health Services Command	Dewitt Hospital	9
Joint Personal Property Shipping Office, Washington Area	Building 1466	134
Total Government Employees		3,641
Government Contractor	Headquarters Complex	10
Government Contractor	Industrial Park	34
TOTAL EMPLOYEES		3,685

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

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Table 2-4
MIGRATION OF CAMERON STATION PERSONNEL TO FORT MYER

Activity	Destination	Number of Personnel*
Commissary	Commissary	28
MDW		
Information Management	Mail Center	1
Directorate of Contracting	Logistics Complex	33
Deputy Chief of Staff of Personnel	Outdoor Recreation	3
Deputy Chief of Staff of Logistics	Logistics Complex	118
United States Army		
Engineer Activity Capital Area	Logistics Complex	9
	TOTAL	**192**

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate. This table does not include any contractor or nonappropriated fund personnel.

in this EIS. Separate environmental analyses are being completed to address the effects of the partial closure of Fort Meade and Fort Holabird.

2.5.4.1.3 Defense Logistics Agency/Defense Contract Audit Agency. Approximately 550 DLA and other Defense personnel located in leased space within the NCR will be relocated to the Headquarters Complex at Fort Belvoir. This EIS addresses the impacts of the relocation to Fort Belvoir. The effects of the relocation on the areas where the leased space is located is addressed by a separate NEPA document.

2.5.4.1.4 Health Services Command. Nine U.S. Army Health Services Command personnel from Cameron Station will be realigned to DeWitt Hospital. They will be joined by additional Health Services Command personnel being realigned from Pueblo Army Depot, Colorado (2), Fort Sheridan, Illinois (4), and Fort Meade, Maryland (5). The realignment effects of the Pueblo Army Depot and Fort Sheridan personnel will be covered in other EIS documents.

2.5.4.1.5 Joint Personal Property Shipping Office, Washington Area. The JPPSOWA will realign personnel from Cameron Station to Fort Belvoir. They will be assigned to an existing building (Building 1466), which will be renovated for their use.

2.5.4.1.6 MDW Deputy Chief of Staff for Logistics. Eighteen people from MDW Deputy Chief of Staff for Logistics (DCSLOG) at Cameron Station will be realigned to the existing Directorate of Logistics (DOL) facility at Fort Belvoir. No new construction or renovations are required for this relocation.

2.5.4.1.7 U.S. Army Corps of Engineers, Baltimore District. Personnel will be relocated from Cameron Station to existing facilities in Building 1442 at Fort Belvoir. No construction or renovation is required for this action.

2.5.4.2 Proposed Facilities. Ten separate construction projects are planned at Fort Belvoir to accommodate realignment activities. These construction projects are designated as indicated below:

Headquarters Complex	BRAC 1
Industrial Park	BRAC 2
BRAC Roads	BRAC 3
Commissary Warehouse Addition	BRAC 4[2]
Post Exchange	BRAC 5
Commissary	BRAC 6
Administration Facility	BRAC 7
Material Research Facility	BRAC 8
Exchange Branch	BRAC 9
Modify Buildings 1466 and 1445 for Base Closure	BRAC 10

2.5.4.2.1 Headquarters Complex (BRAC 1). BRAC 1 is the largest construction project. It is planned to provide approximately 806,000 square feet for offices, computer and automated data processing, and a storage and distribution warehouse, as well as onsite infrastructure facilities. A portion of the Headquarters Complex will support other Department of Defense (DOD) activities now located in leased space. These activities will be collocated with associated activities relocating from Cameron Station. Depending on the outcome of detailed design engineering, from one to four buildings may be required.

In selecting proposed sites for the Headquarters Complex, several parameters were taken into consideration. The first was that the site had to be large enough to accommodate approximately 4,000 people, who would need 1,000,000 square feet of space. However, non-BRAC requirements to collocate additional DLA and Defense Financial Service Center people have increased the initial estimate to approximately 4,200. DLA will prepare NEPA documentation for these relocations. Another parameter taken into consideration was multiple accesses so that people could get in and out of the facility, which would minimize the impact to the environment. A water line in the area of the preferred alternative (Figure 2-3) is needed, so a water study was performed to determine utility requirements. A former training area, the preferred alternative is already disturbed.

Alternative 2 is located on the northwestern boundary of the preferred alternative (Figure 2-4). This site had been under consideration for the relocation of AMC to Fort Belvoir. The site is a broad plateau surrounded by steep slopes and stream valleys. Portions of the site have been disturbed by training activities but not to the extent of the preferred alternative.

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[2]Funding for this project has been withdrawn; it is included in this EIS for informational purposes because it was part of the original scope.

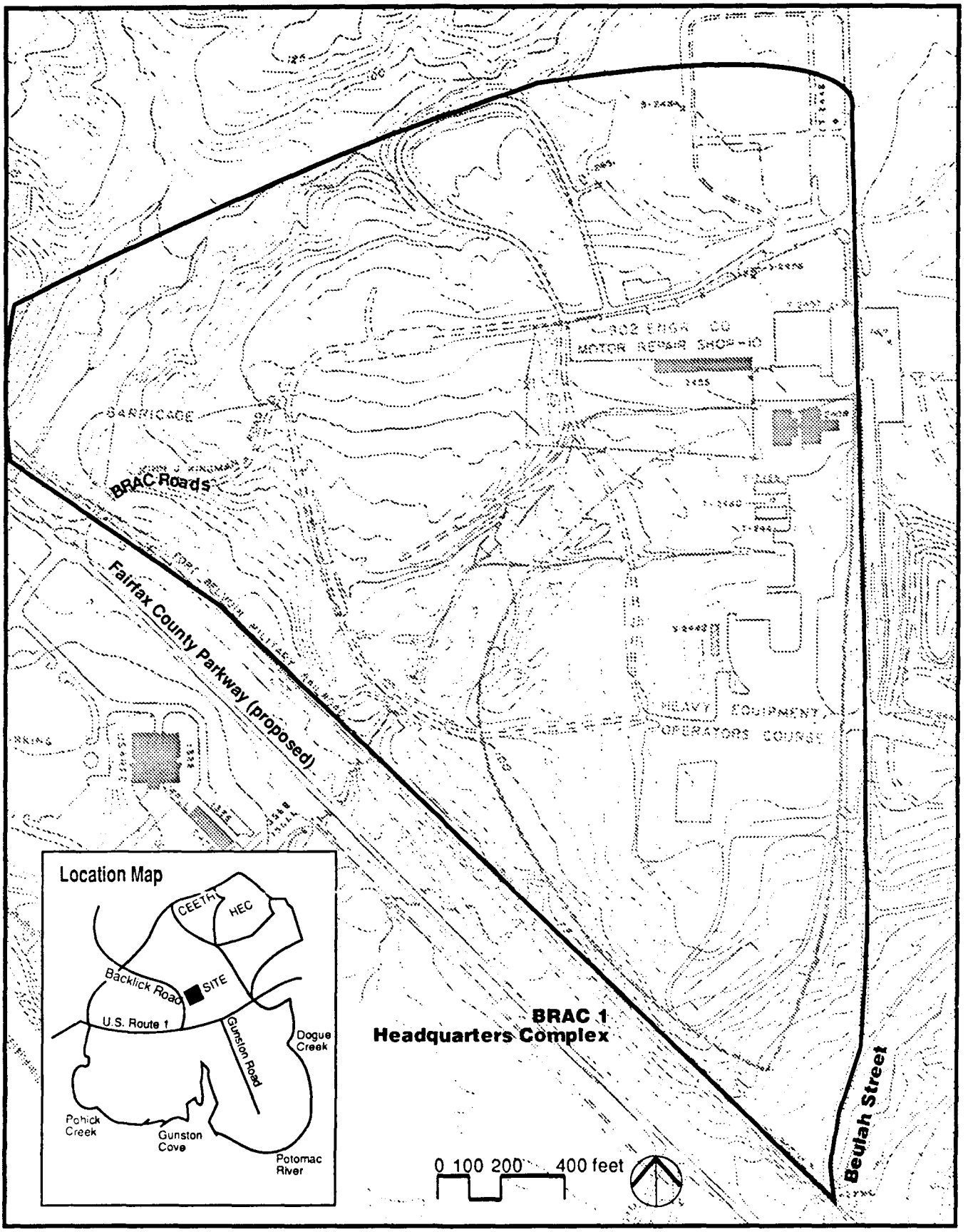


Figure 2-3
BRAC 1, Preferred Alternative

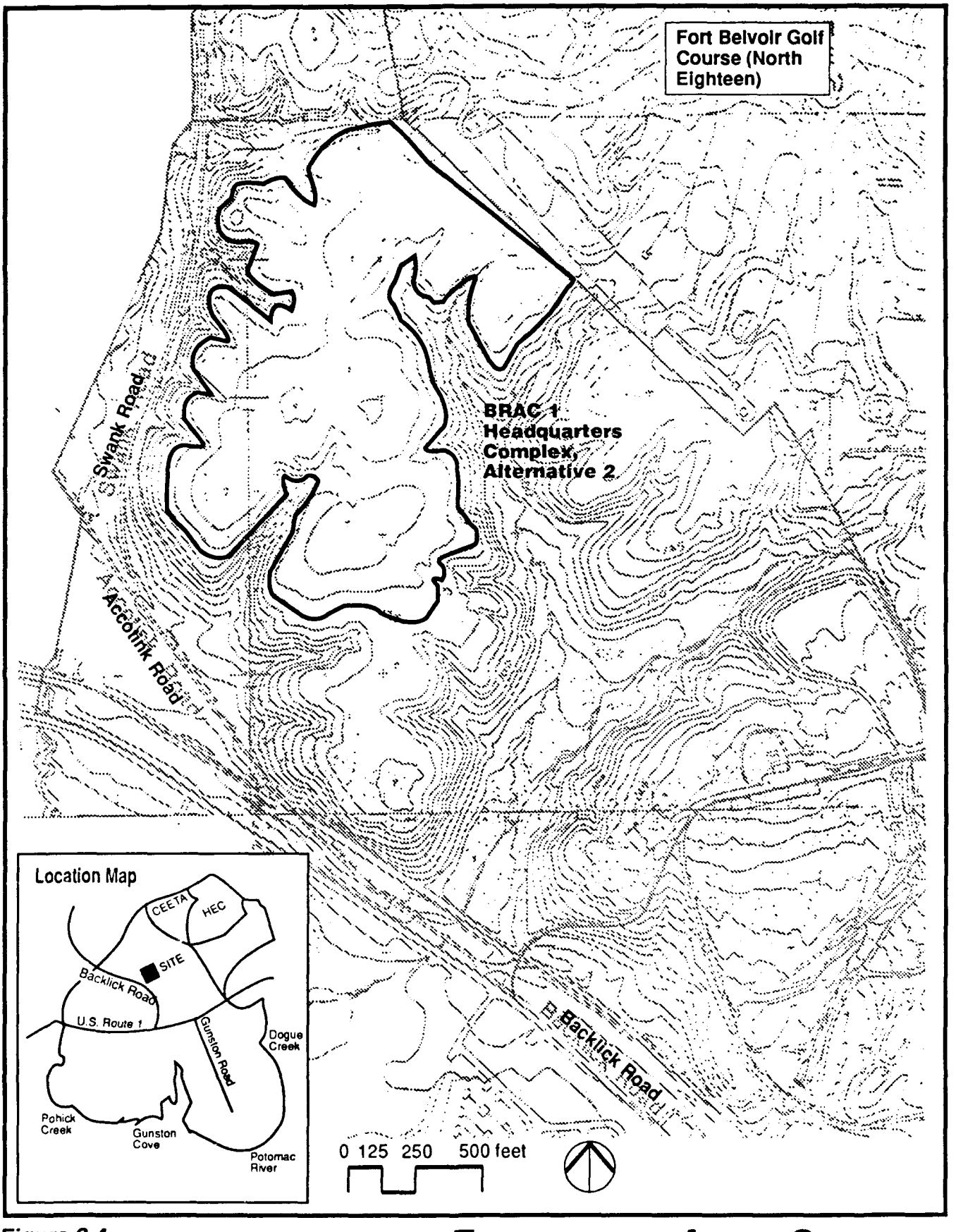


Figure 2-4
BRAC 1, Alternative 2

Alternative 3 involves the backfilling of up to 13 buildings vacated by the Engineer School. The buildings are scattered throughout the post (Figure 2-5). Use of this alternative may result in large-scale activities being divided into separate buildings because of space constraints in some of the buildings.

2.5.4.2.2 Industrial Park (BRAC 2). This facility will house the personnel currently performing industrial and warehouse operations at Cameron Station. The approximately 224,000-square-foot facility will include warehouse and administrative space, a cafeteria, and a snack bar. Supporting facilities include utilities, an electric substation, paving, walks, curbs and gutters, parking, roads, fire protection and alarm systems, and site improvements.

Two sites were considered for the industrial park. The preferred alternative is located on the South Post west of Thoete Road (Figure 2-6) within the industrial area of Fort Belvoir and adjacent to the debris landfill. This site was selected for consideration because the location was already slated to become an industrial area. The area is large enough, it is a disturbed site (the site of a former WWII complex that has already been leveled), and utilities are readily available, which enhances its desirability as an industrial park site.

Alternative 2 is located off Richmond Highway (U.S. Route 1) near the light-demolition range (Figure 2-7). This site does not currently have electricity, water, or sewer available. Poe Road will also need extensive paving and upgrading to accommodate the traffic generated by the industrial park. A land-use change is also required for this site.

2.5.4.2.3. BRAC Roads (BRAC 3). This project will provide a major access road to the preferred alternative for BRAC 1 on the North Post and a separate access road for the preferred alternative for BRAC 2 on the South Post. The preferred alternative for BRAC 3, North, would follow the existing alignment of John Kingman Road (an unimproved dirt road) for most of its length (Figure 2-8). This alternative calls for BRAC 3, North, to be a four-lane road between the Fairfax County Parkway and Beulah Street (extended) and a two-lane road between Beulah Street and Woodlawn Road.

Alternative 2 follows the same alignment as the preferred alternative (Figure 2-8) but only the four-lane section between the Fairfax County Parkway and Gunston Road (extended) would be constructed.

The preferred alternative for BRAC 3, South, would be a two-lane road from the intersection of Pohick and King Roads to the intersection of Warren Road, Clapp Road, and 21st Street (Figure 2-9). This project also includes the construction of left- and right-turn lanes, signal upgrades, and additional lanes on Gunston Road to accommodate BRAC-related traffic.

The alternative for the new road would require that the truck traffic be routed through the post's housing areas using one of two routes.

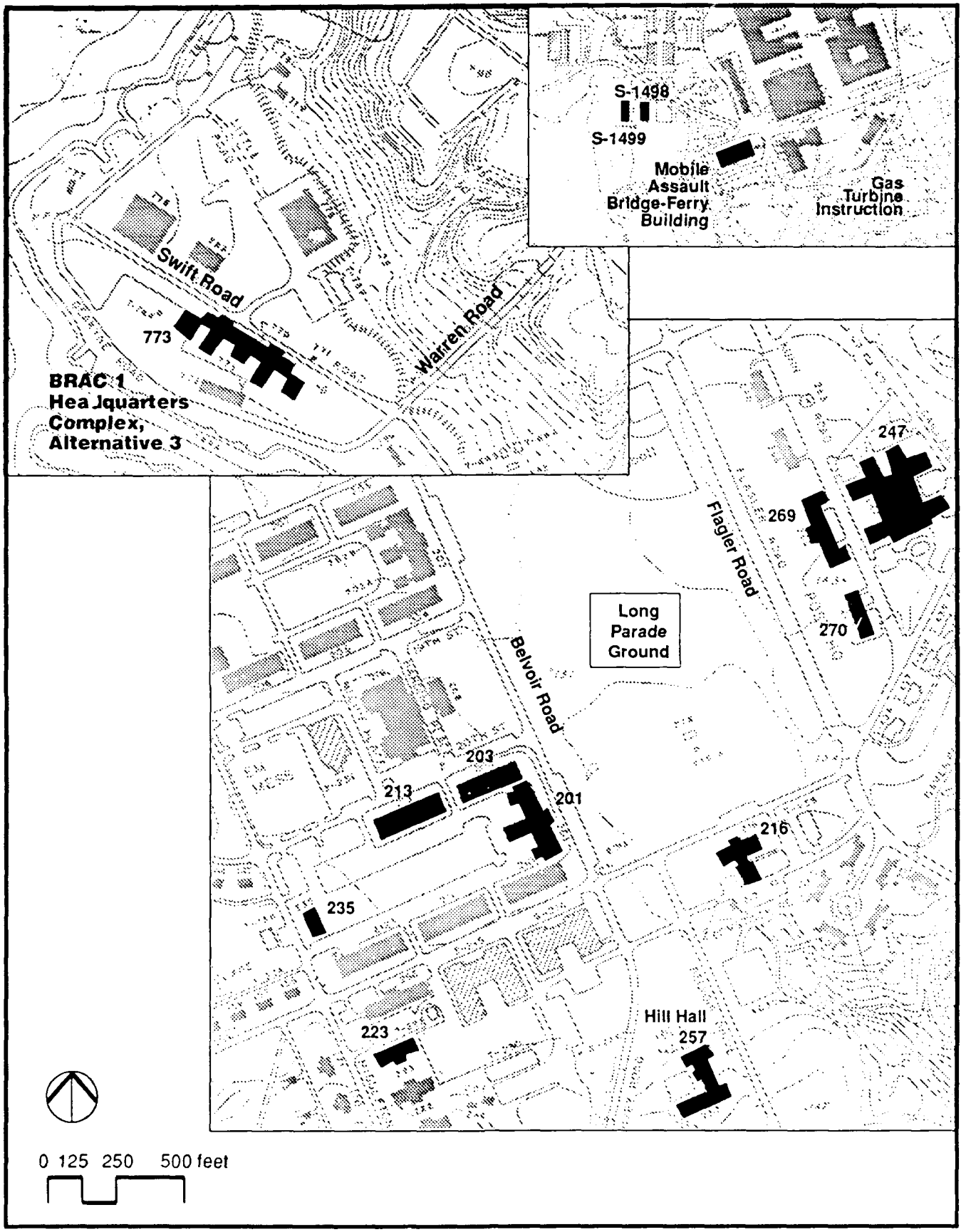


Figure 2-5
BRAC 1, Alternative 3

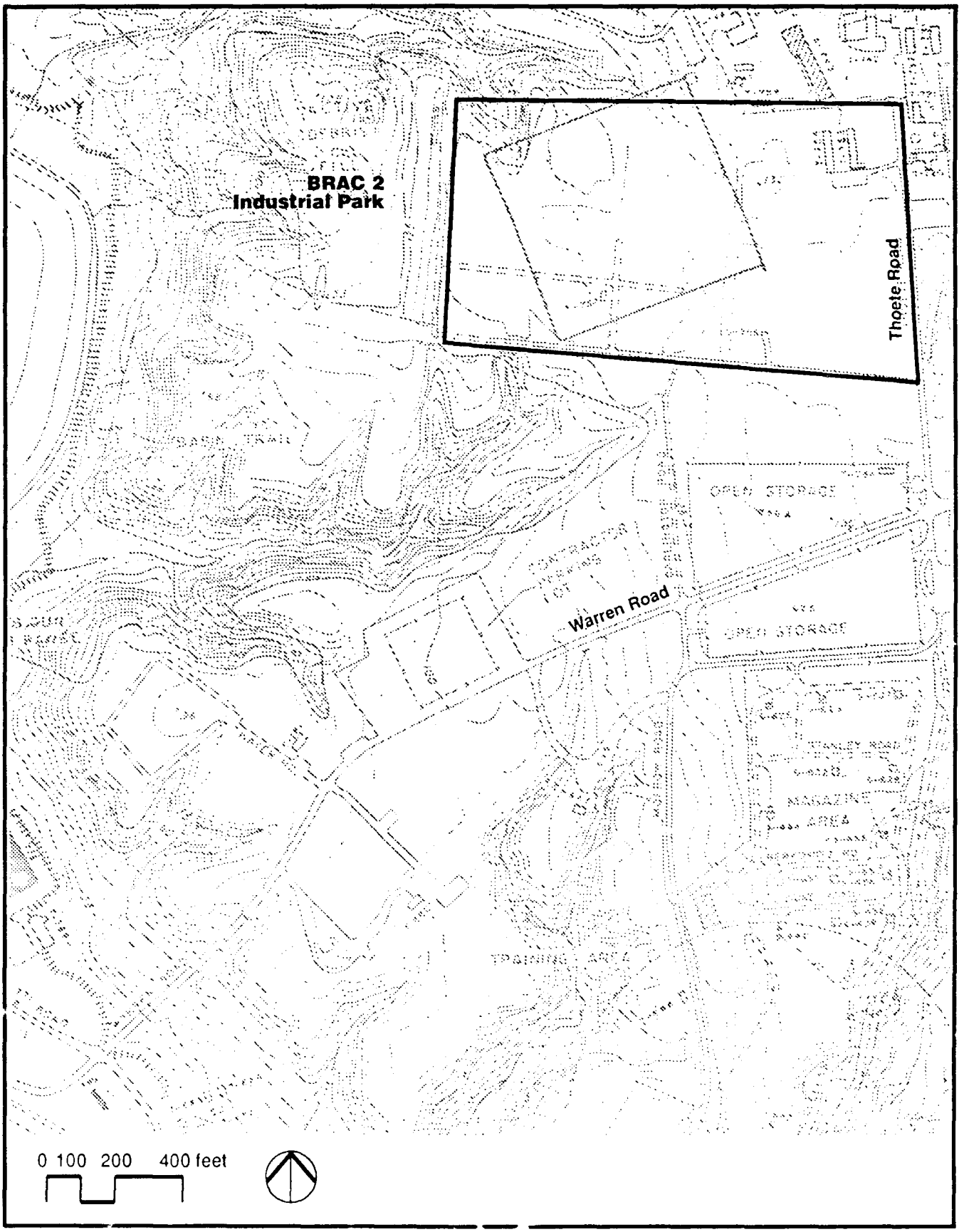


Figure 2-6
BRAC 2, Preferred Alternative

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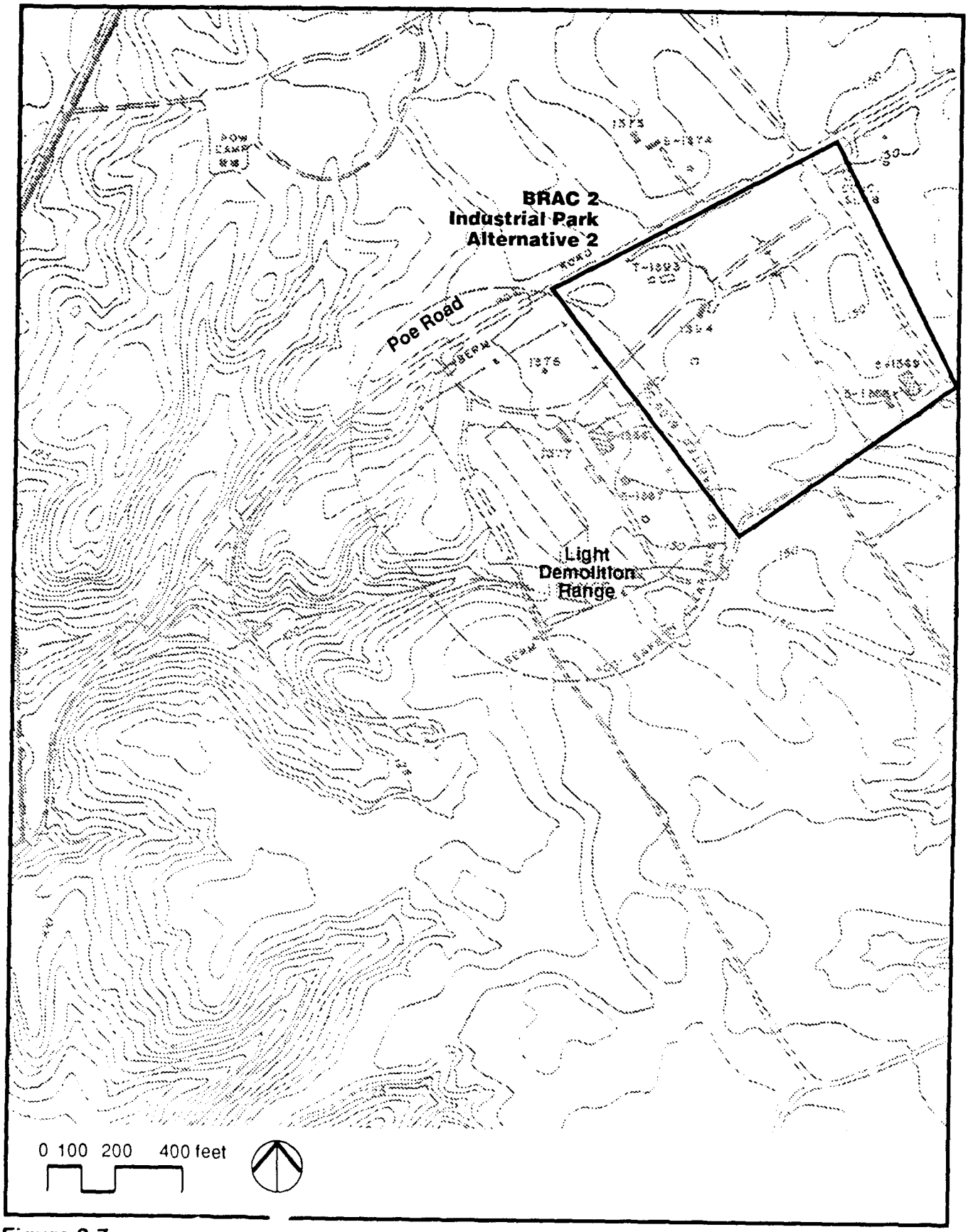


Figure 2-7
BRAC 2, Alternative 2

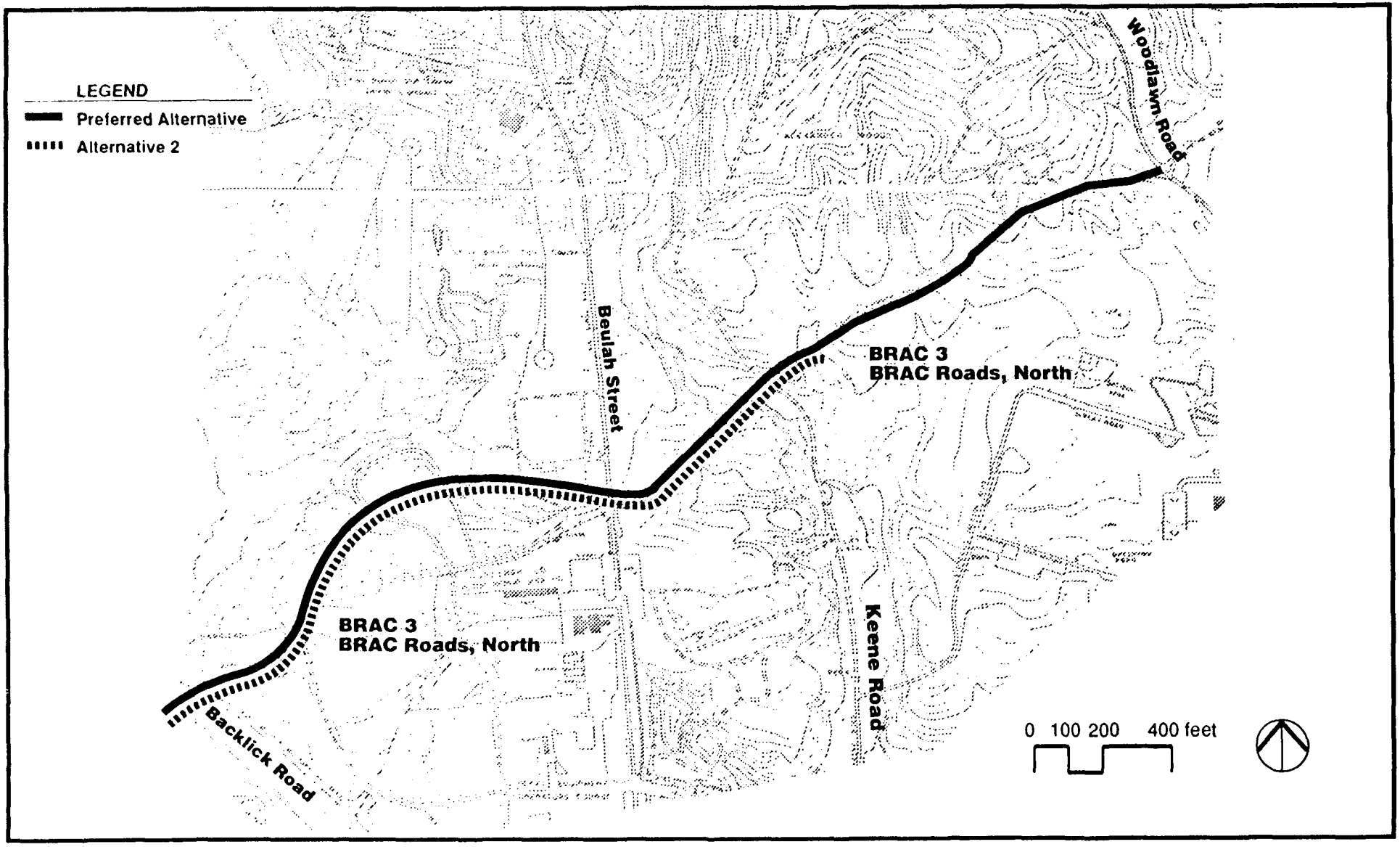


Figure 2-8
BRAC 3, North, Preferred Alternative and Alternative 2

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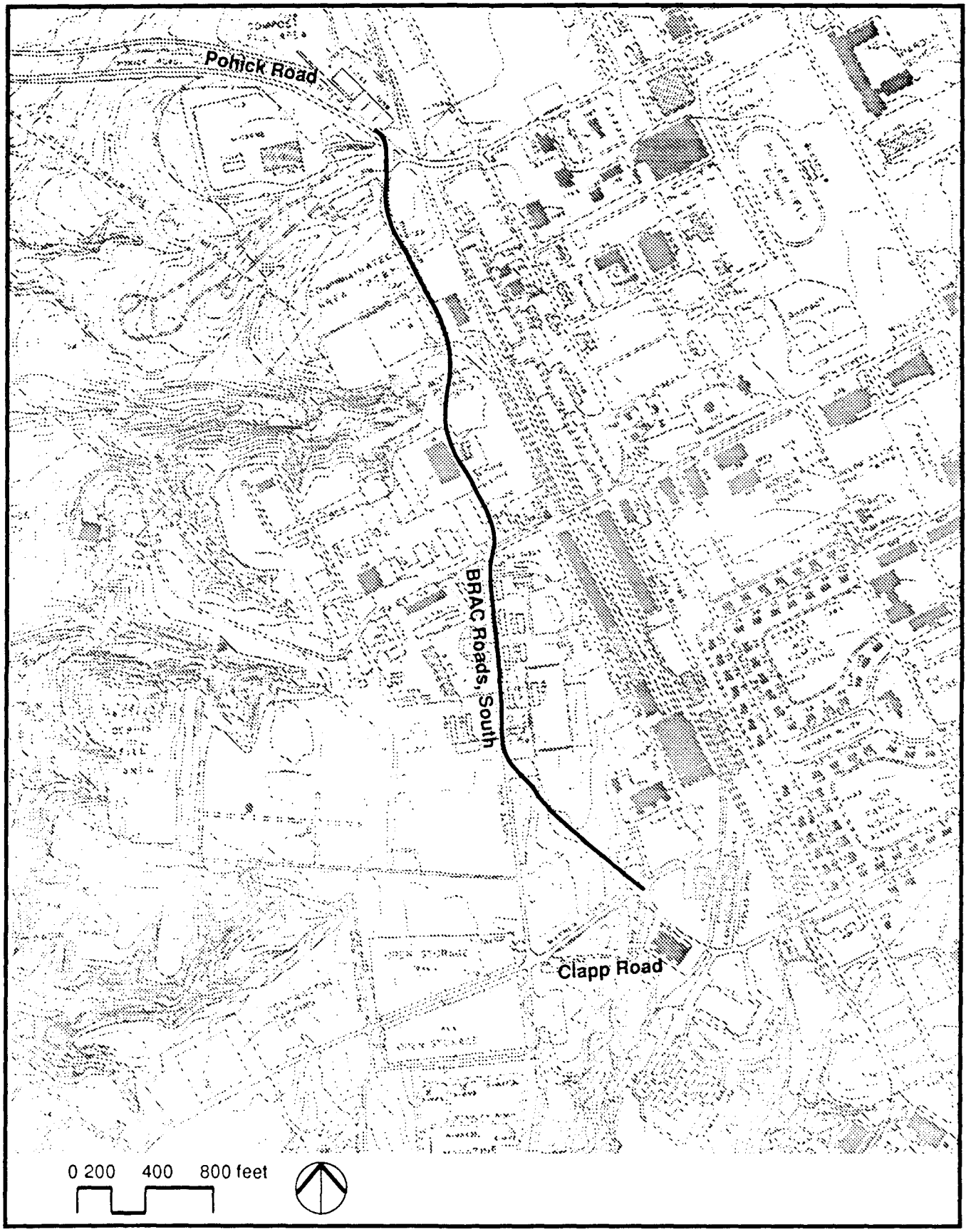


Figure 2-9
BRAC 3, South,
Preferred Alternative

Alternative 1 would allow truck access from all gates and truck traffic would wind through housing areas.

Alternative 2 would restrict truck traffic to Pohick Road and Gunston Roads.

Both alternatives would require general road improvements throughout the South Post to minimize damage from the truck traffic to the existing roads.

2.5.4.2.4 Commissary Warehouse Addition (BRAC 4). The Commissary at Cameron Station is among the largest in the continental United States, serving a large segment of the NCR. The Cameron Station commissary facilities, including the warehouse that is also used to support the existing Fort Myer Commissary, occupy approximately 157,800 gross square feet. BRAC 4 was proposed at Fort Belvoir with approximately 39,932 square feet of space. Thirty-eight percent of this total is related to base closure and the remaining 62 percent of the total space was required to satisfy an existing need for commissary warehouse space. The non-BRAC portion of the facility would have been funded with nonappropriated funds.

Two sites were available for the Commissary warehouse. Alternative 1 was to construct the warehouse addition on the North Post near the existing Commissary (Figure 2-10). Alternative 2 was to construct the warehouse addition at the new site of the South Post commissary (BRAC 6). These alternatives, however, were dropped from further consideration when Congressional authorization and funding were withdrawn.

2.5.4.2.5 Post Exchange (BRAC 5). The project will provide approximately 72,120 square feet of space and will include a main exchange warehouse; a mechanical room; and areas for services, a main exchange, food service, and a mall. Supporting facilities will include all required utilities, fire protection, alarm systems, paving, storm drainage, and site improvements. This project along with the existing commissary on North Post will form an exchange/commissary shopping complex.

Two alternatives were considered for this BRAC action. The preferred alternative is to construct a new PX on the North Post near the existing commissary. This would create a central shopping area on the North Post (Figure 2-10) serving North Post residents and other eligible people. Alternative 2 is the expansion of the existing South Post PX (Figure 2-11). Funding for this project will be provided by AAFES.

2.5.4.2.6 Commissary (BRAC 6). This new facility is planned to have a 100,000-gross-square-foot capacity. Approximately 48 percent of the total project is related to base closure, and the remaining 52 percent is required to satisfy an existing need for commissary space at Fort Belvoir. The facility will include a sales area; cold and frozen storage; office, training, and employee areas; and a computer room. Supporting facilities will include utilities, refrigeration support systems, an access road, parking, a loading dock area, walks, curbs and gutters, storm drainage, and site improvements.

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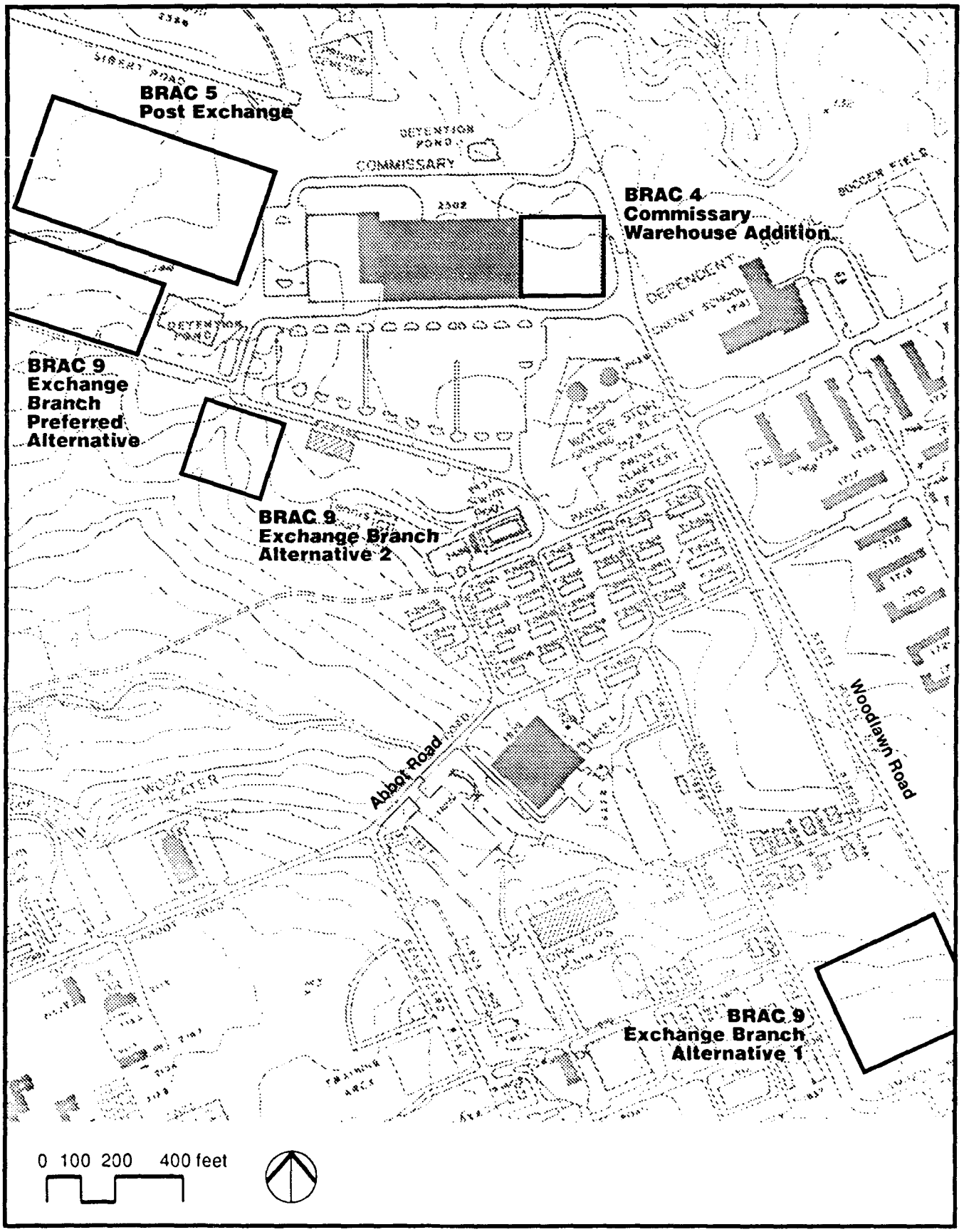


Figure 2-10
BRACs 4 ,5, and 9—Preferred Alternatives
BRAC 9, Alternatives 1 and 2

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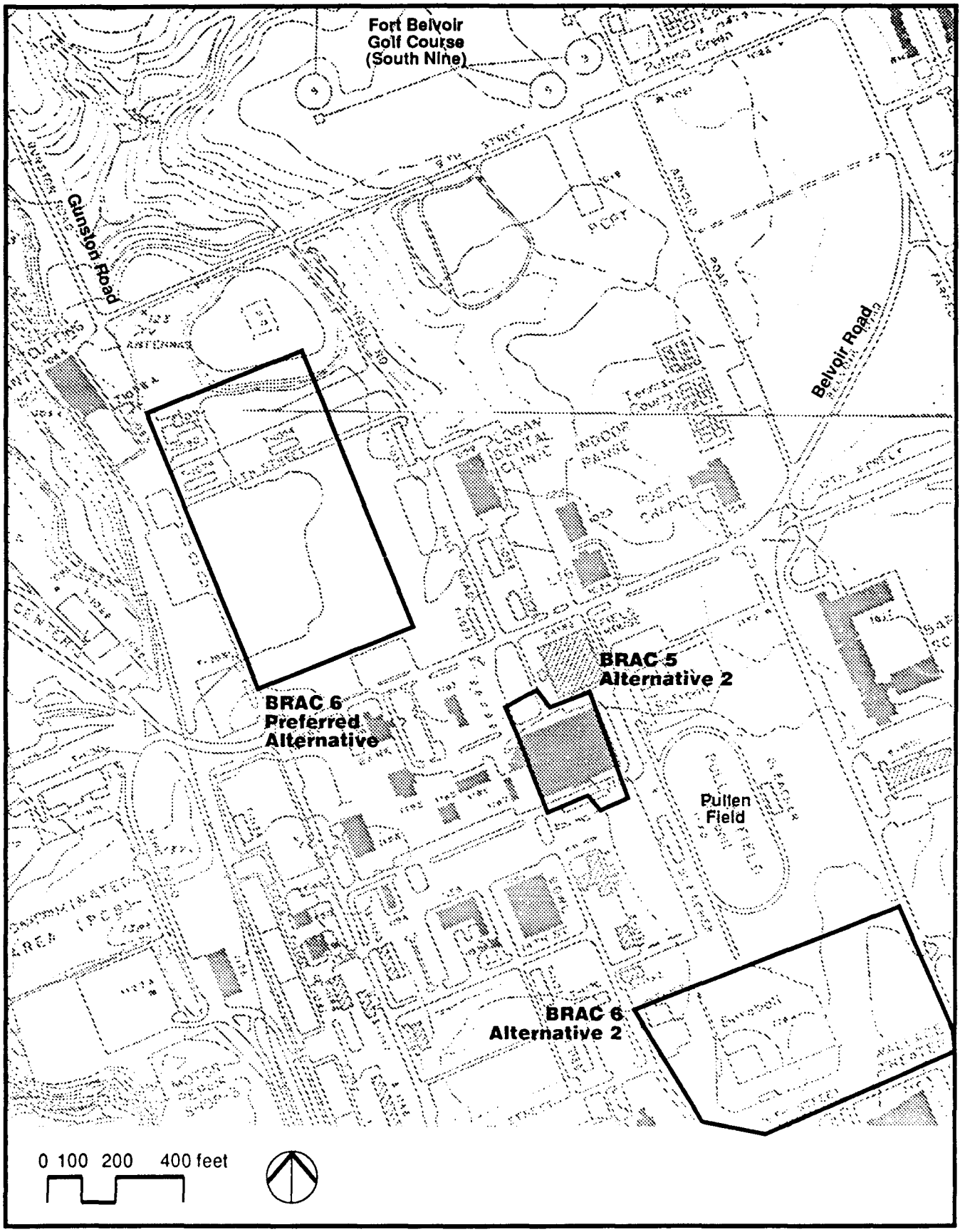


Figure 2-11
BRAC 6, Preferred Alternative and BRACs 5 and 6, Alternative 2

Two alternate sites were analyzed. The preferred alternative is located at Gunston Road and 12th Street (Figure 2-11), with Alternative 2 located at Gunston Road and 16th Street (Figure 2-11). The 16th Street site would have required relocation of the sports fields on 16th Street and elimination of some mature trees. In addition, the site is adjacent to the historic area. Because relocation of the sports fields would affect their use by the community and the site was close to historic sites, it was not considered further. The 12th Street site was preferred because of the ease of access, its disturbed nature, and its previous consideration for a commissary of a larger size. Funding for this project will be provided by the Defense Commissary Agency.

2.5.4.2.7 Administration Facility (BRAC 7). Located on the South Post (Figure 2-12), Building 1465 was originally designed as a barracks. Currently it is being used by ISC. The BRAC Commission recommended that the CIDC activities use space vacated by ISC. ISC is relocating to Fort Devens, and reuse of this space for an administrative facility would be more cost effective than constructing a new facility. Building 1465 still retains the four-, six-, and eight-man-room configurations. The building lacks central air conditioning, does not meet current energy conservation standards, and contains numerous safety code violations. Therefore, Building 1465 will be renovated. The renovations will include: entrance stairs, windows, acoustical ceilings, exterior doors, electrical and plumbing systems, new HVAC system, handicap access ramps, exterior wall insulation, security lighting, and a new fire sprinkler system. Asbestos will be removed and an addition of up to 9,000 square feet may be constructed. The CIDC activities are administrative and require office and document storage facilities. Renovation of this facility will accommodate relocation of CIDC personnel from Fort Meade and Fort Holabird, Maryland.

2.5.4.2.8 Material Research Facility (BRAC 8). Major components of this new facility are to include a materials laboratory (approximately 81,000 square feet) and an administration and maintenance building (approximately 28,200 square feet). This facility is to include experimental and test areas, computer and data-communication rooms, conference and analysis areas, offices for scientists and engineers, and building maintenance and storage areas. Support facilities will include utilities, electric service, information systems, fire protection and alarm systems, walks, curbs and gutters, storm drainage, and site improvements. Construction of this facility will accommodate the relocation of the AMTL from Watertown, Massachusetts.

Two alternatives were considered for this new facility. The preferred alternative is located on Burbeck Road across from the Systems Concept Laboratory (Figure 2-13) within the Belvoir Research Development Engineering Command (BRDEC) complex. This area is secured by a fence and had controlled access points.

Alternative 2 is located to the west of the BRDEC (Figure 2-14). This site, however, is not secured and requires utility upgrades to meet the needs of the AMTL.

2.5.4.2.9 Exchange Branch (BRAC 9). This facility will have an approximately 5,500-gross-square-foot building and two gasoline-dispensing islands. This project is required to support the relocation of the AAFES retail sales to Fort Belvoir when Cameron Station closes.

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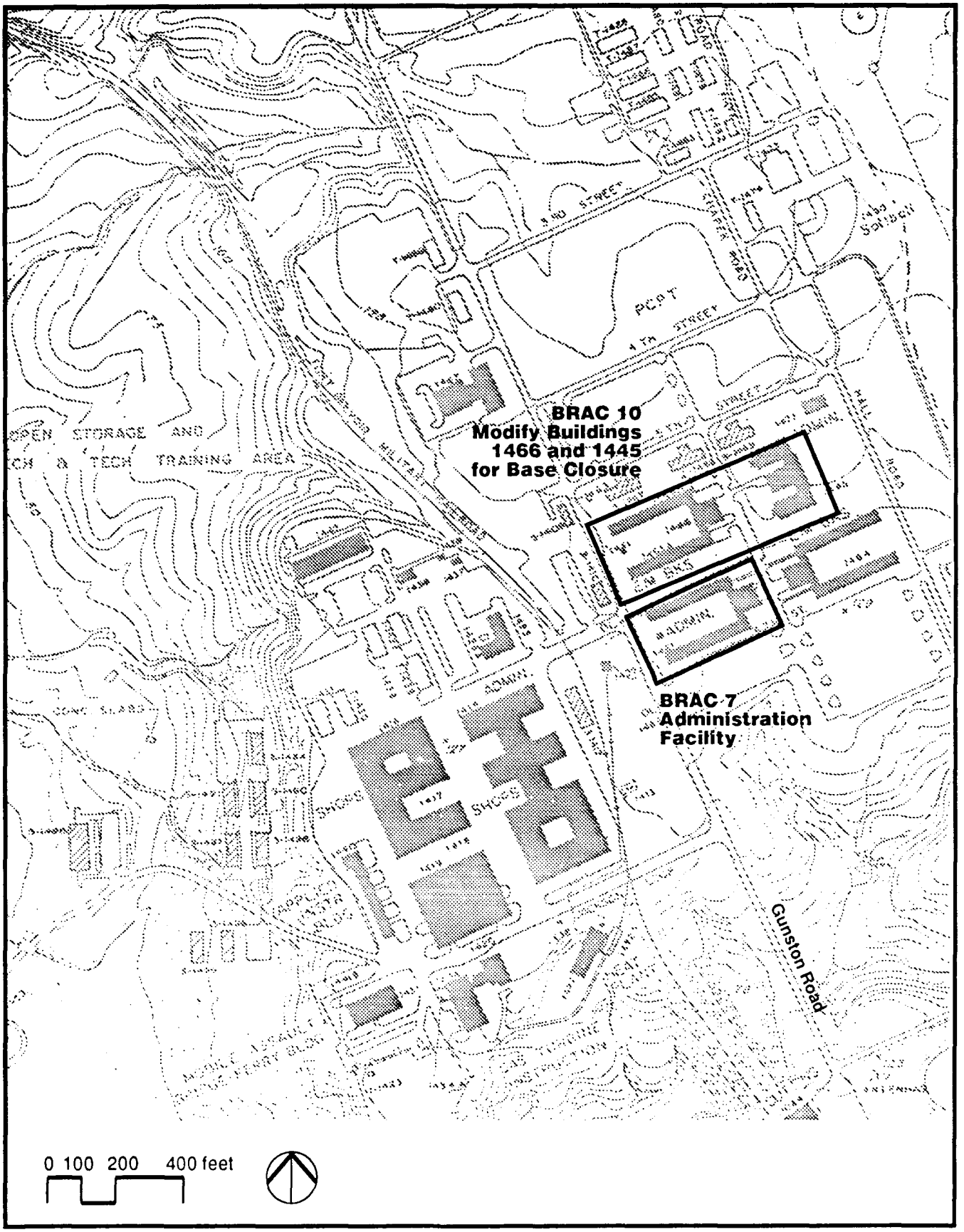


Figure 2-12
BRACs 7 and 10, Preferred Alternatives

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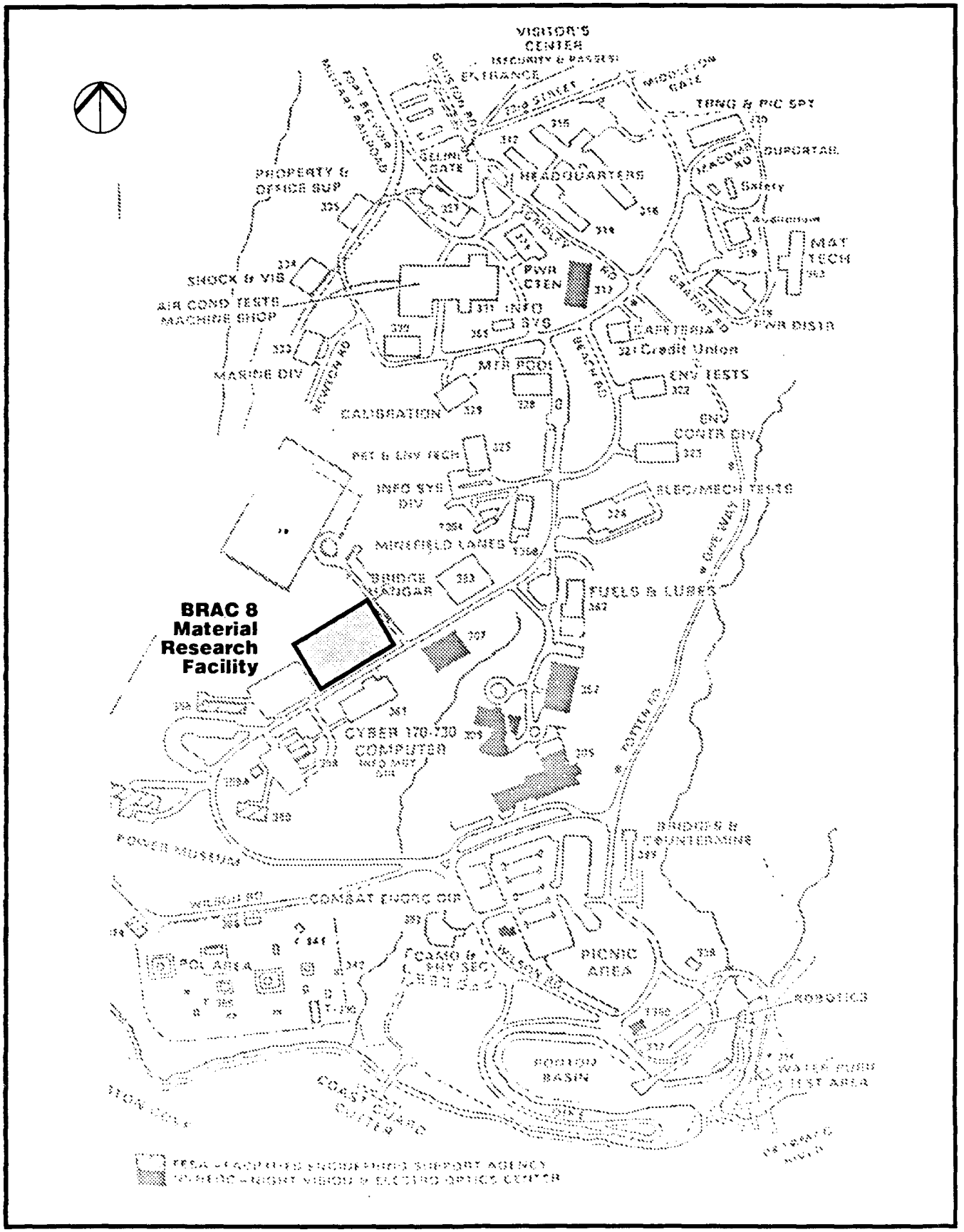


Figure 2-13
BRAC 8, Preferred Alternative

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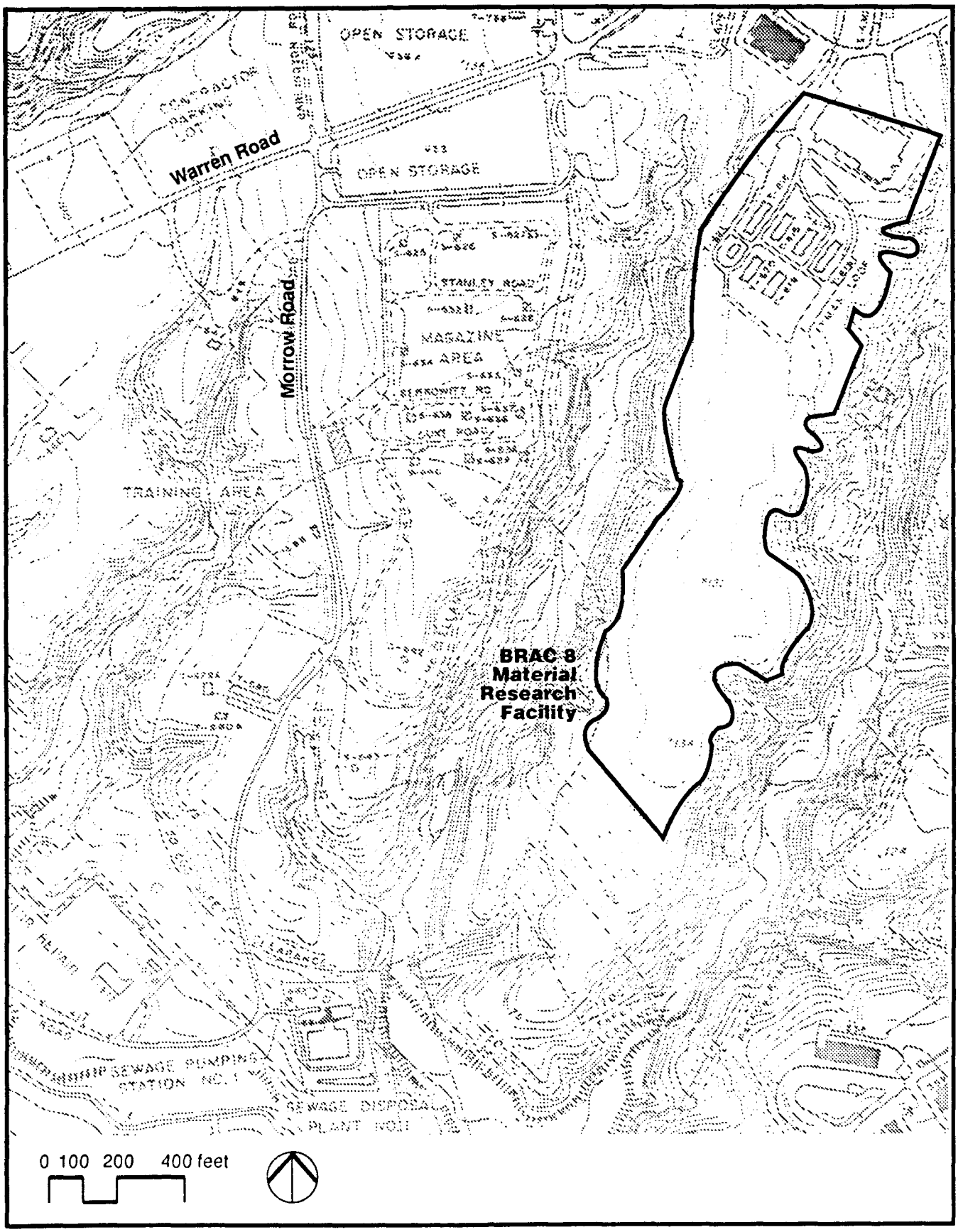


Figure 2-14
BRAC 8, Alternative 2

The preferred alternative for BRAC 9 is located adjacent to the commissary on the North Post (Figure 2-10). Locating the Exchange Branch with the existing commissary and the proposed PX (BRAC 5) would create a centralized shopping area on the North Post. This site is disturbed and has direct access from Woodlawn Road.

Alternative 1 for BRAC 9 is located on the North Post (Figure 2-10) along Woodlawn Road, which could be used by military personnel, by their dependents, and by retirees and could lessen traffic on public roads. The site is disturbed and already has access to utilities.

Alternative 2, also located on the North Post, is next to the commissary (Figure 2-10). This site is also disturbed and has access to utilities. Funding for this project will be provided by AAFES.

2.5.4.2.10 Modify Buildings 1466 and 1445 for Base Closure (BRAC 10). A concise study, conducted in the late 1970s, and a backfill study, conducted in the early 1980s, were used to analyze the known alternatives to modifying the area and buildings being vacated by the Engineer School when it is moved to Fort Leonard Wood, Missouri. All the alternatives, and the environmental impacts of those alternatives, are discussed in these studies. The alternative to move Cameron Station organizations into Building 1466 is based on economics and the requirement for maximum use of existing space. Located on the South Post (Figure 2-12), Building 1466 was originally designed as a barracks and scheduled for open space renovation that is funded under an approved Military Construction Army project. Base closure funds will be used to adjust the interior of the building to provide separate space for each of the agencies being relocated there. Some base closure funds will be required to provide specialized space in Building 1445 for an activity being displaced from Building 1465 because of base closure.

2.5.5 FORT MYER

Four construction projects are planned for Fort Myer as part of BRAC: a PX expansion, a shoppette, a commissary, and a logistics complex. These are described in more detail below.

2.5.5.1 PX Expansion. The main PX at Cameron Station will be closed with the closure of Cameron Station. Some of the patrons will migrate, by preference, to the Fort Myer main PX, which is not large enough to handle additional sales. The current building has limited expansion potential because of the site's topography and the lack of vehicular access for additional patrons. The estimated increase in patronage of 30 percent would increase congestion at the existing facility, reduce the level of service, and create discontented patrons under the no-action alternative. Construction of a new facility could be at the preferred alternative west of the existing PX (Figure 2-15) or near the Army Mutual Aid Building (Figure 2-16). The site west of the existing PX was selected as the preferred alternative because it has ample space for patron parking. The new facility would be approximately 10,000 square feet with an intrusion-detection system. Support facilities will include utilities, paving, sidewalks, curbs and gutters, fire protection and alarm systems, handicapped access, and information systems.

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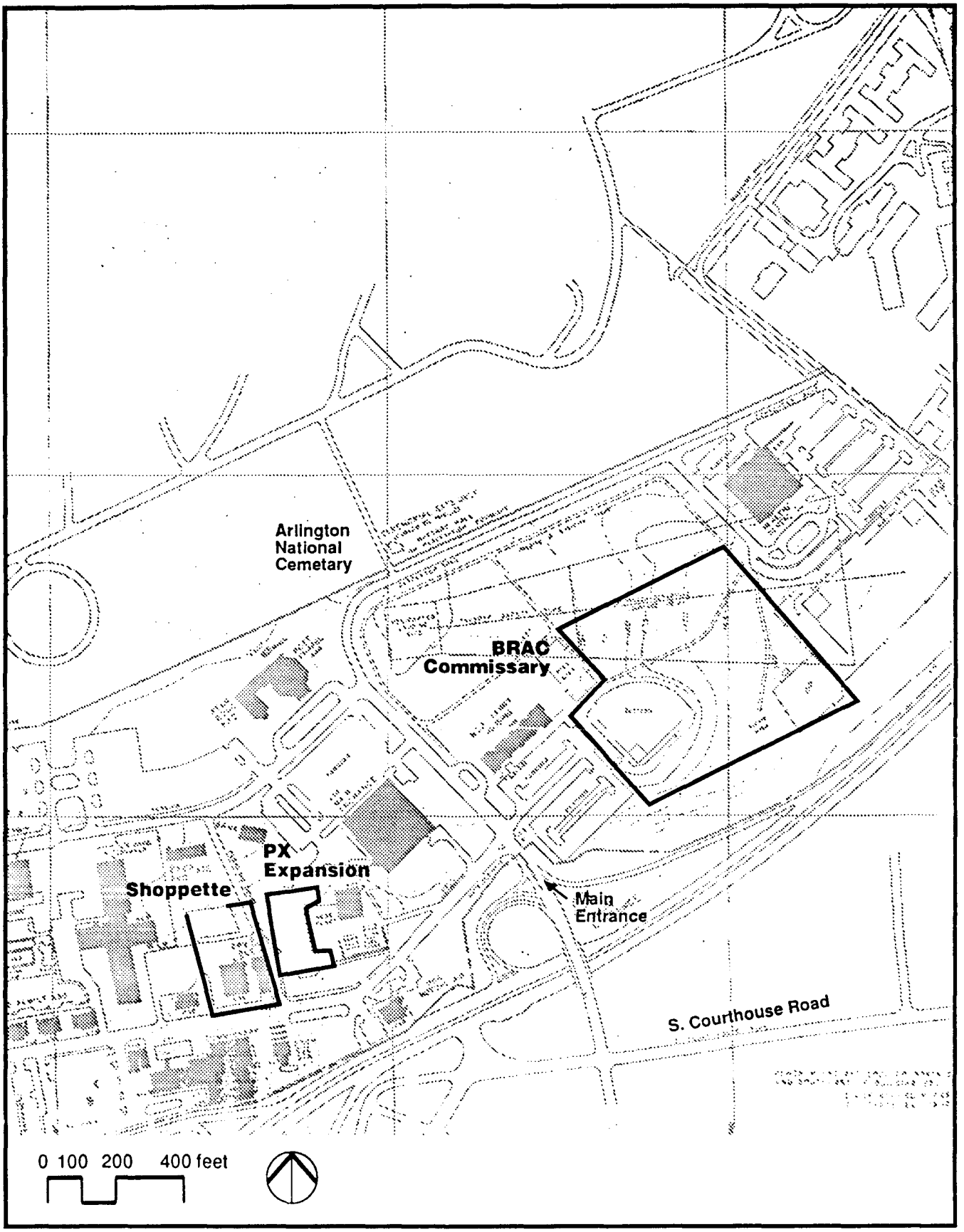


Figure 2-15
Fort Myer BRACs-
Commissary, PX Expansion,
and Shoppette—
Preferred Alternatives

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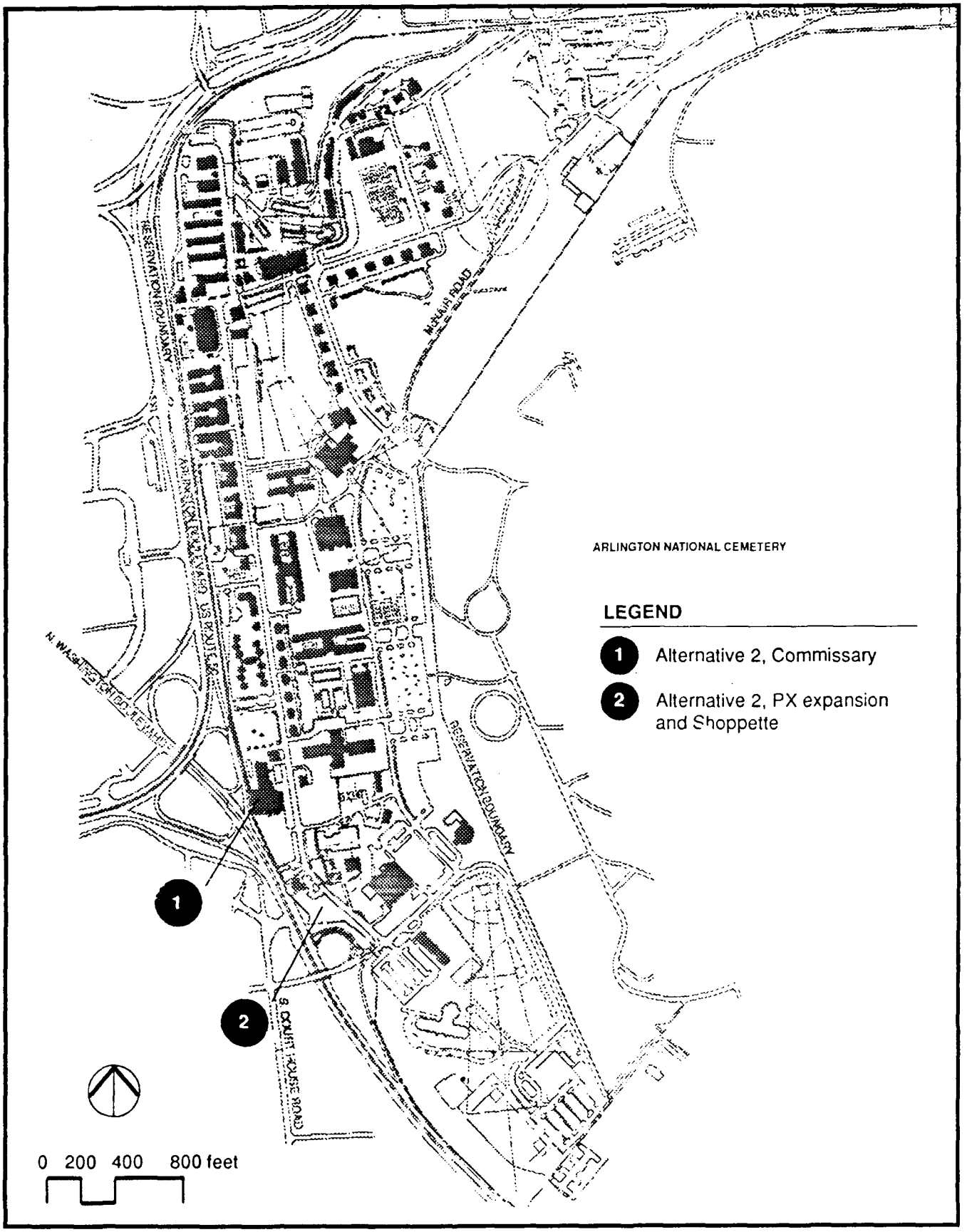


Figure 2-16
Fort Myer BRACs Alternative 2 Commissary, PX Expansion, and Shoppette

2.5.5.2 Shoppette. Because of the Cameron Station closure, a portion of its shoppette business will migrate to the Fort Myer PX, which is not large enough to handle the additional business. The no-action alternative would reduce the level of service and displease the patrons of the current shoppette at Cameron Station. The alternative sites for this project are near those presented for the PX expansion (Figure 2-15 and 2-16). Construction of the shoppette at the preferred site will require the demolition of two existing buildings, the laundry plant and the TISA warehouse. The shoppette is planned to contain 5,300 square feet of space and will include sales display areas, administration offices, restrooms, a stockroom, and a receiving area. AAFES has planned and programmed for a 5,500-square-foot beverage store, which will be contiguous to the shoppette. Supporting facilities will be funded proportionately and will include paving, walks, and curbs and gutters with the necessary utilities.

2.5.5.3 Commissary. Because of the closure of the Cameron Station, some of the patrons will migrate to the Fort Myer facility. Under the no-action alternative, the existing commissary would not be able to handle the increase in business, which would result in reduced levels of service and discontented patrons. The current, antiquated facilities could not be expanded efficiently or economically to handle the anticipated 30 percent increase in business, therefore, a new facility is required. The new facility could be constructed at a site south of Tenza Terrace (Figure 2-15), the preferred alternative, or at the current location (Figure 2-16). Using the existing site would require the present building to be closed for a period of time up to 24 months. This would result in no service for the patrons and the alternative was rejected. The preferred alternative is to construct a new facility south of Tenza Terrace where patron traffic can be dispersed.

The 86,400-square-foot facility would include areas for sales, checkout, cold and frozen food storage, administration, preparation, employees, backup storage, and a computer room. Construction would include refrigeration with an automatic monitoring-control system, emergency building lighting, and fire sprinkler system. Supporting facilities will include paved access roads and a 450-vehicle parking area for patrons and employees, a visually screened truck loading dock area, sidewalks, utilities, and communications. The present commissary would be demolished, which would include the removal of asbestos. Funding for this project will be provided by the Defense Commissary Agency.

2.5.5.4 Logistics Complex. Because of the closure of Cameron Station, the MDW Logistics and other activities will be realigned to Fort Myer to provide logistics/ entomology support in proximity to the military and other authorized consumers (e.g., DOD, White House, and State Department) in the NCR. Under the no-action alternative, this support would be lost. Several sites were considered for construction of new facilities. A site at Fort Myer near the Wright Gate is large enough for the necessary warehousing, maintenance facilities, and administration and parking areas for the MDW DCSLOG staff/DOL workforce (Figure 2-17). The complex would also include an entomology shop, a maintenance shop for the 1101st Signal Brigade, and replacement facilities for the four buildings that will be razed to make room for the proposed construction. The complex would not fit in one location at Fort Myer. The storage and service area would be adjacent to the Wright Gate, including the maintenance and

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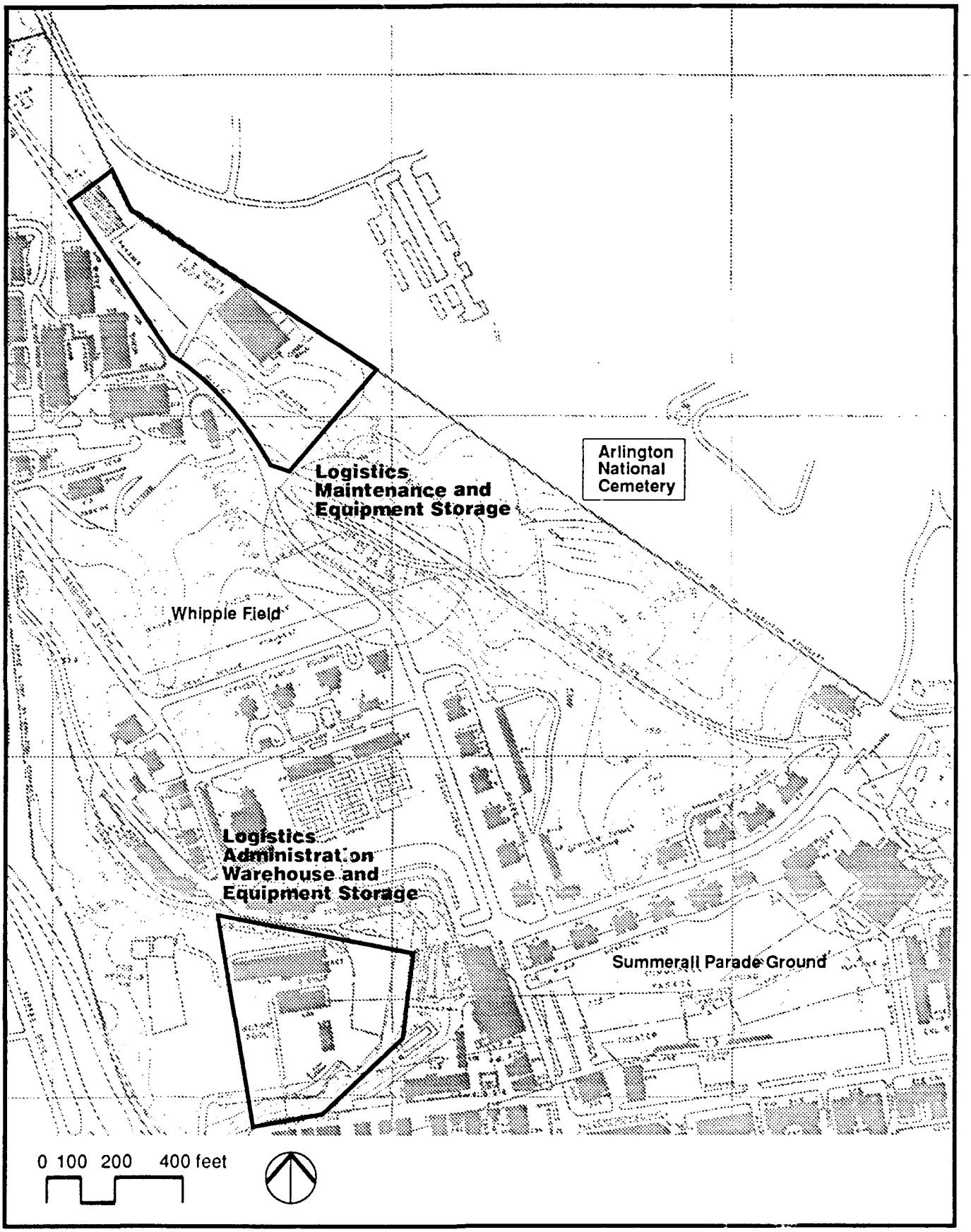


Figure 2-17
Fort Myer BRAC Logistics Complex, Preferred Alternative

entomology shops (8,760 square feet), and a covered parking area for government equipment (4,320 square feet). The other area north of the Officer's Club would provide warehousing (75,609 square feet), administration area (25,600 square feet), and associated parking (approximately 9,500 square feet).

In Alternative 2, Ft. Belvoir was considered for the location of the logistics complex. A site for the complex could be found at Fort Belvoir. However, locating the complex at Fort Belvoir would not be responsive to the consumers. As a result, this alternative was not pursued.

2.5.6 FORT MEADE

The Commission recommended the partial closure of Fort Meade and the relocation of CIDC activities to Fort Belvoir. These activities may be relocated to space vacated by the ISC, which will relocate to Fort Devens, Massachusetts. Personnel relocating from Fort Meade will occupy the Administration Facility (BRAC 7).

2.5.7 FORT HOLABIRD

The Commission also recommended the closure of the portion of Fort Holabird occupied by the CRC. The CRC activity will be moved to Fort Belvoir and consolidated with the other CIDC activities being realigned to Fort Belvoir. Personnel relocating from Fort Holabird will occupy the Administration Facility (BRAC 7).

2.6 FORT BELVOIR CONCEPT DEVELOPMENT PLAN

2.6.1 INTRODUCTION

This EIS addresses the environmental impacts for the Fort Belvoir CDP so they can be considered in conjunction with the effects of the base realignment and closure actions.

Potential sites for the many projects proposed at Fort Belvoir have been identified by Fort Belvoir planners. The alternatives for these projects include changes in final siting, as well as the initiation of the project. An evaluation of environmental constraints will be used to determine the actual locations, or the "footprints", for proposed projects. The location within a site and the actual site can change. New sites will also be considered if they are consistent with the goals and objectives of the Fort Belvoir Master Plan, which is scheduled for completion in fiscal year 1992. Additional NEPA analyses will be made of these actions, if appropriate. These analyses will provide specific discussions of the alternatives for each project. The Fort Belvoir Master Plan will be revised to include the CDP and appropriate NEPA analyses beginning in fiscal year 1991.

Preliminary descriptions of the proposed actions for the Concept Development Plan are included below. The actions are divided into four categories, Military Construction Activity (MCA), NAF, AAFES, and Army Family Housing (AFH). MCA 1 through 5 and AFH 1 are currently under construction and will only be briefly described.

2.6.2 MILITARY CONSTRUCTION ACTIVITY

2.6.2.1 Child Development and Religious Education Centers (MCA 1a and MCA 1b). A combination child development center and religious education center (MCA 1a) is under construction on the South Post, west of the post chapel on 12th Street. This facility will provide approximately 29,000 square feet of space for child care and religious education. A second child development center (MCA 1b) is also under construction on the North Post, south of Meeres Road and east of Cheney School. It will provide approximately 22,500 square feet of space for child care. Appropriate environmental analysis was completed for both of these projects before construction began.

2.6.2.2 Electronics Supply and Maintenance Facility (MCA 2). The Electronics Supply and Maintenance Facility is being constructed on the South Post between Pratt and Thoete Roads. This construction project is part of the post-wide upgrade of electrical service required for the planned BRAC and CDP actions. Appropriate environmental documentation was completed for this project before construction began.

2.6.2.3 Washington, D.C., Army National Guard Armory (MCA 3). The Washington, D.C., Army National Guard is building an armory at Davison Airfield south of the northwest end of the runway. Appropriate environmental documentation was completed for this project before construction began.

2.6.2.4 Washington, D.C., Army National Guard Aircraft Parking Apron (MCA 4). Also under construction at Davison Airfield is the Washington, D.C., Army National Guard Aircraft Parking Apron. This facility is located to the northwest of the existing runway. Appropriate environmental documentation was completed for this project before construction began.

2.6.2.5 Convert Buildings 206 and 208 to Classrooms (MCA 5). Buildings 206 and 208 are currently being converted to classrooms to fulfill the Defense Systems Management College requirements. Appropriate environmental documentation was completed for this project before construction began.

2.6.2.6 Veterinary Clinic (MCA 6). A new veterinary clinic is proposed for construction on the South Post at the intersections of Thoete, Warren, and Clapp Roads (Figure 2-18). The facility will be a one-story structure and contain approximately 6,400 square feet of space. The facility is required in order to replace the original veterinary clinic lost to fire in 1986. This project is programmed, but not yet funded. A record of environmental considerations (REC) has been prepared for this project.

2.6.2.7 Operations Building Renovation, Engineer School Backfill (MCA 7a, 7b, and 7c). The renovation of operations buildings as part of the Engineer School Backfill (Figures 2-19, 2-20, and 2-21) involves the renovation of Buildings 201 (MCA 7a); 247 (MCA 7b); and 1464, 1455, and 1466 (MCA 7c). It also involves the construction of chiller buildings behind Building 1445; the construction of handicapped parking and

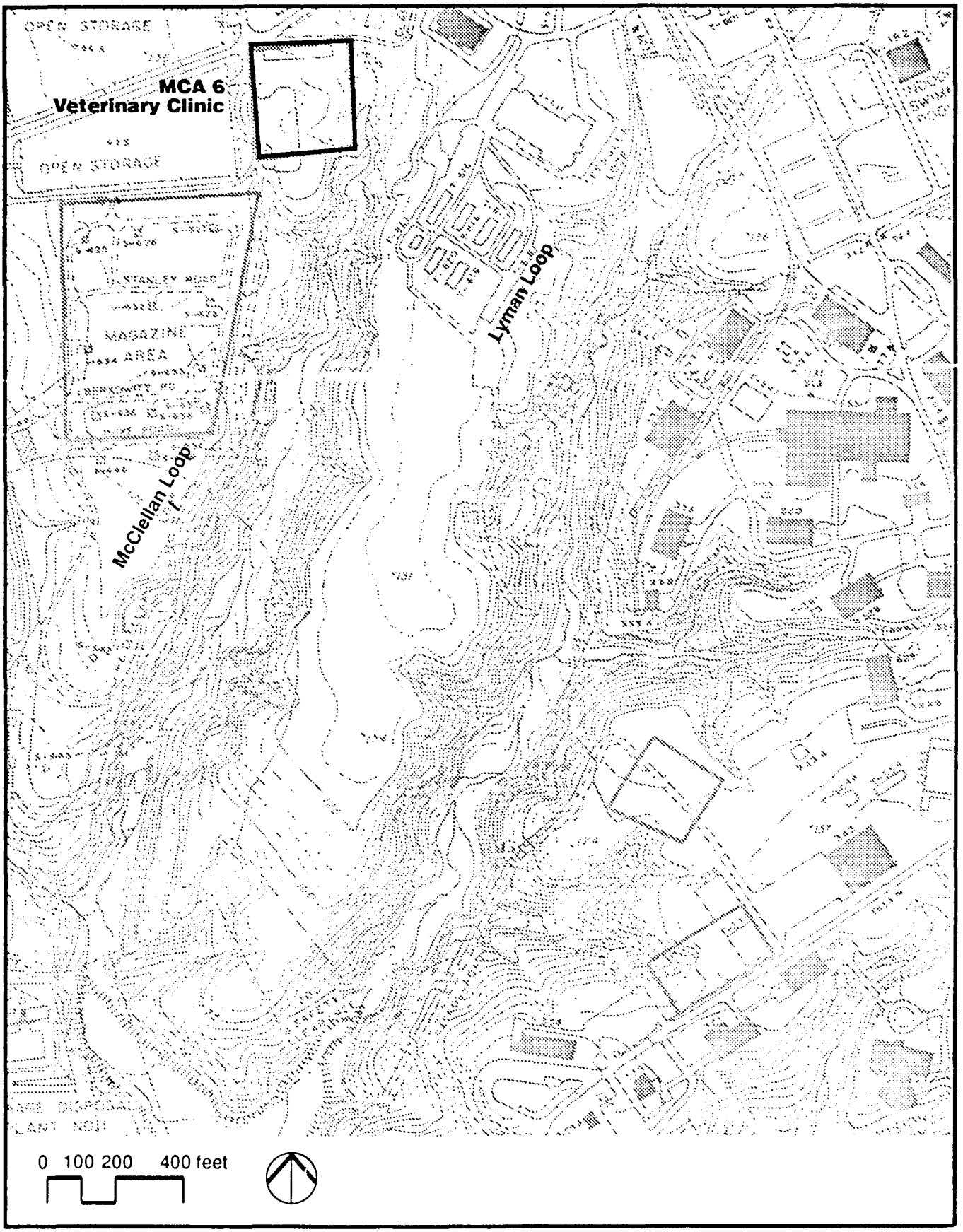


Figure 2-18
Proposed MCA Site 6

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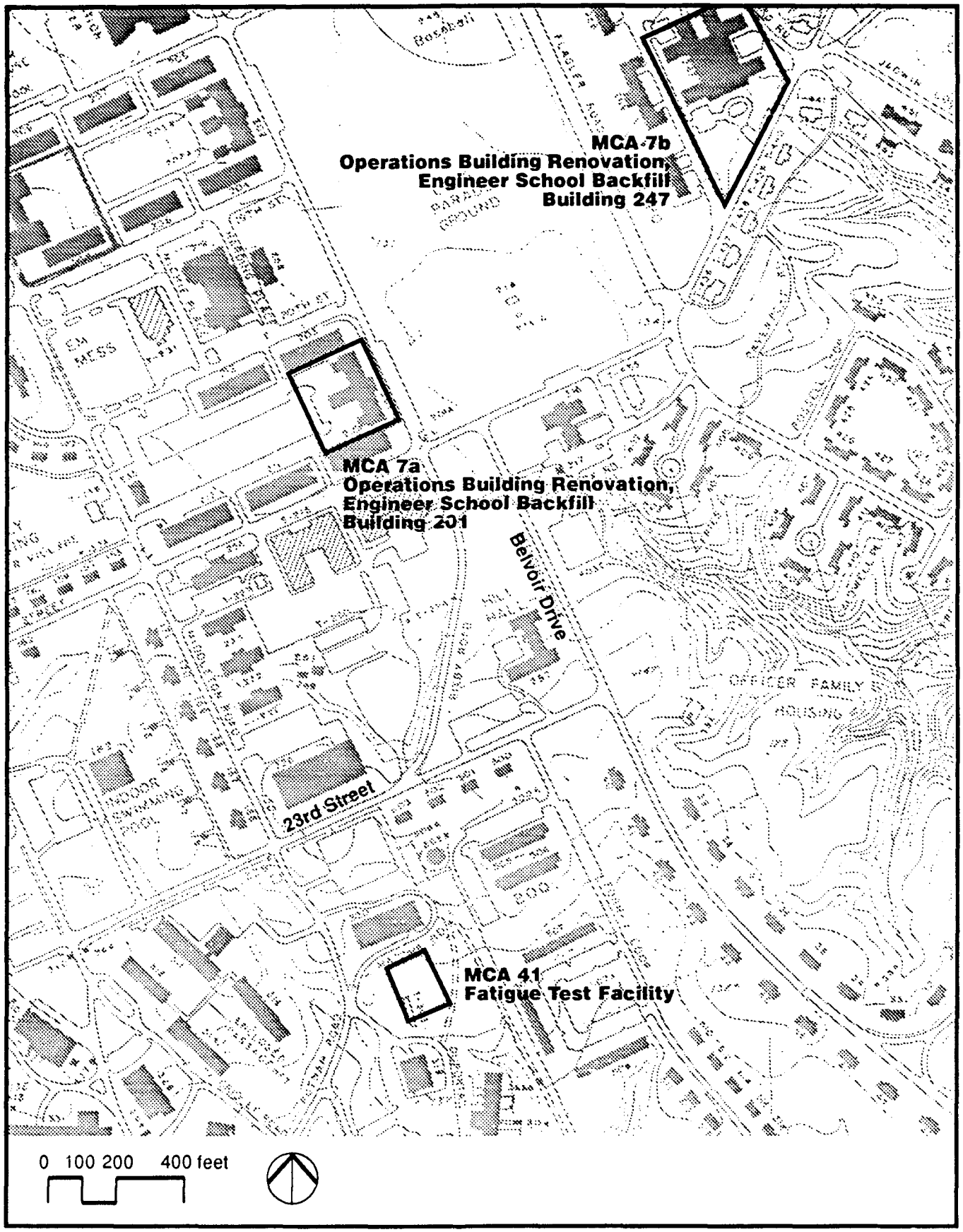


Figure 2-19
Proposed MCA Sites 7a, 7b, and 41

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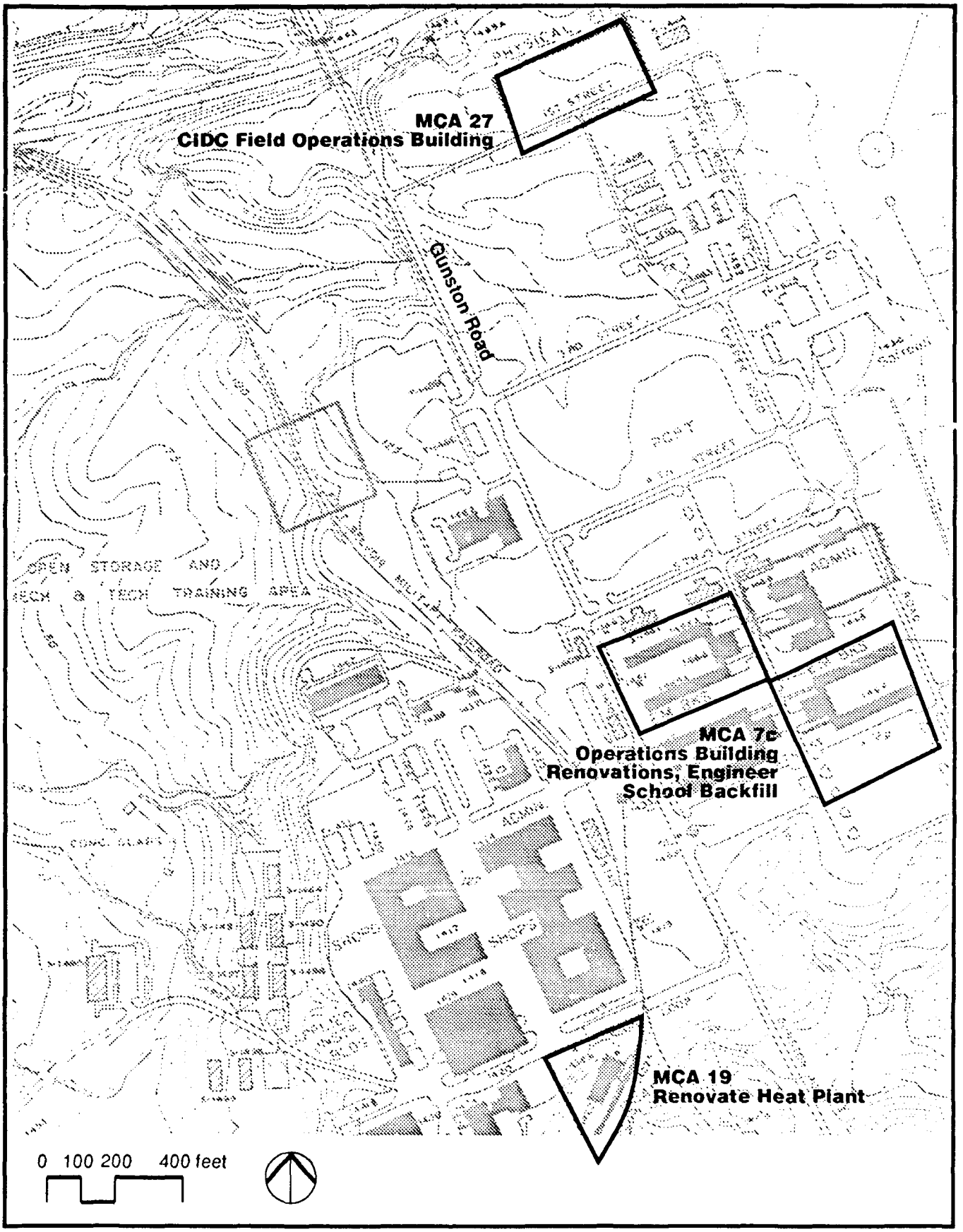


Figure 2-20
Proposed MCA Sites 7c,19, and 27

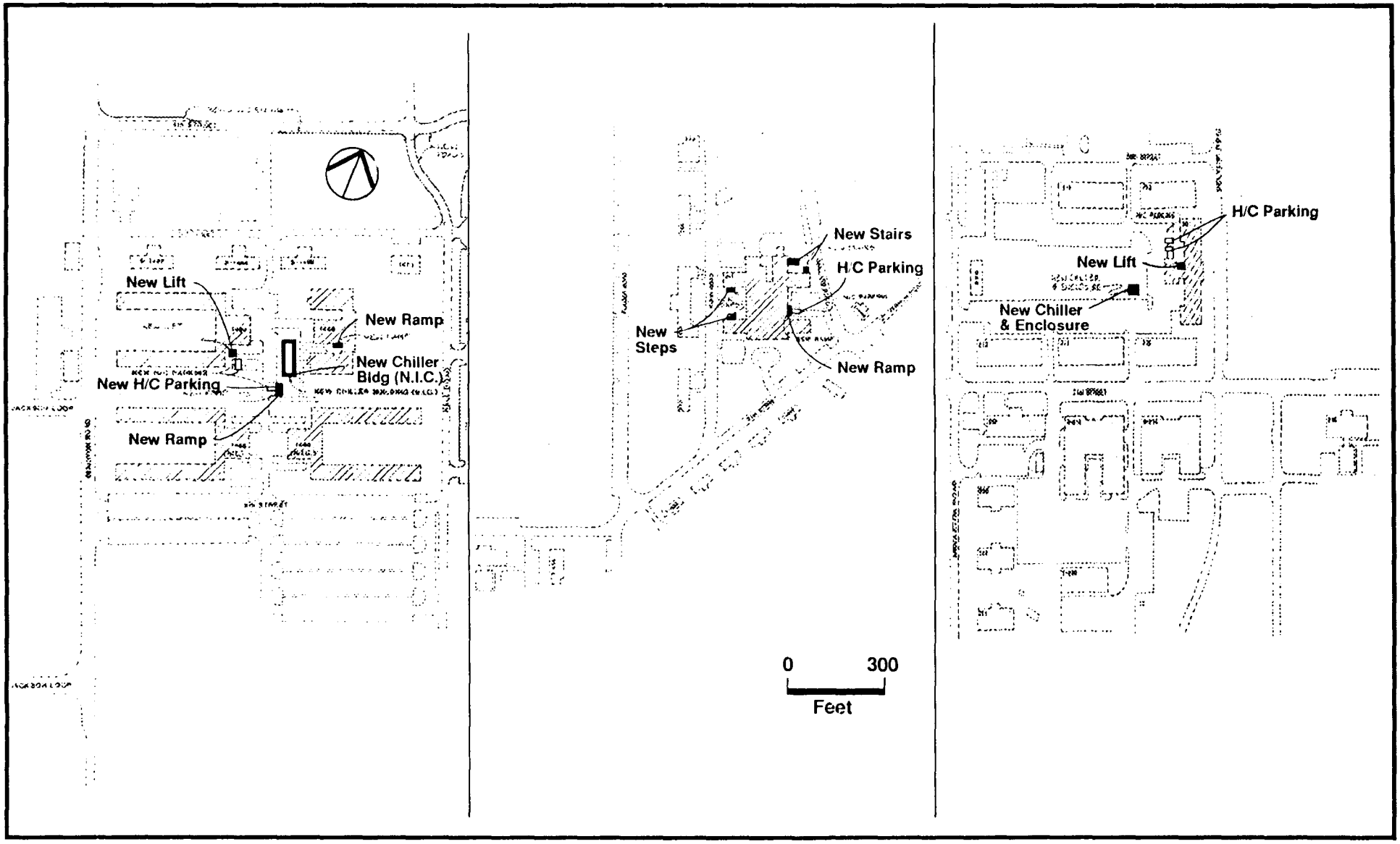


Figure 2-21
Development of Proposed MCA Sites 7a, 7b, and 7c

access ramps at all of the buildings; construction of new lifts at Buildings 201 and 1464; and the construction of new stairs at Building 247. The renovated space in these buildings will be used to house various administrative functions, including personnel relocating from Cameron Station because of the base closure. This project is funded, and parts of the project are under construction. An environmental assessment titled *U.S. Army Engineer Center and Fort Belvoir* was completed in August 1983 for this project.

2.6.2.8 Telephone Switch Upgrade, Post-Wide (MCA 8). A post-wide telephone switch upgrade is planned for accommodating future growth at Fort Belvoir. Once completed, the electronic switching system will have a capacity of approximately 33,000 lines. This project is programmed, but not yet funded. This project should qualify for a categorical exclusion under NEPA.

2.6.2.9 Fixed-Wing Runway Extension (MCA 9). The Fixed-Wing Runway Extension will provide additional margins of safety for takeoffs and landings at Davison Airfield (Figure 2-22). An environmental assessment has been completed for this project. This project is programmed, but not yet funded. An environmental assessment titled *Environmental Assessment: Runway Extension Davision Army Airfield* was completed in January 1987 for this project.

2.6.2.10 Old Guard Horse Stables (MCA 10). The Old Guard Horse Stables is sited for the South Post near the intersection of Richmond Highway and Old Colchester Road, north of Poe Road (Figure 2-23). The stable area will provide shelter and pasture for Old Guard horses from Fort Myer. This project has not been programmed, funded, or approved to date. An REC has been completed for this project.

2.6.2.11 Main Sewer Line Upgrade, Post-Wide (MCA 11). Post-wide upgrades of the main sewer lines are planned at Fort Belvoir. When completed, the upgraded sewer mains will accommodate the increased sewage flows generated as a result of growth at Fort Belvoir. This project is programmed, but not yet funded. An REC has been completed for this project.

2.6.2.12 North Post Fire Station (MCA 12). An 8,400-square-foot, two-company fire station is planned for the North Post inside Frazier Loop, north of Abbott Road (Figure 2-24). The station will comprise three drive-thru bays, one of which will accommodate an aerial ladder truck. The station will improve the effectiveness of the fire protection at Fort Belvoir by decreasing response time to North Post areas. This project is programmed, but not yet funded. An REC has been completed for this project.

2.6.2.13 Headquarters, Air Force Intelligence Agency (MCA 13). A three-building headquarters complex providing approximately 140,000 square feet of space is being planned for the Air Force Intelligence Agency northeast of the BRAC 1 site (Figure 2-25). The facility will be constructed in two phases. It will contain space for a security and visitor-control area, headquarters squadron section, restrooms, command

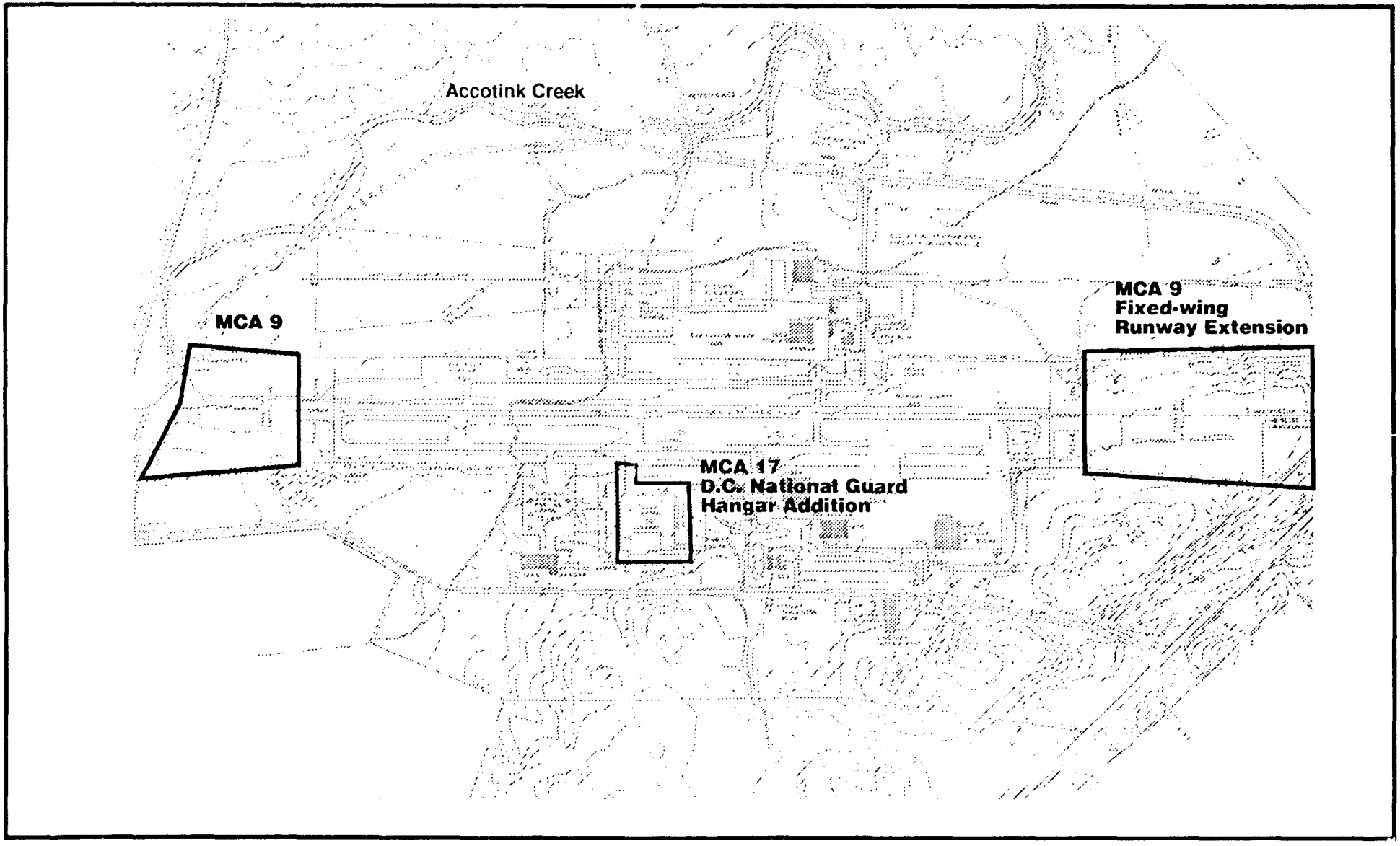


Figure 2-22
Proposed MCA Sites 9 and 17

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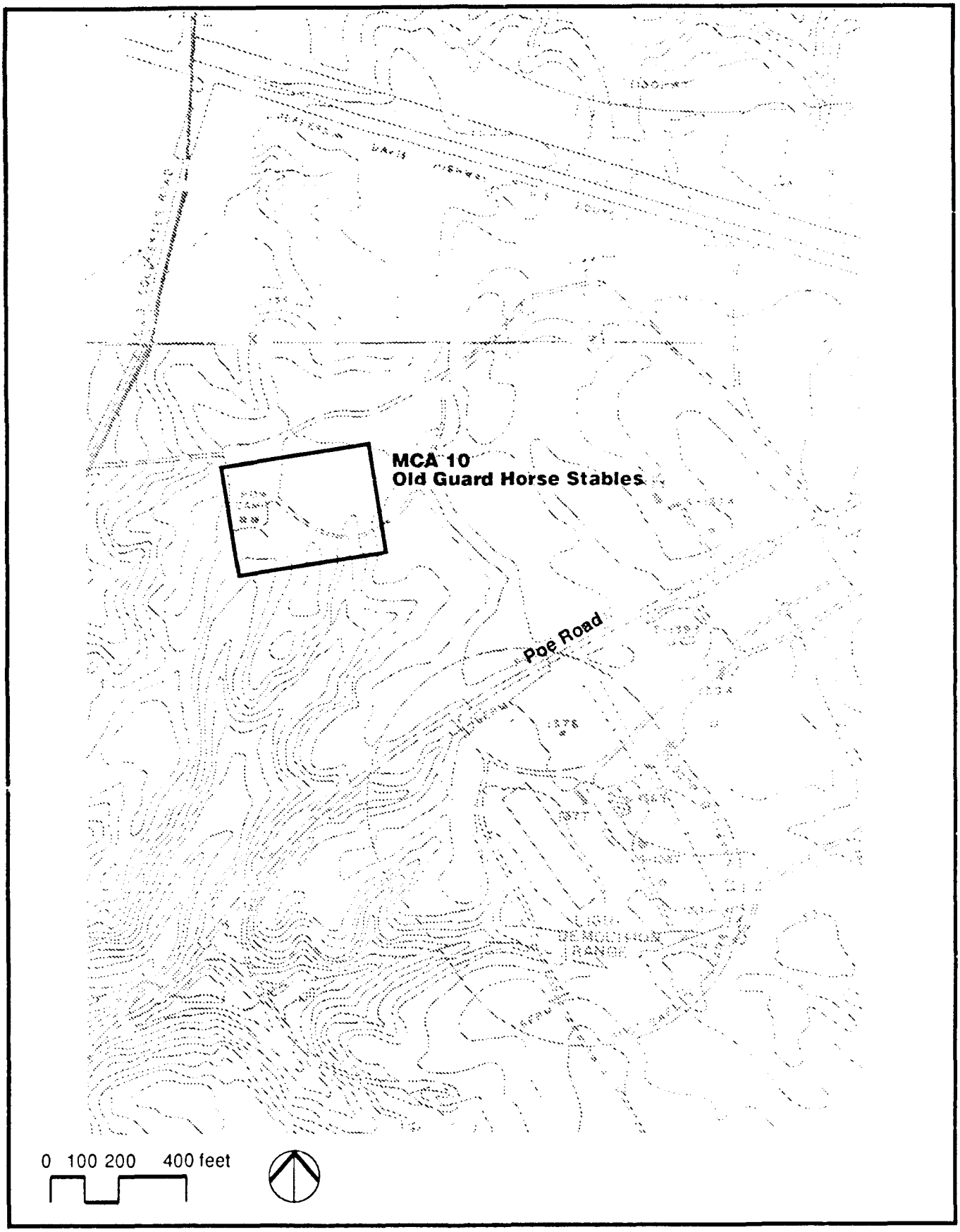


Figure 2-23
Proposed MCA Site 10

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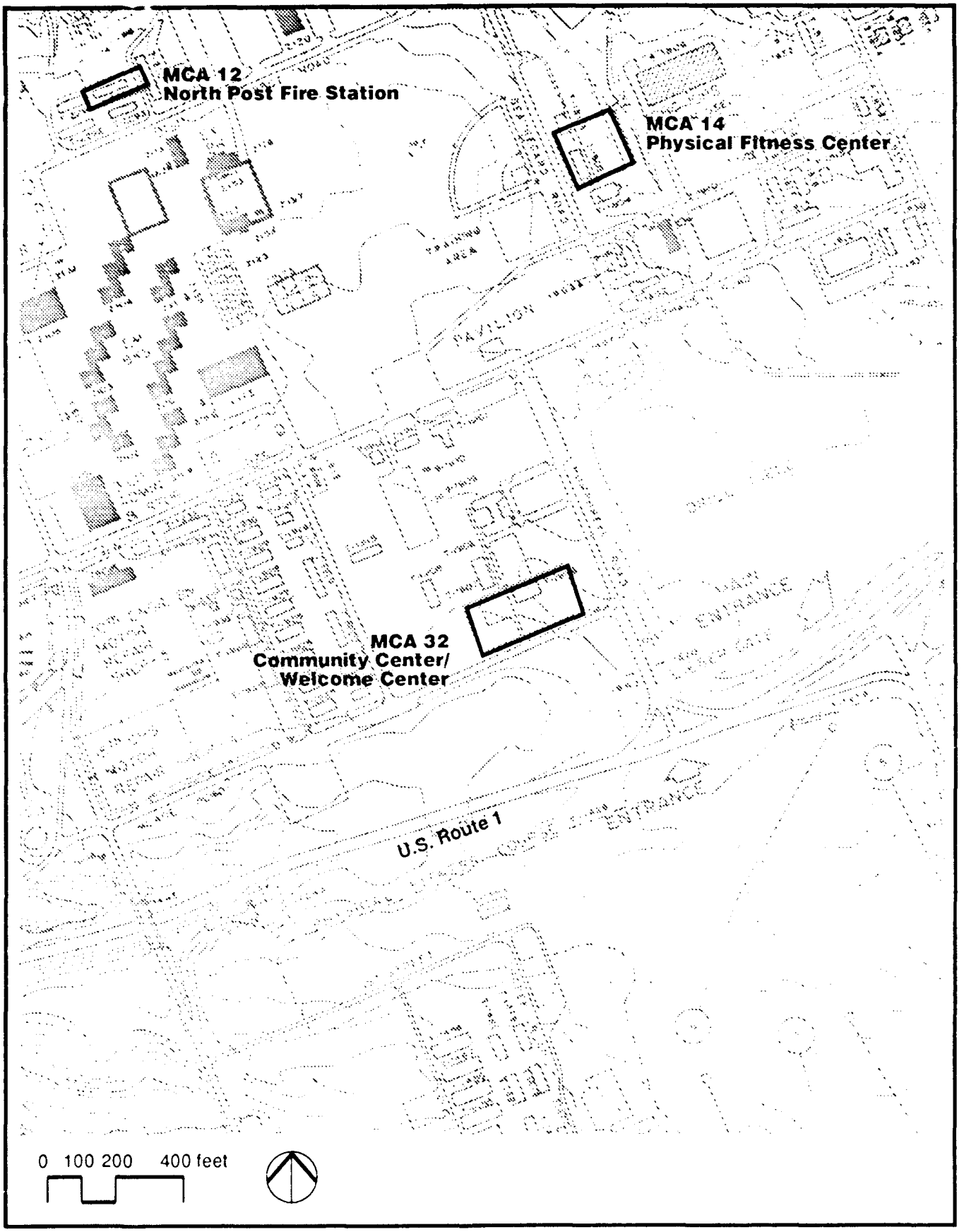


Figure 2-24
Proposed MCA Sites 12, 14, and 32

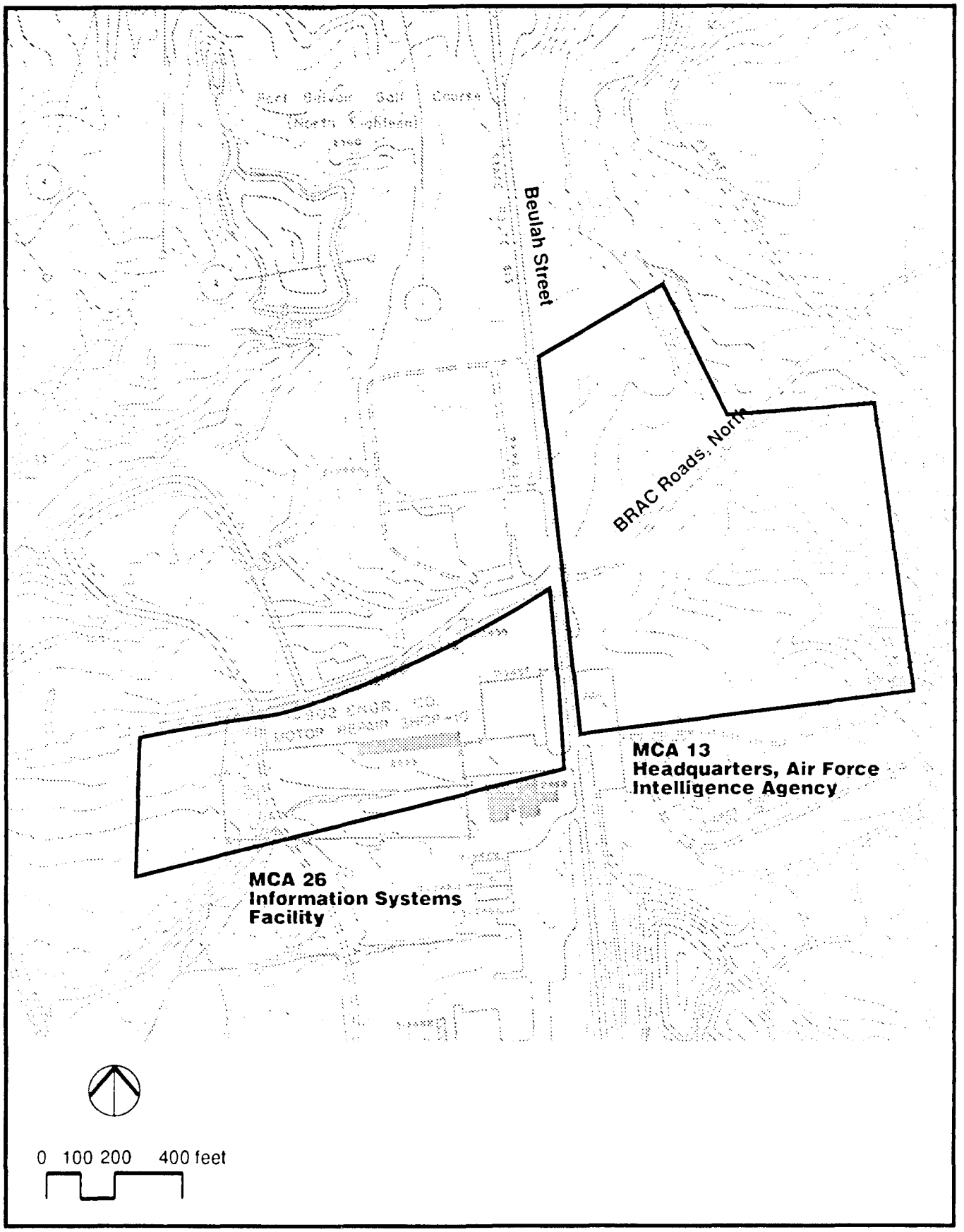


Figure 2-25
Proposed MCA Sites 13 and 26

group area, command conference center, and mechanical and janitorial rooms. MCA 13 will house the Directorates of Targets; Intelligence Data Management; Communications/Computer Systems Division; Security and Communications; Joint Services Support; Research and Soviet Studies; and the sensitive compartmented information facility for the Historical Research Office and the Directorate of Research and Soviet Studies. Parking for approximately 420 vehicles will also be provided. This project is programmed, but not yet funded. The environmental assessment for this project is in progress.

2.6.2.14 Physical Fitness Center (MCA 14). A physical fitness center is planned for North Post east of Beauregard Road between Abbott and Goethals Roads (Figure 2-24). The building will provide approximately 27,000 square feet for physical fitness facilities for on-post military personnel. This project is programmed, but not yet funded. An REC has been completed for this project.

2.6.2.15 Virginia Army National Guard Armory/Headquarters (29th Light Infantry Division) (MCA 15). An armory to house the Virginia National Guard, 29th Light Infantry Division, is being planned for the North Post between Accotink Village and Backlick Road (Figure 2-26). The armory will house approximately 400 people and provide approximately 87,000 square feet of space. This project is programmed, but not yet funded. The environmental assessment for this project is in progress.

2.6.2.16 Gunston Road Extension (MCA 16). Fort Belvoir is planning to improve Gunston Road and extend it northward from its current terminus at Abbott Road to the planned BRAC Roads (Figure 2-27). The final alignment of the extension has not yet been determined. When completed, the upgrades and extension should accommodate future planned development in the vicinity. This project is programmed, but not yet funded. The environmental assessment for this project is in progress.

2.6.2.17 Washington, D.C., Army National Guard Hangar Addition (MCA 17). The Washington, D.C., Army National Guard hangar addition is planned in order to provide an additional 12,948 square feet of hangar space at Davison Airfield (Figure 2-22). This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate analysis will be completed before construction begins.

2.6.2.18 Seabee Operational Storage Facility (MCA 18). The Seabee Operational Storage Facility is planned for the North Post south of Stuart Road, between Meade and Foster Roads (Figure 2-28). The facility will have approximately 4,000 square feet of general storage space for equipment and supplies. This project is funded, but not yet constructed. This project will qualify for a categorical exclusion.

2.6.2.19 Renovate Heat Plant (MCA 19). The heat plant located south of Jackson Loop and west of Gunston Road on the South Post (Figure 2-20) is scheduled to be renovated and upgraded. When completed the plant should be more efficient and emissions will be reduced. This project is programmed, but not yet funded. An REC has been completed for this project.

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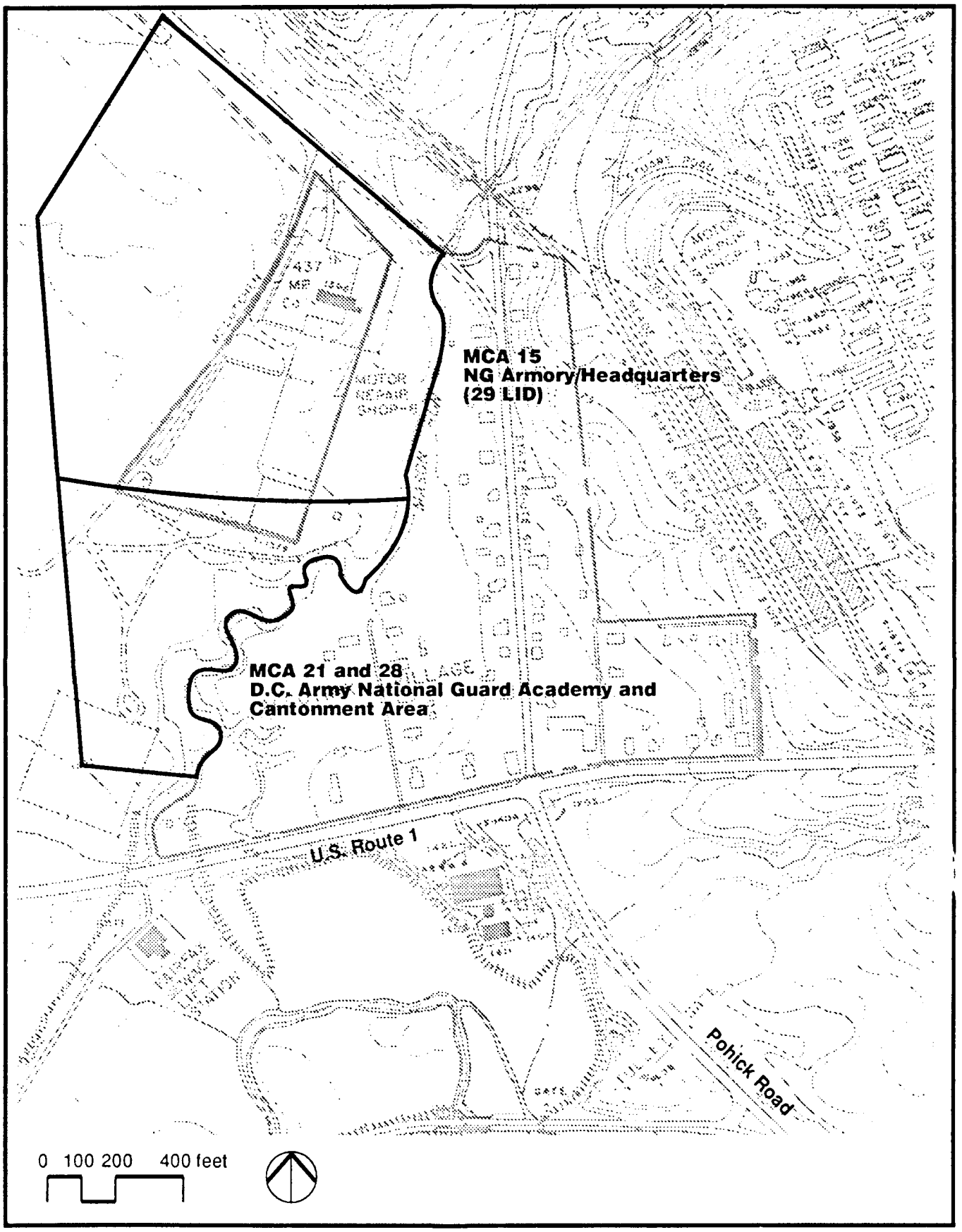


Figure 2-26
Proposed MCA Sites 15, 21, and 28

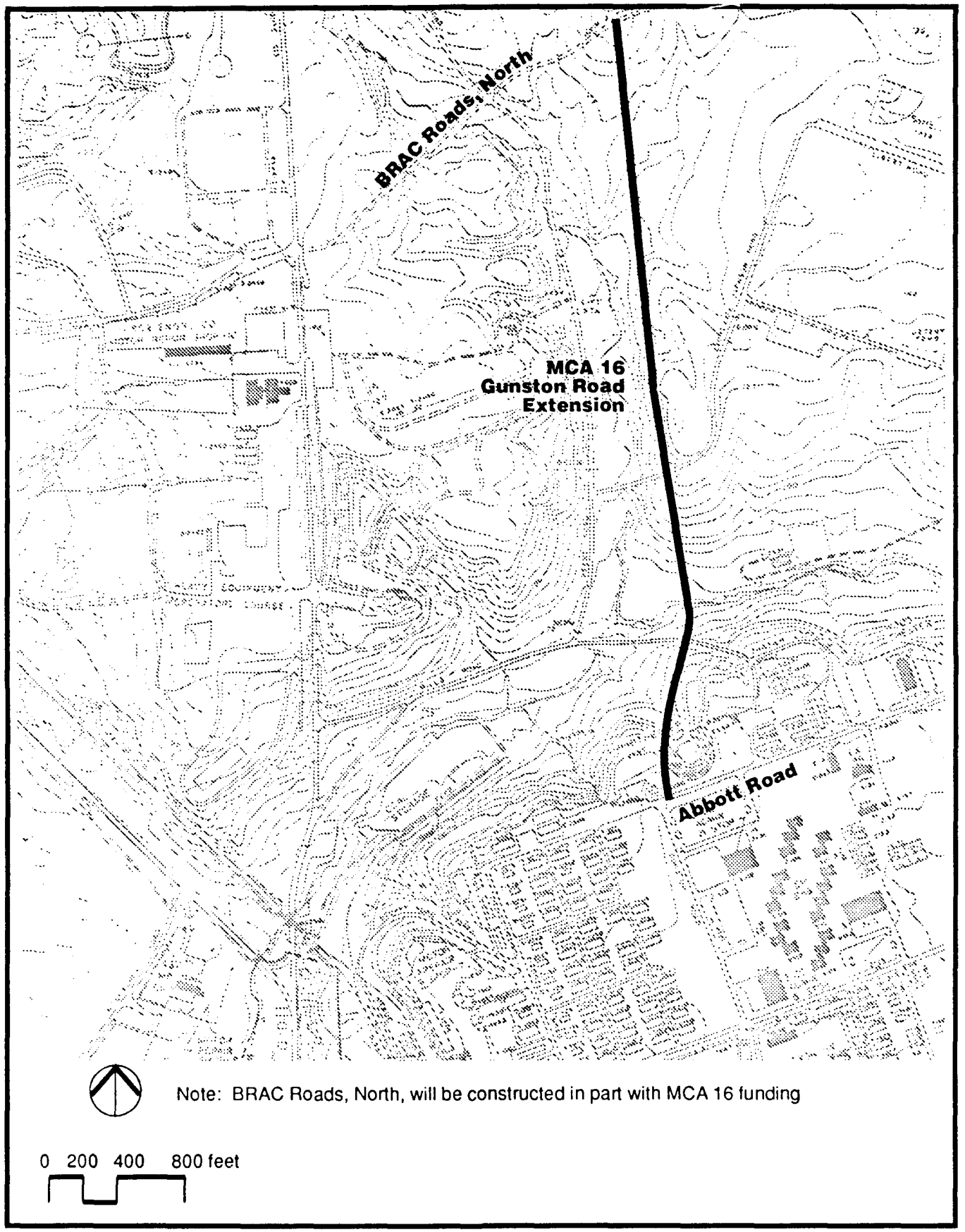


Figure 2-27
Proposed MCA Site 16,
Gunston Road Extension

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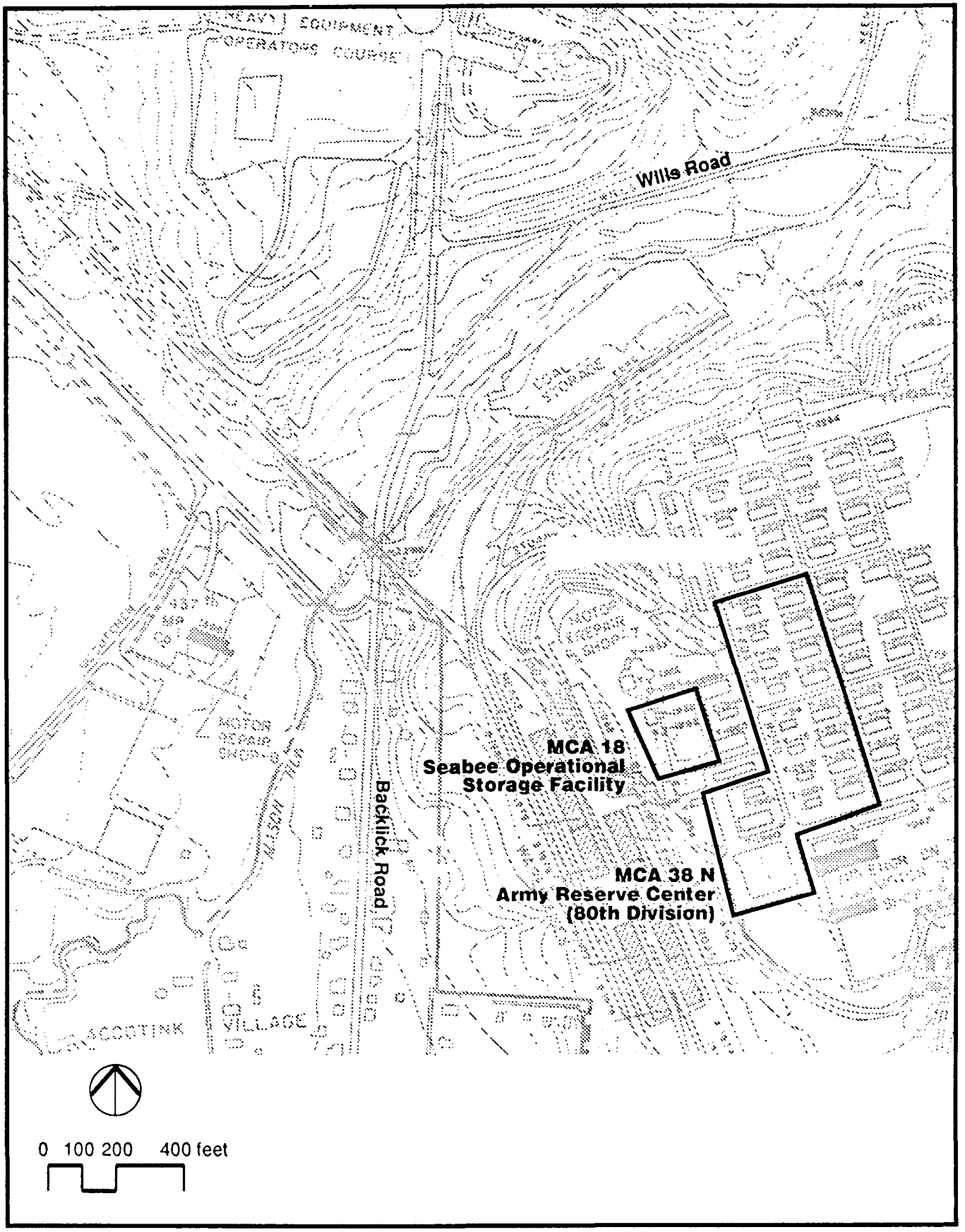


Figure 2-28
Proposed MCA Sites
18 and 38 N

2.6.2.20 Renovate Building 361 for ADP (MCA 20). Building 361 is scheduled to be renovated to meet the requirements for automatic data processing. As part of the renovation, a two-story, 11,200-square-foot addition will be constructed onto Building 361 (Figure 2-29). This project is programmed, but not yet funded. An REC has been completed for this project.

2.6.2.21 Washington, D.C., Army National Guard Academy (MCA 21). The Washington, D.C., Army National Guard Academy is planned for north of Richmond Highway, between the proposed Fairfax County Parkway and Accotink Village (Figure 2-26). This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.22 Electrical Upgrade, Post-Wide, Phase I (MCA 22). A post-wide electrical upgrade is planned for Fort Belvoir. The upgrade will be constructed in eight phases and is scheduled to be completed in fiscal year 1997. The upgrade involves replacing the existing system of multiple voltages (2.4, 4.16, 12.47, 22.9, and 34.5 kilovolts) with a uniform distribution voltage of 34.5 kilovolts. When completed, the new electrical system will be able to provide power for all of the planned future growth at Fort Belvoir, as well as minimize and localize blackout periods. This project is programmed, but not yet funded. A REC has been completed for this project.

2.6.2.23 Lateral Sewer Line Repair, Post-Wide (MCA 23). A post-wide lateral sewer line repair is planned for Fort Belvoir as part of ongoing maintenance. This project is programmed, but not yet funded. A categorical exclusion has been completed for this project.

2.6.2.24 Relocate EPG Test/Storage Facilities (MCA 24). Because of the proposed reuse of the EPG, the existing test and storage facilities will be relocated to the South Post to a plateau south of Lyman Loop (Figure 2-30). The facilities will include a detection equipment facility, exterior sensor range, igloo storage, test NATO bunker, blast and sphere pit, instrumentation building, explosive handling and preparation building, mine clearing and detection area, indoor storage, tilt-table test facility, and scale-model facility. The project will be funded with the proceeds from the EPG development. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.25 Ammunition Storage Facility (MCA 25). The Ammunition Storage Facility is planned for the South Post west of Accotink Bay Wildlife Refuge and well south of Poe Road (Figure 2-31). Space will be provided for uncovered loading docks, 10 individual storage areas, security fencing, lighting, ammunition distribution, and security system. A gravel area for loading and unloading trucks will also be provided. The project also includes the upgrade of the existing roadway to provide access to the site. This facility is required to meet current ammunition storage standards and to replace outmoded existing facilities. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

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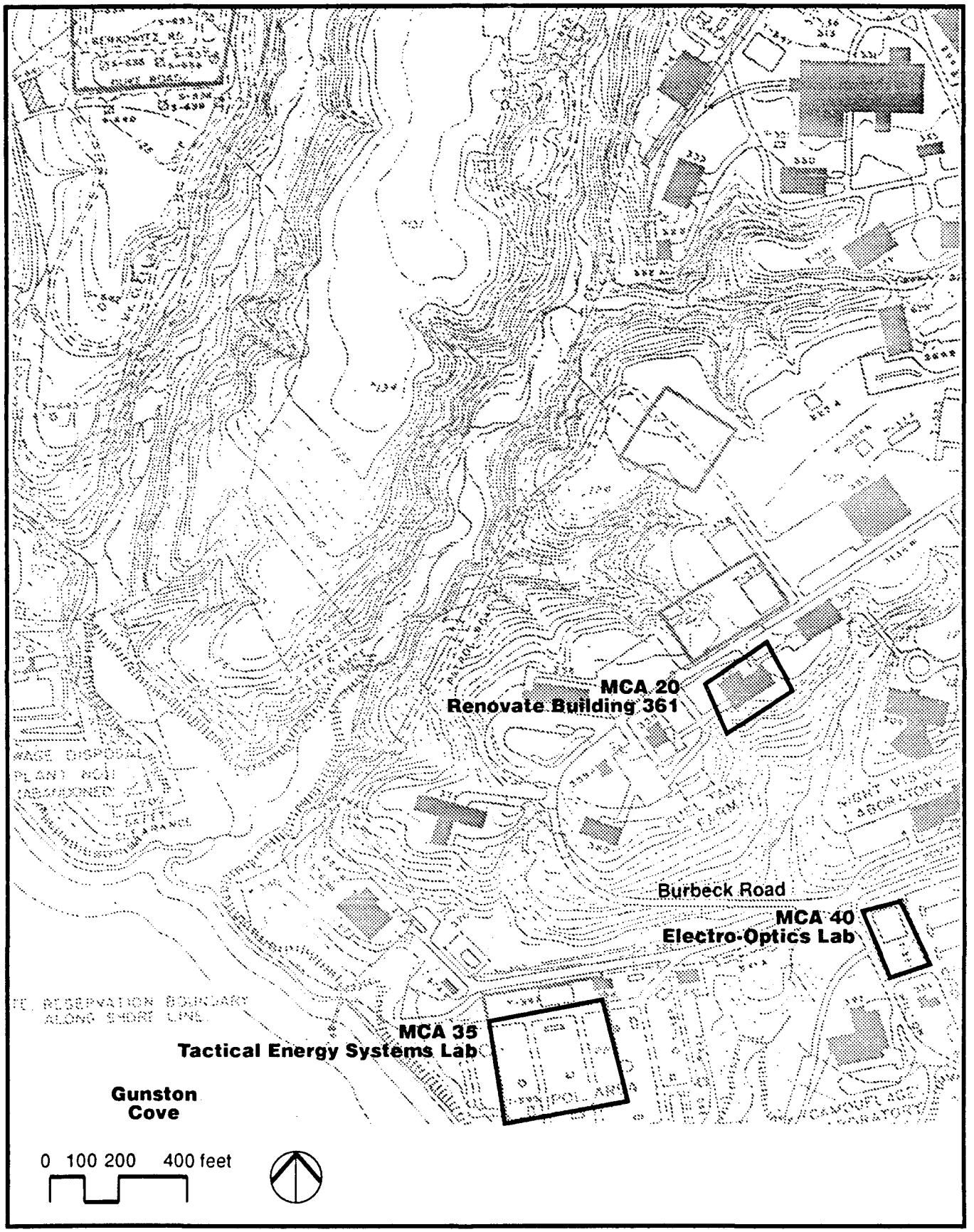


Figure 2-29
Proposed MCA Sites 20, 35, and 40

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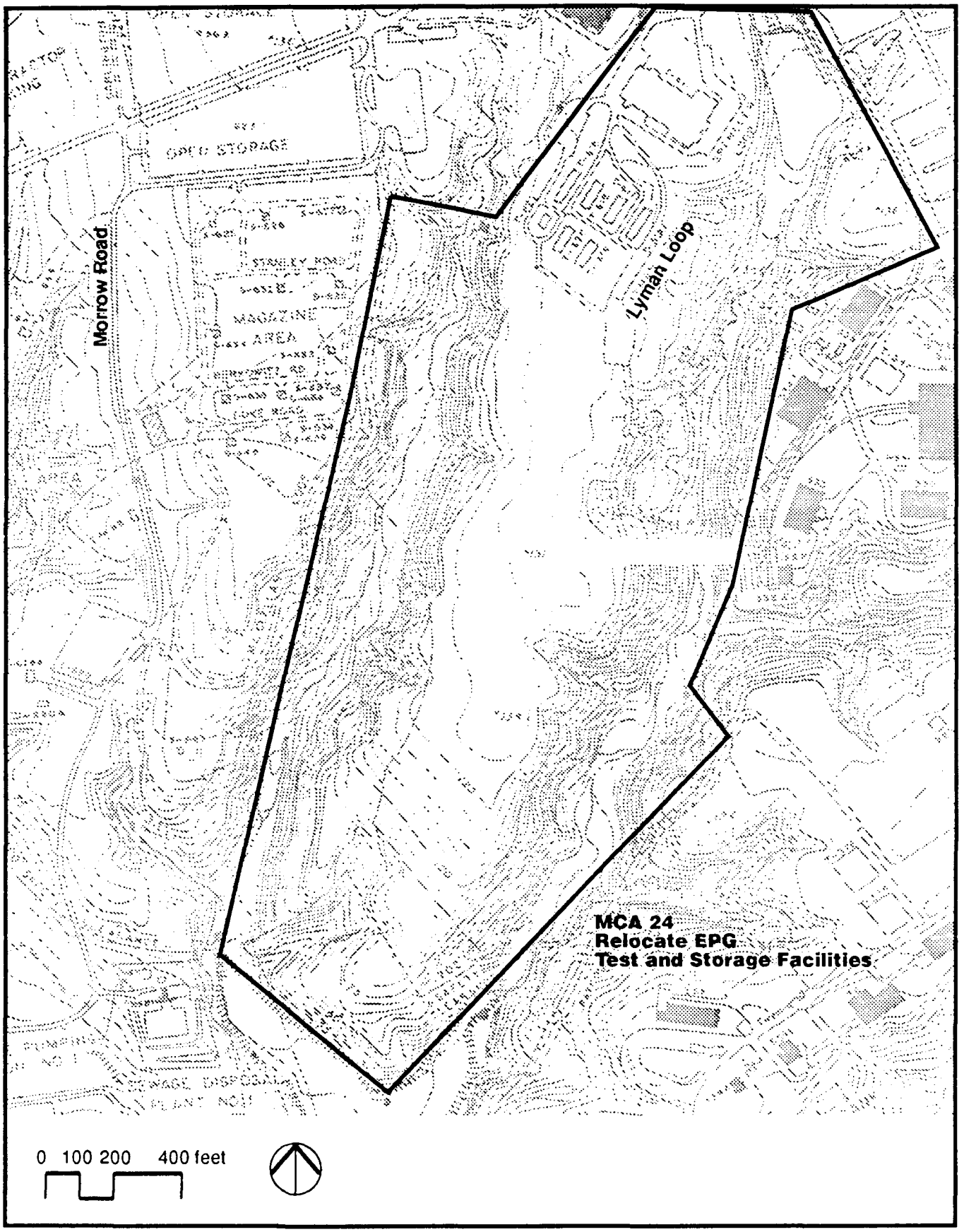


Figure 2-30
Proposed MCA Site 24

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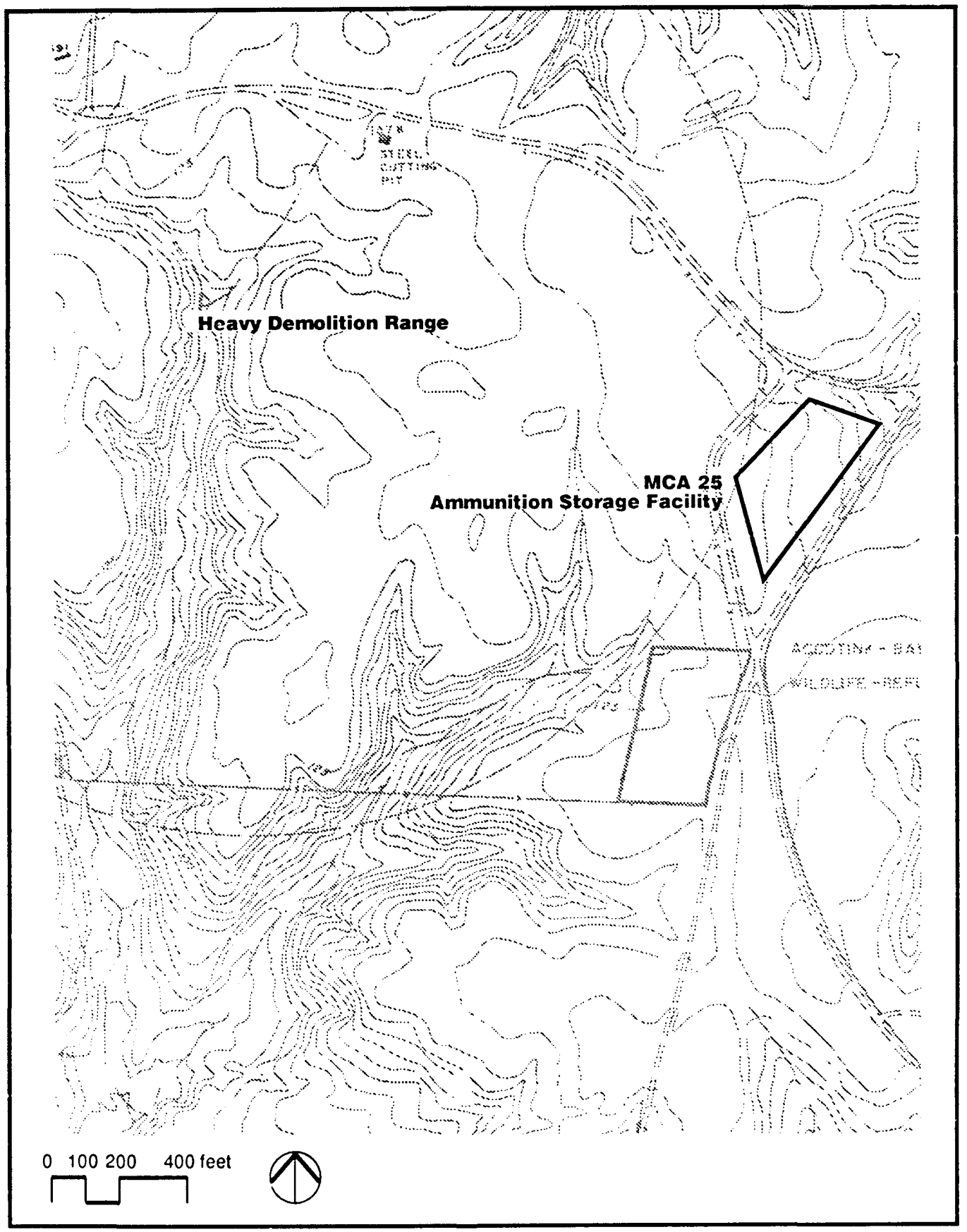


Figure 2-31
Proposed MCA Site 25

2.6.2.26 Information Systems Facility (MCA 26). The Information Systems Facility is planned for the northwest corner of the intersection of BRAC Roads and Beulah Street (Figure 2-25). The facility will contain approximately 93,000 square feet. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.27 CIDC Field Operations Building (MCA 27). The CIDC Field Operations Building is planned to be constructed between 1st and 3rd Streets, east of Gunston Road (Figure 2-20). The facility will contain approximately 8,300 square feet of space. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.28 Washington, D.C., Army National Guard Cantonment Area (MCA 28). The Washington, D.C., Army National Guard Cantonment Area is planned for north of Richmond Highway, between the proposed Fairfax County Parkway and Accotink Village (Figure 2-26), near MCA 21. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.29 Main Post Library (MCA 29). A new Main Post library is planned to be constructed on the South Post east of Gunston Road, south of the South Post shopping area (Figure 2-32). This structure will replace the existing library, which was originally constructed as a handball court. The new library will have approximately 31,000 square feet of space for stacks; reference areas; rooms for audiovisual and computer services, studying, children's books, and periodicals; staff offices, maintenance areas for book repair, material receiving area, restrooms, and a covered loading dock. This project has not been programmed, funded, or approved to date. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.30 (MCA 30). No project was designated MCA 30.

2.6.2.31 Loop Road (MCA 31). The Loop Road is planned for construction as a service road to the South Post industrial areas and as a connector to the Fairfax County Parkway. The current proposed alignment is shown on Figure 2-33. The road is planned to be three to four lanes wide and should help move commuters into and out of the South Post of Fort Belvoir more efficiently when completed. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.32 Community Center/Welcome Center (MCA 32). The Community Center/ Welcome Center is currently planned for the North Post of Fort Belvoir at the intersection of Meade and Humphreys Roads (now Constitution Road), north of Richmond

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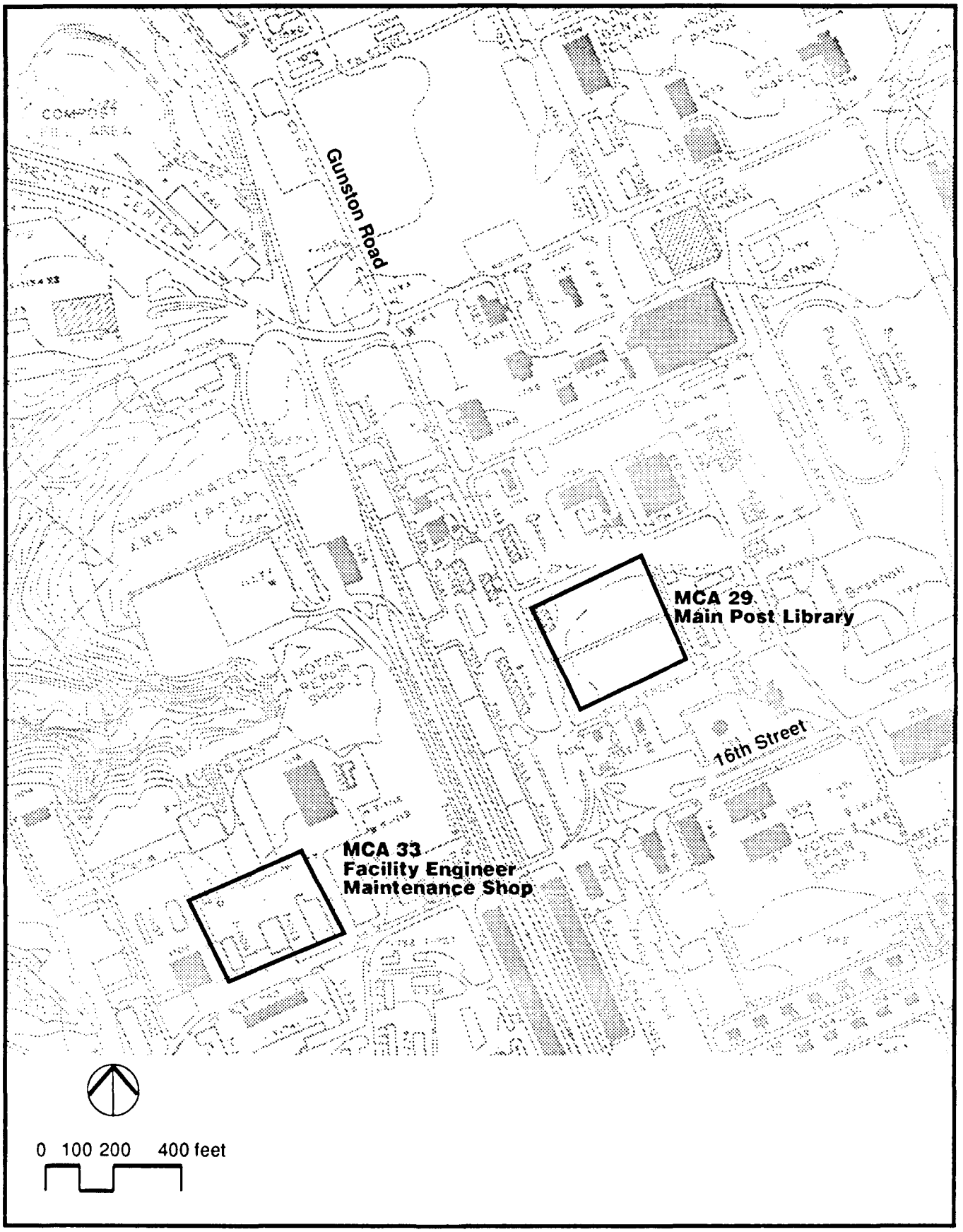


Figure 2-32
Proposed MCA Sites 29 and 33

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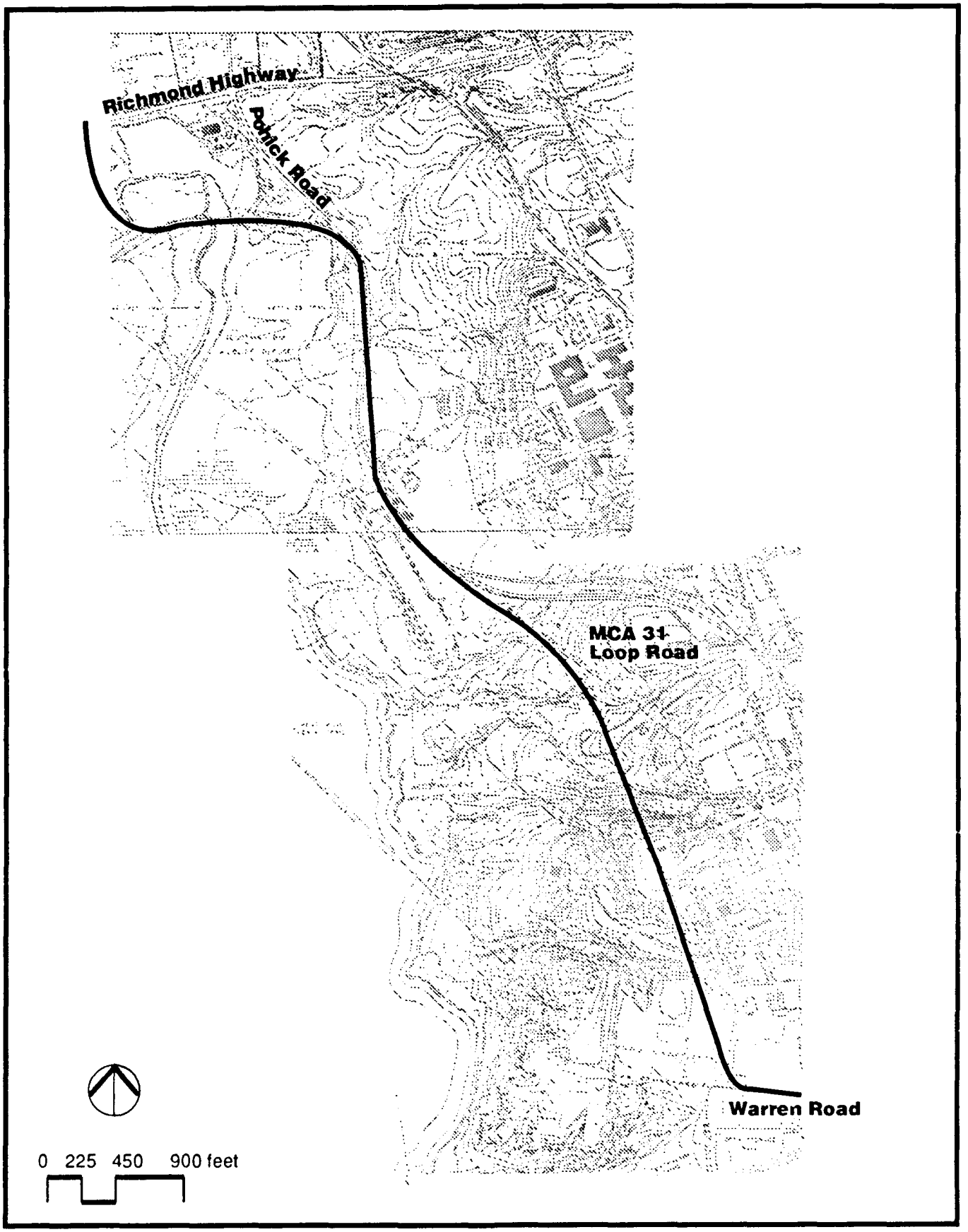


Figure 2-33
Proposed MCA Site 31, Loop Road

Highway (Figure 2-24). The facility will serve as a welcome and information center for incoming personnel and visitors to Fort Belvoir. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.33 Facility Engineer Maintenance Shop (MCA 33). The Facility Engineer Maintenance Shop is currently planned for the South Post, west of Gunston Road and north of 16th Street (Figure 2-32). The facility will contain approximately 76,000 square feet of space for a combined shop facility, supply storehouse, lumber shed, and equipment maintenance shop within a fenced, paved compound. The new facility will replace existing substandard WWII structures currently housing these activities. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.34 Warehouses (MCA 34). Replacement warehouses are planned for west of Gunston Road, north of 16th Street (Figure 2-34). These structures are required for general storage at Fort Belvoir. The new facility will replace existing substandard WWII structures currently used for general storage. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.35 Tactical Energy Systems Laboratory (MCA 35). The Tactical Energy Systems Laboratory is currently planned for the South Post near the Gunston Cove shoreline, west of the Camouflage Laboratory (Figure 2-29). The facility will have approximately 66,000 square feet of space for a research and development laboratory. The facility will consolidate existing activities into one area and improve working conditions with upgraded and modernized equipment. An environmental assessment has been completed for this facility. This project is budgeted, but not yet funded. An environmental assessment titled *Proposed Tactical Energy Systems Laboratory, Fort Belvoir, Virginia* was completed for this project in November 1985.

2.6.2.36 Conforming Storage Building (MCA 36). The Defense Reutilization and Marketing Office (DRMO) expansion is planned for the North Post at the existing facility location (Figure 2-35). The expansion will contain approximately 115,000 square feet of general storage space; 5,600 square feet of administration space; 20,000 square feet of conforming storage space; 3,600 square yards of scrap bins; 57,000 square yards of paved surface for parking; roads, sidewalks, and outside storage; and 2,400 square yards of gravel surface for parking and outside storage. This project is budgeted, but not yet funded. The environmental assessment for this project is currently in progress.

2.6.2.37 Military Police Station (MCA 37). The Military Police Station is planned for the South Post west of Gunston Road, between 1st and 4th Streets (Figure 2-35). The facility will provide approximately 26,000 square feet of space for operations and administration; classrooms; interview, briefing, detention, and mechanical rooms; public lobby; and a secure hardstand. This new facility will consolidate existing operations, which are in five buildings, into one facility as well as upgrade and modernize facilities.

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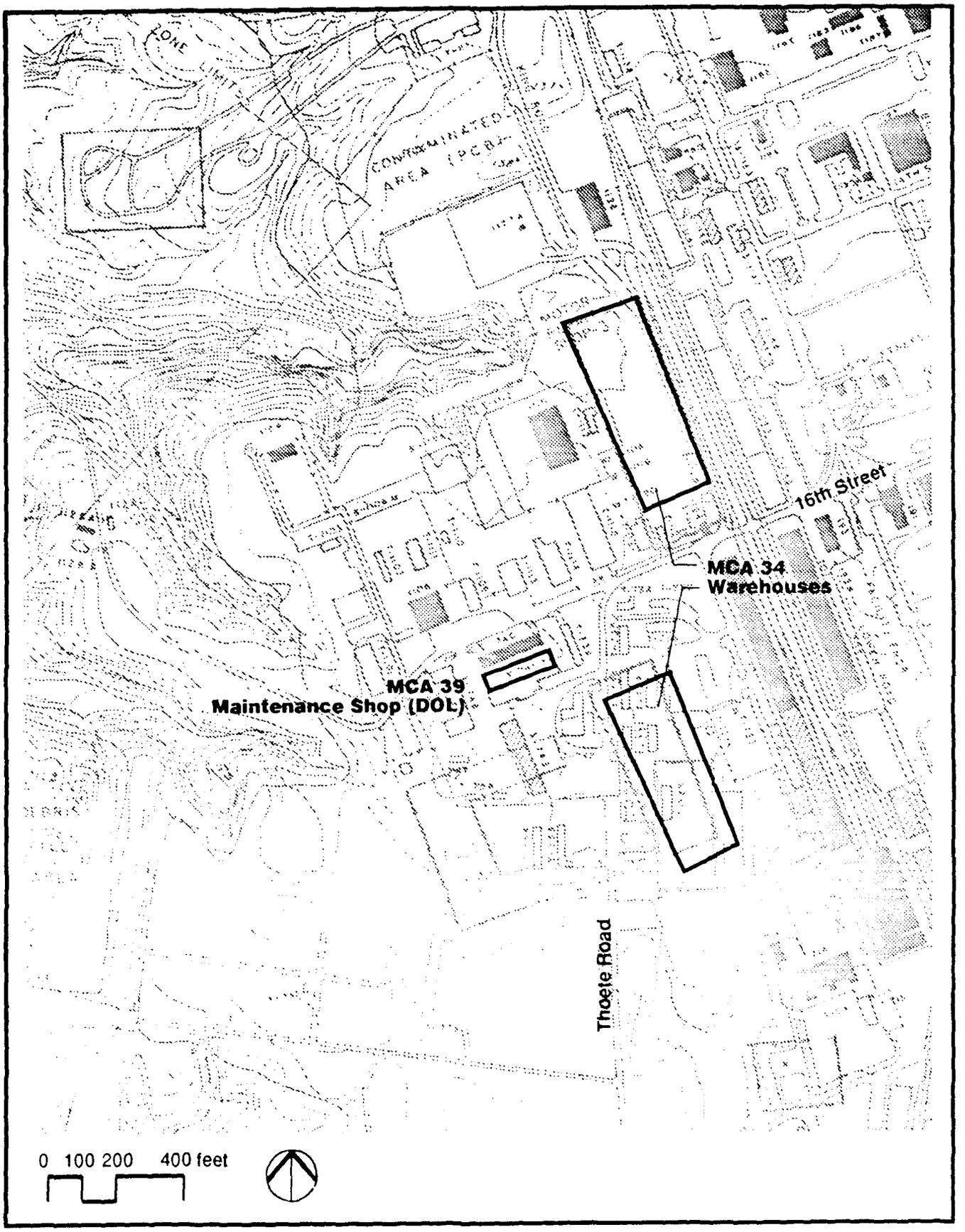


Figure 2-34
Proposed MCA Sites 34 and 39

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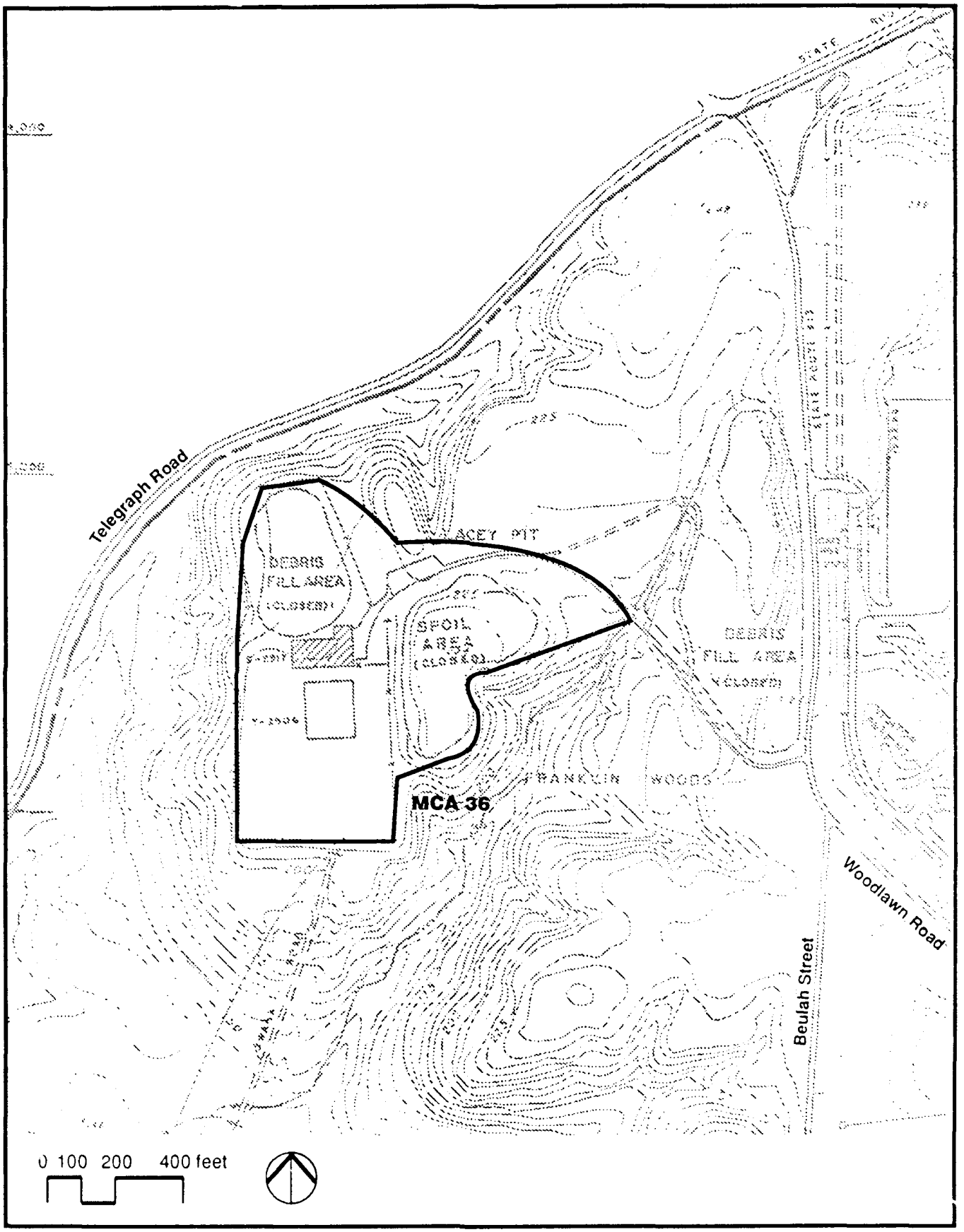


Figure 2-35
Proposed MCA Site 36

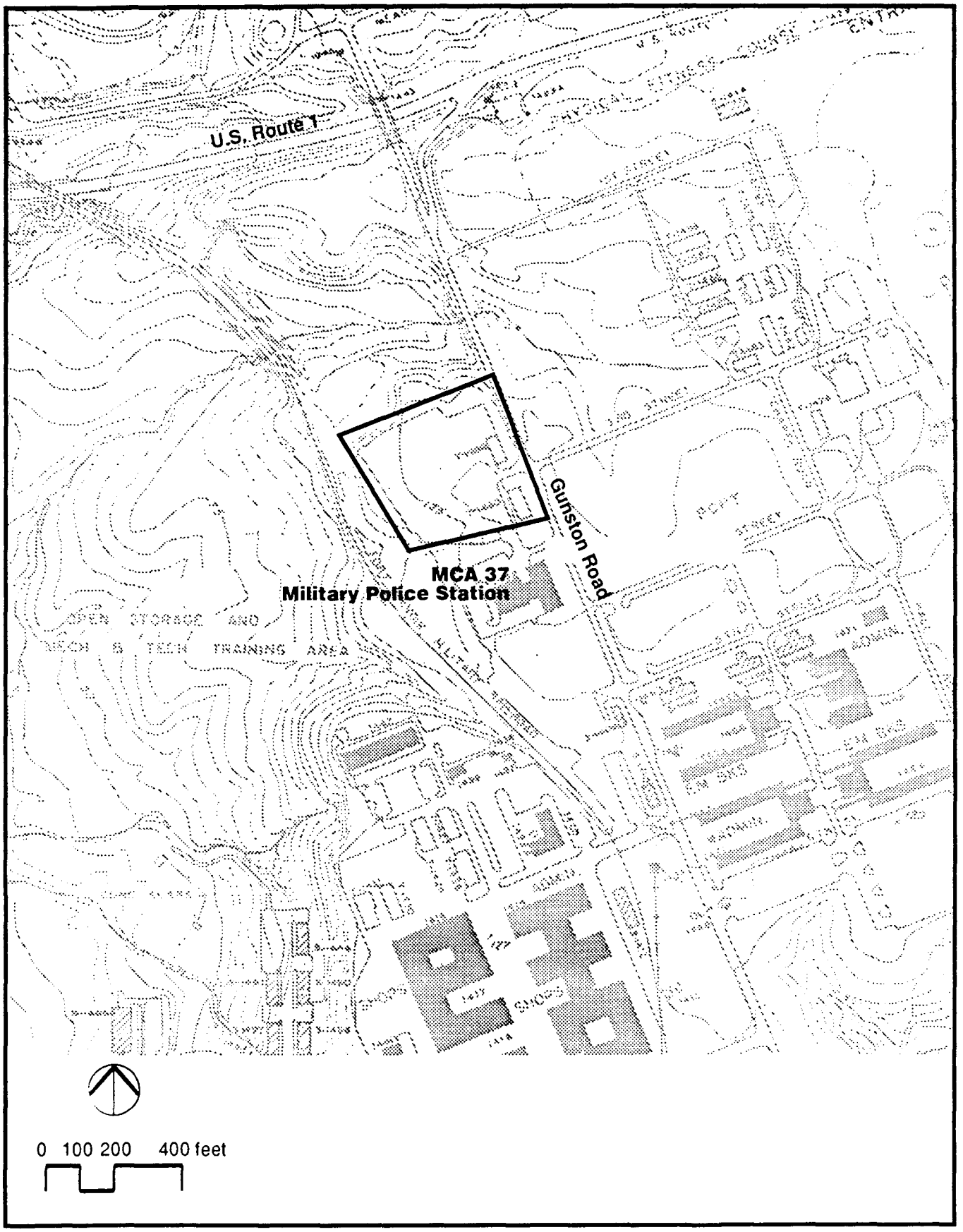


Figure 2-36
Proposed MCA Site 37

This project has not been programmed, funded, or approved to date. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.38 Reserve Center/OMA (80th Division) (MCA 38 N and 38 S). The Army Reserve Center (80th Division), is currently planned for two sites. The North Post facility, located between Goethals and Abbott Roads, would be approximately 76,500 square feet and house a maximum of approximately 1,000 reservists, with an average weekend complement of 500 (Figure 2-28). The South Post facility would be located at the existing Motor Repair Shop, north of Johnston Road (Figure 2-37). It would provide ground- and marine-area maintenance support from a 6-bay maintenance facility for wheeled vehicles and a 2-bay maintenance facility for the 15 landing craft to be stationed at the facility. A dock would also be required for the landing craft. A separate environmental assessment is being prepared for this project. This project is programmed, but not yet funded. A categorical exclusion is being prepared for the North Post facility. An environmental assessment is being prepared for the South Post facility.

2.6.2.39 Consolidated Maintenance Shop (MCA 39). A consolidated maintenance shop (DOL) is planned for the South Post west of Lowen Road and north of Warren Road (Figure 2-34). This project has not been budgeted, funded, or approved to date. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.40 Electro-Optics Laboratory (MCA 40). The Electro-Optics Laboratory is planned for the South Post east of Wilson Road, south of the Night Vision Laboratory (Figure 2-29). The facility will contain approximately 87,500 square feet of space for highly secured, ultra-specialized laboratory facilities. Construction of the facility will centralize existing activities, which are currently housed in two buildings and have a critical lack of space. This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.41 Fatigue Test Facility (MCA 41). The Fatigue Test Facility is scheduled to have unspecified structural repair work completed. The facility is located on the South Post near the Ponton Basin (Figure 2-19). This project is programmed, but not yet funded. No environmental documentation has been completed for this project. Appropriate documentation will be completed before construction begins.

2.6.2.42 500-Person Administrative Facility (MCA 42). A 500-person administrative facility is outlined in the CDP for the HEC, which is contiguous to Fort Belvoir (Figure 2-38). This facility is still in the early planning stages and has not been programmed, funded, or approved to date. Appropriate documentation will be completed for this project before construction begins.

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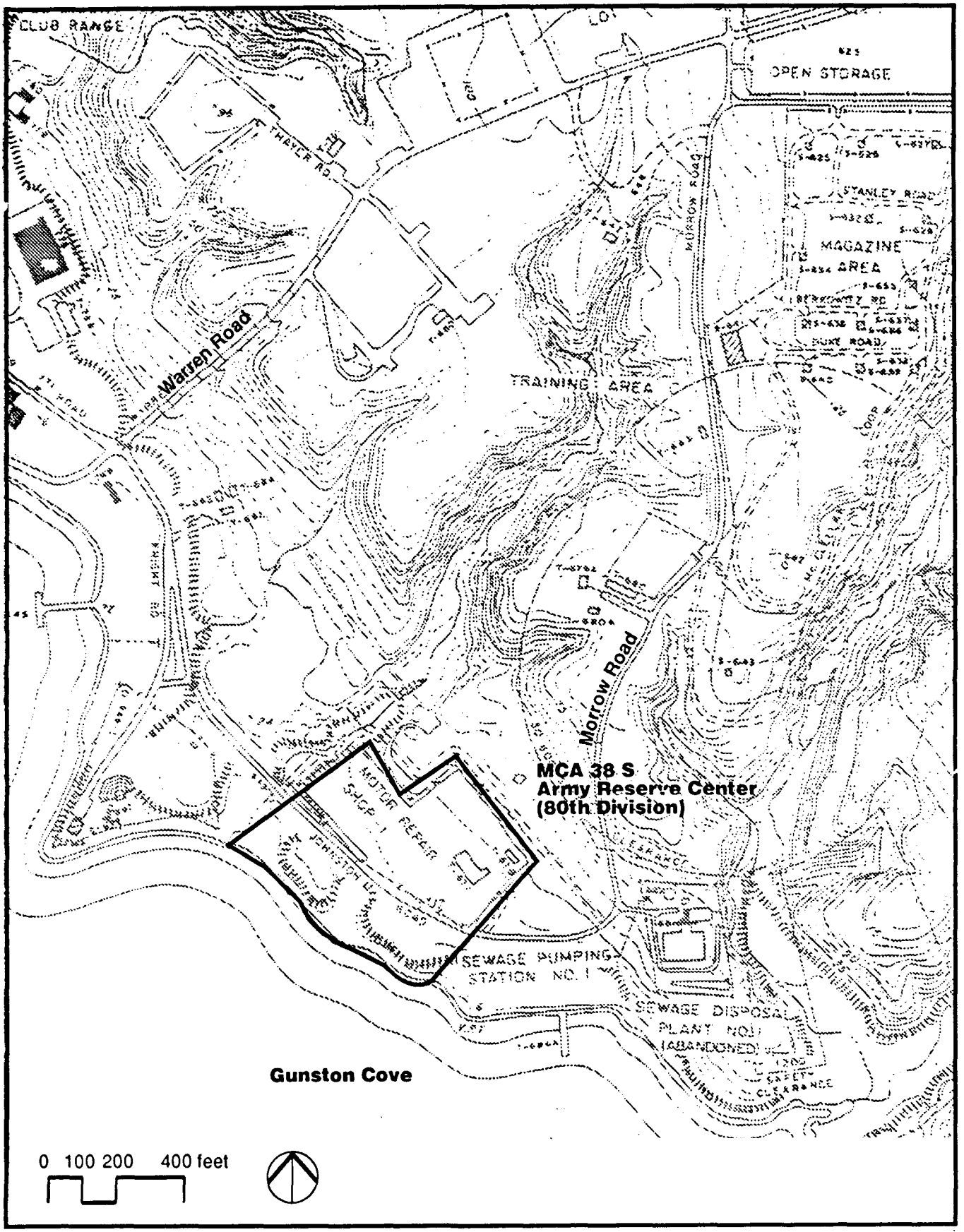


Figure 2-37
Proposed MCA Site 38 S

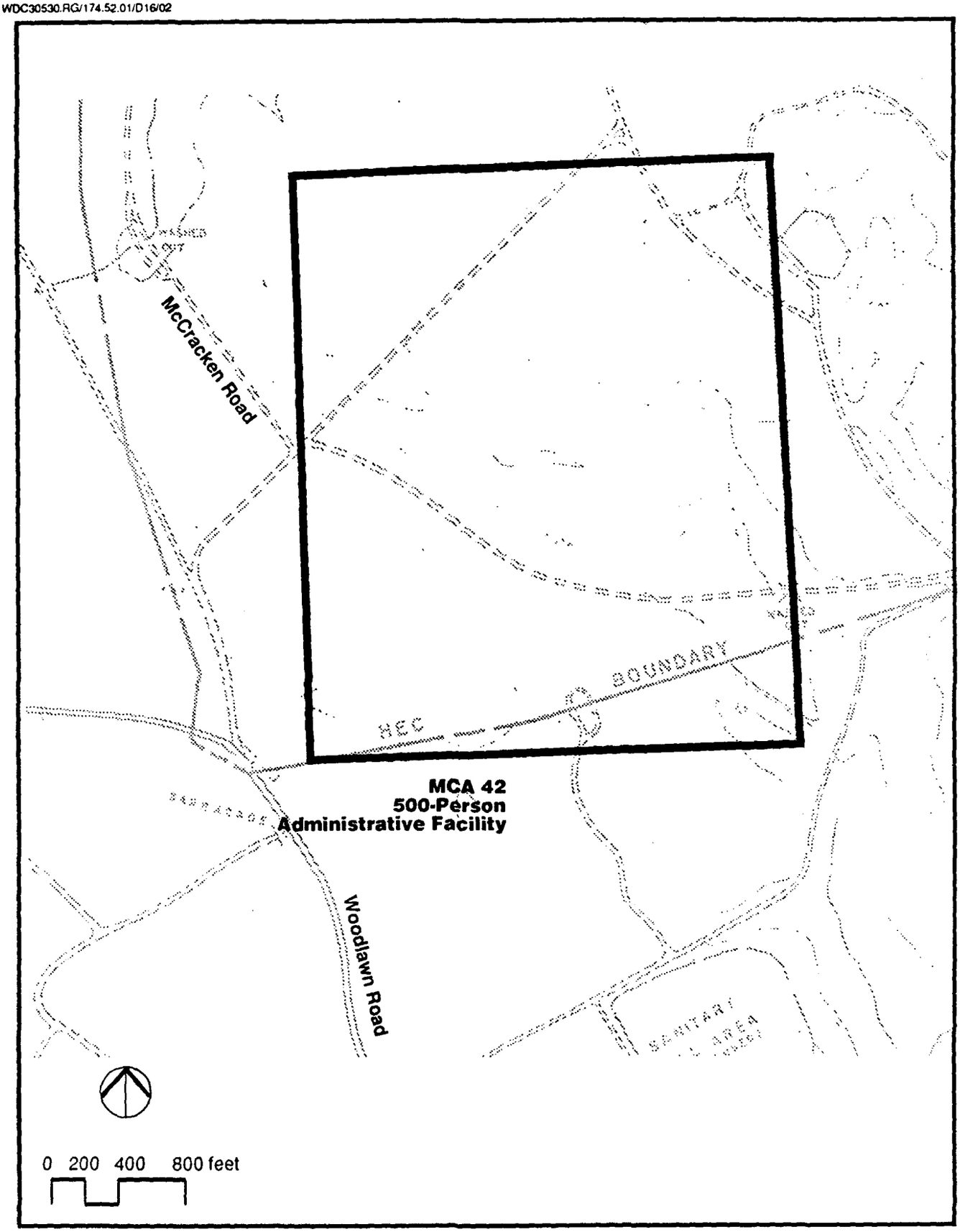


Figure 2-38
Proposed MCA Site 42

2.6.3 ARMY FAMILY HOUSING

A series of whole-house renewals, to include electrical, plumbing, and HVAC upgrades, are planned for the existing on-post housing areas at Fort Belvoir. These actions (AFH 1, 2, and 4 through 14) involve structural and cosmetic repairs and upgrades. The process is scheduled in phases and should be completed in fiscal year 1997. Figures 2-39 through 2-48 show the locations of AFHs 2 through 14. AFH 1 is not illustrated because the renovations are in progress. Except for AFH 1, these renewals have been programmed, but have not been funded to date. Required environmental documentation will be completed for these renovations before they are initiated.

AFH 3 (1,500 new army family housing units) is planned for a large area on the North Post (Figure 2-40). This project is in the early design phases and current housing options include townhouse units, apartments, duplexes, or a combination of these. This project has been authorized, but not programmed or funded to date. Project authorization is for acquisition of 300 units a fiscal year commencing in fiscal year 1992 and continuing until fiscal year 1997. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.4 NONAPPROPRIATED FUNDS

2.6.4.1 Youth Center (NAF 1). The Youth Center is planned for the South Post, south of Hurley Road on Langfitt Loop (Figure 2-49). Construction will require the removal of seven existing structures and their sidewalk and parking areas. The Youth Center will provide 20,522 square feet of space for dependent youth activities. This project has been funded, but is not yet under construction. Appropriate environmental documentation will be prepared before construction begins.

2.6.4.2 Tompkins Basin Armed Forces Recreation Area (NAF 2). A recreation area in the Tompkins Basin is planned for the South Post at the confluence of Accotink Bay and Gunston Cove (Figure 2-50). This area will have a beach area, nature center, equipment issue center, travel campground cabins, family and group picnic areas, multi-play courts, administration offices, marina with wet and dry boat storage, restaurant, active play areas, swimming pool and a maintenance facility. It will provide recreational facilities for military personnel and their families in the metropolitan Washington region. A separate environmental assessment is being prepared for this project. This project has been funded, but is not yet under construction.

2.6.4.3 Horse Stables (NAF 3). Additional stables will be sited in the vicinity of the Old Guard Horse Stables (MCA 10). Figure 2-23 shows the general area of the site. This structure will be a separate facility for horses belonging to on-post military personnel and their families. The stable facility will share the pasture facilities of the Old Guard Horse Stables. This project has not been approved, programmed, or funded to date. Appropriate environmental documentation will be completed for this project before construction begins.

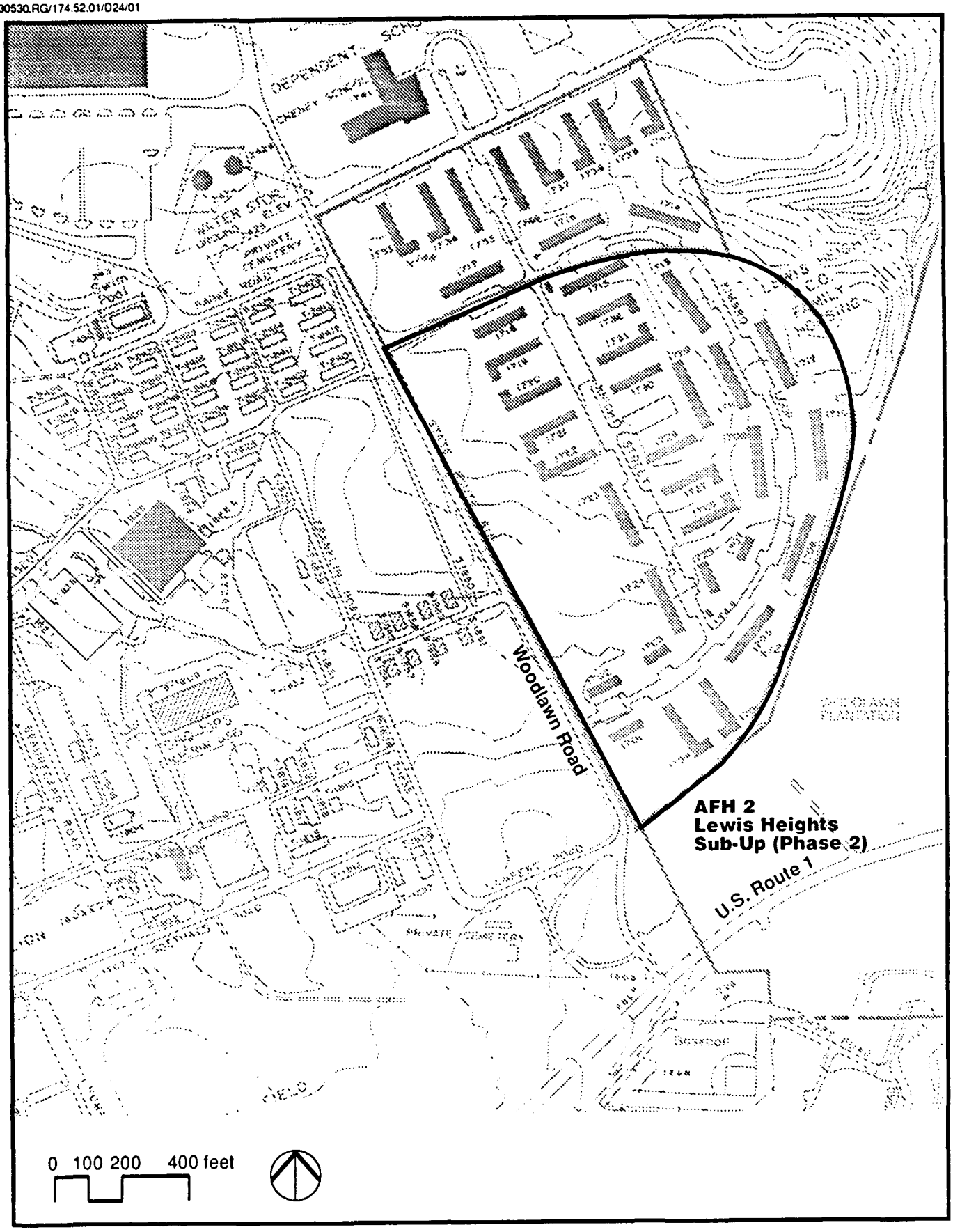


Figure 2-39
Proposed AFH Site 2

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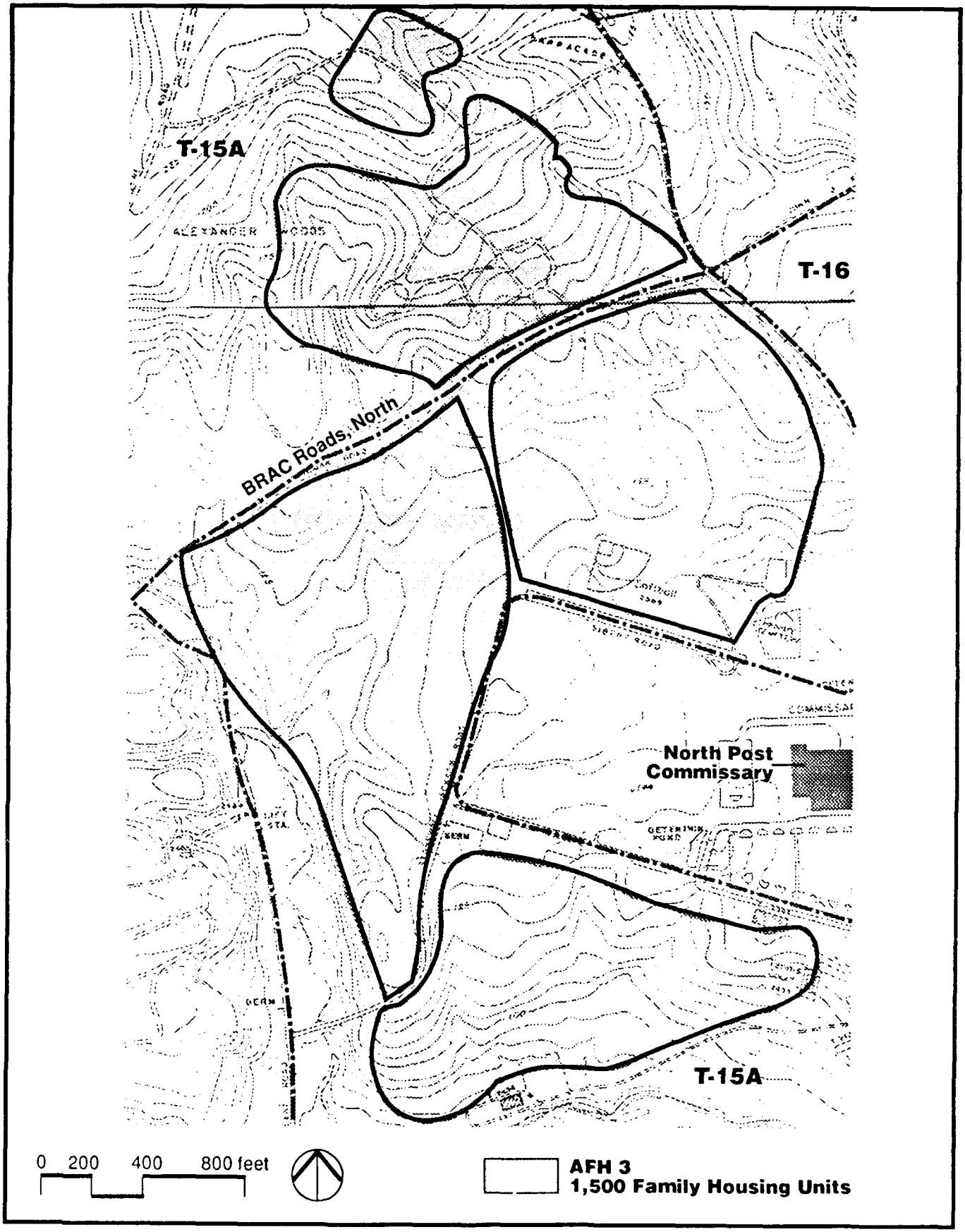


Figure 2-40
Proposed AFH Site 3,
Family Housing Units

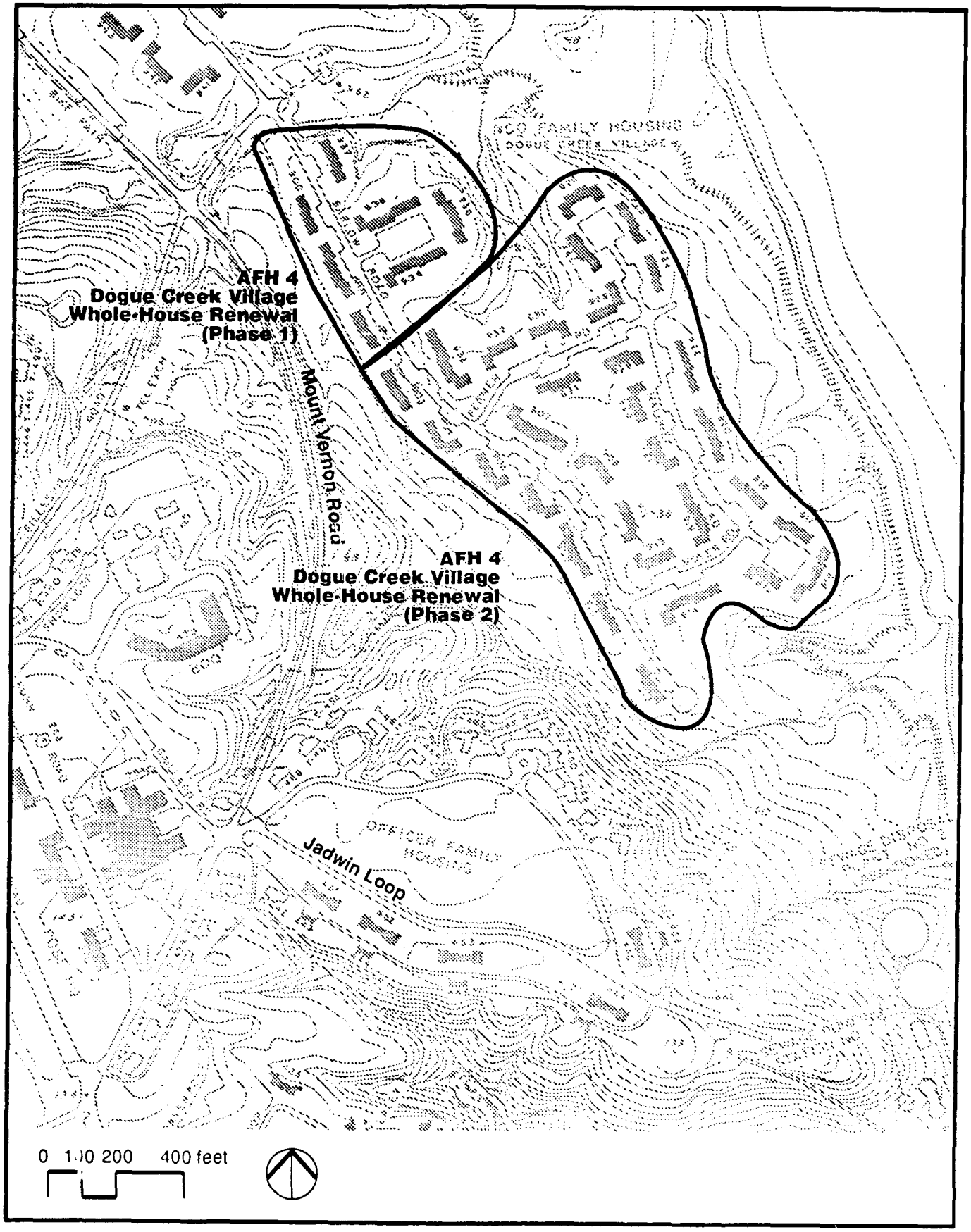


Figure 2-41
Proposed AFH Site 4

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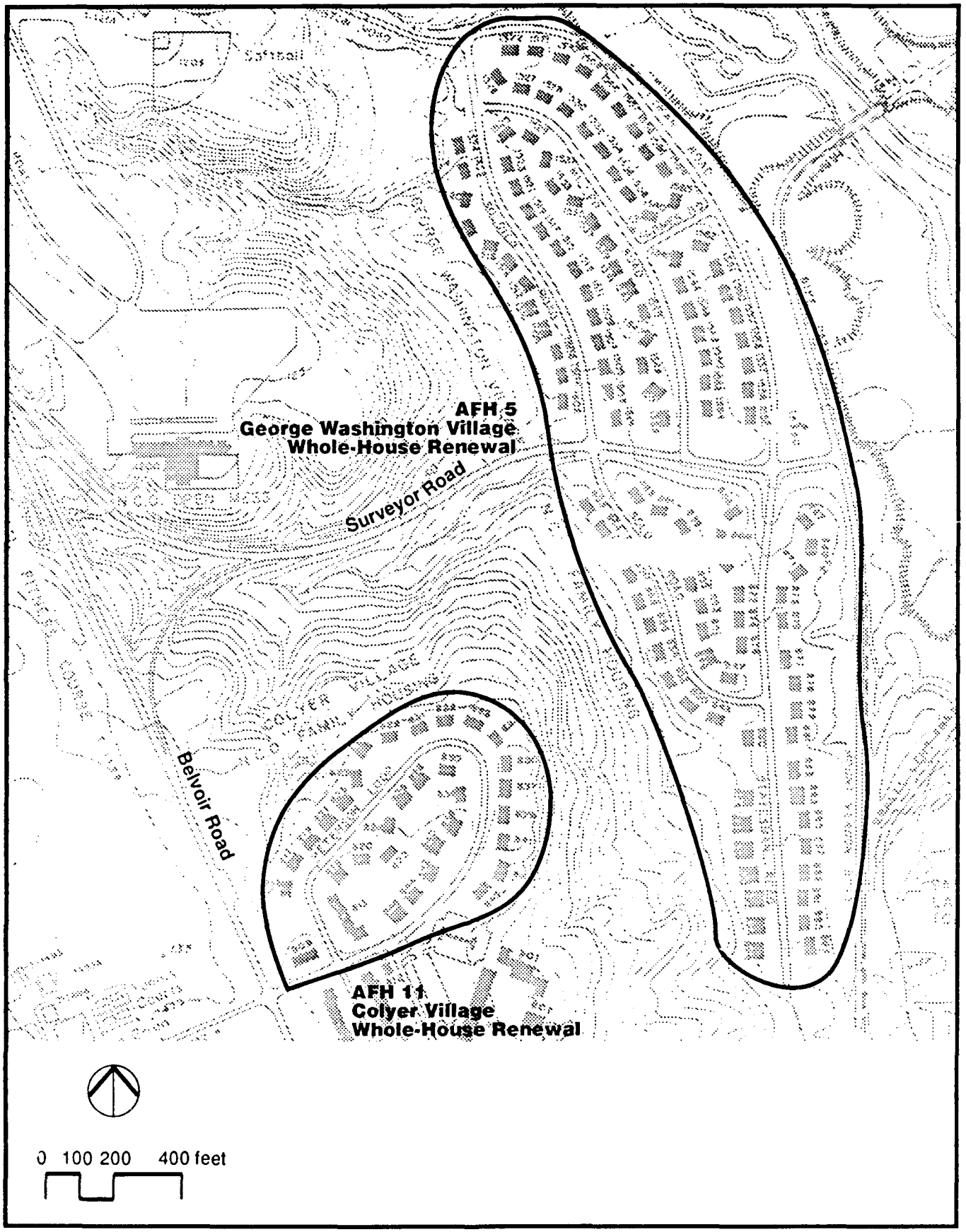


Figure 2-42
Proposed AFH Sites 5 and 11

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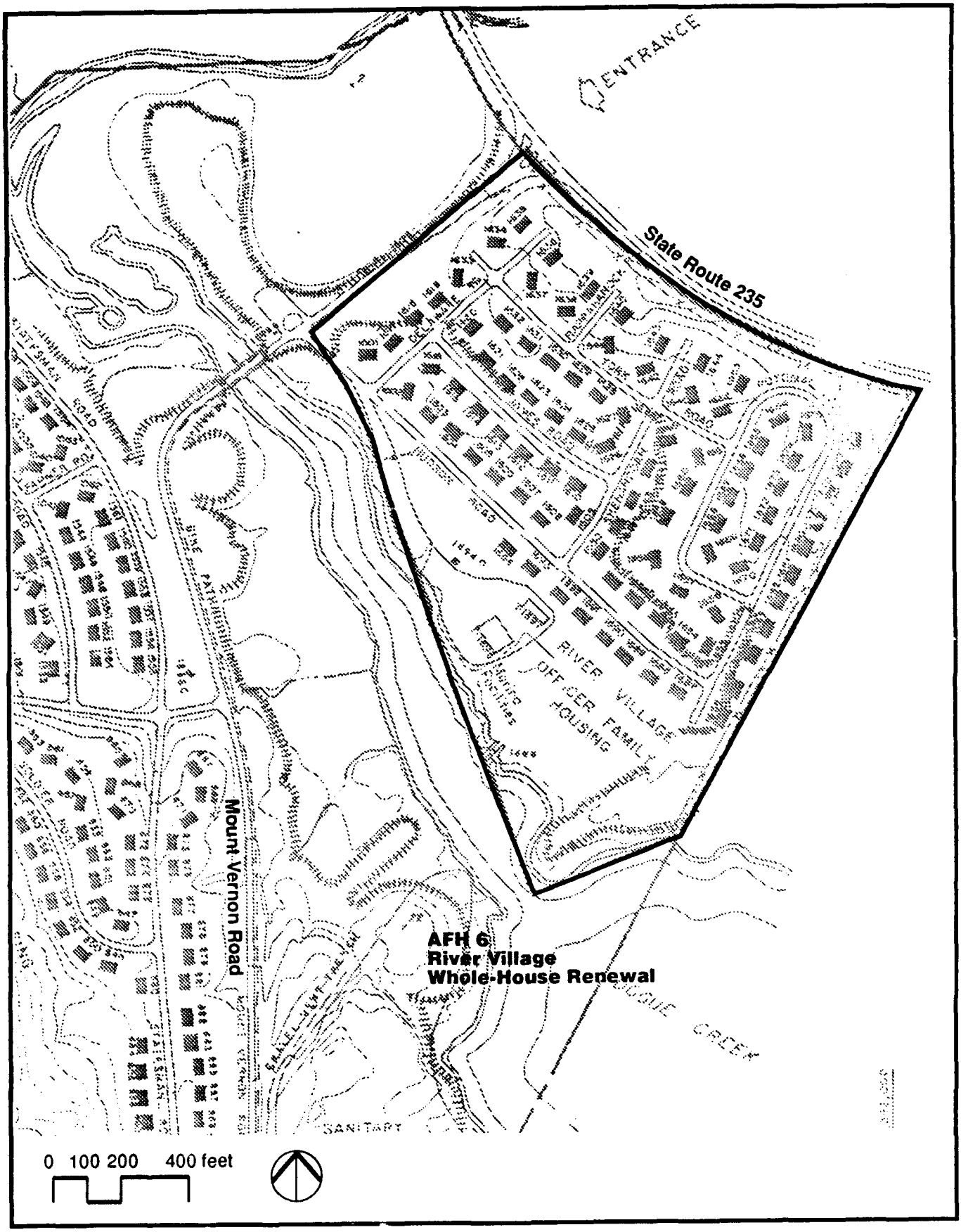


Figure 2-43
Proposed AFH Site 6

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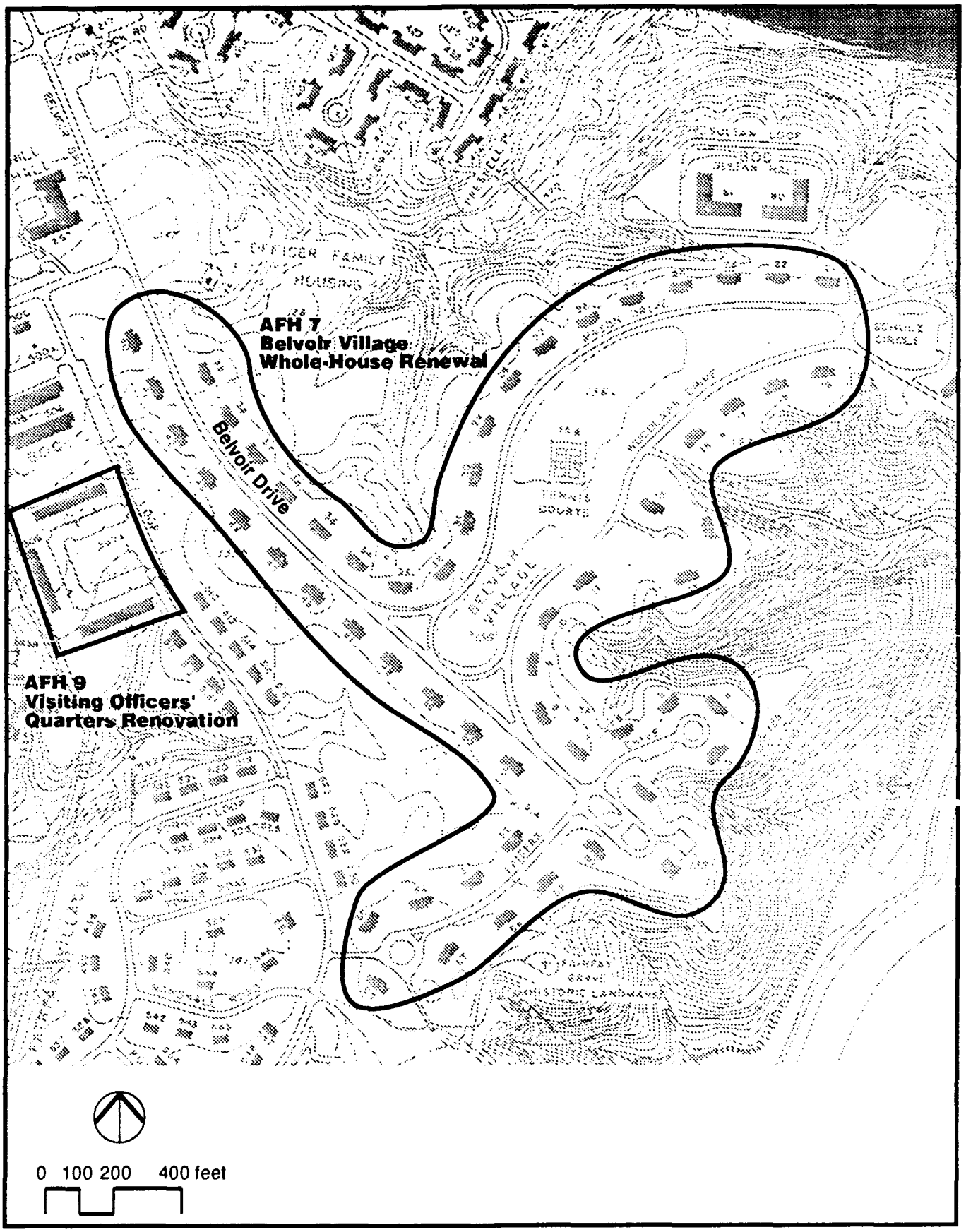


Figure 2-44
Proposed AFH Sites 7 and 9

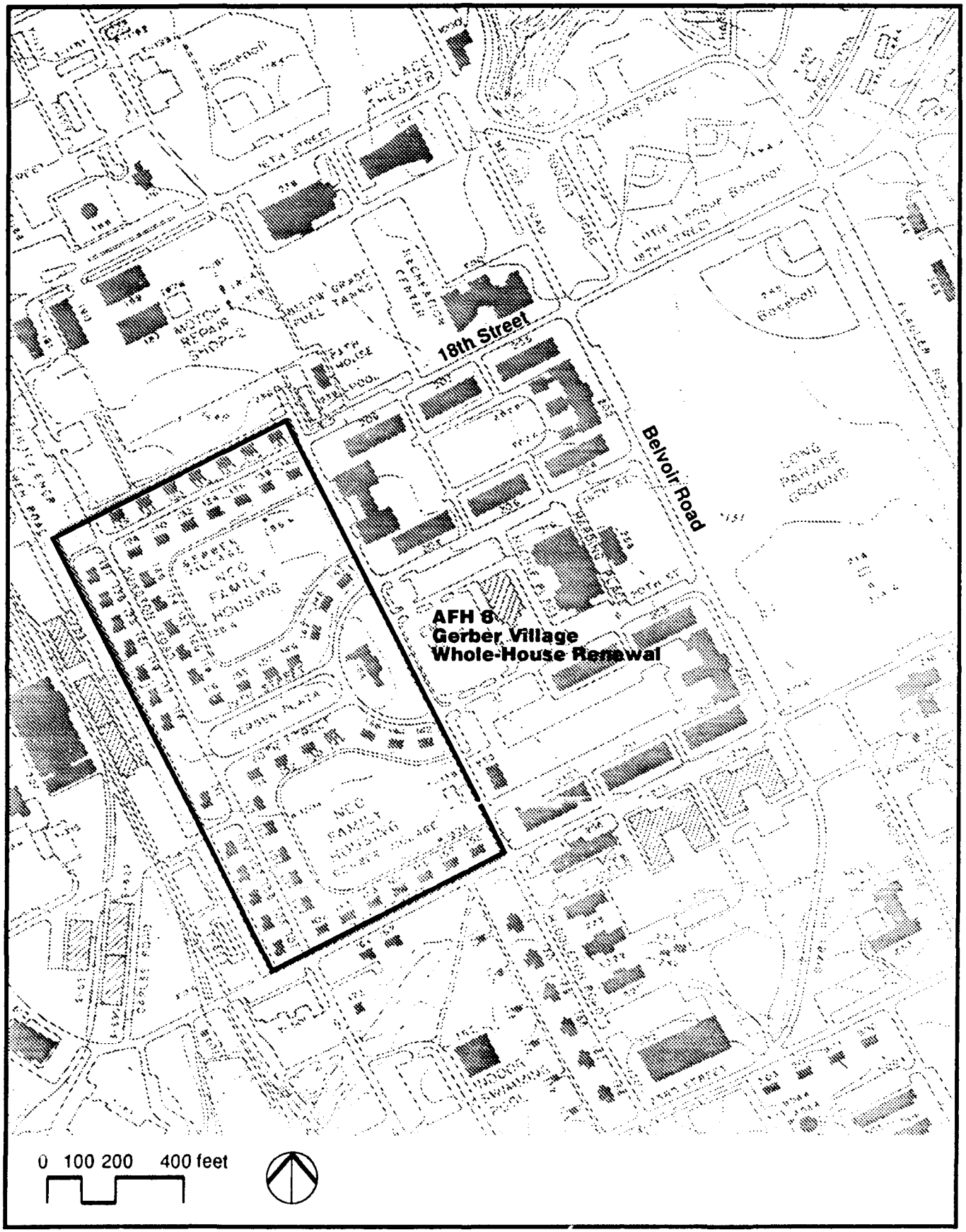


Figure 2-45
Proposed AFH Site 8

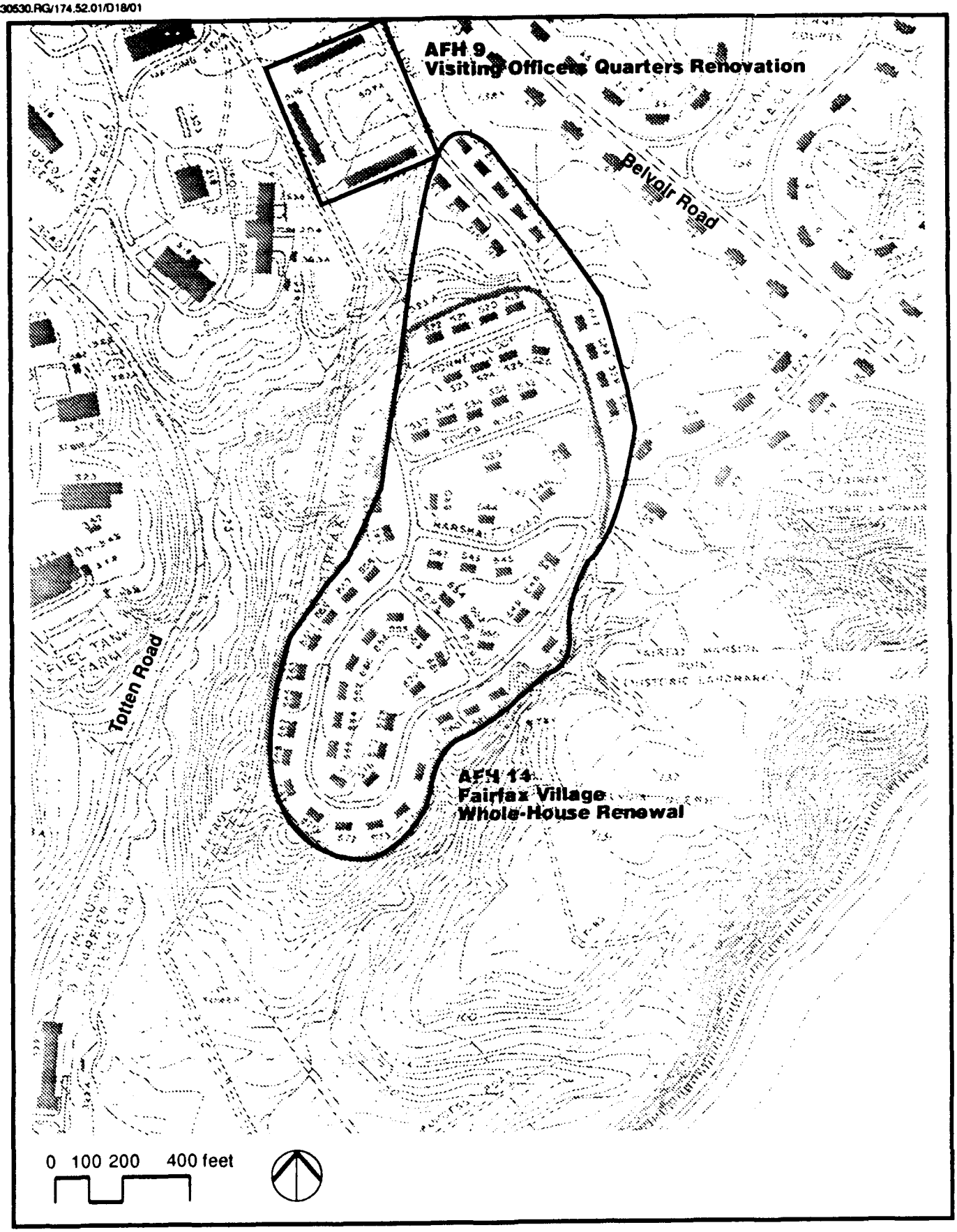


Figure 2-46
Proposed AFH Sites 9 and 14

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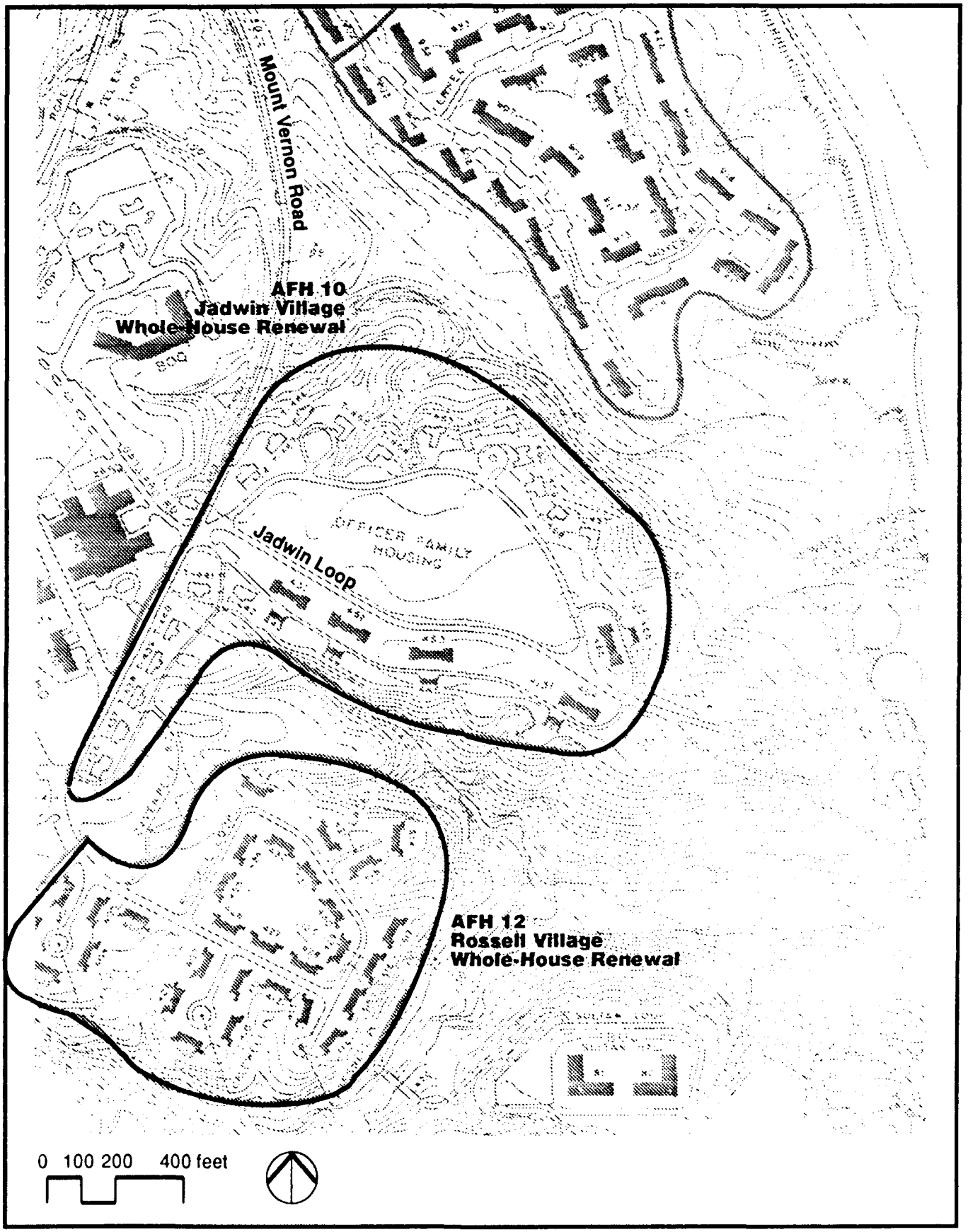


Figure 2-47
Proposed AFH Sites 10 and 12

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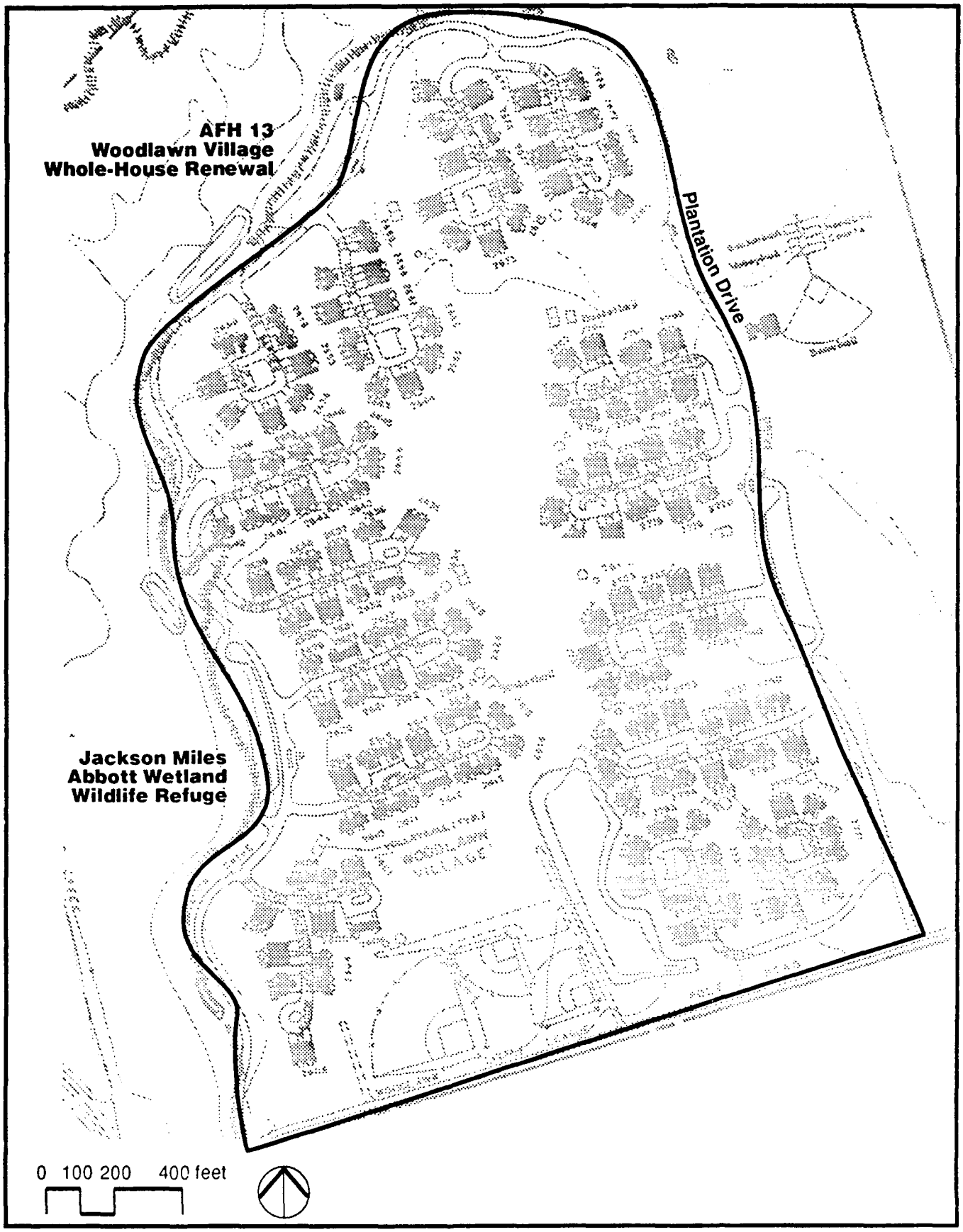


Figure 2-48
Proposed AFH Site 13

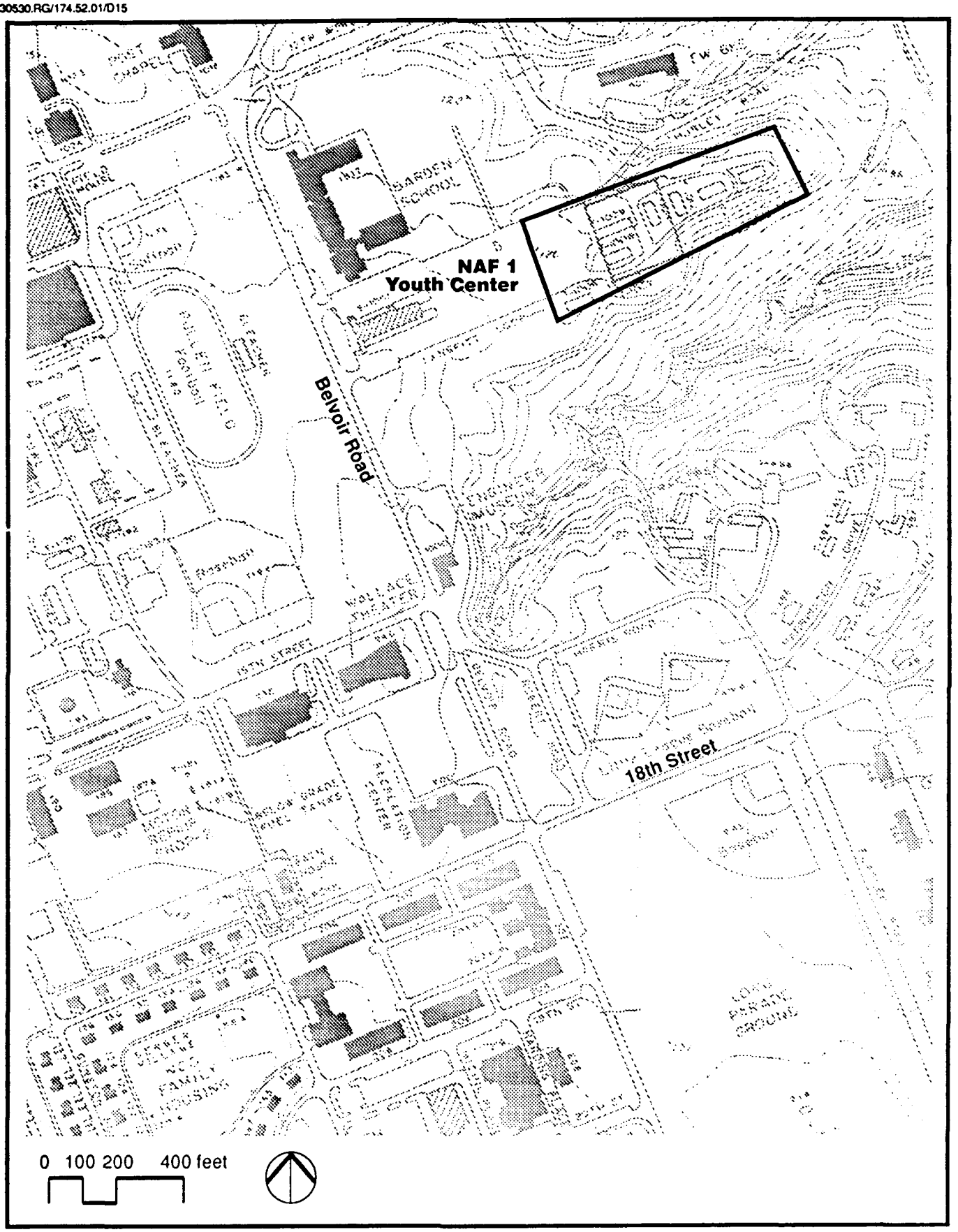


Figure 2-49
Proposed NAF Site 1

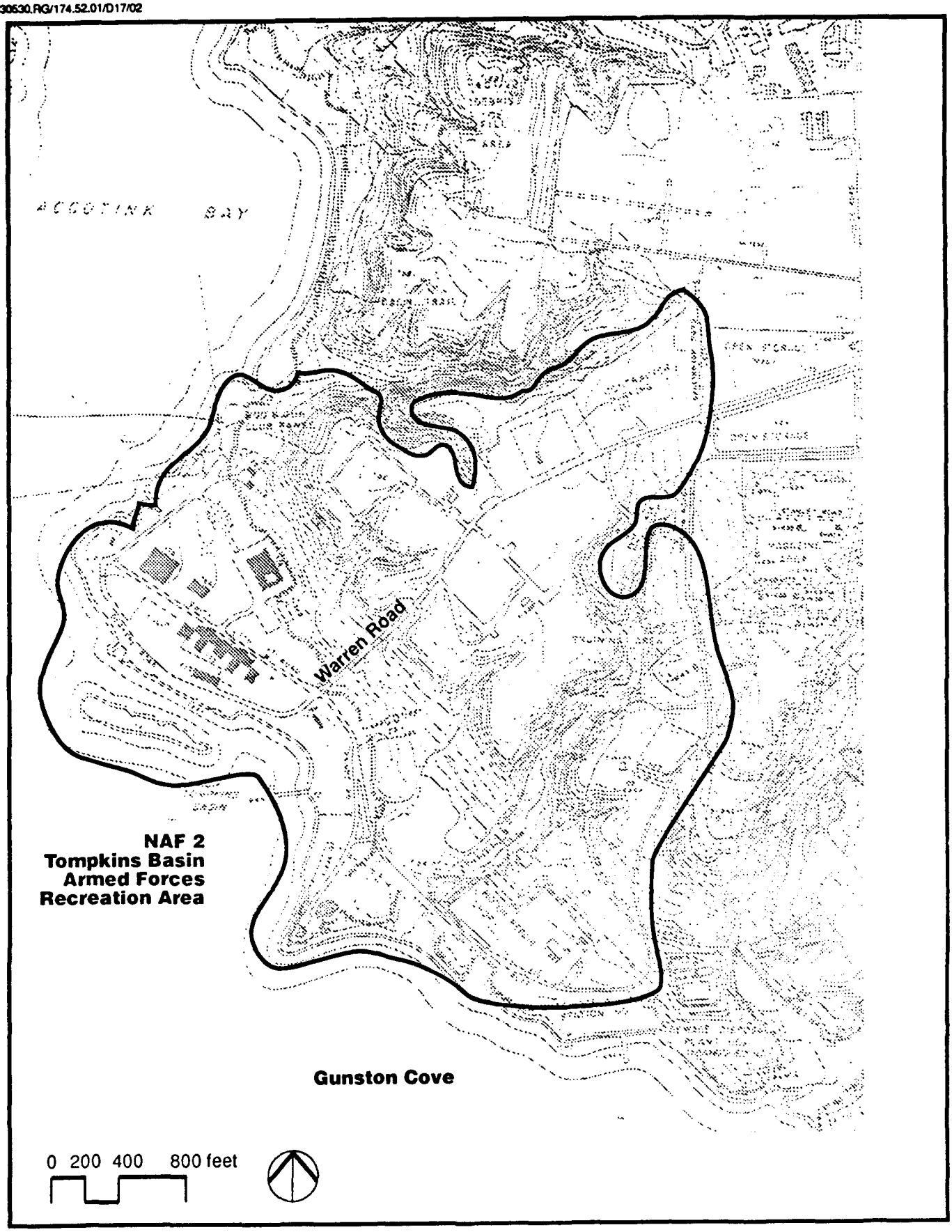


Figure 2-50
Proposed NAF Site 2

2.6.4.4 Benyuard Pool Addition (NAF 4). The Benyuard Pool addition is planned in order to increase the size of the existing facility located on the South Post between 21st and 23rd Streets, west of Middleton Road (Figure 2-51). The expansion is needed to accommodate the increase in post population as a result of growth. This project has been programmed, but not yet funded. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.4.5 Golf Course (NAF 5). A new golf course is planned for a site immediately adjacent to and southwest of the existing North Eighteen Golf Course (Figure 2-52). The new golf course will be a regulation 18-hole course with all required ancillary facilities, including cart paths, a club house, cart storage building, cart maintenance facility, supply storage building, and automatic sprinkler system. This project has been programmed, but not yet funded. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.4.6 Corporate Fitness Center (NAF 6). The Corporate Fitness Center is planned for the South Post east of Chapek Road, south of 1st Street, and northwest of the 6th green of the South Nine Golf Course (Figure 2-53). The facility will provide physical fitness facilities for off-post military personnel and civilian employees. This project has been programmed, but not yet funded. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.4.7 Child Development Center (NAF 7). Another child development center is planned as an addition to the Headquarters Complex (BRAC 1) on the North Post. The facility will provide onsite child care for employees of the Headquarters Complex. Figure 2-3 shows the general area of the site. This project has been funded, but is not yet under construction. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.4.8 Temporary Lodging Facility (NAF 8). A temporary lodging facility is planned for the South Post east of Pence gate, north of Taylor Road (Figure 2-53). The structure will house personnel transferred to the area who have not yet been quartered at permanent facilities. This project has been funded, but is not yet under construction. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.5 ARMY AND AIR FORCE EXCHANGE SERVICES

2.6.5.1 AAFES 1. A Burger King™ is planned for the South Post in the main shopping area, north of 12th Street and east of Gunston Road (Figure 2-54). Appropriate environmental documentation will be completed for this project before construction begins.

2.6.5.2 AAFES 2. A second fast-food chicken restaurant is planned for the North Post, south of AFH 3. This restaurant is included in the North Post Shopping Center. Appropriate environmental documentation will be completed for this project before construction begins.

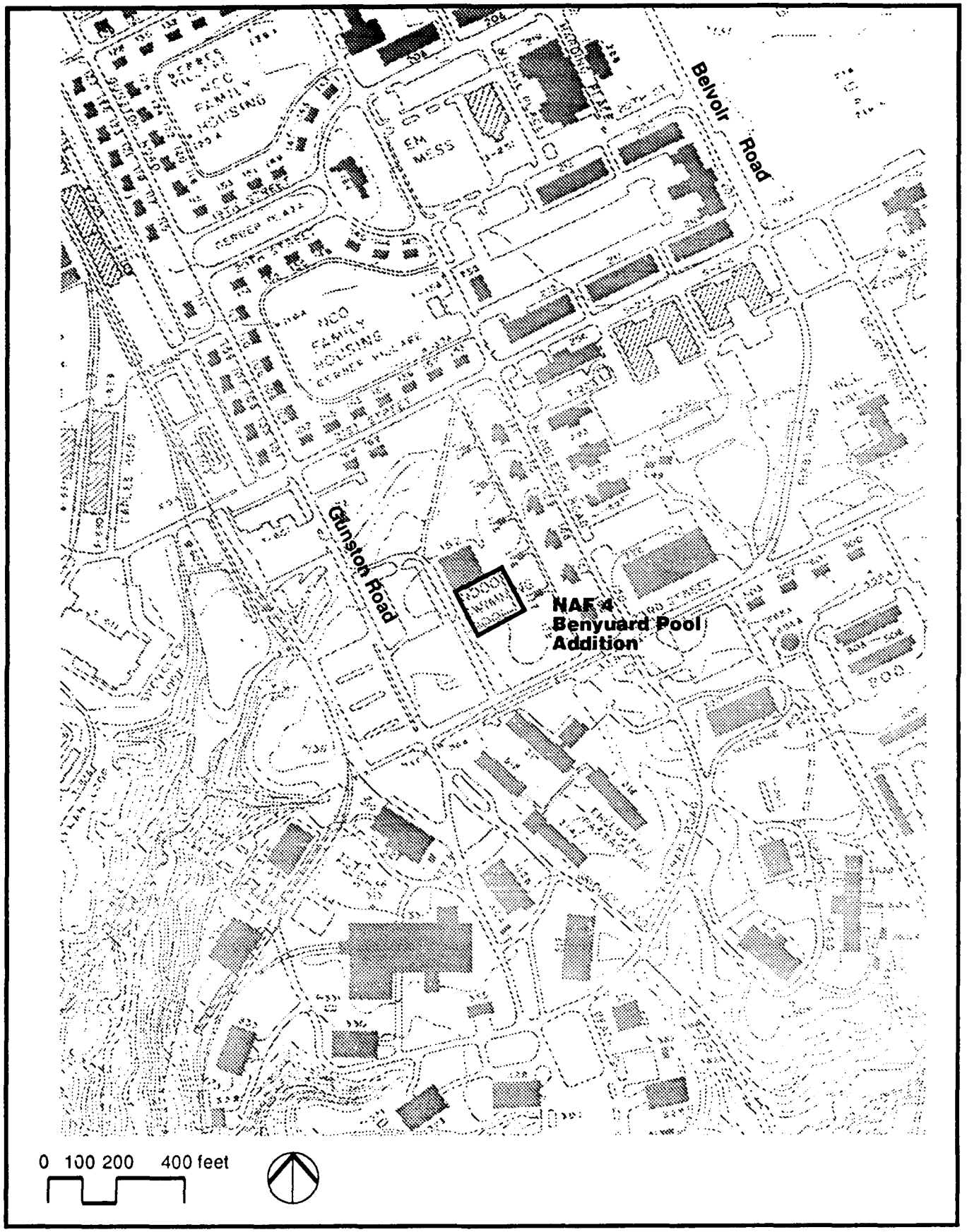


Figure 2-51
Proposed NAF Site 4

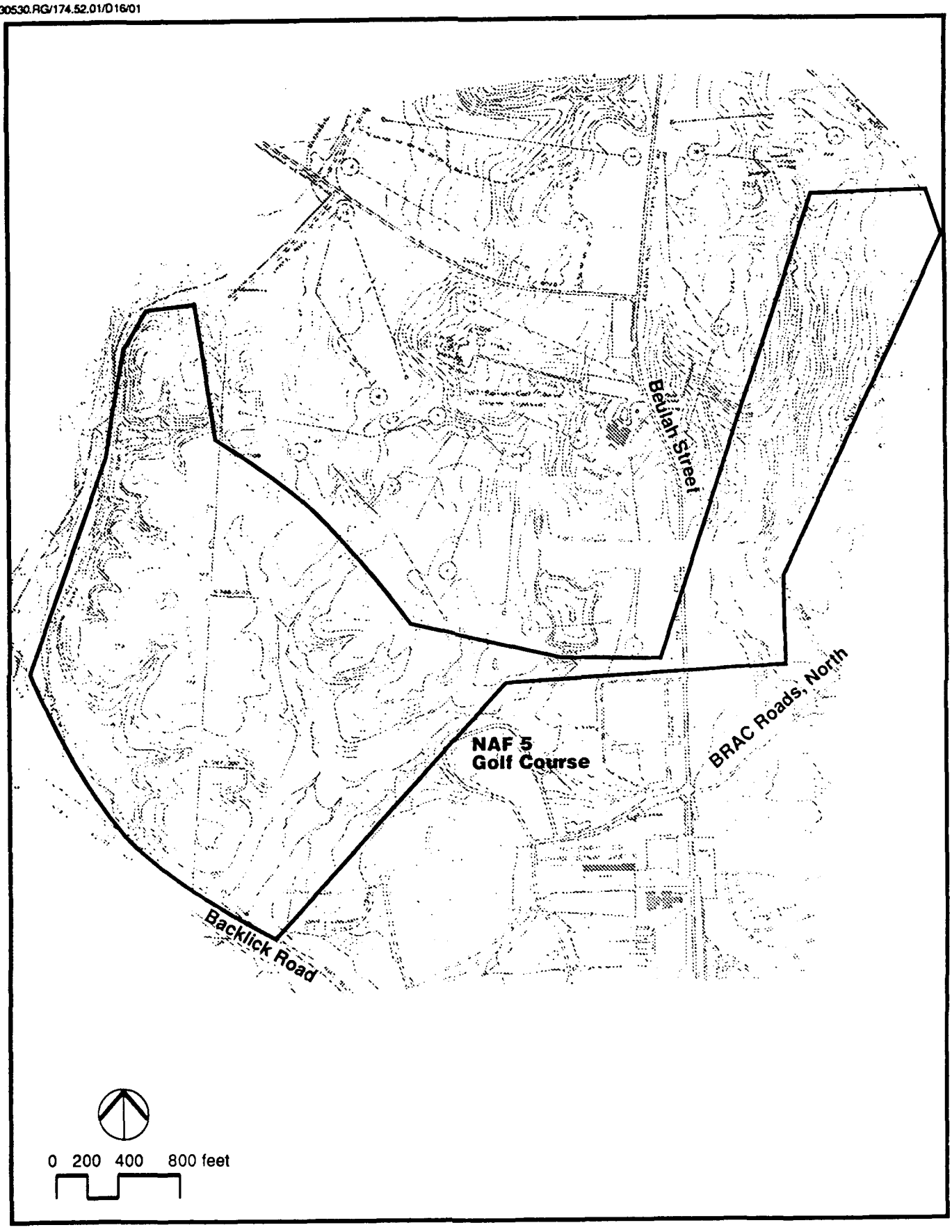


Figure 2-52
Proposed NAF Site 5

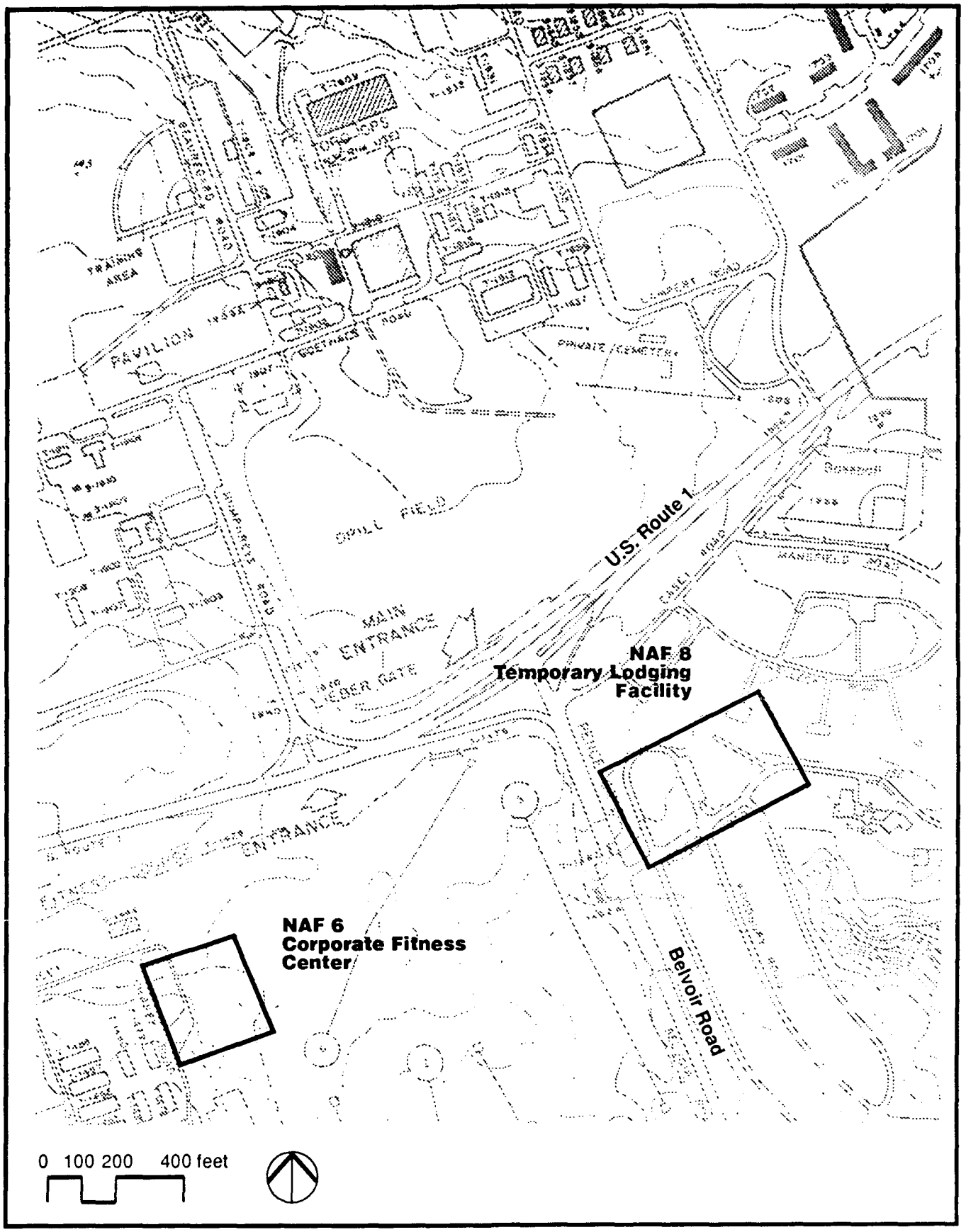


Figure 2-53
Proposed NAF Sites 6 and 8

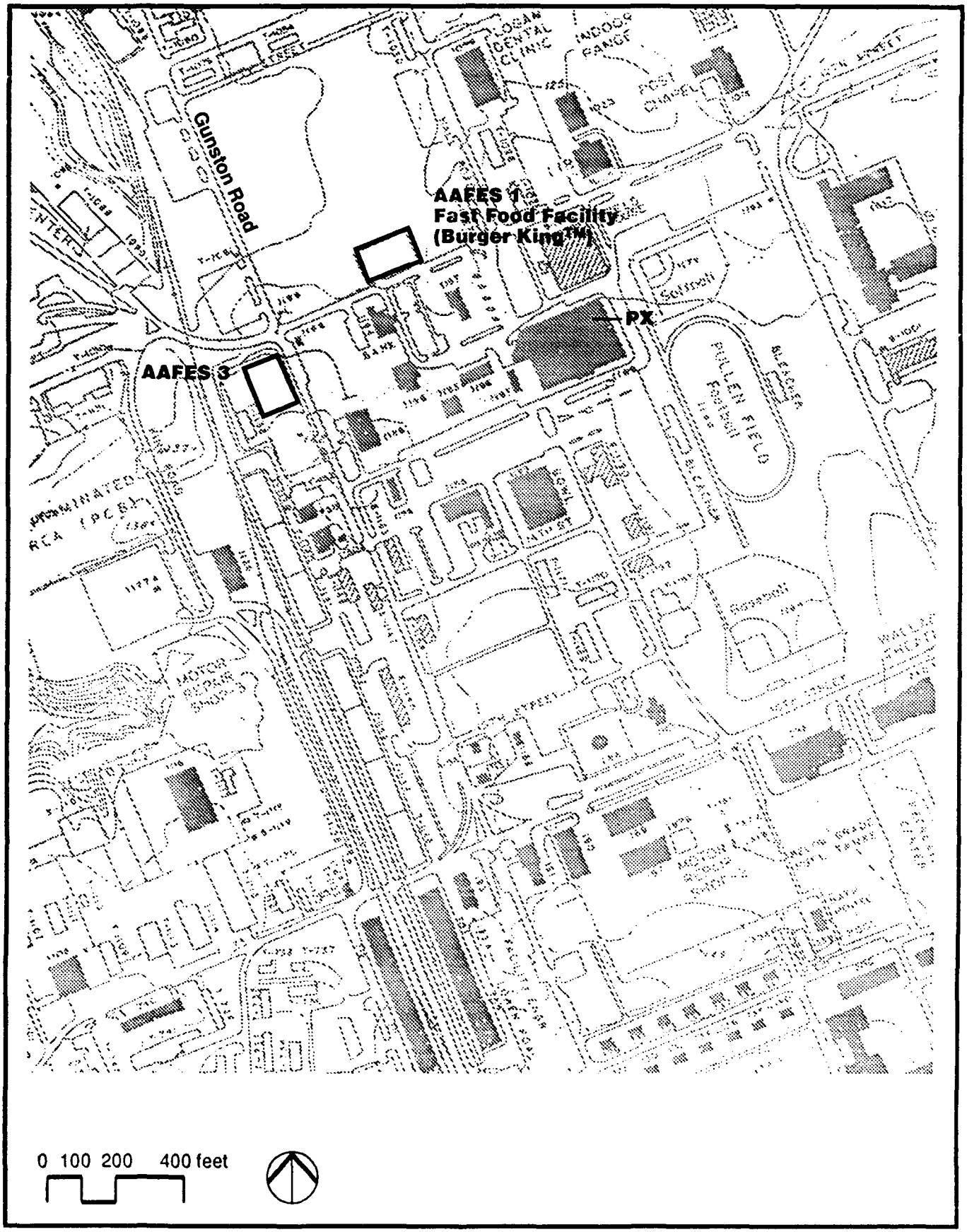


Figure 2-54
Proposed AAFES Sites 1 and 3

2.6.5.3 AAFES 3. A car-care facility is planned for the South Post, west of Gunston Road (Figure 2-54). The facility will contain approximately four underground storage tanks. Appropriate environmental documentation will be completed for this project before construction begins.

2.6.6 LEASED SPACE

In addition to the personnel consolidations described in Section 2.4.4.1, other consolidations are planned for relocating additional activities, currently in leased space within the NCR, to Fort Belvoir. These personnel consolidations are, however, not part of P.L. 100-526, and separate NEPA documentation will be prepared for these actions. These additional consolidations are not part of this EIS, but are included for informational purposes only.

2.7 ALTERNATIVES TO THE CONCEPT DEVELOPMENT PLAN

2.7.1 ALTERNATIVE SITES

Potential sites have been identified by Fort Belvoir planners for the many projects proposed at Fort Belvoir. The alternatives for these CDP projects include changes in final siting, as well as the timing of the projects' initiation. An evaluation of environmental constraints will be used to determine the actual locations of the "footprints" for proposed projects. To date, the CDP has shown the approximate locations for these projects. The location within a site and the actual site may change. However, new sites will be considered only if they are also consistent with the goals and objectives of the Fort Belvoir Master Plan. Additional NEPA documentation will be prepared for these actions if appropriate when the projects are closer to actual implementation.

2.7.2 NO-ACTION ALTERNATIVE

The No-Action Alternative for the Concept Development Plan projects at Fort Belvoir would result in insufficient support activities for the current mission, as well as inadequate functional space. Additional environmental impact analyses will be prepared for these actions, if appropriate, when the projects are closer to actual implementation. That documentation will provide specific discussions of alternatives, including the No-Action Alternative for each individual project.

2.8 DISPOSAL AND ALTERNATIVE FUTURE USES OF CAMERON STATION

The statutory requirements of P.L. 100-526 are that all realignments and closures be completed by September 30, 1995. Proceeds from the sale of Cameron Station must go into the Base Closure Account and will be used to provide new facilities and to fund other relocation costs associated with P.L. 100-526. However, the proceeds from the

sale will not provide up-front money for the new construction because the proceeds from the sale of the property will not become available until after the construction is completed and Cameron Station is vacated. Because of the statutory time limit, construction needs to be started as early as mid-1991 so the new facilities at Fort Belvoir can be completed for the personnel being realigned.

P.L. 100-526 transfers the responsibility for disposing of all property under the Federal Property and Administrative Services Act of 1949 and the Surplus Property Act of 1944 from the Administrator of the General Services Administration to the Secretary of Defense. Under this authority the property is to be disposed of in a certain sequence. The disposal sequence for Cameron Station is the following:

1. Transfer the facility to another department or agency within the Department of Defense.

2. If no interest is expressed in option 1, then screen the property for transfer to other federal, state, or local government agencies.

3. If no interest is expressed in option 2, then offer the property for sale to private purchasers through a competitive bidding process.

Concurrently, if the property is suitable for use by the homeless under Section 501 of the Stewart B. McKinney Homeless Assistance Act, 42 USC, Section 11411, determine whether a qualified homeless assistance provider is willing to accept the property for use by the homeless. If interest is expressed by both a federal, state, or local government agency and a homeless assistance provider, determine whether the needs of the homeless outweigh the needs of the particular federal, state, or local agency. Once the "needs-based" decision is made, dispose of the property accordingly.

Studies have been initiated to define the extent of environmental contamination at Cameron Station. These studies will help in developing sufficient information to adequately assess the health and environmental risks associated with closure, determine the necessity for remedial action, and develop and evaluate remedial alternatives for decisions to be made regarding preparation of the property for release. Subsequent remediation, if determined to be necessary, would be coordinated with and conducted in compliance with federal, state, and local standards and regulations to remove any health and environmental threats.

A highest and best use study has been prepared for Cameron Station (Delta Research Corp., 1989). Cameron Station could be developed for a full range of commercial office, retail, residential, and industrial uses. However, the actual reuse will depend on the plans of the property developer and their conformance with Alexandria's zoning regulations. The City of Alexandria has invested a considerable amount of time focusing on the issue of rezoning the property from the I-1, Industrial designation to Coordinated Development District. The Reuse Task Force has also been convened to evaluate potential development alternatives.

The highest and best use study suggested a moderately intense mixed-use development, predominantly residential in character with a limited amount of commercial office and supporting retail activity (Delta Research Corp., 1989). The Army, the City of Alexandria, and the Reuse Task Force have all developed recommendations for reuse. A scenario for 1,800 dwelling units, 640,000 gross square feet of commercial space, and 120,000 gross square feet of retail space is possible, and this scenario was used for modeling purposes. However, the City Council has zoned 50 acres of the property for open space; 70 acres for residential development, with a maximum of 1,910 units; 16 acres for commercial development; and 28 acres for infrastructure. The amount of office and retail space within the commercial zone will be dependent on whether or not an Eisenhower Avenue connector is constructed. The City Council has approved the construction of 400,000 square feet of office space and 80,000 square feet of retail space if the connector is built. If the connector is not built, the commercial office space will be limited to 300,000 square feet.

WDCR510/008.51

Chapter 3.0
DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 CAMERON STATION

Cameron Station is an approximately 164-acre Army installation located in the City of Alexandria, Virginia, approximately 1.8 miles west of downtown Alexandria and one mile east of the Interstate 395 and Duke Street (Route 236) interchange in Fairfax County. Mixed commercial and industrial developments border Cameron Station along its western and northwestern sections. Duke Street borders the installation to the northeast. Holmes Run and Backlick Run delineate Cameron Station's eastern and southern boundaries, respectively. These two streams converge at the southeastern corner of the installation to form Cameron Run, a tributary of the Potomac River. A Southern Railway right-of-way parallels Backlick Run and separates Cameron Station from Cameron Run Valley West, an industrial area located south of the installation.

The installation's primary mission is to provide support to the Commanding General of the MDW. The principal operations at Cameron Station include administration, commissary, and PX support for MDW. Thirty-three buildings, parking for 3,823 vehicles, and Cameron Lake are the dominant features of the installation, which is a "closed" post, i.e., all entrance and exit gates are manned by either military or DOD civilian police to control access to the post.

3.1.1 PHYSICAL/CHEMICAL RESOURCES

3.1.1.1 Physiography and Topography

Elevations at Cameron Station range from about 50 to 70 feet above mean low water (U.S. Geological Survey, 1984). Changes in topography at Cameron Station are gradual; the highest elevations occur in the northwestern portion of the site, and the lowest elevations are found in the southeast corner, near Cameron Lake. A U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) report (1984) stated that historically the property was filled with "a wide variety of materials," the depth of fill ranging from 3.5 feet in the northwest area of the post to 5.5 feet in the southeast. Cameron Station was originally swamp land (USATHAMA, 1989).

Extensive earth-moving activities on the site have resulted in roads that are about three feet below original grade (McLain, personal communication). As a consequence of this grading and of the construction of stormwater drainage structures, approximately 97 percent of the site is now within the 100-year floodplain, according to a study by U.S. Army Corps of Engineers, Baltimore District (November 1989).

3.1.1.2 Geology and Groundwater

Cameron Station is in the Coastal Plain Province, which comprises poorly consolidated silt, sand, clay, and gravel schist formations, underlain by crystalline rock. This rock is principally early Paleozoic mica at a depth of 30 to 50 feet in the area of Cameron Station. Groundwater depth at Cameron Station is from 10 to 20 feet. The installation uses the municipal water source; groundwater in the area is not used as the water supply (USATHAMA, 1984).

3.1.1.3 Soils

The soils at Cameron Station are sandy silts with local mixtures of clay, which have been locally disturbed and graded and compacted by pedestrian traffic. These soils were formed from deposition of alluvium, gravel, sand, silt, and clay at Holmes and Backlick Runs. The USATHAMA report (1984) states that these soils are easily excavated with power equipment and provide good foundations for roads, paths, and structures.

3.1.1.4 Surface Water

Dominant surface water resources in the Cameron Station area are Backlick Run, Holmes Run, Cameron Run, and Cameron Lake. Backlick Run flows through a concrete flume along the southern border of the site, Holmes Run follows the eastern border of the site, and Cameron Run forms at their confluence near the southeast corner of Cameron Station.

Cameron Lake is located about 100 yards inside the east gate, and covers approximately eight acres. Cameron Lake was originally two ponds (north and south ponds). Natural springs and stormwater runoff reportedly provide water to the lake (USATHAMA, 1989). Depth in Cameron Lake ranges from 0.8 to 6.0 feet, with an average of 3.4 feet depending on drainage activities. According to one report, during 1956-57, portions of the north pond were dredged for fill, and old cables, wire, and drums of oil were dumped into the ponds and covered over; during 1959-60 the ponds were joined during a dredging and cleaning operation creating the lake's current configuration (Cook, 1976).

Stormwater on the site is directed to Backlick Run either directly by drainage systems, or indirectly by drainage to Cameron Lake, which during peak storm events drains into Backlick Run approximately 600 feet upstream from Cameron Run. Cameron Run becomes Hunting Creek, which enters the Potomac River approximately 3.3 miles downstream of Cameron Station.

Little data exists on the water quality of Cameron Lake. A U.S. Fish and Wildlife Fishery management plan for Cameron Lake (undated, circa 1977) notes that the pH of the water was between 7.0 and 9.8, and had a total hardness of 35-65 parts per million (ppm). Frequent plankton blooms in the lake were noted in these early reports; however, the construction of an aeration fountain has apparently remedied

anoxic conditions in the lake. The studies also showed significant amounts of cadmium (30 to 60 micrograms/liter (μg/l)), copper (30 to 40 μg/l), and mercury (0.4 to 0.6 μg/l). These levels of cadmium and copper are above Virginia water quality standards (VR 680-21-00), given the reported hardness of the water.

A U.S. Geological Survey water gauge (number 0165300) is in place on Cameron Run at the Southern Railway bridge, 800 feet downstream of the confluence of Backlick and Holmes Runs. The drainage area of Cameron Run at this gauge is 33.7 square miles (SWCB, 1982). Records of monthly discharge at the Cameron Run gauge date to 1955; the average monthly discharge is 36.2 cubic feet per second over the 35-year period (Prugh et al., 1988).

Water quality data is available for Cameron Run because the Virginia State Water Control Board (SWCB) sampled water at the Cameron Run stream gauge at monthly intervals between 1974 and 1987. At least once during this sampling period, Cameron Run waters violated state standards for pH, cadmium, copper, lead, zinc, total fecal coliform, toxaphene, heptachlor, and mercury levels (EPA, 1989). A variety of possible sources of heavy metals to Cameron Run exist, because it receives runoff from urbanized and industrial areas in Alexandria and Fairfax County. The Army is conducting further studies to ensure that Cameron Station, including Cameron Lake, meets standards for contaminant levels before disposal of the post occurs.

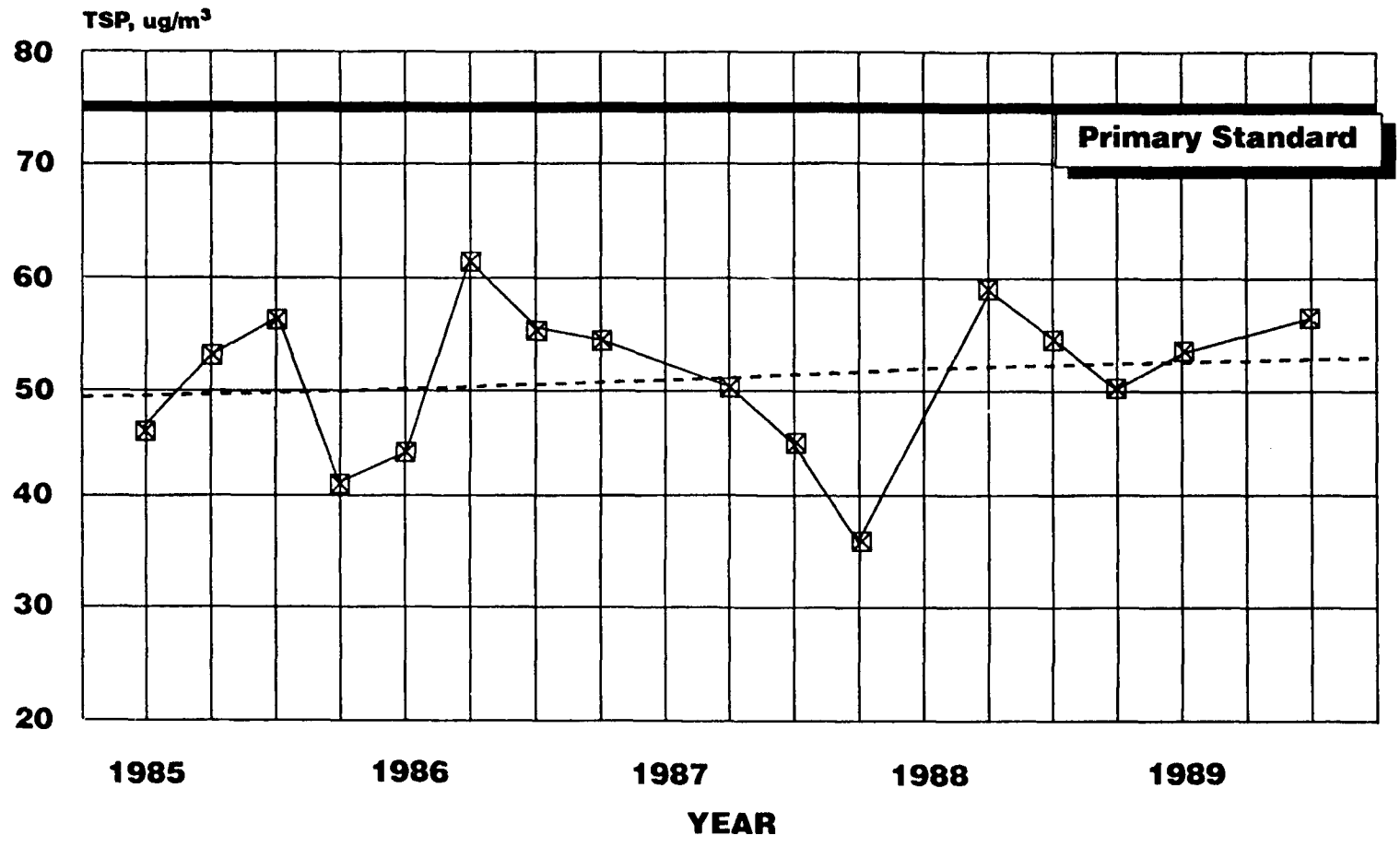
3.1.1.5 Climate and Air Quality

Climate at Cameron Station is similar to that of the Northern Virginia region as a whole, as described in Section 3.2.1.5. A discussion of air quality resources in the City of Alexandria area is given below.

The City of Alexandria Health Department, Environmental Quality Unit, measures air quality parameters that are required by EPA using a high-volume sampler at the Health Department Building within five miles of Cameron Station. In addition, the Environmental Quality Unit monitors total suspended particulates (TSP) at a sampler on top of Building 26 on the post.

Ambient air quality in the City of Alexandria complies with EPA attainment criteria for all air quality parameters (Virginia Department of Air Pollution Control, 1989). However, because the larger National Capital Interstate Air Quality Control Region (AQCR)--Virginia Portion (EPA Region III and the Virginia State Air Pollution Board Region VII) does not meet EPA criteria, the entire air basin is designated as a nonattainment area for carbon monoxide (CO) and ozone. However, the Virginia Department of Air Pollution Control (DAPC) has petitioned EPA not to use the regional concept of CO nonattainment designations, because, unlike ozone, CO emissions have a very short life span in the atmosphere and are generally recognized as localized problems.

Figure 3-1 illustrates the trend in TSP at the Alexandria sampling station near Cameron Station for the past 5 years. TSP has increased slightly during this time (dashed line),



Source: DAPC, 1989

Figure 3-1
Region VII - 5-Year Trend of Total Suspended Particulates (TSP)
Alexandria, Virginia

but this increase is not statistically significant (DAPC, 1989). Maximum TSP measured during 1989 in Alexandria was 106 $\mu g/m^3$, which is below the Virginia Ambient Air Quality Secondary Standard of 150 $\mu g/m^3$.

The maximum level of CO measured in Alexandria over a 1-hour period in 1989 was 14.9 ppm (below the National Ambient Air Quality, "primary" standard of 35 ppm); the maximum level of CO measured over an 8-hour period in 1989 was 7.9 ppm, (below the primary standard of 9 ppm). Over the past 9 years, Alexandria exceeded the 8-hour CO primary standard once in 1982 and three times in 1984; no violations occurred in Alexandria of the 1-hour CO primary standard during that time period.

Sulphur dioxide (SO_2) levels in Alexandria during 1989 were also within the primary standard of 0.50 ppm for a running, non-overlapping, 3-hour average. The maximum SO_2 measured in a 3-hour period in 1989 was 0.099 ppm. Likewise, the maximum level of nitrogen dioxide in Alexandria (0.031 ppm, reported as the arithmetic mean of 1-hour observations) did not exceed the primary standard of 0.05 ppm during 1989.

No violations of the primary ozone standard (hourly values of 0.12 ppm) were measured in 1989 in Alexandria. However, the following violations of the primary ozone standard did occur in Alexandria over the past 8 years: one violation in 1982, five violations in 1983, one violation in 1987, and four violations in 1988. There was minimal detection of lead and cadmium in Alexandria during 1989.

Air emissions from Cameron Station come from power boilers of the central heating units, the on-post incinerator, and from vehicular sources (USATHAMA, 1989).

3.1.2 BIOLOGICAL RESOURCES

3.1.2.1 Terrestrial Biota

Vegetative cover at Cameron Station is sparse, consisting primarily of lawns and ornamental plantings around the buildings. The area around Cameron Lake is planted with weeping willows (*Salix babylonica*). Remaining native vegetation in the vicinity of the lake includes several oak species (*Quercus* spp.), sweet gum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), flowering dogwood (*Cornus florida*), flowering cherry (*Prunus mahaleb* var. *Kwanzan*), and red maple (*Acer rubrum*).

Little habitat exists for wildlife at Cameron Station, except for Cameron Lake, which attracts large numbers of mallards, domestic ducks, Canada geese, laughing gulls, and pigeons; three swans currently use Cameron Lake, and two peacocks live in a large cage near the west side of the lake. Because of the post's position in the Atlantic flyway, many other species of birds (ducks, geese, shorebirds, and passerines) may be sighted at Cameron Station intermittently during migration.

3.1.2.2 Wetlands

Cameron Station was once swamp land, possibly vegetated with the palustrine hardwoods and the wetlands shrub species indigenous to Backlick Run and Holmes Run. However, filling, stormwater control structures, and stream channels have eliminated wetland habitat from the post. Filling occurred at least as long ago as the first half of the twentieth century, before the Clean Water Act or any other protective wetland legislation was enacted. Earth-moving activities associated with construction needs may have occurred as recently as the early 1980s (McLain, personal communication).

3.1.2.3 Aquatic Biota

Management of Cameron Lake as a game fisheries resource has been established by a "tripartite agreement" among MDW, the Virginia State Commission of Game and Inland Fisheries, and the U.S. Fish & Wildlife Service. Through this arrangement, a Fisheries Management Plan was established for Cameron Lake by the U.S. Fish and Wildlife Service (1977). This plan recommended a number of activities and fishing practices aimed at maintaining a population of inland game fish, especially largemouth bass (*Micropterus salmoides*).

The U.S. Fish & Wildlife Service reported in 1977 that Cameron Lake was overcrowded with undersized bluegill (*Lepomis macrochirus*) and golden shiners (*Notemigonus crysoleucas*) because the water was shallow. Other fish species collected in 50-foot seine nets at that time were channel catfish (*Ictalurus punctatus*) and black crappie (*Pomoxis nigromaculatus*). Cameron Lake experiences no problems with excessive growth of submerged or emergent aquatic vegetation, because of the grazing by waterfowl. As discussed in Section 3.1.1.4, the aeration fountain has apparently alleviated plankton blooms that were caused by high nutrient levels associated with waterfowl in the lake.

3.1.2.4 Threatened and Endangered Species

A BATES has been prepared for the areas evaluated in this EIS (Appendix B). The resource agencies contacted indicated no threatened or endangered species have been reported at Cameron Station. No state or federal endangered species were located during a site visit conducted in March 1990, nor was any suitable habitat found (see Appendix B).

No rare species were encountered at Cameron Station during the site visit. Because Cameron Station is within the Atlantic flyway, a few bird species considered rare in Virginia may be found at the Station at some time during the year. These species include the American coot (*Fulica americana*), double-crested cormorant (*Phalacrocorax auritus*), green-backed heron (*Butorides virescens*), least bittern (*Ixobrychus exilis*), purple finch (*Carpodacus purpureus*), common moorhen (*Gallinula chloropus*), Forster's tern (*Sterna forsteri*), magnolia warbler (*Dendroica magnolia*), and the bank swallow (*Riparia riparia*). Forster's terns and bank swallows have also been

sighted during the spring and summer, foraging over the water at Cameron Lake and Backlick Run (VSO, 1989). Because of the absence of suitable breeding habitat, however, it is assumed that the birds are either nonbreeding adults or nesting elsewhere.

3.1.3 SOCIOECONOMIC CONDITIONS

For the purpose of socioeconomic discussions in this EIS, "region" is defined as the Washington, D.C., Metropolitan Statistical Area (MSA), which includes the District of Columbia; Montgomery County and Prince George's County in Maryland; and the counties of Arlington, Culpeper, Fairfax, Loudoun, Stafford, and Prince William and the cities of Alexandria, Fairfax, and Falls Church in Virginia.

3.1.3.1 Land Use

The large area occupied by the warehouse structures and the presence of Cameron Lake dictate the land use on the 164-acre post. Service and storage facilities comprise about 40 percent of the total land use. Administration and community facilities make up about 26 percent and 11 percent of the land use, respectively. Recreational use covers 23.5 percent and medical is less than 1 percent.

The land is currently designated as a Coordinated Development District. This resulted from a recent update of the Van Dorn-Landmark Small Area Plan, as part of the City of Alexandria's Master Plan. The city, upon learning of the closure of the post, has rezoned the land to a more restrictive mixed-use zoning, stressing residential development and open space. The existing land use in the Landmark-Van Dorn planning area, which includes Cameron Station, is a mixture of high-density residential with commercial and industrial activities. The industrial/commercial/institutional uses are made of approximately 63 percent of the land in the planning area. Residential uses make up about 25 percent, and recreational and vacant land comprise about 11 percent of the activities.

3.1.3.2 Population

3.1.3.2.1 Region. In 1988, the population of the MSA passed the 3.7-million mark. This represented an increase of 496,700 persons since 1980. In the 1970s, the region grew by an average of only 21,000 persons per year. During the 1980s, however, the region had an average growth of more than 62,000 persons per year, almost triple the previous average annual increase in population.

The central jurisdictions of the region experienced population declines in the 1970s. The District of Columbia, for example, lost residents at an average rate of 11,880 per year. The District continued to lose residents through 1984, but at a much slower rate. From 1984 through 1987 the District's population has increased slightly. Other central jurisdictions of the region that lost residents in the 1970s included Arlington County and the City of Alexandria. Both jurisdictions have registered small increases each year from 1983 through 1988.

Inner suburban counties (Montgomery, Prince George's, and Fairfax) are growing more rapidly in the 1980s than in the 1970s. Outer suburbs are growing slightly faster on an average yearly basis as well. The overall increase in population reflects the increased job growth in the region. The large increases in new jobs in the area have resulted in more migration into the area for jobs.

3.1.3.2.2 City of Alexandria. Cameron Station is located in the City of Alexandria, Virginia. Recent population trends in the City of Alexandria, presented in Table 3-1, indicate a low growth rate in comparison with the rest of the region.

Table 3-1
POPULATION TRENDS IN THE CITY OF ALEXANDRIA, 1983-1988

Year	City of Alexandria Population	Alexandria Average Annual Percent Change	Washington, D.C. MSA Average Annual Percent Change
1983	106,700	-0-	-0-
1984	107,400	0.7	1.4
1985	107,500	0.1	1.4
1986	108,500	0.9	1.8
1987	108,500	0.0	3.0
1988	109,000	0.5	3.7

Sources: Metropolitan Washington Council of Governments, 1989, local government estimates, and the Bureau of the Census.

3.1.3.2.3 Cameron Station. The current base population of Cameron Station is approximately 3,630 civilian employees and 319 military employees.

3.1.3.3 Housing

3.1.3.3.1 Region. Residential construction in the metropolitan area has been strong following the 1981-1982 recession. Total building permits issued between 1983 and 1988 ranged between 34,000 and 40,000 residential units per year. Trends in residential construction show moderate growth in the outer suburbs, substantial growth in the inner suburbs, and minimal growth in the central jurisdictions.

3.1.3.3.2 City of Alexandria. New housing in the City of Alexandria represented 1.4 percent of the total of new housing constructed in the metropolitan region during the period from 1983 through 1988. Single-family dwelling units represented 18.5 percent of the total number of residential dwelling units constructed in the City of Alexandria (Table 3-2). This was the lowest percentage of single-family dwelling units

Table 3-2 HOUSING TRENDS IN THE CITY OF ALEXANDRIA, 1983-1988				
	Total Residential Units Constructed	**Single-Family Units Constructed**	**Percent Single Family**	**Percent Of Total Region**
City of Alexandria	3,075	568	18.5	1.4
Washington, D.C., MSA	223,446	170,749	76.4	100.0
Sources:	Metropolitan Washington Council of Governments, 1989. Permit-authorized Construction in Selected Permit-Issuing Places, U.S. Department of Commerce, Bureau of the Census, C-40 Reports			

constructed in the metropolitan region, and is a reflection of the degree to which urbanization has occurred in the City of Alexandria. Regionally, 76.4 percent of the net growth in building permits issued between 1983 and 1988 was in single-family houses.

3.1.3.3.3 Cameron Station. No on-post housing exists at Cameron Station. All employees reside off post.

3.1.3.4 Employment

3.1.3.4.1 Region. The region has seen an increase of 45,600 jobs between 1983 and 1988 in the Washington, D.C., metropolitan area. The service sector represented an increasing portion of the new jobs created during this period with the addition of 199,000 new jobs. Service jobs exceeded federal jobs by 151,500 in 1983, and by 336,900 in 1988. The number of people employed by the federal government has stabilized during this period, while local government employment experienced a moderate increase.

Construction jobs increased each year following the recession of the early 1980s; however, they are currently on a downward trend. In 1988, construction jobs totaled approximately 137,300 representing a 71 percent increase from the number of construction jobs in 1983. Recently, however, the number of construction jobs has begun to decline. Employment in the finance, insurance, and real estate industries increased by more than 30 percent between 1983 and 1988. The transportation, communication, and utilities industry employment increased by 32 percent during this period.

3.1.3.4.2 City of Alexandria. The City of Alexandria experienced a 41.7 percent increase in jobs during the period from 1983 through 1988 (Table 3-3). Employment in the City of Alexandria ranged between 3.4 percent to 3.9 percent of the total number of jobs in the Washington, D.C., metropolitan area.

Table 3-3
EMPLOYMENT TRENDS IN THE CITY OF ALEXANDRIA, 1983-1988

	Non-Agricultural Wage and Salary Jobs (Thousands)						
	1983	1984	1985	1986	1987	1988	Percent Change
City of Alexandria	56.8	60.9	65.7	73.6	79.9	80.5	41.7
Percent of Total Employment in Washington, D.C., MSA	3.4	3.4	3.5	3.8	3.9	3.8	-0-

Source: Metropolitan Washington Council of Governments, 1989. Compiled from the District of Columbia Department of Employment Services, Maryland Department of Economic and Employment Development, and Virginia Employment Commission Reports.

3.1.3.4.3 Cameron Station. Cameron Station currently employs a total of 319 military and 3,630 civilian personnel, which represents approximately 5 percent of the city's employment on the basis of 1988 standards.

3.1.3.5 Income

3.1.3.5.1 Region. The District of Columbia accounted for 17.6 percent of the total regional personal income in 1983 and declined to 15.9 percent of the regional total in 1987. The Maryland suburban jurisdictions' share of the total regional income represented approximately 43 percent of the total during the period from 1983 to 1987. In Virginia suburban jurisdictions, the share of total personal income increased from 40 percent in 1983 to 41.6 percent in 1987.

3.1.3.5.2 City of Alexandria. Annual per capita personal income is the annual total personal income of residents divided by resident population as of July 1 of each year. In 1986, the City of Alexandria had the highest annual per capita personal income in the metropolitan Washington region (Table 3-4). The City of Alexandria had the second highest per capita income in the region in 1983, 1984, and 1987, and declined to third highest for the region in 1985.

Table 3-4
ANNUAL PER CAPITA INCOME IN THE CITY OF ALEXANDRIA, 1983-1987

	1983	1984	1985	1986	1987
City of Alexandria	$20,160	$22,072	$23,427	$26,030	$26,640
Washington, D.C. MSA	$16,109	$17,519	$18,935	$20,148	$21,539

Source: Metropolitan Washington Council of Governments, 1989. U.S. Department of Economic Analysis, Regional Economic Analysis, Regional Economic Information System.

3.1.3.5.3 Cameron Station. The average salary at Cameron Station is $31,033 per year for military employees and $43,374 per year for civilian employees.

3.1.3.6 Community and Army Facilities

Potable water is supplied to Cameron Station by the Virginia American Water Company through an 8-inch connection at the northeast corner of the post. In 1986 the peak flow rate was 461 gallons per minute (gpm) (U.S. Army, MDW, 1987).

Sanitary sewage from Cameron Station is treated by the City of Alexandria at the Alexandria Sanitation Authority Sewage Treatment Plant. The collection system at Cameron Station consists of several lines ranging in size from 4 to 12 inches. The system is primarily gravity flow, although it includes one lift station (U.S. Army, MDW, 1987).

Natural gas is supplied to Cameron Station by the Washington Gas Light Company from a 6-inch, high-pressure main at the west gate post boundary and through a 4-inch main at First Street. The internal distribution on Cameron Station is handled through a series of 2-inch lines (U.S. Army, MDW, 1987).

Virginia Power provides electricity to Cameron Station through a 34.5-kilovolt feeder from a substation located at Cameron Station. The maximum demand at Cameron Station in 1986 was 5,245 kilowatts (U.S. Army, MDW, 1987).

Three elementary, one junior high, and one high school are located in the neighborhoods surrounding Cameron Station. The schools are run by the City of Alexandria.

There are churches of several denominations, a hospital, and three regional parks within 5 miles of Cameron Station. In additional to regional shopping centers (e.g., Landmark Center), there are also several smaller shopping centers near Cameron Station especially along Duke and Van Dorn Streets.

The Alexandria City police provide police protection for Cameron Station. There are security guards on the post, but there is no contingent of military police stationed there. The Alexandria City fire department also provides backup support to the post during emergencies.

Cameron Station includes 29 permanent structures, nine of which are large warehouse structures. The DLA is the primary occupant, using much of their space in some of the warehouse buildings for administrative purposes. Some of the warehouse buildings are also used for the PX and the Commissary. The warehouses constitute approximately 1,229,871 square feet, or 93 percent of the total building space.

Cameron Station houses one of the world's largest commissaries. Other post facilities include:

- PX
- Data Processing Center
- Cafeteria
- Telephone exchange
- MDW Motor Pool/Maintenance Facility
- Box and Crate Shop
- Medical Clinic
- Post Headquarters
- Institute of Heraldry
- Recreational area
- Central heating plant
- Fire Station
- Security Guard Office

3.1.3.7 Traffic and Transportation

3.1.3.7.1 Definition of Level of Service. Level-of-service (LOS) analysis is a method for producing a qualitative assessment of traffic conditions based on quantitative procedures. The LOS provided by a roadway describes the quality of traffic flow as perceived by motorists. Six levels of service are defined for any LOS analysis. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

LOS A represents free-flow conditions. Each vehicle is virtually unaffected by other vehicles in the traffic stream, and delays are minimal. LOS B and LOS C represent conditions of traffic flow with some delays caused by the presence of other vehicles in the traffic stream. At LOS D, traffic flow remains stable, but the ability to maneuver is severely restricted by the high density of traffic flow. LOS E represents traffic demand at or near capacity. Maximum throughput of a road occurs at this level of service, but drivers generally experience discomfort and frustration. LOS F occurs whenever the amount of traffic approaching a given point exceeds the amount that can pass the point. Queues develop and do not dissipate until the traffic demand has been reduced to a point below capacity.

For the analysis of intersections, quantitative values have been designated to serve as the boundaries between levels of service. An intersection is said to be operating at LOS A if the average delay per vehicle is less than 5 seconds. At the other end of the spectrum, an intersection operates at LOS F if the average delay per vehicle exceeds 60 seconds.

3.1.3.7.2 Subregional. A detailed regional and subregional transportation analysis was conducted by the Army for Cameron Station, Fort Belvoir, and EPG. The details of that study are provided in the *Fort Belvoir Regional Traffic Impact Analysis Assessment of Horizon Year Traffic Impacts* (JHK & Associates, Inc, 1990) and is included as part of this EIS by reference.

The main entrance at Cameron Station is on Duke Street. The flow and volumes of traffic are consistent with area commuting patterns between residence and work place. The post Provost Marshal has estimated daily on-post traffic at 6,000 vehicles. Because of the daily influx of Commissary patrons, peak flows in and out and the contribution to area traffic are difficult to estimate.

It is estimated that, in 1980, about 40 percent of the station personnel participated in ride sharing. The Huntington Metro Station is about 3.5 miles to the east. The planned Eisenhower Avenue Metro Station is about 0.5 miles to the southeast.

The major arterials near Cameron Station are the Capital Beltway (I-95/I-495), Shirley Highway (I-395), Duke Street, Eisenhower Avenue and Van Dorn Street.

Within the Cameron Station subregion, morning peak direction flows are generally northbound towards the District of Columbia and eastbound towards Old Town Alexandria. The primary problem intersections, within the Cameron Station area, are Edsall Road and Van Dorn Street; Eisenhower Avenue and Van Dorn Street; and South Pickett Street and Van Dorn Street. These three intersections operate at LOS F during typical morning and evening peak hours.

3.1.3.7.3 Public Transportation. Public transportation to Cameron Station, (located along the south side of Duke Street in Alexandria, Virginia), is limited to six Metrobus routes. These six routes follow three general alignments on which Cameron Station is situated.

Two of the alignments are primarily north-south, connecting Cameron Station to the Pentagon. Metrobus Route 21F is an express line to the Pentagon, traveling north on the Shirley Highway (I-395) from Duke Street (Route 236) in Alexandria. Service on Metrobus Route 8Z also provides a connection from Cameron Station to the Pentagon. Route 8Z serves the Seminary Valley, traveling north on Van Dorn Street to the Seminary Road interchange, then entering the Shirley Highway express lane toward the Pentagon.

The third alignment followed by Metrobus routes serving Cameron Station is east-west, linking Cameron Station to points east and west. Routes 29K, 29L, 29M, and 29N

provide connections from Cameron Station to the east and to Old Town Alexandria. The King Street Metrorail Station, located just west of Old Town Alexandria, is served by these routes. From King Street Station, connections can be made to National Airport, Crystal City, Pentagon, and Washington, D.C., via Metrorail. The Metrobus 29-series routes also link Cameron Station to points west. Landmark Shopping Center is served by all four routes (29K/L/M/N) providing east-west connections to Cameron Station. Three of these routes (29K/L/N) continue westward along Route 236 to Annandale and other points in Fairfax County, Virginia. Northern Virginia Community College in Annandale and George Mason University in Fairfax County are served by one route each. Travel times by Metrobus to the colleges from Cameron Station are approximately 25 minutes and 40 minutes, respectively.

Public transportation serving Cameron Station is limited, particularly during off-peak hours. Midday service is offered only on the four east-west routes. Of these, two routes offer service on weekends.

Service to the Pentagon from Cameron Station is offered only during peak hours on weekdays. Express service is limited to three morning peak-period trips toward the Pentagon and three evening peak-period trips toward Cameron Station. Service to the Pentagon through Seminary Valley is more frequent, with 12 trips north toward the Pentagon in the morning and 12 return trips toward Cameron Station in the afternoon. Geographic coverage is restricted on north-south routes serving Cameron Station, because service is primarily express to the Pentagon with a very limited number of stops along the way.

Metrobus routes operating in the east-west direction offer slightly better coverage, linking Cameron Station to specific points along Route 236 in Annandale, Fairfax County, and the City of Fairfax. These routes provide midday and weekend service and offer more stops. Geographic locations linked to Cameron Station by these routes are generally restricted to points along Route 236 with few variances.

3.1.4 CULTURAL RESOURCES

3.1.4.1 Historic Resources

A survey to identify historic resources is currently being implemented.

3.1.4.2 Archeological Resources

A survey to identify archeological resources is currently being implemented.

3.1.4.3 Visual Resources

Cameron Station is a large, orderly development of single-story buildings and parking lots relieved by two large, open green areas. The area surrounding Cameron Station is generally of a poor visual quality, related to the commercial and industrial development, which includes car dealerships, discount department stores, and fast food outlets.

3.1.5 HAZARDOUS MATERIALS

USATHAMA has prepared a Preliminary Assessment (PA) for Cameron Station. The objectives of this study were to review current and past records and studies, as well as to interview appropriate personnel. On the basis of these activities, the report identifies the following:

- Areas and operations that may have affected the environment and that require additional environmental investigation
- Areas that would require immediate remedial action
- Environmental concerns that could present impediments to the expeditious transfer of the property

The PA identified a number of potential environmentally significant operations, including electrical transformers containing PCBs that were awaiting removal or retrofitting; underground storage tanks; hazardous materials storage; incinerator emissions; asbestos in several buildings; leaky drums; and fuel spills.

The following conclusions were provided in the PA:

- *Groundwater.* Should a release from Cameron Station occur, it would not directly affect present drinking water supplies. Homes and businesses in the immediate area of the property purchase water from the American Waterworks Company, which is supplied by the Fairfax County Water Authority (FCWA) from the Occoquan Creek Reservoir. The Virginia State Water Pollution Control Board has no record of permits issued for any wells to be used as a public drinking water supply near Cameron Station. Generally, groundwater in the area is of poor quality and is not used as a drinking water source.
- *Surface Water.* Holmes Run and Backlick Run are too shallow to support fish. A fishkill at Cameron Lake was reported in March 1974 and investigated by the State Water Pollution Control Board. On the basis of the Board's analysis of oily substances, the report implicated a recent roof-asphalting operation as the cause of the fishkill. A fishkill at Cameron Lake was reported in 1975 and investigated by the U.S. Army Environment and Hygiene Agency (USAEHA). On the basis of an assessment and sampling of dead fish, the USAEHA concluded that dissolved oxygen levels in the pond were low because of hot, humid, and overcast weather. These conditions combined with stress associated with a reported gasoline spill of unknown volume at the PX gas station on May 9, 1975, produced the fishkill. The USAEHA recommended that petroleum products be prevented from entering the ponds and that the latter be dredged to maintain water depth and remove accumulated

sediments. Thus, the ponds have been periodically dredged and the sediments transported to a landfill south of Cameron Station.

- *Air Quality.* Although Cameron Station has been cited for violations of excess smoke emissions from its incinerator, for the most part the base is operating well within the state guidelines. According to officials at the Air Pollution Control Board in Alexandria, Virginia, the recent violations for excessive smoke were the result of the manner in which post employees loaded the incinerator. Recent MDW recommendations prohibited the incineration of film and microfiche and the practice has been discontinued. Air emissions from Cameron Station do not contribute significantly to air quality degradation in the National Capital Interstate AQCR.

Conclusions and recommendations in the PA were used to develop the remedial investigation/feasibility study (RI/FS), which followed EPA's guidance on Comprehensive Environmental Response Compensation and Liability Act (CERCLA)/ Superfund Amendments and Reauthorization Act (SARA) and has been approved by the regulatory agencies. The RI/FS describes a sampling analysis and an alternatives assessment program for Cameron Station, which consists of separate plans for accident prevention and safety plan project quality control, sampling design, and projects.

The objective of the RI/FS is to characterize sites and develop and evaluate remedial action alternatives. Specific objectives are:

- The definition of the nature, magnitude, and extent of any environmental contamination
- The development of information to adequately assess the health and environmental risks associated with closure and transfer of Cameron Station for other uses
- The determination of the necessity for remedial actions
- The development and evaluation of remedial action alternatives so the Army can make a decision regarding the preparation of the property for release

The RI/FS is being conducted in accordance with the EPA Interim Final Guidance on RI/FS under CERCLA, published in October 1988, as well as updates of this guidance concerning SARA and the National Contingency Plan. The RI/FS also incorporates the applicable requirements of the National Environmental Policy Act of 1969 (NEPA) and AR 200-1 and 200-2.

The field investigation (FI) began in August 1990 and is being conducted in accordance with the activities specified in the Cameron Station RI/FS. The field investigation involves the investigation and evaluation of the areas identified in the RI/FS through

field sampling, laboratory analysis, and subsequent evaluation in accordance with CERCLA/SARA and Virginia requirements. The RI/FS is carried out using required and approved sampling procedures and analytical parameters. Fieldwork includes a soil-gas survey; investigations of surface and subsurface soils, geophysical and hydrogeological conditions, PCBs; and an asbestos survey and assessment.

Copies of the RI/FS report will be provided to the appropriate regulatory agencies. After regulatory agency review, the report will be made available for public comment. In addition, a public meeting will be held to receive public comments.

Following receipt and review of public comments, a ROD is prepared. The ROD addresses public concerns about the proposed plan and identifies any remedial action that will be undertaken.

The following areas of potential environmental concern are being investigated:

- ***Asbestos-containing material.*** Buildings 3, 4, 8, 15 and 17 have been surveyed on a limited basis and some abatement actions have been taken. Pipe insulation, floor tiles, and perhaps ceiling tiles may contain asbestos and are in various states of disrepair. An asbestos survey plan, which supplements the previous asbestos work, is being prepared before the sampling begins. The survey will include bulk sampling. Following an analysis and evaluation of the survey, an asbestos survey report will be prepared, which will accompany the remedial investigation (RI) report. This report will detail the results of the asbestos sampling, the locations and quantities of the asbestos within the buildings, the assessment of risks, and the recommendations for remedial action. The survey will be performed in accordance with 40 CFR Part 763; the Asbestos Hazard Emergency Response Act; U.S. Technical Manual No. 5-615; U.S. Army Technical Bulletin, Medical, No. 513; and AR 200-1.

- ***USTs.*** There are approximately 21 USTs in service at Cameron Station and possibly as many as four abandoned tanks. The objectives of the UST program are to locate all tanks, to determine their contents and integrity, and to determine the extent of environmental impact. As a first step, USATHAMA tested the integrity of all tanks to better identify the potential for leaks. This testing was supplemented by a soil-gas sampling to further estimate the extent of environmental impact. Limited geophysical surveys are being performed to confirm the location of the abandoned tanks. Abandoned tanks that are leaking will be removed and the soils in the excavated pit will be sampled. To obtain information before in-service tanks are removed, sites of non-leaking tanks are being characterized using one soil boring and sites of leaking tanks are being evaluated using four borings. Soils will be analyzed for total petroleum hydrocarbons, unless tank contents are unknown, in which case the soils will be analyzed for the full EPA target compound list (TCL). In addition to the USTs, a septic tank is near Building 30 and evidence exists of

two additional underground tanks (at Buildings 5 and 8) whose use and contents are unknown. These tanks will be located using geotechnical techniques and their contents will be characterized. The surface and subsurface soils around the Building 30 septic tank will be sampled and tested for pesticides during the monitoring well installation in this area. Samples from two grease traps in Buildings 7 and 23 will be analyzed for total petroleum hydrocarbons and the TCL contaminants.

- ***Sanitary and Storm Sewer Lines.*** Small quantities of liquid chemical wastes have been disposed of through the sanitary sewer system. These wastes include solvents, corrosive materials used in film processing, washwater from battery charging areas, paints, and inks. Also evidence exists of previous limited use of a wash rack to dispose of used motor oil (for personal vehicle maintenance) into the storm sewer system. A sewer line study will identify any environmental contamination caused by these activities. A spot check of the system will be made using a remote-camera survey of a portion of the systems that received these wastes in order to ascertain the potential for leaks. Where significant potential for leaks is identified, the soil will be sampled.

- ***Road Oiling and Fly-Ash Disposal.*** The reported use of waste oil, which was used to control dust along a portion of a road in the southwest corner of the facility, requires investigation. This area is being investigated using a soil-gas survey and limited surface and subsurface soil sampling. Installation of a shallow groundwater-monitoring well is also required to characterize this area.

- ***PCB Transformers.*** The areas around the four PCB-contaminated transformers will be sampled to determine the extent of contamination. Building 9, the outside storage yard, will also be investigated. A spill of approximately three gallons of PCB-contaminated oil in this yard is recorded. In addition, temporary storage of drums and contaminated transformers in this area has resulted in the soil being stained. The extent of environmental contamination will be determined through wipe sampling and soil sampling as detailed in the RI/FS. The installation of a groundwater monitoring well in this area, with associated surface soil sampling, is required to characterize this site.

- ***Burning Pits and Dredge-Spoil Disposal Area.*** A portion of the South Pond of Cameron Lake was reportedly used as a burning pit during the late 1950s. Also, dredge spoils from Cameron Lake were deposited in an adjacent area. This location may have been a disposal site for general debris as well. Geophysical and soil-gas surveys have been performed in these areas to screen for potential contamination. Confirmatory surface and subsurface soil sampling is also required, as is the installation of a shallow groundwater-monitoring well in the dredge disposal area.

- ***Landfills.*** Very little historical information about the landfilling operations has been identified. The landfill area is currently covered with an undetermined thickness of soil and limited construction rubble is still evident. No visible evidence exists of leachate seepage along the slopes, which are adjacent to Backlick Run; however, the area must be evaluated for potential environmental contamination. A geophysical and a soil-gas survey of the area will be performed to determine the vertical and horizontal extent and general type of fill material. Surface and subsurface soils and a nearby culvert will also be sampled and analyzed for the TCL contaminants. Wells will be installed and the groundwater analyzed for the TCL contaminants.

- ***Pesticides.*** A variety of pesticides and herbicides have been used at Cameron Station. Most of this use has been along rail and fence lines. Surface soil samples will be collected and analyzed for herbicides and pesticides to characterize the extent of potential environmental impact. In addition, installation of a shallow groundwater-monitoring well is required to examine subsurface soils and groundwater quality.

- ***Miscellaneous*:**

  - Radon: Currently, the installation is conducting a comprehensive radon survey in accordance with the Army's radon program. The results will be incorporated into the RI/FS.

  - Abandoned Wells: Two abandoned drinking-water wells are located in the vicinity of the water tower. Recommendations will be developed for appropriate closure of these wells.

  - Pigeon Droppings: Pigeon droppings have accumulated on Building 21 and there is a concern that these droppings may be associated with *Cryptococcus neoformens* fungus contamination. The extent of this problem will be determined and recommendations developed for remediating the condition.

  - Buried Transformer: Geophysical techniques are being used in parking lot number 2 and near Building 17 to determine the validity of a report that a transformer has been buried in one of these locations.

3.2 FORT BELVOIR

3.2.1 PHYSICAL/CHEMICAL RESOURCES

3.2.1.1 Physiography and Topography

Fairfax County, including Fort Belvoir, lies in both the Upper Coastal Plain and the Northern Piedmont physiographic provinces. The Piedmont is generally confined to the north of U.S. Route 1 and the Coastal Plain extends to the south of Route 1 (U.S. Department of Agriculture, 1982). This combination of provinces and the effects of dissection by rivers and streams has influenced the topography at Fort Belvoir. Fort Belvoir consists of 8,656 acres and land features range from smooth uplands to bluffs and V-shaped valleys that rise abruptly from the floodplain and include well to moderately drained uplands and well to poorly drained lowlands. The highest elevations on the Main Post are approximately 230 feet above mean sea level (MSL) along Beulah Street between Woodlawn Road and the North Post Club House Road. Elevations of 0 to 1 foot above MSL occur along the shorelines to the south and east of the post. Elevations at the EPG range from approximately 100 to 300 feet above MSL.

3.2.1.1.1 BRAC 1. The preferred alternative for BRAC 1 is relatively flat with a gradual elevation change from 75 to 125 feet above MSL. The northern boundary drops abruptly to a stream valley. The slopes are greater than 15 percent and are included within the RPA for the stream.

Alternative 2 for BRAC 1 is composed of a well-developed stream valley and broad plateau. The majority of the slopes associated with the stream valley are greater than 15 percent. As a result, the buildable area for this site is limited to elevations above 125 feet MSL.

Alternative 3 for BRAC 1 involves building renovations and not new construction. As a result, topography and physiography discussions would not apply to this alternative.

3.2.1.1.2 BRAC 2. The preferred alternative for the industrial park is located in an area that has been heavily disturbed by past activities. The elevation averages 100 feet above MSL. There is very little relief at this site.

Alternative 2 is located within the training area of South Post. The site ranges in elevation from 150 feet above MSL near the northeastern boundary to 125 feet above MSL. A small swale also bisects the site.

3.2.1.1.3 BRAC 3. The topography along the preferred alignment for the BRAC Roads, North, undulates mildly from Beulah Street to Woodlawn Road. There are six streams that cross the alignment corridor and several other swales. The western portion of the alignment is relatively flat.

The alternative alignment for the roadway crosses three streams, but is still relatively level throughout its length.

The topography along the alignment for the preferred alternative for BRAC 3, South, is relatively flat. The southern portion of the road crosses a small swale that contains an intermittent stream.

3.2.1.1.4 BRAC 4, BRAC 5, and BRAC 6. Both the preferred alternative and Alternative 2 for each of these projects have very little relief. In all cases, past activities have almost leveled the sites.

3.2.1.1.5 BRAC 7. This project involves building renovations and not new construction. As a result, topography and physiography discussions do not apply to this alternative.

3.2.1.1.6 BRAC 8. The preferred alternative for this project is located within the BRDEC complex at Fort Belvoir on a plateau with an average elevation of 125 feet above MSL. The western edge of the site slopes to the west to an unnamed tributary of the Potomac River.

Alternative 2 for this project is a plateau that is surrounded by steep slopes in excess of 15 percent. As a result, the buildable area on this site is confined to elevations above 125 feet MSL.

3.2.1.1.7 BRAC 9. As with BRACs 4, 5, and 6, all of the alternatives for this project are located in areas that have been heavily disturbed in the past and the topography is relatively flat.

3.2.1.1.8 BRAC 10. Like BRAC 7, this project involves building renovations and not new construction. As a result, topography and physiography discussions do not apply to this alternative.

3.2.1.2 Geology and Groundwater

Metamorphic gneiss and schist of Precambrian age and early Paleozoic (Cambrian) granitic intrusives make up the rocks of the Piedmont Upland. Minor amounts (about 5 percent) of unmetamorphosed Triassic red beds of sandstone, conglomerate, and silt with intrusive dikes and sills of diabase occur in the Piedmont Plateau (Hunt, 1974).

In the Coastal Plain, unconsolidated and poorly consolidated sand and gravel of younger Cretaceous age, with lesser amounts of silt and clay, are found. Deposited in fluvial-deltaic continental and marginal marine environments, these deposits form a sedimentary wedge that thickens southeastward from the fall line (i.e., approximately along I-95) (Meng and Harsh, 1988).

A generalized geologic cross section from EPG eastward to approximately Dogue Creek about one mile east of the northernmost boundary of the HEC, is shown in Figure 3-2. Regional configurations of major fault systems and deflections of rivers such as the Potomac, along the northeast-trending fall line, suggest that these are tectonically influenced (Mixon and Newell, 1977). The Stafford Fault System, a series of northeast-trending, high-angle reverse faults parallel to the fall line, extends into Fort Belvoir and EPG. No evidence exists of recent structural disturbances in the Fort Belvoir area (Mixon and Newell, 1977).

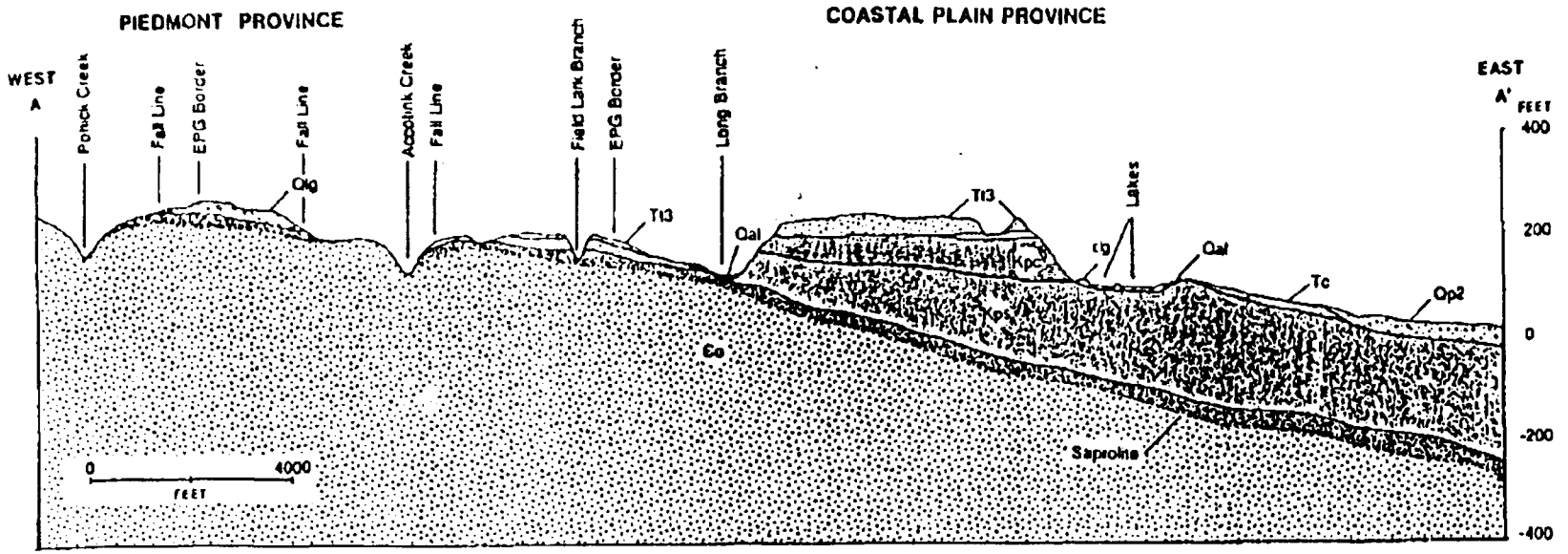
The hydrogeology of the Virginia Coastal Plain region has been summarized by Meng and Harsh (1988). In the vicinity of the fall line, the three major aquifers are the Lower Potomac aquifer, the Middle Potomac aquifer, Aquia aquifer. These units are separated by three confining units--the Lower Potomac confining unit, the Middle Potomac confining unit, and the Nanjemoy-Marlboro clay confining unit.

The Potomac aquifers are major components of the Potomac Formation. These aquifers consist of fluvial-deltaic and marginal-marine sediments and rest nonconformably on the basement rock. The Potomac Formation is a massive eastward-thickening wedge of sediments that range in grain size from gravels and sands to silts and clays (Meng and Harsh, 1988).

The Potomac aquifers traditionally have been good sources of groundwater throughout the northern Virginia Coastal Plain (Cady, 1938). Groundwater is withdrawn from the Lower Potomac aquifer mostly in the western area of the Coastal Plain, while in the eastern and central areas of the Coastal Plain, groundwater is withdrawn from the Middle Potomac aquifer (Meng and Harsh, 1988). This is probably an artifact of both the depth and thickness of the aquifers. In the east, it is more difficult to extract groundwater from the Lower Potomac aquifer because of its greater depth. In the west, the Middle Potomac may be too thin or discontinuous to produce adequate amounts of groundwater.

The massive Aquia aquifer, which is composed of marine sediments, has been a good source of groundwater throughout the Coastal Plain. Groundwater from the Aquia aquifer is withdrawn in the central and west-central areas north of the Norfolk Arch (Meng and Harsh, 1988).

In addition to the sedimentary aquifer, groundwater supplies are also developed from the underlying metamorphic rocks. On the Lower Piedmont Province, groundwater was produced successfully from the Wissahickon schist for the City of Fairfax, where a municipal well produced as much as 70 gal/min. In addition, a number of private wells also obtain groundwater from this formation (Cady, 1938). On Fort Belvoir, wells finished at depths of 98 feet or more, in general, reportedly delivered up to 250 gallons per minute (gal/min) of water (Ludemann et al., 1982).



Sedimentary Rocks

- dg — Disturbed ground, areas cut for sand and gravel extraction
- Qal — Alluvium (Holocene); sand, silt, gravel, and clay
- Qlg — Lag gravel (Holocene and Pleistocene); cobbles, pebbles, and boulders
- Op2 — Terrace and estuarine (?) deposits (Pleistocene); silt, clay, sand, and gravel with minor peat beds
- Tc — Colluvium (Holocene to Miocene?)
- Tl3 — Terrace gravel (Pliocene?); cobble and pebble gravel interbedded with fluvial sand, silt, and clay
- Kps — Potomac Formation (Early Cretaceous); sand and gravel
- Kpc — Potomac Formation (Early Cretaceous); clay and silt
- Saprolite clay; residuum from chemical weathering of granite

Intrusive Rocks

- Co — Occoquan Granite (Cambrian); medium- to coarse-grained muscovite-biotite granite showing some mica foliation

Source: Based on Drake and Froelich 1986

Figure 3-2
Generalized Geologic Cross Section of the EPG and Fort Belvoir Areas

The thickness of the unsaturated zone probably varies widely with the top of the water-table occurring from near the land surface to appreciable depths. This is indicated by the groundwater springs found in areas west of Accotink Bay and along Poe Road on Fort Belvoir. It is not unreasonable to expect the thickness of the unsaturated zone in the lower Piedmont Province to be very different from Coastal Plain conditions.

Froelich and Zenone (1985) have shown that groundwaters of the Piedmont are characterized as mostly soft to moderately hard, with a median total dissolved solids concentration of 85 milligrams/liter from 24 samples. In the Coastal Plain, groundwater quality varies widely, and strongly depends on whether mixing with saltwater has occurred. Because of this phenomenon, concentrations of dissolved chloride and other chemical species vary within the region. Overall, the water is characterized as soft. The qualities of the groundwater in the two provinces are provided in Table 3-5, which presents analyses of water collected from one U.S. Geological Survey well located in the Coastal Plain at Fort Belvoir, and another well located in the Piedmont Upland near EPG.

Site-specific groundwater investigations have not been completed for the alternative sites for the BRAC actions to date. However, preliminary research indicates none of the alternatives appear to have been sited in areas that may have significant geologic or groundwater constraints.

The Fairfax County Water Authority (FCWA) is the regional supplier for potable water in northern Virginia, serving approximately 850,000 people.

The FCWA draws water from the Occoquan Creek Reservoir, the Potomac River, and 18 wells in Fairfax County. The Occoquan Reservoir has a storage capacity of approximately 11 billion gallons and the Potomac River has a discharge of approximately 728 billion gallons per day. During 1988, approximately 100 million gallons of water per day were drawn into the FCWA system.

Fort Belvoir purchases its potable water from the FCWA. Fort Belvoir's average daily demand for potable water is approximately 6 million gallons.

3.2.1.3 Soils

Fort Belvoir occupies approximately 13.5 square miles in the southeastern portion of Fairfax County, Virginia. The area is, in general, nearly level to sloping, except along the Potomac River and larger creeks and streams where slopes are steep or very steep.

The soils in the area, including Fort Belvoir, have formed from metamorphic rocks--granite gneiss and quartz sericite schist--similar to those in the Piedmont Upland. The sedimentary deposits in which soils have formed are of fluvial and marine origin. Many soils formed in fluvial and alluvial sediment have a fragipan that causes them to

Table 3-5
ANALYTIC RESULTS FOR GROUNDWATER FROM A COASTAL PLAIN WELL AND A PIEDMONT WELL

Analyte	Concentration (mg/l)[a]	
	Coastal Plain	Piedmont
Iron	0.59	0.1
Calcium	7.1	19.0
Magnesium	6.7	0.7
Sodium	26.0	5.6
Potassium	-[b]	0.2
Bicarbonate	107.0	-
Sulfate	11.0	0.8
Chloride	2.1	3.0
Fluoride	0.1	0.1
Nitrate	0.3	-
Silica	25.0	-
Total dissolved solids	126.0	71.0
Alkalinity[c]	-	41.0
Hardness[c] Calcium and magnesium Noncarbonate	 47.0 0	 - -
Specific conductance	177.0	-
(μohm/cm at 25°C)[d]		

[a]Measured in milligrams/liter except as noted for conductance.
[b]"-" indicates no value reported.
[c]As calcium carbonate.
[d]μohm/cm = microhom per centimeter.
Source: Froelich and Zenone, 1985.

WDCR504/007.51

drain slowly. This sedimentary material usually occupies the broader ridgetops that have gentle to undulating slopes of less than 10 percent. The mixed Piedmont Upland and High Coastal Plain terraces in this area are drained mainly by Accotink and Pohick Creeks into the Potomac River. The drainage pattern is generally dendritic.

The High Coastal Plain consists almost entirely of Coastal Plain sand, silt, clay, and gravel of marine or fluvial origin that overlie Piedmont Upland material, mainly granite gneiss and sericite schist. Between this section and the low Coastal Plain are hilly and steep areas along the large streams and near the breaks. Most of the section consists of wide upland ridges that are undulating and rolling. The drainage is well developed and generally toward the southeast. Accotink Creek is the main drainage into the Potomac. Slowly permeable and gravelly soils are common throughout this section.

The Low Coastal Plain terrace is a young marine deposit consisting of highly stratified and mixed sand, silt, clay, and gravel. The topography is mostly level and very gently undulating but there are small areas of rolling hilly terrain near the large creeks and rivers. The general drainage patterns are not well developed.

The following tables provide summary information for the soil types within the proposed project boundaries at Fort Belvoir. Table 3-6 presents the soil types found at each BRAC project site, the percentage of each soil type, and any associated building constraints. Table 3-7 provides the same information for Concept Development Plan project sites.

Because some of the projects in each group are not buildings, but rather road improvement or other projects, which are linear in nature, linear projects are described slightly differently in these tables. Section B of each table indicates those soils that are present within a linear project area, the building constraints associated with the soil types, and an estimate of the percentage of soils that may present development constraints. When these projects are designed, the soil survey map can be used to identify the locations of the various types of soils likely to be encountered.

3.2.1.4 Surface Water

Fort Belvoir lies within the Accotink Creek and Dogue Creek watersheds. The headwaters for Accotink Creek begin north near Vienna, Virginia, and west near Fairfax, Virginia. Accotink Creek runs in a south-southeasterly direction through Fairfax County, and through EPG and Fort Belvoir. The creek flows through Fort Belvoir's training area and wildlife preserve, eventually reaching the Potomac River by way of Accotink Bay and Gunston Cove. The U.S. Geological Survey water-stage recorder nearest to Fort Belvoir on Accotink Creek in Annandale, Virginia, about four miles upstream from EPG is number 01654000. At this point, Accotink Creek's drainage area is 23.5 square miles and its average discharge for the 41-year record is 27.4 cubic feet per second.

The watershed of Dogue Creek is smaller than that of Accotink; its headwaters begin near Rose Hill, Virginia, and flow south across Telegraph Road, through Fort Belvoir

Table 3-6
SOIL TYPE AND BUILDING CONSTRAINTS
FOR FORT BELVOIR BRAC ACTIONS

Action	Soil Type	Percent Soil on Site	Building Constraint
A. Building Projects			
BRAC 1 Preferred Alternative	UB Urban Built Up	50	none
	C+F Cut and Fill	40	none
	61C Dumfries Sandy Loam	5	none
Building Constraint Summary: None			
BRAC 1 Alternative 2	Soil survey incomplete, subsurface investigations required		
Building Constraint Summary: Unknown at this time			
BRAC 1 Alternative 3	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 2 Preferred Alternative	37B Beltsville Silt Loam	100	high water table
Building Constraint Summary: 100% high water table			
BRAC 2 Alternative 2	37B Beltsville Silt Loam	20	high water table
	46B Mattapex Sandy Loam	70	high water table
	6B Wehadkee Silt Loam	10	hydric soil
Building Constraint Summary: 10% hydric soil, 90% high water table			
BRAC 3 - Road improvement - see part B, Linear Projects, below			
BRAC 4 Preferred Alternative	UB Urban Built Up	25	none
	38B Beltsville Loam	25	high water table
	45B Matapeake Silt Loam	50	none
Building Constraint Summary: 25% high water table			
BRAC 4 Alternative 2	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 5 Preferred Alternative	38B Beltsville Loam	100	high water table
Building Constraint Summary: 100% high water table			

Table 3-6
SOIL TYPE AND BUILDING CONSTRAINTS
FOR FORT BELVOIR BRAC ACTIONS

Action	Soil Type	Percent Soil on Site	Building Constraint
BRAC 5 Alternative 2	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 6 Preferred Alternative	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 6 Alternative 2	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 7 Preferred Alternative	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 8 Preferred Alternative	C+F Cut and Fill	85	none
	37B Beltsville Silt Loam	15	high water table
Building Constraint Summary: 15% high water table			
BRAC 8 Alternative 2	37B Beltsville Silt Loam	75	high water table
	61D Dumfries Sandy Loam	15	steep slope
	UB Urban Built Up	10	none
Building Constraint Summary: 75% high water table, 15% steep slope			
BRAC 9 Preferred Alternative and Alternative 1	UB Urban Built Up	100	none
Building Constraint Summary: None			
BRAC 9 Alternative 2	37B Beltsville Silt Loam	40	high water table
	45B Matapeake Silt Loam	50	none
	45C Matapeake Silt Loam	10	none
Building Constraint Summary: 40% high water table			
BRAC 10	UB Urban Built Up	100	none
Building Constraint Summary: None			

Table 3-6
SOIL TYPE AND BUILDING CONSTRAINTS
FOR FORT BELVOIR BRAC ACTIONS

Action	Soil Type	Building Constraint
B. Linear Projects		
BRAC 3, North Preferred Alternative	C+F Cut and Fill	none
	UB Urban Built Up	none
	1 Mixed Alluvial Fill	hydric soil
	37B Beltsville Silt Loam	high water table
	45B Matapeake Silt Loam	none
	45C Matapeake Silt Loam	none
	46B Mattapex Sandy Loam	high water table
	46C Mattapex Sandy Loam	high water table
	53B Lenoir Silt Loam	hydric soil
	54C Sassafras Fine Sandy Loam	none
	61C Dumfries Sandy Loam	none
	61D Dunfries Sandy Loam	steep slope
	61E Dumfries Sandy Loam	steep slope
Building Constraint Summary: 7% hydric soil/19% high water table/11% steep slopes		
BRAC 3, North Alternative 2	C+F Cut and Fill	none
	Urban Built Up	none
	1 Mixed Alluvial Fill	hydric soil
	37B Beltsville Silt Loam	high water table
	45C Matapeake Silt Loam	none
	46B Mattapex Sandy Loam	high water table
	61C Dumfries Sandy Loam	none
	61D Dumfries Sandy Loam	steep slope
Building Constraint Summary: 5% hydric soil/15% high water table/10% steep slopes		

Table 3-6
SOIL TYPE AND BUILDING CONSTRAINTS
FOR FORT BELVOIR BRAC ACTIONS

Action	Soil Type	Building Constraint
BRAC 3, South Preferred Alternative	61C Dumfries Sandy Loam	none
	37BBeltsville Silt Loam	high water table
	UBUrban Built Up	none
Building Constraint Summary: 5% high water table		

WDCR504/008.51

Table 3-7
SOIL TYPE AND BUILDING CONSTRAINTS FOR PROPOSED CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Action	Soil Type	Percent Soil on Site	Building Constraint
A. Building Projects			
AFH 3	1 Mixed Alluvial Land	5	hydric soil
	26B Bertie Silt Loam	5	high water table
	35B Dumfries Sandy Loam	5	high water table
	36B Bertie Silt Loam	5	high water table
	37B Beltsville Silt Loam	35	high water table
	45B Matapeake Silt Loam	5	none
	45C Matapeake Silt Loam	10	none
	46C Mattapex Silt Loam	5	high water table
	54B Sassafrass Sandy Loam	5	none
	61B Dumfries Sandy Loam	5	none
	61C Dumfries Sandy Loam	10	none
	61D Dumfries Sandy Loam	5	steep slope
NAF 1	UB Urban Built Up	100	none
NAF 2	46B Mattapex Silt Loam	20	high water table
	61E Beltsville Silt Loam	80	steep slope
NAF 3	45B Mattapeake Silt Loam	25	none
	46B Mattapex Silt Loam	25	high water table
	61C Dumfries Sandy Loam	50	none
NAF 4	UB Urban Built Up	100	none
NAF 5	C+F Cut and Fill	<5	none
	1 Mixed Alluvial Land	10	hydric soil
	37B Beltsville Silt Loam	30	high water table
	45B Matapeake Silt Loam	5	none
	45C Matapeake Silt Loam	<5	none
	46B Mattapex Silt Loam	<5	high water table
	46C Mattapex Silt Loam	<5	high water table

Table 3-7
SOIL TYPE AND BUILDING CONSTRAINTS FOR PROPOSED CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Action	Soil Type	Percent Soil on Site	Building Constraint
NAF 5 (cont'd)	61D Dumfries Sandy Loam	20	steep slope
	61E Dumfries Sandy Loam	20	steep slope
NAF 6	UB Urban Built Up	100	none
NAF 7	C+F Cut and Fill	100	none
NAF 8	37A Beltsville Silt Loam	75	high water table
	45B Matapeake Silt Loam	25	none
AAFES 1	UB Urban Built Up	100	none
AAFES 2	26B Bertie Silt Loam	50	high water table
	46B Mattapex Silt Loam	50	high water table
AAFES 3	UB Urban Built Up	100	none
MCA 6	34B Woodstown Sandy Loam	100	high water table
MCA 7a	UB Urban Built Up	100	none
MCA 7b	UB Urban Built Up	100	none
MCA 7c	UB Urban Built Up	100	none
MCA 8 - Post-wide telephone switch upgrade, n/a			
MCA 9	C+F Cut and Fill	100	none
MCA 10	45B Matapeake Silt Loam	25	none
	46B Mattapex Silt Loam	25	high water table
	61C Dumfries Sandy Loam	50	none
MCA 11 - Post-wide main sewer line upgrade, n/a			
MCA 12	UB Urban Built Up	100	none
MCA 13	UB Urban Built Up	50	none
	37B Beltsville Silt Loam	50	high water table
MCA 14	UB Urban Built Up	100	none
MCA 15	UB Urban Built Up	90	none
	51B Keyport Silt Loam	10	high water table

Table 3-7
SOIL TYPE AND BUILDING CONSTRAINTS FOR
PROPOSED CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Action	Soil Type	Percent Soil on Site	Building Constraint
MCA 16 - Road improvement - see Part B, Linear Projects, below			
MCA 17	UB Urban Built Up	80	none
	49 BLunt Fine Sandy Loam	20	none
MCA 18	UB Urban Built Up	100	none
MCA 19	UB Urban Built Up	100	none
MCA 20	UB Urban Built Up	100	none
MCA 21	UB Urban Built Up	35	none
	51A Keyport Silt Loam	60	high water table
	1 Mixed Alluvial Land	5	hydric soil
MCA 22 - Post-wide eiectrical upgrade, Phase I, n/a			
MCA 23 - Post-wide lateral sewer line repair, n/a			
MCA 24	UB Urban Built Up	10	none
	37B Beltsville Silt Loam	30	high water table
	46B Mattapex Silt Loam	20	high water table
	61C Dumfries Sandy Loam	20	none
	61D Dumfries Sandy Loam	10	steep slope
	61E Dumfries Sandy Loam	10	steep slope
MCA 25	36A Bertie Silt Loam	20	high water table
	37A Bertie Silt Loam	60	high water table
	61C Dumfries Sandy Loam	20	none
MCA 26	UB Urban Built Up	100	none
MCA 27	UB Urban Built Up	100	none
MCA 28	UB Urban Built Up	35	none
	51A Keyport Silt Loam	60	high water table
	1 Mixed Alluvial Land	5	hydric soil
MCA 29	UB Urban Built Up	100	none
MCA 30 - No project with this number			

Table 3-7
SOIL TYPE AND BUILDING CONSTRAINTS FOR PROPOSED CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Action	Soil Type	Percent Soil on Site	Building Constraint
MCA 31 - Road improvement - see Part B, Linear Projects, below			
MCA 32	UB Urban Built Up	100	none
MCA 33	UB Urban Built Up	100	none
MCA 34	UB Urban Built Up	100	none
MCA 35	UB Urban Built Up	100	none
MCA 36	37A Beltsville Silt Loam	80	high water table
	37B Beltsville Silt Loam	5	high water table
	61C Dumfries Sandy Loam	15	none
MCA 37	46B Mattapex Silt Loam	50	high water table
	61C Dumfries Sandy Loam	50	none
MCA 38	UB Urban Built Up	100	none
MCA 39	UB Urban Built Up	100	none
MCA 40	UB Urban Built Up	100	none
MCA 41	UB Urban Built Up	100	none
MCA 42	1 Mixed Alluvial Land	10	hydric soil
	6B Wehadkee Silt Loam	10	hydric soil
	37B Beltsville Silt Loam	12	high water table
	45B Matapeake Silt Loam	15	none
	45C Matapeake Silt Loam	5	none
	46B Mattapex Silt Loam	8	high water table
	49 Blunt Fine Sandy Loam	<5	none
	61B Dumfries Sandy Loam	5	none
	61C Dumfries Sandy Loam	10	none
	61D Dumfries Sandy Loam	20	steep slope

Table 3-7
SOIL TYPE AND BUILDING CONSTRAINTS FOR PROPOSED CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR

Action	Soil Type	Building Constraint
B. Linear Projects		
MCA 16	UB Urban Built Up	none
	1 Mixed Alluvial Land	hydric soil
	6 Wehadkee Silt Loam	hydric soil
	26B Bertie Silt Loam	high water table
	37B Beltsville Silt Loam	high water table
	46C Mattapex Sandy Loam	high water table
	61C Dumfries Sandy Loam	none
	61D Dumfries Sandy Loam	steep slope
Building Constraint Summary: 27% hydric soil / 5% high water table / 2% steep slope		
MCA 31	C+F Cut and Fill	none
	UB Urban Built Up	none
	1 Mixed Alluvial Land	hydric soil
	34B Woodstown Fine Sandy Loam	high water table
	37B Beltsville Silt Loam	none
	45C Matapeake Silt Loam	none
	61C Dumfries Sandy Loam	steep slope
	61D Dumfries Sandy Loam	steep slope
	61E Dumfries Sandy Loam	hydric soil
	84A Fallsington Fine Sandy Loam	
Building Constraint Summary: 18% hydric soil / 29% high water table / 30% steep slope		

and the Woodlawn and Mt. Vernon subdivisions, into the Potomac River. In 1989 the SWCB conducted a stream survey of Dogue Creek and Piney Branch (SWCB, 1989). All samples taken within Fort Belvoir were found to comply with state water quality standards for nutrients, biological and chemical oxygen demand, total organic carbon, and metals (arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc).

Potomac River waters adjacent to Fort Belvoir receive discharges from Dogue, Accotink, and Pohick Creeks. Accotink Bay and Pohick Bay are two small embayments that join their respective creeks with Gunston Cove, which opens out into the Potomac River. Pohick and Accotink Bays are very shallow, with average depths from 0.5 to 2.0 feet. Water depth in most of Gunston Cove ranges from 5 to 7 feet and is much shallower (1 to 2 feet) close to shore.

Gunston Cove, into which Accotink and Pohick Creeks discharge, is the subject of an extensive ecological study conducted for Fairfax County by Jones, et al. of George Mason University. In the course of 3 years, Jones, et al. (1987) found that physico-chemical water quality parameters in these waters followed a strong seasonal pattern, largely driven by responses of phytoplankton to seasonal changes in temperature and solar radiation. As water temperature increased each spring, chlorophyll and phytoplankton density increased, accompanied by increases in dissolved oxygen, pH, and alkalinity expected with increased photosynthesis. Total and volatile suspended solids increased, and secchi depths decreased in the warmer months, indicating that phytoplankton growth exhibits significant effects on water clarity in Gunston Cove. Summertime increases in alkalinity promote dissolution of phosphorus from sediments, and correlate with increased concentrations of soluble reactive phosphorus and total phosphorus; Jones, et al. (1987) note that in Gunston Cove, additions of phosphorus further increase phytoplankton growth to the point of bloom conditions.

Overall, water quality in Gunston Cove was only rated "fair" in a 1985 survey of the Potomac River, and waters from Gunston Cove have violated water quality standards for pH, dissolved oxygen, and fecal coliform concentrations (Metropolitan Washington Council of Governments, 1987). Jones, et al. (1987) associated discharge from the Fairfax County Lower Potomac Pollution Control Plant (LPPCP), which discharges into Pohick Creek, with added nutrients such as deionized ammonia to Gunston Cove. This may contribute to the problem of phytoplankton blooms in the Cove. Yet, increased discharges from Pohick and Accotink Creeks also help water quality by increasing flushing in Gunston Cove (Jones et al., 1986). Average summertime water quality conditions for Gunston Cove are summarized in Table 3-8.

In 1986 it was estimated that because of development, the stormwater runoff at the installation increased by about 2.7 times the runoff rate expected under completely natural, wooded conditions (U.S. Army Corps of Engineers, 1986). The installation contributes nearly 10,000 tons of silt annually to adjacent receiving waters (U.S. Army Corps of Engineers, 1986).

The Virginia Commission of Game and Inland Fisheries designates all free-flowing water within this area as Class III trout waters. Class III waters may contain a fair

population of wild trout, however, their carrying capacity for trout is depressed by natural factors or man-related land use practices; Class III trout streams are considered to be in an active state of degradation or recovery from degradation (VR 680-21-08.2).

Table 3-8
WATER QUALITY RATINGS
AND AVERAGE SUMMER WATER QUALITY CONDITIONS FOR GUNSTON COVE

Parameter	Excellent	Good	Fair	Poor	Gunston Cove	Gunston Cove Rating
pH	6.9-8.0	8.1-8.4	8.5-9.5	>9.5	9.2	Fair
Dissolved Oxygen (mg/l)	8.0-9.5	6.0-7.9	4.0-5.9	<4.0	9.1	Excellent
Suspended Solids (mg/l)	<25	25-80	81-400	>400	39	Good
Total Organic Carbon (mg/l)	<5	5-20	21-35	>35	6.7	Good
Nitrate Nitrogen (mg/l)	<.20	.21-.60	.61-2.0	>2.0	1.74	Fair
Total Phosphorus (mg/l)	<.05	.05-.25	.26-.99	>1.0	0.16	Good
Chlorophyll-a (mg/l) freshwater	0-24	25-49	50-99	>=100	66	Fair
Fecal Coliform Bacteria	<200	201-500	501-1000	>1000	660	Fair

Sources: Water quality ratings from the Interstate Commission on the Potomac River Basin, 1979; and average summer water quality conditions from the Metropolitan Council of Governments, 1987

3.2.1.4.1 BRAC 1. An unnamed tributary of Accotink Creek forms the northern boundary of the preferred alternative for the Headquarters Complex. No water quality data is available for this stream. During the field surveys completed on this site in March and September 1990, the stream contained flowing water with an average depth of 4 to 6 inches. The stream also contains several pools along its length. The pools range in depth from 18 to 30 inches. The stream bottom is composed primarily of small- to medium-sized cobbles, except for the pools, which contain silt and sand. This stream also forms the southern boundary for Alternative 2.

Alternative 3 does not contain any surface water bodies.

3.2.1.4.2 BRAC 2. The preferred alternative does not contain any surface water bodies.

Alternative 2 is bisected by the headwaters area of an unnamed tributary of Accotink Creek. Site visits indicate that stream flow on the site is seasonal. No water quality data is available for this stream.

3.2.1.4.3 BRAC 3. The preferred alternative for BRAC 3, North, crosses the headwaters area of one unnamed tributary of Dogue Creek, four unnamed tributaries of Mason Run, and Mason Run. These streams are presently culverted under the existing unimproved dirt road. The flows of all of these streams except Mason Run and the Dogue Creek tributary, appear to be seasonal.

Alternative 2 crosses Mason Run and two of its unnamed tributaries in the same places as the preferred alternative.

The preferred alternative for BRAC 3, South, crosses the headwaters area of an unnamed tributary of Gunston Cove. The flow at the proposed stream crossing appears to be seasonal.

3.2.1.4.4 BRACs 4, 5, 6, 7, 8, 9, and 10. None of the alternatives for any of these BRAC projects is bounded by or contains surface water bodies.

3.2.1.5 Climate and Air Quality

Fort Belvoir lies within the transition zone between the northern and southern climate regimes on the east coast. As a result, winters in a normal year are not severely cold, with only occasional snowfall. The average temperature in the coldest month is 35°F; the lowest recorded temperature in 1989 was an atypical 5°F (NOAA, 1989). Summers are usually hot and humid, with the warmest temperatures occurring in July and August. The average temperature in the hottest month is 79°F; the highest temperature in 1989 was 96°F. The average annual rainfall is approximately 37 inches; thunderstorms are common in summer months. Winds are generally from the north in the fall, winter, and spring and from the south during the summer.

Table 3-9 shows the average monthly and annual temperatures, precipitation, wind speed, and prevailing wind directions recorded at Washington National Airport, which is the closest complete National Oceanic and Atmospheric Administration weather station to Fort Belvoir.

Fort Belvoir is located in Fairfax County, which along with Loudoun and Prince William Counties, make up the DAPC Region VII. Region VII is part of the National Capital Interstate AQCR. Air quality in Region VII and elsewhere in the state is monitored by the DAPC. Air-quality monitoring is performed routinely throughout the state for those pollutants specifically regulated by the state and the Federal Clean Air Act. These criteria pollutants include TSP and particulate matter less than 10 microns in diameter, SO_2, CO, ozone (O_3), non-methane hydrocarbons, and nitrogen dioxide (NO_2). To regulate emissions of these pollutants, the State of Virginia has adopted ambient air standards that are not to be violated.

Table 3-9
REGIONAL CLIMATE SUMMARY

Month	Average Temperature	Average Precipitation	Average Wind Speed	Prevailing Wind Direction
January	35	2.8	10	SW
February	37	2.6	12	NW
March	46	3.4	13	NE
April	57	2.9	11	W
May	66	3.5	11	SW
June	75	3.4	10	SW
July	79	3.9	8	SE
August	77	4.4	8	NW
September	71	3.2	10	NE
October	59	2.9	10	NW
November	49	2.8	12	SW
December	37	3.1	11	NW
Annual Average	**57**	**38.9[a]**	**11**	**SW**

[a]Total average annual precipitation
Source: NOAA Local Climatological Data, 1989

Ambient air quality is monitored by the DAPC at several locations within Region VII. Air quality throughout Region VII is generally considered good, except that the entire National Capital Interstate AQCR is designated nonattainment for O_3. In addition to ozone, EPA is proposing to designate Region VII as nonattainment for CO because of continuing violations recorded on the monitors in Washington, D.C. The DAPC has petitioned EPA not to use the regional concept for CO-nonattainment designations because, unlike ozone, CO emissions have a very short life span in the atmosphere and are generally recognized as a localized problem.

Emissions of particulates and gaseous material from the installation and other regional stationary and mobile sources are the primary contributors to local air quality conditions. The primary sources of air pollutants at Fort Belvoir are shown in Table 3-10. The installation is considered a significant regional air pollution source, because total emissions attributed to Fort Belvoir sources are greater than 100 tons per year. Approximately 6,000 tons of emissions per year were emitted in 1975. The installation has since reduced air pollutant emissions. Efforts over the last decade and which will

Table 3-10
TOTAL AIR POLLUTION CONTRIBUTION FROM FORT BELVOIR--TONS/YEAR

	Total Suspended Particulates	Sulfur Oxides	Carbon Monoxide	Hydrocarbons	Nitrogen Oxides
Central Boilers	36.2	236.1	6.3	4.7	125.1
Unit Boilers/Emergency Generators	82.7	331.9	16.0	11.9	289.9
Incinerators	0.4	0.1	0.6	0.1	0.2
Fuel Handling/Storage	-	-	-	101.5	-
Painting/Laundry	-	-	-	9.4	-
Automobiles Trucks	33.0	12.0	2,567.0	326.0	280.0
Military Vehicles					
Gasoline	2.7	2.2	556.6	484.0	27.4
Diesel	13.4	4.9	7.3	16.6	27.0
Aircraft	55.0	45.9	186.8	46.2	36.2
TOTAL	**223.4**	**633.1**	**3,340.6**	**1,000.4**	**785.8**

Source: Directorate of Facilities Engineering, 1982.

continue include the closing of small, inefficient boilers that were used in pre-World War II temporary buildings; encouraging reductions in vehicle use and use of newer vehicles with better air quality controls; promoting car pools; and restricting land clearing in training areas to minimize airborne particulates.

The Engelside monitoring station, which monitors all six regulated emissions, is located about three miles north of the Post on U.S. Route 1 and is operated by the Fairfax County Health Department, Air Pollution Control Division. This unit serves as an indicator of air quality at the installation, although the Engelside unit is considered to provide a poor representation of air quality conditions at Fort Belvoir because of the monitoring unit's proximity (about 82 feet) to U.S. Route 1. This likely biases results because of the poorer air quality that blankets the highway. The installation is inspected periodically by the Commonwealth of Virginia Air Pollution Control Division to evaluate compliance with state and federal standards. These inspections have revealed that Fort Belvoir is in compliance.

Because climate and air quality are regional issues and monitored on that basis, a site-specific discussion for each of the BRAC project alternatives is neither possible nor applicable.

3.2.2 BIOLOGICAL RESOURCES

3.2.2.1 Terrestrial Biota

3.2.2.1.1 Habitat. Fort Belvoir has a variety of natural habitat. The develcped portions of the base (approximately 4,000 acres) are typical urban habitats: lawns, tree-lined streets, golf courses, parade grounds, and isolated parks. The remaining portion of the post is undeveloped acreage consisting primarily of wildlife refuges and training areas (Waas, 1983). Most of the undeveloped land is wooded, open field, or wetlands (Waas, 1983). Of this acreage, approximately 1,250 acres has been set aside into two wildlife refuges, Accotink Bay Wildlife Refuge and Jackson Miles Abbott Wetland Wildlife Refuge; approximately 3,243 acres are managed for commercial forest production; 55 acres are managed as wildlife food plots; and 100 acres are set aside for use by the Boy Scouts (Waas, 1983).

As Figure 3-3 shows, the undeveloped land at Fort Belvoir is divided into:

- 28 training areas (T-1 to T-17)
- Four floodplain fields (F-1 to F-4)
- Four areas designated as refuge: W-1 to W-3 comprise the Accotink Bay Wildlife Refuge and W-4 is the Jackson Miles Abbott Memorial Refuge
- Two parade grounds (P-1 and P2)
- One reserve area (R-1)

The habitat types located in most of these areas are shown in Table 3-11. Areas P-1, P-2, and R-1 were omitted from the table because they have little habitat value.

Environmental specialists in the Directorate of Engineering and Housing (DEH) manage the undeveloped acreage at Fort Belvoir. They monitor game populations, manage habitats, and control timber harvesting programs. The undeveloped lands are managed under the Fort Belvoir Natural Resources Management Plan (Waas, 1983).

3.2.2.1.1.1 BRAC 1. The preferred alternative for the Headquarters Complex has been heavily disturbed by past activities and has little overall habitat value. It does provide habitat for early successional wildlife and plant species, but there is an abundance of this habitat type scattered throughout the post.

Alternative 2 is composed of mature hardwood forest, wooded wetlands, rich woods, and open water habitats. The species diversity supported by this site is much higher than that supported by the preferred alternative.

Alternative 3 provides typical urban/disturbed habitat composed of mowed lawns and ornamental plantings.

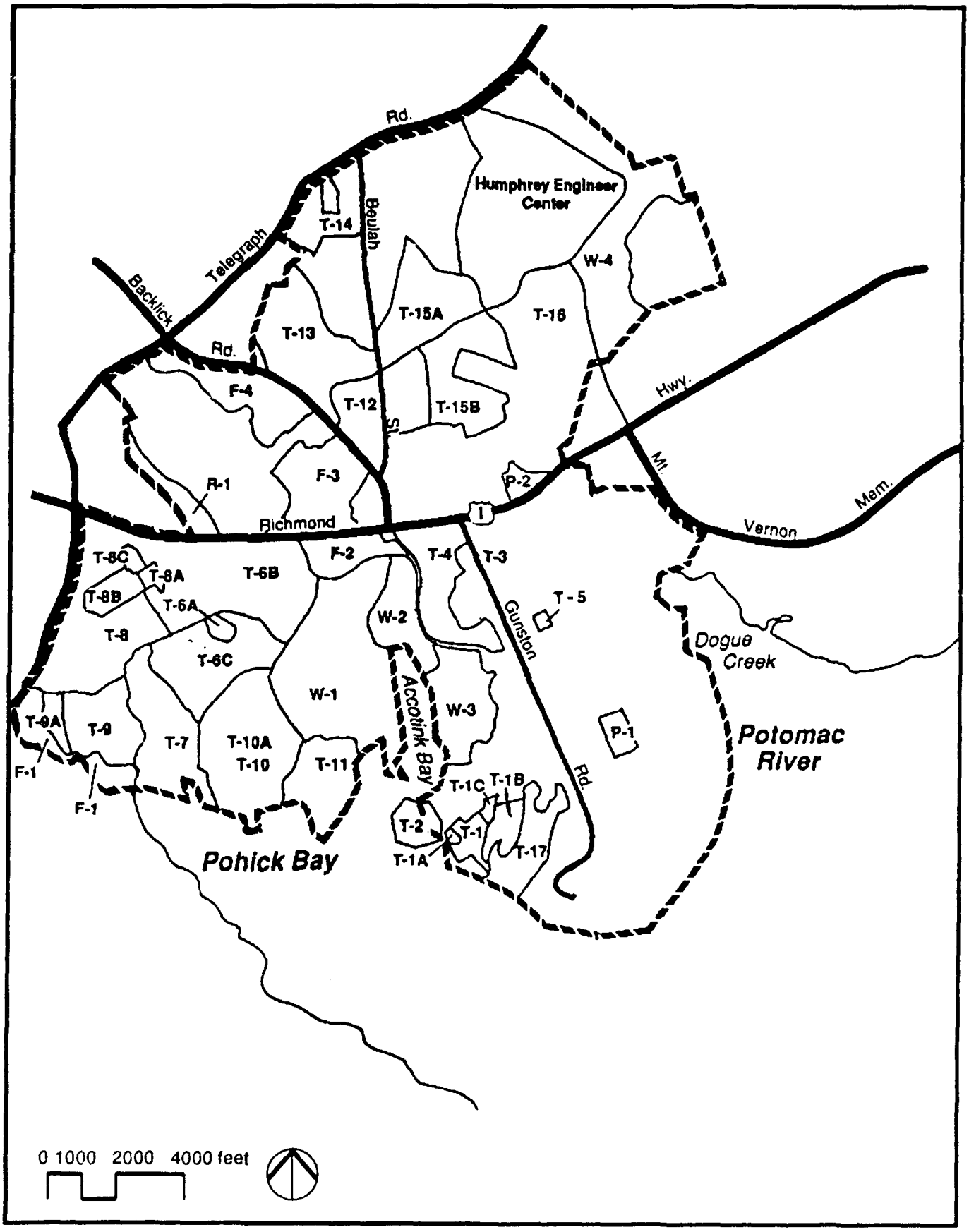


Figure 3-3
Fort Belvoir Training and Management Areas

Table 3-11
HABITAT TYPES FOUND IN DESIGNATED AREAS SURVEYED ON FORT BELVOIR

Area	River-banks	Wooded Wetlands	Uplands	Rich Woods[1]	Wet Meadows	Marshes & Swamps	Open Water	Urban/ Disturbed
T1		•	•				•	
T1A			•					•
T1B			•					•
T1C			•					•
T2	•							•
T3								•
T4		•	•				•	•
T5								•
T6A								•
T6B		•	•	•			•	•
T6C		•	•	•			•	•
T7	•	•	•	•	•	•	•	•
T8	•	•	•	•	•	•	•	•
T8A								•
T8B			•					•
T8C			•					•
T9		•	•	•		•	•	•
T9A		•		•	•	•		
T10	•	•	•		•	•	•	
T10A								•
T11	•	•	•			•	•	
T12			•					•
T13		•	•	•		•	•	
T14		•	•				•	•
T15A		•	•	•			•	•
T15B		•	•				•	•
T16		•	•	•		•	•	•
T17	•	•	•				•	•
F1	•	•		•	•	•	•	
F2	•	•		•	•	•	•	
F3	•	•		•	•	•	•	
F4	•	•		•	•	•	•	
R1			•					
W1	•	•	•	•	•	•	•	
W2	•	•	•	•	•	•	•	
W3	•	•	•	•	•	•	•	
W4	•	•	•	•	•	•	•	

[1]Transition zone between uplands and wooded wetlands that often provides critical habitat for rare, threatened, and endangered species.

3.2.2.1.1.2 BRAC 2. The preferred alternative for BRAC 2 provides herbaceous rangeland habitat. The area is currently part of the existing stables complex and much of it is overgrazed.

Alternative 2 is composed of typical edge habitat and mature hardwood forest. In addition, there is a small area of wooded wetland associated with the headwater area of the unnamed tributary of Accotink Creek that bisects the site.

3.2.2.1.1.3 BRAC 3. Both the preferred alternative and Alternative 2 for BRAC 3, North, are composed of mature hardwood forest, wooded wetlands, open water, and urban/disturbed areas. Alternative 2, however, is primarily urban/disturbed because it is a much shorter road.

The preferred alternative for BRAC 3, South, is routed through a heavily developed industrial area for most of its length. A small section of the road crosses a partially disturbed wooded area. The habitat quality of this wooded area is only fair because it is surrounded by development.

3.2.2.1.1.4 BRAC 8. The preferred alternative for this project is located in an area that has already been heavily developed. As a result, it provides little habitat for wildlife.

While portions of Alternative 2 are wooded, the plateau has become isolated from other wooded areas around it because of development. As a result, the number of species using the site is low.

3.2.2.1.1.5 BRACs 4, 5, 6, 7, 9, and 10. All of the alternatives for each of these projects have been heavily disturbed and provide little habitat for wildlife.

3.2.2.1.2 Wildlife Genetic Corridor. Fort Belvoir has been identified as a critical link in the genetic or "green" corridor that connects Huntley Meadows Park to Mason Neck National Wildlife Refuge (Figure 3-4). This is recognized as part of the contiguous genetic corridor by both Fairfax County and the U.S. Fish and Wildlife Service (Ernst, et al., 1990). Genetic corridors allow for the movement of species between larger patches of habitat, thus allowing species to survive in landscapes where they would not normally occur (Redford and Fonseca, 1986). At Fort Belvoir, several species, including the ovenbird (*Seiurus novebracensis*) and the barred owl (*Strix varia*), are dependent upon the corridor to sustain viable breeding populations because they require large tracts of land (7,500 acres) (Robbins, et al., 1989). Robbins, et al. (1989) concluded that reserves of at least 2,500 acres are necessary to provide adequate habitat for most forest-interior-dwelling birds, but that two smaller reserves, connected by a green corridor, may provide adequate habitat for many of these species as well. In this instance, Huntley Meadows and Mason Neck National Wildlife Refuge are major reserves, each of which contain both large and small forested tracts. Fort Belvoir contains the corridor that allows for movement of species between the two reserves. Fragmentation of this corridor will affect the ovenbird and barred owl.

WDC30530.RG/174.52.01/D1/07

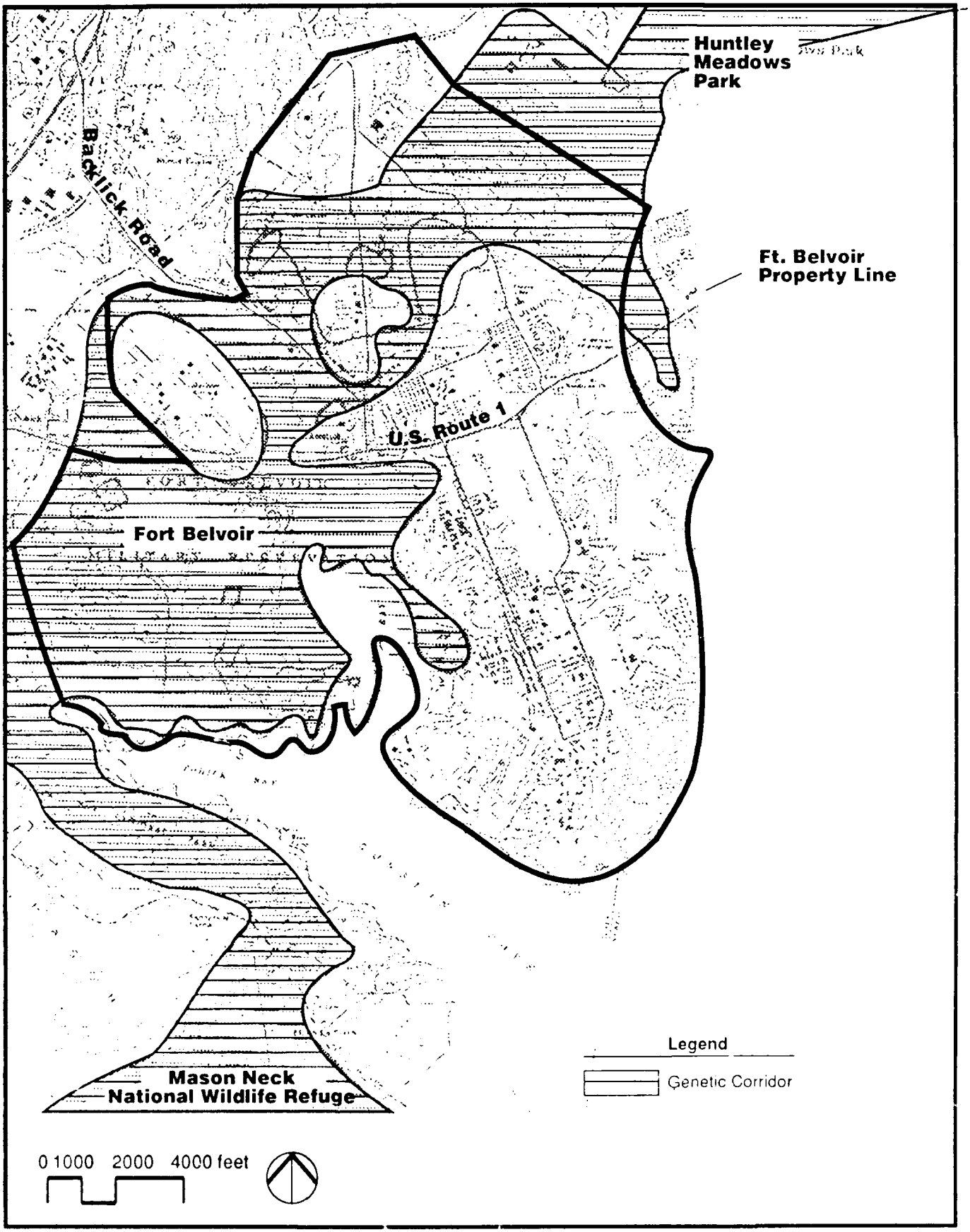


Figure 3-4
Genetic Corridor Alignment on Fort Belvoir

Corridors are especially critical in eastern woodlands (Ernst, et al., 1990), where habitat fragmentation caused by development has eliminated many large, contiguous forest tracts. The importance of wildlife corridors has been the subject of several studies in recent years. Johnson (1986) and MacClintock (1977) indicated that many species of birds breeding in the riparian zones surrounding wetlands have a low tolerance to deforestation. Johnson also concluded that a minimum 250-foot buffer is needed to minimize the effects of development on local breeding birds. Jones (1986) concluded that a minimum 330-foot buffer around riparian wetlands is necessary to maintain open corridors, facilitate wildlife movements, and prevent genetic isolation of populations.

Fort Belvoir has a large forested tract (Accotink Bay Wildlife Refuge), which during development will serve as a functioning genetic corridor for wildlife movement among the various tracts of land. On the basis of 2 years of biological field studies of this corridor, Ernst (personal communication, 1990) stated that the minimum width for a continuous strip of forested land must be 250 yards in order to remain a functional genetic corridor. He also stated that paved roads must have underpasses or culverts that are designed to encourage the free passage of wildlife. Fort Belvoir's development process will take into account these constraints and will monitor, for 2 years, all mitigation structures to ensure that they function as intended.

Genetic isolation occurs when populations of certain species are separated by a topographic, natural, or man-made barrier. While the isolation can, in rare instances, lead to speciation over a long period of time, it usually leads to inbreeding, overexploitation of food resources, and general weakening of stock.

The genetic corridor at Fort Belvoir has been mapped by installation personnel (see Figure 3-4).

3.2.2.1.2.1 BRAC 1. Both the preferred alternative and Alternative 2 are located within a critical constriction of the corridor (Figure 3-4). However, because Alternative 2 is wooded and contains a large stream valley, it is more valuable to wildlife as a migration route. The disturbed nature of the preferred alternative limits its value to wildlife because many species will not venture out into the open.

Alternative 3 is not within the corridor.

3.2.2.1.2.2 BRAC 2. The preferred alternative is not located within the corridor but Alternative 2 is. However, the location of Alternative 2 is not at or near a critical constriction.

3.2.2.1.2.3 BRAC 3. Both the preferred alternative and Alternative 2 for BRAC 3, North, are located in the northern portion of the corridor near a critical constriction at Backlick Road. The wooded area to the north of the proposed alignments has the highest value as a corridor because it is wooded and connected to other larger wooded areas to the north and east.

BRAC 3, South, is not within the corridor.

3.2.2.1.2.4 BRACs 4, 5, 6, 7, 8, 9, and 10. None of the alternatives for any of these projects is located within the wildlife corridor.

3.2.2.1.3 Vegetation. Several vegetation communities are associated with the undeveloped acreage on Fort Belvoir. Upland habitat is the most extensive community at Fort Belvoir. This habitat category can be further separated into deciduous uplands, pine uplands, and rangeland. Deciduous upland is, by far, the most prevalent vegetative cover type at Fort Belvoir. The three largest contiguous tracts of this habitat are located in:

- An area comprising T-13, T-15, T-15A, and T-16, north of Backlick Road and T-6 through T-11
- A second area including W-1 through W-4; F-2; and T-4, south of Richmond Highway and west of Gunston Road
- A third area, HEC, located adjacent to the extreme northeast corner of Fort Belvoir

The most frequently encountered species in these areas, as indicated by a field survey completed in March 1990, are: northern red oak (*Quercus rubra*), white oak (*Quercus alba*), American beech (*Fagus grandifolia*), chestnut oak (*Quercus prinus*), pitch pine (*Pinus rigida*), Virginia pine (*Pinus virginiana*), flowering dogwood (*Cornus florida*), highbush blueberry (*Vaccinium corymbosum*), fox grape (*Vitis labrusca*), poison ivy (*Toxicodendron radicans*), greenbriar (*Smilax rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), ground pine (*Lycopodium obscurum*) and partridgeberry (*Mitchella repens*) (see Appendix B for further information). These upland forests range in age from about 10 years to 40+ years old.

The pine upland habitat at Fort Belvoir is restricted primarily to several pine plantations, totalling 500 acres, which are scattered throughout the post. Approximately 40 acres are planted annually, primarily on reclaimed landfills, gravel pits, and training areas (Waas, 1985). The primary species planted is loblolly pine (*Pinus taeda*), with Virginia pine planted only on areas having poor soils.

Herbaceous rangeland on Fort Belvoir is restricted to areas that were previously disturbed and are in the early stages of succession, and some areas that are used for heavy equipment and demolition training. Lawns and grassy areas around buildings and other structures are kept mowed so that little opportunity exists for them to revert to typical rangeland habitat.

The species most abundant in these areas of Fort Belvoir include orchard grass (*Dactylis glomerata*), barnyard grass (*Echinochloa crus-galli*), sweet vernal grass (*Anthoxanthum odoratum*), and panic grass (*Panicum* spp).

Fort Belvoir has an active forest management program composed of limited commercial harvesting, firewood sales, and replanting of clear-cut areas. The program is managed by the agronomist within DEH. The training areas of Fort Belvoir are divided into 22 forest management compartments. Major timbering operations occur every 2 to 3 years under this rotation. Decisions regarding the area to be cut are based on the age and stability of the stand, size of the surrounding canopy, distance to other open areas, slope, soil type, and distance to a watercourse. Timbering operations include thinning and clear-cutting and are usually completed by outside contract under the supervision of the installation agronomist. Clear-cutting is usually reserved for pine stands, while the mature deciduous stands are selectively cut to remove overmature trees.

Fort Belvoir initiated a land reclamation program in the late 1970s to revegetate many disturbed training areas, closed landfills, and gravel pits. This program has resulted in the creation of approximately 175 acres of new habitat and approximately 20 acres of food plots.

3.2.2.1.3.1. BRAC 1. The preferred alternative for the Headquarters Complex has been heavily disturbed by past activities and has little remaining native vegetation. The vegetative cover on this site is composed primarily of Virginia pine and panic grasses.

Alternative 2 is covered with hardwood forest. The dominant species are red maple, tulip poplar, American beech, northern red oak, white oak, highbush and lowbush blueberry, greenbriar, and poison ivy.

The buildings proposed for renovation for Alternative 3 are surrounded by lawns landscaped with ornamental shrubs.

3.2.2.1.3.2 BRAC 2. The preferred alternative for BRAC 2 is currently pasture for the stables at Fort Belvoir. It contains numerous grass species and a few large trees. Much of the field has been overgrazed.

Alternative 2 for BRAC 2 contains the same species composition as Alternative 2, BRAC 1.

3.2.2.1.3.3 BRAC 3. The rights-of-way for both the preferred alternative and Alternative 2 for BRAC 3, North, contain the same species composition as Alternative 2, BRAC 1.

The preferred alternative right-of-way for BRAC 3, South, is covered with asphalt and concrete for two-thirds of its length. The remaining third is successional forest dominated by black locust (*Robinia pseudo-acacia*) and princess trees (*Paulowina tomentosa*).

3.2.2.1.3.4 BRAC 8. The preferred alternative for this project is located in an area that has already been heavily developed. Like Alternative 3, BRAC 1, it contains landscaped lawn

The wooded portions of alternative 2 contain many of the species found at Alternative 2, BRAC 1. In addition, there are a few Virginia pines scattered throughout the site.

3.2.2.1.3.5 BRACs 4, 5, 6, 7, 9, and 10. All of the alternatives for each of these projects have been heavily disturbed and contain the same species as Alternative 2, BRAC 1.

3.2.2.1.4 Wildlife. The extensive forest and vegetative diversity at Fort Belvoir supports a wide variety of wildlife. Appendix C presents a list of wildlife species occurring or likely to occur at Fort Belvoir. The forests of Fort Belvoir have been the subject of several studies by the students and faculty of George Mason University. Surveys have been conducted for small mammals, birds, and raptor nests.

Alternative 2 for BRACs, 1, 2, and 8 contain the habitat of greatest value, and therefore, the greatest wildlife diversity of all of the BRAC sites. The disturbed and urban nature of the remaining sites limit their value to most wildlife species.

3.2.2.1.5 Game Species. Whitetail deer is the only game species hunted at the post. In general, they require mixed hardwood forest, with areas of different age classes, and water within one mile (Short, 1986). They also require areas of dense understory with browse lanes or open forage areas nearby or interspersed throughout the forest (Short, 1986). The installation manages deer by maintaining mixed-age forest plots through thinning and clear-cutting, cutting and maintaining browse lanes and forage plots, and population control through seasonal bow hunting.

3.2.2.2 Wetlands

Except for a few ponds, all of the wetlands on Fort Belvoir are associated with Dogue Creek, Accotink Creek, Pohick Creek, and the Potomac River (including Gunston Cove, Accotink Bay, and Pohick Bay). While a complete wetland delineation has not yet been completed for Fort Belvoir, examination of U.S. Fish and Wildlife Service National Wetland Inventory maps site-specific surveys (AMC, HEC, and Tompkins Basin), and the soil survey for Fort Belvoir (USDA, 1982) indicate that approximately one-quarter of the undeveloped acreage on the post is likely to be wetlands. The wetlands delineations will be completed before projects are sited to ensure that construction constraints are identified. The hydric soils associated with these wetlands are Fallsington, Lenoir, Wehadkee, Tidal Marsh, and Alluvial. Additional areas of soils with seasonally high water tables ($\leq$2 feet) that could exhibit hydric properties comprise almost another quarter of the currently undeveloped acreage. These soils include Beltsville, Bertie, Chewlaca, Dragston, Keyport, Mattapex and Woodstown.

There are three predominant wetland types at Fort Belvoir: Wooded wetlands (palustrine forested), wet meadows (palustrine emergent/scrub-shrub), and marshes and swamps (emergent and palustrine emergent). The largest continuous tracts of wetlands are classified as palustrine emergent/scrub-shrub wetlands. These areas occur at the mouths of all three creeks and intermittently along their lengths. In addition, another large complex along Dogue Creek is within the HEC area and extends south into the

Jackson Miles Abbott Wetland Wildlife Refuge (W-4). The remaining areas are palustrine forested wetlands.

Fort Belvoir's wetlands encompass a wide range of water regimes and salinities. The wetlands at the mouths of each of the creeks are classified as brackish-water, tidal wetlands. These wetlands, especially upstream along Accotink, Pohick, and Dogue Creeks, become freshwater tidal wetlands and finally nontidal wetlands.

The variety of salinities and tidal regimes support a diverse array of vegetation. The predominant vegetation in the nontidal wetland areas includes red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), highbush blueberry (*Vaccinium corymbosum*), lowbush blueberry (*Vaccinium angustifolium*), ironwood (*Carpinus caroliniana*), tulip poplar (*Liriodendron tulipifera*), pin oak (*Quercus palustris*), willow oak (*Quercus phellos*), American sycamore (*Plantanus occidentalis*), northern arrowwood (*Viburnum recognitum*), sweetbay magnolia (*Magnolia virginiana*), New York fern (*Dryopteris noveboracensis*), lady fern (*Athyrium filix-foemina*), cinnamon fern (*Osmunda cinnamomea*), ostrich fern (*Matteucia struthiopteris*), sensitive fern (*Onoclea sensibilis*), wood fern (*Dryopteris marginalis*), and greenbriar (*Smilax rotundifolia*).

The freshwater tidal wetlands support similar vegetative types within their floodplains. They also support, in some areas, a few aquatic emergent species including soft rush (*Juncus effusus*), Canada rush (*Juncus canadensis*), broad-leaved cattail (*Typa latifolia*), wild rice (*Zizania aquatica*), pickerel weed (*Pontederia cordata*), and arrow arum (*Peltandra virginica*).

The brackish tidal wetlands on Fort Belvoir are confined to the lower reaches of the Pohick, Accotink, and Dogue Creeks. The largest of these wetlands is located in Accotink Bay within the boundaries of the Accotink Bay Wildlife Refuge (areas W-1, W-2, and W-3). Plant species in these areas are similar to those found in the tidal freshwater wetlands.

3.2.2.2.1 BRAC 1. A preliminary survey indicates that there are palustrine forested wetlands associated with the stream on the northern boundary of this site.

The wetland area described above also forms the southern boundary of Alternative 2.

Alternative 3, which involves building renovations, does not contain wetlands.

3.2.2.2.2 BRAC 2. A preliminary survey indicates that there are no wetlands on this site.

Alternative 2 contains an ephemeral stream-headwater area in the center of the site. A preliminary survey indicates that there are palustrine forested wetlands associated with this stream.

3.2.2.2.3 BRAC 3. A jurisdictional wetland delineation has been completed for both the preferred alternative and Alternative 2 for BRAC 3, North. There are palustrine forested and scrub/shrub emergent wetlands associated with the six streams crossed by the preferred alternative, as well as the three crossed by Alternative 2.

A jurisdictional wetland delineation has also been completed for the preferred alternative for BRAC 3, South. The right-of-way crosses an ephemeral stream that contains a narrow band of palustrine forested wetlands.

3.2.2.2.4 BRACs 4, 5, 6, 7, 8, 9, and 10. Except for Alternative 2, BRAC 8, none of the other alternatives for any of the BRAC projects were found to contain wetlands during preliminary field surveys.

Alternative 2, BRAC 8, is bordered by wetlands on the west, south, and east sides. As a result, the buildable area on this site is restricted to elevations above 125 feet MSL.

3.2.2.3 Aquatic Biota

The Gunston Cove Study being conducted by George Mason University for Fairfax County has documented numerous fish species within the cove, as well as within Accotink and Pohick Bays and Dogue Creek. Ichthyoplankton are sampled annually from March through August with populations peaking in mid-May. The peak is attributable primarily to hatching of herring and shad (Jones, et al., 1987). Table 3-12 lists the species caught during the ichthyoplankton surveys in 1986.

Table 3-12
ICHTHYOPLANKTON SPECIES, GUNSTON COVE

Scientific Name	Common Name
Dorosoma cepedianum	gizzard shad
Alosa spp.	blueback herring & alewife
Morone americana	white perch
Morone saxatilis	striped bass
Menidia beryllina	inland silverside
Lepomis spp.	sunfish spp.
Lepomis macrochirus	bluegill
Notropis hudsonius	spottail shiner
Cyprinus carpio	carp
Perca flavescens	yellow perch
Carpiodes cyprinus	quillback

Source: Jones, et al., 1987.

Sampling by trawl and seine for juvenile and adult fish is conducted monthly throughout the year. Fish caught during the trawl sampling showed an overall abundance peak from June to September. Blueback herring and alewife peaked early during this period and Atlantic menhaden and gizzard shad tended to be more common in the late summer and early fall. Bay anchovy and spot were also most common later in the sampling period (Jones, et al., 1987).

Fish caught during the seine sampling were primarily white perch, banded killifish, inland silverside, and spottail shiner. White perch and inland silversides were caught from April through October, with numbers peaking in August. Banded killifish populations peaked in January, June and August. Spottail shiner had an erratic distribution, peaking in April and September (Jones, et al., 1987). Table 3-13 lists the species caught during the trawl and seine sampling.

Construction will not be done in the streams during spawning season, which is between March 15 and June 30.

Benthic invertebrates were sampled in August 1986 as part of the Gunston Cove Study. The greatest diversity of benthic invertebrates encountered was in the outer cove and Potomac River areas. Table 3-14 lists the invertebrates identified during the sampling period.

Four species of submerged aquatic vegetation were found during the 1986 Gunston Cove Study: hydrilla (*Hydrilla verticillata*), Eurasian watermilfoil (*Myriophyllum spicatum*), water celery (*Valisneria americana*), and coontail (*Ceratophyllum demersum*). The most dominant species were hydrilla and Eurasian watermilfoil. In addition to these plants, spatterdock (*Nuphar luteum*) was common in all of the shallow upper reaches of Accotink and Pohick Bays, as well as in Dogue Creek.

In addition to the Gunston Cove Study, George Mason University has sampled some of the upstream areas of the Accotink, Pohick, and Dogue Creeks as part of the Ecological Resource Inventory Committee studies being conducted for Fairfax County. A list of species caught, by sampling station location, is presented in Table 3-15.

No formal sampling for aquatic biota was conducted at any of the BRAC project alternatives. Preliminary field surveys located several species of frogs (wood, green, bull, spring peepers, and grey tree frogs) as well as a few small fish in the streams at both the preferred alternative and Alternative 2 for BRAC 1 and Alternative 2, BRAC 8.

3.2.2.4 Threatened and Endangered Species

In compliance with Section 102 (42 U.S.C. 4332) and Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531), a BATES was prepared for Fort Belvoir, Fort Myer, and Cameron Station in March 1990 (see Appendix B). The survey confirmed the presence of a nesting pair of bald eagles (*Haliaeetus leucocephalus*), a federal- and state-listed endangered species.

Table 3-13
COMPOSITION OF FISH SPECIES CAUGHT BY TRAWLING AND SEINING, GUNSTON COVE

Scientific Name	Common Name
Anguilla rostrata	American eel
Alosa aestivalis	blueback herring
Alosa pseudoharengus	alewife
Brevortia tyrannus	Atlantic menhaden
Dorosoma cepedianum	gizzard shad
Anchoa mitchilli	bay anchovie
Hybognathus regius	eastern silvery minnow
*Notemigonous crysoleucas**	golden shiner
Notropis hudsonius	spottail shiner
Catostomus commersoni	white sucker
*Moxostoma macrolepidotum**	northern redhorse
Ictalurus nebulosus	brown bullhead
Ictalurus punctatus	channel catfish
Fundulus diaphanus	banded killifish
*Fundulus heteroclitis**	mummichog
*Menidia beryllina**	Inland silverside
Morone americana	white perch
Morone saxatilis	striped bass
Lepomis gibbosus	pumpkinseed
Lepomis macrochirus	bluegill
Etheostoma olmstedi	tessellated darter
Perca flavescens	yellow perch
Leiostomus xanthurus	spot
Trinectes maculatus	hogchoker
*Micropterus salmoides**	largemouth bass

* - species caught in seines only
Source: Jones, et al., 1987.

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Table 3-14
BENTHIC INVERTEBRATE SPECIES, GUNSTON COVE

Scientific Name	Common Name
Hirudinea	leeches
Oligochaeta	worms
Polychaeta	marine worms
Arachnida	mites
Chrinomidae	midges
Chaoboridae	phantom midges
Trichoptera	caddisflies
Gammarus	amphipods
Leptocheirus	tubicolus amphipods
Cyanthura	amphipod crustaceans
Corbicula	bivalve molluscs
Anodonta	bivalve molluscs
Musculium	bivalve molluscs
Pisidium	bivalve molluscs
Gastropoda	snails

Source: Jones et al., 1987

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Table 3-15
FISH SPECIES COLLECTED FROM FOUR SITES WITHIN THE FORT BELVOIR REGION

Scientific Name	Common Name	Dogue Cr. (Mt. Vernon Ave)	Long Branch (Backlick Rd)	Dogue Cr. (Kingman Rd)	Accotink Cr. (Telegraph Rd)
Anguilla rostrata	American eel	*	*	*	*
Catastomus commersoni	white sucker	*	*		
Clinostomus funduloides	dace species		*		
Cyprinus carpio	carp	*			
Esox niger	chain pickerel			*	
Erimyzon oblongus	creek chubsucker	*	*	*	
Etheostoma flabellare	fantail darter		*		
Etheostoma olmstedi	tesselated darter	*		*	*
Fundulus diaphanus	banded killifish	*		*	*
Hypentelium nigricans	northern hogsucker	*			*
Ictalurus ratalis	yellow bullhead			*	
Lepomis auritus	redbrest sunfish		*		*
Lepomis cyarellus	green sunfish	*	*		
Lepomis gibbosus	pumpkinseed	*	*	*	
Lepomis macrochirus	bluegill	*	*	*	
Lepomis megalotis	longear sunfish	*	*		
Micropterus dolomieui	smallmouth bass		*		
Micropterus salmoides	largemouth bass	*		*	
Nocomis micropogon	river chub		*		*
Notemigorous crysoleucas	golden shiner				*
Notropis analostarus	satinfin shiner				*
Notropis cornutus	common shiner			*	*
Notropis procne	swallowtail shiner		*		*
Osmerus sp.	unknown	*			
Perca flavescens	yellow perch	*			
Rhinichthys atratulus	blacknose dace		*		*
Rhinichthys cataractae	longnose dace		*		*
Semotilus atromaculatus	creek chub		*		
Umbra sp.	mudminnow			*	

Source: Zylstra and Kelso, in prep.

In addition to the federal- and state-listed endangered species, several "species of concern" to the Virginia Natural Heritage Program have been located at Fort Belvoir. These species, while not formally listed on the state threatened and endangered species list, are considered rare in the state, and as such are monitored by the program (Table 3-16).

Appendix D lists the species for which suitable habitat was located during the March 1990 BATES survey; however, because of the timing of the survey not all of the potential species could be located. Therefore, areas with habitat suitable for a rare, threatened, or endangered species need additional surveying to determine if any such species occur at Fort Belvoir. If candidate species are located at Fort Belvoir, the Army will treat these species as if they were listed. Although extensive resource inventories have been completed, in order to include BRAC sites, an intensive field monitoring study of the wood turtle remains to be done. This study will be performed so that effective mitigation can be developed for the BRAC 3 alignment and design.

3.2.3 SOCIOECONOMIC CONDITIONS

Most of the conditions discussed below are independent of siting. As a result, only those conditions that have site-specific components will contain discussions for the appropriate BRAC alternatives.

3.2.3.1 Land Use

Fort Belvoir is currently being used by the military, both active and reserve; outside tenant organizations; and local, state, and federal governments. Land use at the installation can be divided into 10 categories as shown in Table 3-17.

Fort Belvoir accounts for a large share of the developed land in Fairfax County's Lower Potomac Planning District. With the inclusion of the parklands in the Mason Neck sector (LP-3), approximately 55 percent of the total area in the district is used for institutional purposes. Residential areas account for approximately 12 percent of the district and undeveloped land is 20 percent; about 25 percent of this undeveloped land is committed for development under the County's Comprehensive Plan.

Except for Alternative 2, BRAC 2, all of the alternatives for all of the BRAC projects are currently sited in areas with a compatible land use designation. Alternative 2, BRAC 2, is sited in an area designated for training. Locating the Industrial Park at this location will require additional environmental review for nonconforming use.

3.2.3.2 Population

3.2.3.2.1 Fairfax County. Fort Belvoir is located in Fairfax County, Virginia. Population increases in Fairfax County have exceeded those of the Washington, D.C., MSA (Table 3-18).

Table 3-16
RARE, THREATENED, AND ENDANGERED ANIMAL SPECIES CONFIRMED AT FORT BELVOIR

Scientific Name	Common Name	State Rank	Federal Status	State Status
Haliaeetus leucocephalis	bald eagle	S1/S2	LE	LE
Fulica americana	American coot	S1		
Phalocrocorax auritus	double-crested cormorant	S1		
Nyctanassa violaceus	yellow-crowned night heron	S1		RT
Carpodactus purpureus	purple finch	S1		
Gallinula chloropus	common moorhen	S1		RSU
Ixobrychus exilis	least bittern	S2		RSU
Dendroica magnolia	magnolia warbler	S2		RSU
Clemmys insculpta	wood turtle	S2/S3		RT
Rallus elegans	king rail	S2/S3		RSU
Certhia americana	brown creeper	S3		
Podilymbus podiceps	pied-billed grebe	S3		

Key:

LE - listed endangered
C - candidate species
S1 - critically imperiled in Virginia, often especially vulnerable to extirpation
S2 - imperiled in Virginia, susceptible to becoming endangered
S3 - rare-to-uncommon, may be susceptible to large-scale disturbances
SU - status uncertain either because of low search effort or cryptic nature of species
RT - recommended threatened
RSU - recommended status undetermined

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Table 3-17
SUMMARY OF LAND USE CATEGORIES, FORT BELVOIR, 1989

Function on Post	Acres	Percent
Administration	404	4.6
Research	1,342	15.5
Medical	26	0.3
Community Facilities	495	5.7
Housing	1,285	14.8
Service and Storage	768	8.8
Recreation (includes wildlife refuge*)	1,128	13.0
Environmentally Sensitive Areas*	225	3.0
Transportation	631	7.3
Training	2,352	27.0
Totals	**8,656**	**100.0**

*Also includes floodplain.
Source: Annual Utilization of Real Estate, March 31, 1989. Facility Planning Division, DEH, U.S. Army Ft. Belvoir.

Table 3-18
POPULATION TRENDS IN FAIRFAX COUNTY, 1983-1988

Year	Fairfax County Population	Average Annual Change (Percent)	
		Fairfax County	Washington, D.C., MSA
1983	639,900	-0-	-0-
1984	658,800	3.0	1.4
1985	668,300	1.4	1.4
1986	683,800	2.3	1.8
1987	704,800	3.1	3.0
1988	746,600	5.9	3.7

Source: Metropolitan Washington Council of Governments, 1989. Local government estimates and the Bureau of the Census figures.

3.2.3.2.2 Fort Belvoir. The current post population of Fort Belvoir is approximately 8,760 civilian employees, 7,340 military employees; and 5,400 family members. This represents approximately 2.4 percent of the Fairfax County population on the basis of 1988 population data.

3.2.3.3 Housing

3.2.3.3.1 Fairfax County. Fairfax County had the greatest number of residential building permits issued in the region during the period from 1983 through 1988. More than 70,000 residential building permits were issued during this period (Table 3-19). Of the 70,000 building permits issued, 75.9 percent were for single-family dwelling units.

Table 3-19
HOUSING TRENDS IN FAIRFAX COUNTY, 1983-1988

	Total Residential Units Constructed	Single-Family Units Constructed	Percent Single Family	Percent of Total Region
Fairfax County	70,523	53,560	75.9	31.6
Washington, D.C., MSA	223,446	170,749	76.4	100

Source: Metropolitan Washington Council of Governments, 1989. Permit-Authorized Construction in Selected Permit-Issuing Places. U.S. Department of Commerce, Bureau Of the Census, C-40 Reports.

3.2.3.3.2 Fort Belvoir. Fort Belvoir has 2,099 family housing units. These would equate to approximately .30 percent of the total residences constructed in Fairfax County on the basis of 1988 data.

3.2.3.4 Employment

3.2.3.4.1 Fairfax County. Fairfax County's share of the total number of jobs in the metropolitan region grew from 3.4 percent in 1983 to 3.8 percent in 1988 (Table 3-20). The number of jobs in Fairfax County grew from approximately 227,900 in 1983 to approximately 345,200 in 1988 for a total increase of 51.5 percent during this period.

3.2.3.4.2 Fort Belvoir. Fort Belvoir currently employs approximately 7,340 military and 8,760 civilian personnel, which represents approximately 4.4 percent of Fairfax County's employment on the basis of 1988 data.

Table 3-20
EMPLOYMENT TRENDS IN FAIRFAX COUNTY, 1983-1988

	Non-Agricultural Wage and Salary Jobs (Thousands)						
	1983	**1984**	**1985**	**1986**	**1987**	**1988**	**Percent Change (83-88)**
Fairfax County	227.9	254.0	281.9	301.7	321.8	345.2	51.5
Percent of Total Employment in Washington, D.C., MSA		13.7	14.4	15.1	15.5	15.8	16.3

Source: Metropolitan Washington Council of Governments, 1989. Compiled by MWCOG, from the District of Columbia Department of Employment Services, Maryland Department of Economic and Employment Development, and Virginia Employment Commission Reports.

3.2.3.5 Income

3.2.3.5.1 Fairfax County. In 1983, Fairfax County had the fourth highest per capita income in the region (Table 3-21). Fairfax County maintained this ranking during the years from 1983 to 1987. Virginia suburban jurisdictions have collectively been above the regional per capita income average, while the collective Maryland suburban jurisdictions have been below the regional average.

Table 3-21
ANNUAL PER CAPITA INCOME IN FAIRFAX COUNTY, 1983-1987

	1983	**1984**	**1985**	**1986**	**1987**
Fairfax County*	$18,330	$19,961	$21,692	$23,136	$24,839
Washington, D.C., MSA	$16,109	$17,519	$18,935	$20,148	$21,539

*Fairfax County numbers include the Cities of Fairfax and Falls Church.
Source: Metropolitan Washington Council of Governments, 1989. U.S. Department of Economic Analysis Regional Economic Analysis, Regional Economic Information System.

3.2.3.5.2 Fort Belvoir. The average annual income in 1989 for military employees at Fort Belvoir was $31,162 and for civilian employees $44,773.

3.2.3.6 Community and Army Facilities

The region around Fort Belvoir includes five elementary schools, (three of which are located on Fort Belvoir and operated by Fairfax County), one intermediate school, and two high schools.

Community fire protection is provided by the Gunston and the Lorton Fire Stations. Community police protection is provided by the Franconia District Station and the Mount Vernon District Station. Police and fire protection for facilities on Fort Belvoir are provided on post by the Army. The Fort Belvoir Fire Department has stations on the North Post and the South Post.

The area around the installation includes parkland and a network of open spaces as well as community parks. Public parks and recreational facilities in the area include Mason Neck State Park, Pohick Bay Regional Park, Potomac Shoreline Regional Park, Lee District Park, Accotink Park, and Huntley Meadows Park. Several historic resources are located throughout the area, including Pohick Church, Woodlawn Plantation, Gunston Hall, and Mount Vernon.

Regional shopping facilities (e.g., Springfield Mall) and several smaller shopping centers are located nearby, especially along Richmond Highway. In addition, laundry, shopping, child care, recreational, and religious facilities are available at Fort Belvoir for military personnel. DeWitt Army Hospital is located on Fort Belvoir's South Post. The Non-Commissioned Officer (NCO) Mess is open to civilian employees, and there is a cafeteria on the HEC site.

Electric power is provided to Fort Belvoir by Virginia Power under a peak demand agreement for 26.5 megavolt amps.

The FCWA supplies potable water to Fort Belvoir. Fort Belvoir's agreement for maximum demand with FCWA is 4.4 million gallons per day (mgd), which was increased in January 1989 from a previous 3.4 mgd. For comparison, the greatest daily demand in 1989 (September) was 1.96 mgd. Average demand per person is 146 gallons per day (gpd).

Wastewater generated at Fort Belvoir is collected and routed to Fairfax County's LPPCP for treatment. The installation's current agreement with the LPPCP allows for a maximum daily average per quarter of 3 mgd. The post generates, on average, 1.5 mgd. Domestic wastewater is generated at an average of 67 gpd per person.

Nonhazardous solid waste generated on the installation is collected by a private contractor employed by Fort Belvoir. The material is taken to the installation's Cullum Woods Sanitary Landfill. Currently, Fort Belvoir generates an estimated 42 tons per day of solid waste, an average of 3.8 pounds per person per day (based on a post-wide population of approximately 21,500 persons).

The existing Cullum Woods Sanitary Landfill, opened in 1978, is permitted by Virginia and accepts all of the municipal solid waste generated at Fort Belvoir. The landfill is, however, near closure and Fort Belvoir has identified several options for handling solid wastes in the future, including building either a new landfill or incinerator on the post, or joining the regional solid waste disposal system. The preferred alternative would be to join the regional solid waste disposal system in Fairfax County. The post is currently negotiating this option with the county.

Debris waste generated at the installation would be kept on the post and disposed at the existing Thoete Road Debris Landfill. Once the installation receives a permit from the Virginia Department of Waste Management for a landfill expansion, debris waste would be disposed at the proposed Cullum Woods Sanitary Landfill expansion.

The post has an active recycling program for cardboard, newspaper, and a variety of whitepaper. It is managed by the Environmental and Natural Resources Division of the Fort Belvoir DEH. Building 1089, located on Pohick Road near Gunston Road, serves as the center for storage and transfer of incoming and outgoing materials. DEH is also managing the expanded recycling program, which involves weekly curbside pickup of newspaper, glass, and metal cans. DEH expects to have most of the personnel on post participating in the program in the near future.

Noise impacts of Fort Belvoir were evaluated in the *Installation Compatible Use Zone Study,* 1987. Three sources of noise were identified, none of which is significant. One source of noise, vehicle and heavy equipment operation and generating stations operating during power outage, was not found to be a problem. A second source, the training and operations on the heavy demolition range, has been reduced since the Engineer School moved from Fort Belvoir. The third noise source, helicopter traffic, is routed specifically to reduce noise vibrations and eliminate negative impacts to the Mason Neck Wildlife Refuge and neighboring residential areas. Fairfax County and Fort Belvoir have agreed to investigate site-specific noise impacts, if necessary.

3.2.3.7 Traffic and Transportation

3.2.3.7.1 Regional and Subregional. A detailed transportation analysis was conducted in two parts: the first part addressed regional and subregional traffic impacts and the second focused on transportation impacts within Fort Belvoir. Both studies included the following baseline information and assumptions in the analysis.

3.2.3.7.1.1 Study Area. The regional study area was bounded by the Potomac River on the east, Little River Turnpike/Duke Street (Rt. 236) on the north, Route 123 on the west, and the Occoquan River on the south (Figure 3-5). This area is within the boundaries of Fairfax County and the City of Alexandria, Virginia, and contains portions of Shirley Highway (I-95 and I-395), the Capital Beltway (I-95 and I-495), Richmond Highway (US 1) and Duke Street (Rt. 236). The subregional area includes Fort Belvoir, EPG, and Cameron Station; the major subregional roadways are shown in Figures 3-6, 3-7 and 3-8, respectively.

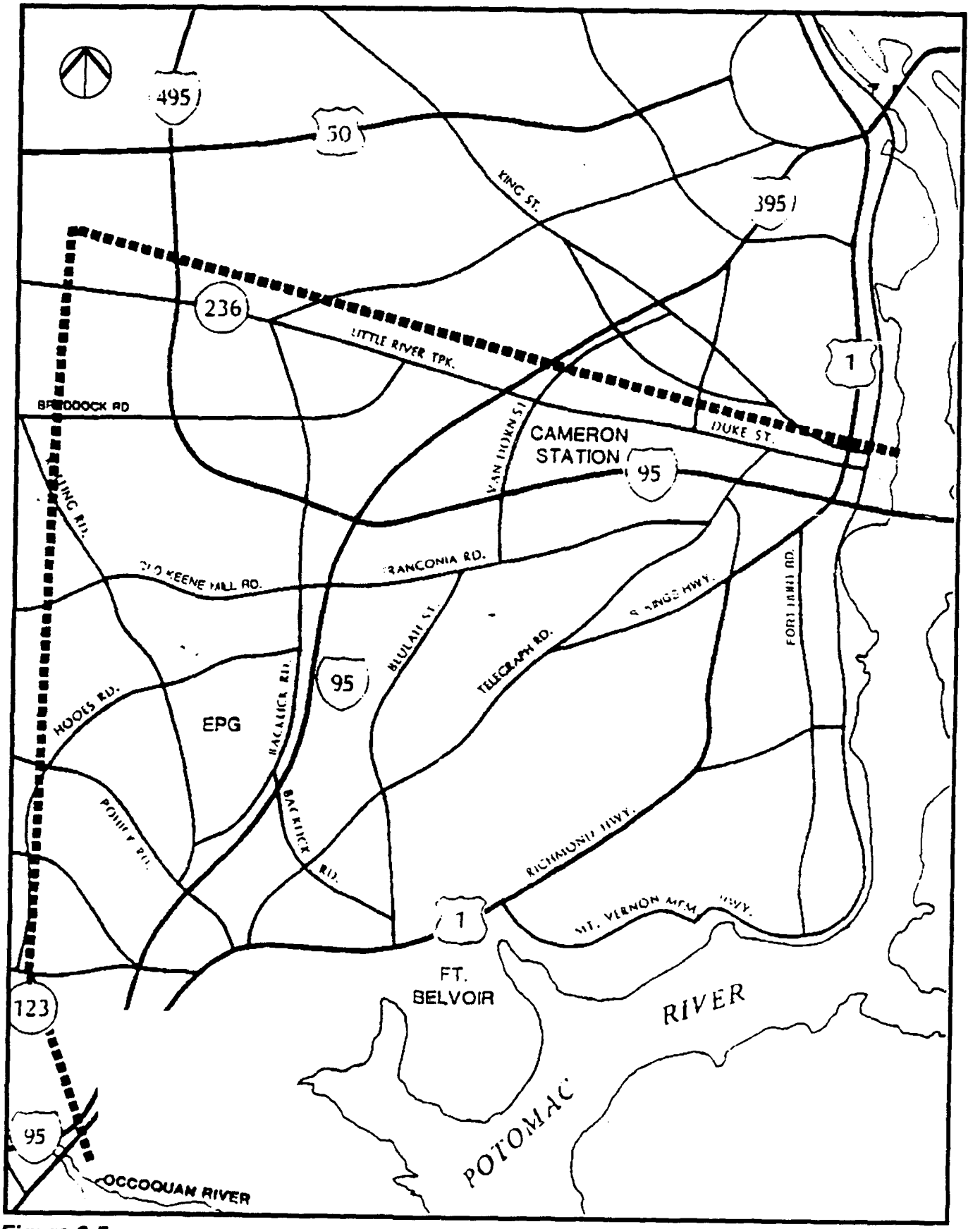


Figure 3-5
Regional Transportation Study Area

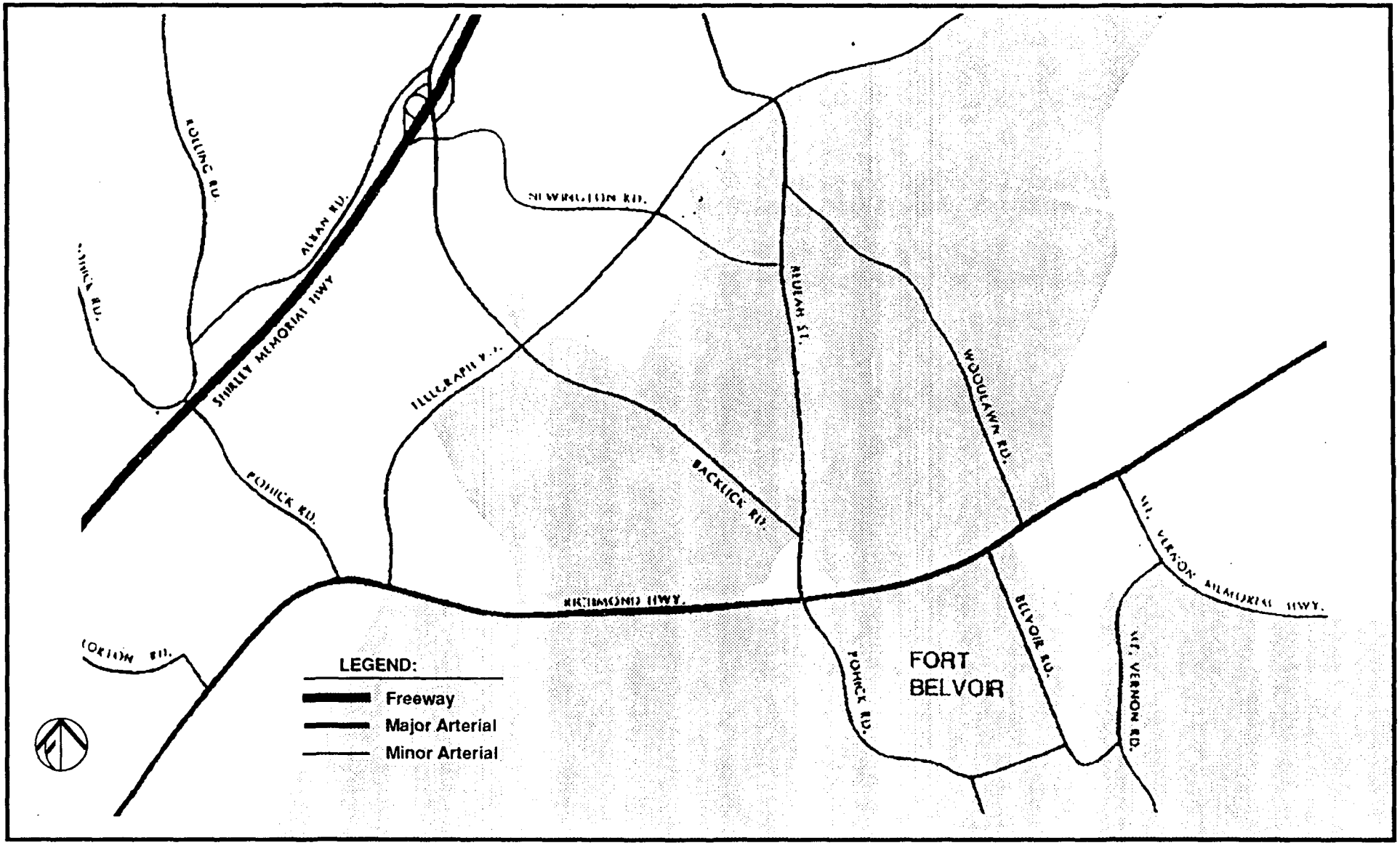


Figure 3-6
Roadway Classification
(Fort Belvoir Subregion)

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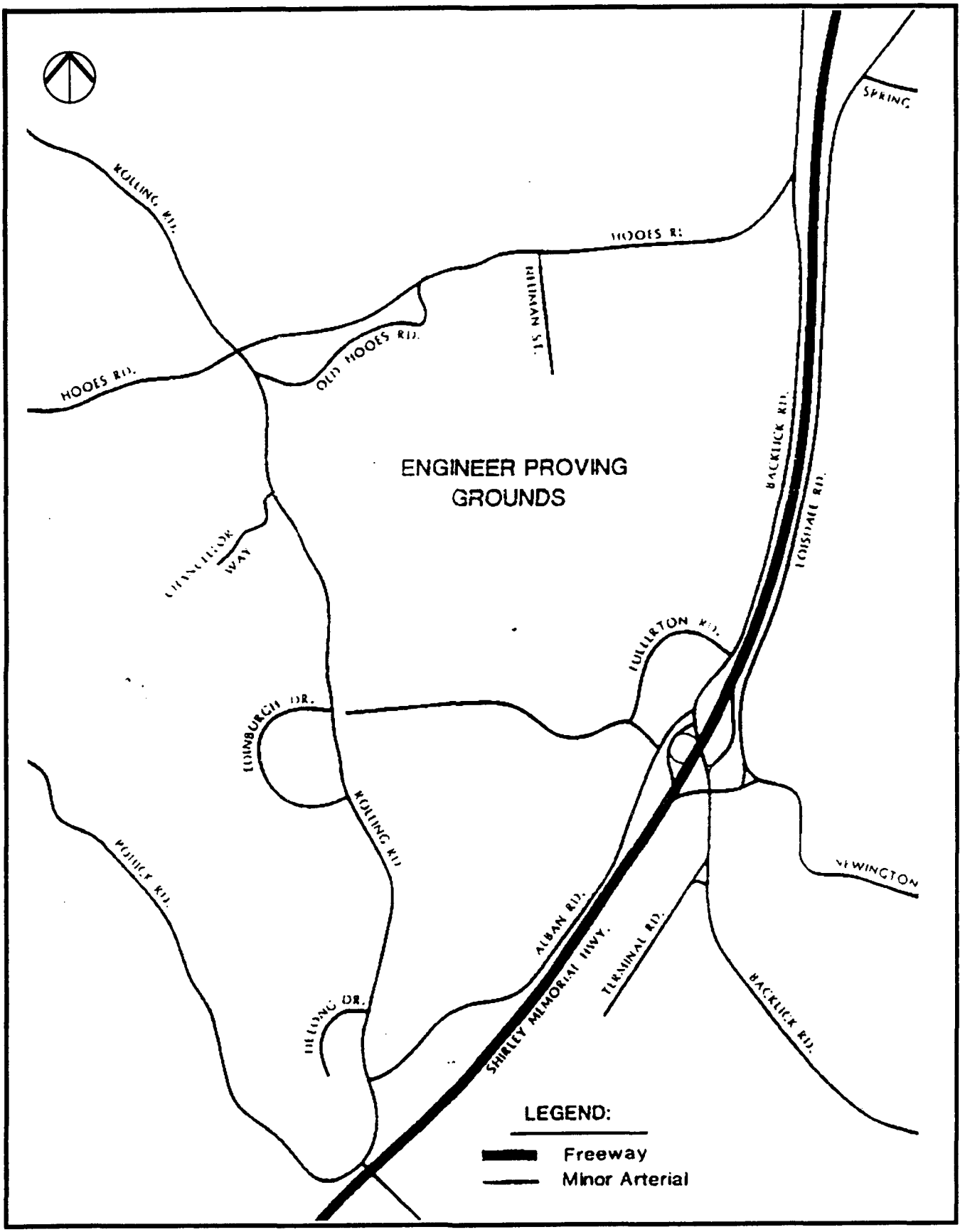


Figure 3-7
Roadway Classification
(EPG Subregion)

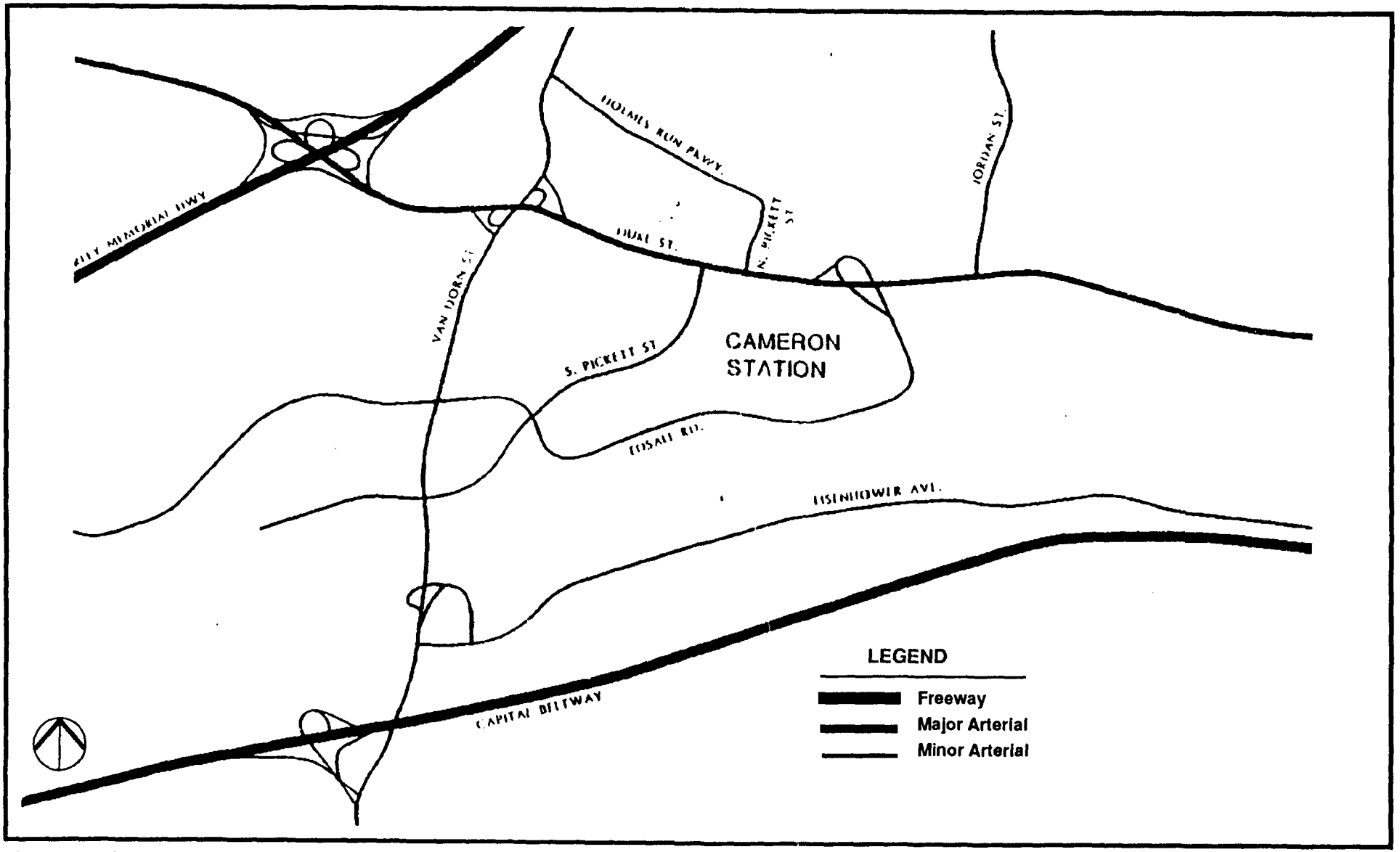


Figure 3-8
Roadway Classification
(Cameron Station Subregion)

3.2.3.7.1.2 Traffic Volume. Traffic volume data were compiled from various sources, including the Virginia Department of Transportation (VDOT), Fairfax County, and the City of Alexandria. The vehicles per day on the freeways range between 117,000 to 200,000 on Shirley Highway and between 140,000 and 183,000 on the Capital Beltway. Richmond Highway traffic volume ranges between 29,000 and 56,000 vehicles daily.

3.2.3.7.1.3 Peak-Hour Traffic. The primary employment centers in the Washington Metropolitan area include downtown District of Columbia; Old Town Alexandria; the Pentagon; Crystal City; Rosslyn employment centers in Arlington County; and other suburban employment centers in Fairfax County, such as Tysons Corner. Commuting patterns are toward these centers during morning peak hours and away from them during the evening peak hours. Peak-hour volumes for the areas around Fort Belvoir, EPG, and Cameron Station can be found in the regional traffic study, *Fort Belvoir Regional Traffic Impact Analysis Assessment of Horizon Year Traffic Impacts.*

3.2.3.7.1.4 Circulation and Capacity. Traffic congestion and the quality of traffic flow was evaluated by computing the average delay experienced by vehicles approaching a signalized intersection over a peak hour. This is reported as an LOS. The current LOS for intersections in the region are presented in Table 3-22. The LOS for arterials are shown in Table 3-23. The roadways and intersections off post are under the jurisdiction and responsibility of VDOT or local public highway authorities. LOS D or better is the standard goal of Fairfax County.

3.2.3.7.1.5 Regional Roadway System Improvement Needs. Current traffic volumes and patterns show that the existing regional roadway network is unacceptable as demonstrated by the number of LOS Es and, LOS Fs in Tables 3-22 and 3-23. To achieve LOS D or better, certain improvements are necessary under existing traffic conditions. Recommendations from the VDOT's Northern Virginia Subregional Plan and Fairfax County's Comprehensive Plan were evaluated, as well as intersection needs.

A matrix of alternative lane improvements necessary to have achieved LOS D in 1990 is shown in Table 3-24. The intersection improvements that are necessary to achieve LOS D in 1995 without the development at Fort Belvoir are shown in Table 3-25. Widening Richmond Highway to six lanes from the Prince William County line to Buckman Road is not programmed but would be necessary for LOS D. Details of these improvements are presented in the Regional Traffic Study.

It should be noted however, that even without personnel realignments to Fort Belvoir, a number of roadway improvements are necessary and required for the region that is addressed in this EIS. The design, scheduling, and construction of improvements to these facilities are the responsibility of the public highway authorities.

3.2.3.7.1.6 Public Transportation. The Fort Belvoir area is currently served by five Metrobus routes. These five routes provide service along two basic alignments, both to the north of Fort Belvoir in Northern Virginia.

Table 3-22
CURRENT LEVEL-OF-SERVICE AT SIGNALIZED INTERSECTIONS

Road 1	Road 2	Existing LOS*	
		am	pm
Study Area: Fort Belvoir			
Armistead Road	Richmond Highway	E	C
Backlick Road	Telegraph Road	D	E
Backlick Road	Richmond Highway	C	F
Belvoir Road	Richmond Highway	B	B
Beulah Street	Telegraph Road	F	F
Mt. Vernon Road	Richmond Highway	E	F
Newington Road	Telegraph Road	C	F
Pohick Road (off post)	Richmond Highway	E	F
Richmond Highway	Woodlawn Road	B	D
Richmond Highway	Telegraph Road	D	F
Study Area: Engineer Proving Grounds			
Alban Road	Backlick Road	D	D
Alban Road	Boudinot Road	C	B
Alban Road	Rolling Road	A	B
Backlick Road	I-95	C	D
Backlick Road	Fullerton Road	C	B
Backlick Road	Newington Road	F	E
Backlick Road	Hooes Road	D**	C**
Hooes Road	Rolling Road	D	D
Old Hooes Road	Rolling Road	A	A
Study Area: Cameron Station			
Duke Street	Jordan Street	C	C
Duke Street	N. Pickett Street	B	B

Table 3-22
CURRENT LEVEL-OF-SERVICE AT SIGNALIZED INTERSECTIONS

Road 1	Road 2	Existing LOS*	
		am	pm
Duke Street	S. Pickett Street	C	C
Cameron Station (Cont'd.)			
Edsall Road	Van Dorn Street	D	F
Edsall Road	S. Pickett Street	C	C
Eisenhower Avenue	Van Dorn Street	F	E
S. Pickett Street	Van Dorn Street	C	E
Other Regional Intersections			
Commerce Street	Franconia Road	D	E
Duke Street	Quaker Lane	B	B
Fort Hunt Road	Richmond Highway	E	D
Franconia Road	Van Dorn Street	F	F
Lockheed Boulevard	Richmond Highway	B	B

*Level-of-Service
**Under construction

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Table 3-23
SUMMARY OF CURRENT ARTERIAL LEVEL-OF-SERVICE

Arterial	Segment	Arterial Class	Peak Direction Level-of-Service	
			NB am	SB pm
Richmond Highway	Occoquan to Backlick	I	D/E	D
Richmond Highway	Backlick to Mt. Vernon	I	B	C
Richmond Highway	Mt. Vernon to S. Kings Highway	II	B	B
Richmond Highway	S. Kings to Beltway	II	F	C
Arterial	**Segment**	**Arterial Class**	**NB am**	**SB pm**
Telegraph Road	Richmond Highway to Beulah	I	F	D
Telegraph Road	Beulah to S. Kings	I	B	C
Telegraph Road	S. Kings to Franconia	I	B	C
Telegraph Road	Franconia to Duke	II	F	D/E
Arterial	**Segment**	**Arterial Class**	**EB am**	**WB pm**
Duke Street	I-395 to Jordan	II	B	A
Duke Street	Jordan to Quaker	II	A	C
Duke Street	Quaker to Telegraph	II	B	A

Note: Arterial class and level-of-service are determined according to procedures defined in the *1985 Highway Capacity Manual, Special Report 209*, published by the Transportation Research Board.
NB - Northbound EB - Eastbound
SB - Southbound WB - Westbound
Source: JHK, 1990.

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Table 3-24
CORRIDOR LANE REQUIREMENTS, 1990

Scenario	Corridors						
	I-95	US-1				Telegraph Road (VA 611)	
		(A)	(B)	(C)	(D)	(A)	(B)
Existing	6*	4	4	4	6	2	2
Subregional Plan	3-2-3	6	6	6	6	4	4
Fairfax County Plan	4-2-4	6	6	6	8	6	6
1990 LOS D	3-2-3	6	6	4	6	2	2
or	6*	8	6	6	6	2	2
or	6*	8	4	4	6	4	4

*Plus peak-period HOV lane

Key

Corridor	Location
I-95	Occoquan to Beltway
US-1(A)	Occoquan to VA-611
US-1(B)	VA-611 to Backlick (FCP)
US-1(C)	Backlick (FCP) to Buckman
US-1(D)	Buckman to I-95
VA-611(A)	US-1 to Backlick (FCP)
VA-611(B)	Backlick (FCP) to Franconia

LOS = Level-of-service
HOV = High-occupancy vehicle
US 1 = Richmond Highway
FCP = Fairfax County Parkway

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Table 3-25 BASELINE INTERSECTION IMPROVEMENTS NECESSARY BY 1995 WITHOUT FORT BELVOIR DEVELOPMENT*
Fort Belvoir Study Area
1. Richmond Highway and Armistead Road
2. Richmond Highway and Pohick Road
3. Richmond Highway and Telegraph Road
4. Richmond Highway and Woodlawn Road
5. Richmond Highway and Mount Vernon Memorial Highway/Old Mill Road
6. Telegraph Road and Newington Road
7. Telegraph Road and Beulah Street
Cameron Station Study Area
1. Van Dorn Street and Edsall Road
2. Van Dorn Street and S. Pickett Street
3. Van Dorn Street and Eisenhower Avenue
4. Duke Street and S. Pickett Street
*Other improvements are planned and programmed by VDOT. Source: JHK, 1990.

Fort Belvoir's North Post is served by only one route (9B). Northbound service (i.e., departing the North Post) in the morning peak period consists of 4 trips with stops at the Huntington Metrorail Station, Old Town Alexandria, Crystal City, and the Pentagon. Southbound service to the North Post during morning peak hours is limited to one trip that leaves the Pentagon at 6:01 a.m. and arrives at the North Post at 6:50 a.m. Evening peak-period service in the North Post area consists of six total trips, three of which occur in the northbound direction (toward the Pentagon) and three in the southbound direction (toward Fort Belvoir). The North Post is also provided with midday, nighttime, and weekend service. The total number of trips (both directions) serving the North Post during these off-peak time periods is 7, 5, and 56 trips, respectively. Buses to the North Post run approximately every hour on Saturdays and Sundays.

Fort Belvoir's South Post is provided with service by all five bus routes that travel to the Fort Belvoir area. These five routes are scheduled along two different general paths.

Leaving Fort Belvoir, the first path (Metrobus Routes 9A/9B) runs northward along the Richmond Highway, Washington Street, and the Jefferson Davis Highway to reach the Pentagon. The Huntington Station and Crystal City Metrorail stations are served by these bus routes on the way to the Pentagon. Routes 9A and 9B, combined, operate 20 trips during the morning peak period (10 trips each direction), 22 trips midday (11 trips each direction), 18 trips during the afternoon peak period (8 trips northbound; 10 trips southbound), and 156 combined trips on weekends (80 trips northbound; 76 trips southbound). Buses run approximately every 30 minutes on Saturdays and Sundays.

The second alignment serving Fort Belvoir's South Post comprises three Metrobus routes (11H/P/Y). All three routes travel eastward on the Mount Vernon Memorial Highway (Route 235) and George Washington Parkway before turning north on Vernon View Drive. The routes then split at Waynewood Boulevard, with 11H/P continuing northward on Fort Hunt Road (Route 629) and Richmond Highway to the Huntington Metrorail Station and Route 11Y diverting eastward to George Washington Parkway. The three routes converge on Washington Street in Alexandria and travel along George Washington Parkway, before splitting again just south of National Airport. Routes 11H/P serve National Airport and continue to the Pentagon where they terminate. Route 11Y remains on George Washington Parkway, bypassing the Pentagon and continuing to Farragut Square in Washington, D.C., by way of 14th Street.

Service on routes 11H/P/Y is relatively infrequent. Buses run approximately every 35 minutes during the peak hours and hourly midday and weekends. Twelve total combined trips are operated during the morning peak period (7 northbound; 5 southbound). Slightly fewer trips (10 total) are run in the afternoon peak period (5 each direction), and a total of 12 trips are scheduled for midday service (6 each direction). During the weekend, 52 trips, or 26 in each direction, are run. Saturday service is more frequent than Sunday, with 28 of the 52 total weekend trips.

In summarizing existing bus service to Fort Belvoir, a conclusion can be made that service is very limited in terms of both headways and coverage. The only major trip generator linked to Fort Belvoir realistically is the Pentagon. Levels-of-service to National Airport and downtown Washington, D.C., are extremely limited. In addition, the travel time is relatively longer, at close to or over an hour one way, depending on the time of day. Geographic coverage by bus is nonexistent to the south and west of Fort Belvoir, and limited to the east and north. Midday and weekend service from the Pentagon to Fort Belvoir is adequate for the most part, but still the range of coverage in Northern Virginia is very limited. This would expand public transportation opportunities, in terms of both access and geographic coverage, for employees at the Fort Belvoir facilities.

3.2.3.7.1.7 Engineer Proving Grounds. Fairfax connector bus route 304 is the only public transportation service provided to the EPG. Route 304 is an express bus route connecting EPG with the Pentagon during peak hours on weekdays. Midday, evening, and weekend bus service to the EPG is not currently available. Fairfax connector

service provides four trips to the Pentagon during the morning peak period (6-9 a.m.) and nine trips from the Pentagon to EPG during evening peak hours (3:30-6:30 p.m.). The travel time in either direction by (Fairfax connector) bus between the Pentagon and EPG is about 40 minutes one way. Metrobus service to EPG has been assumed by the Fairfax connector bus system. Metrorail does not currently serve EPG.

3.2.4 CULTURAL RESOURCES

The National Historic Preservation Act of 1966 (NHPA), along with subsequent regulations and complementary legislation, such as Executive Order 11593 and the Archeological Resources Protection Act of 1979, codify the responsibility of federal agencies for cultural resource management. Section 110 of the NHPA requires federal agencies to "inventory, evaluate, and where appropriate nominate to the National Register of Historic Places (NRHP) all archeological properties under agency ownership and control." Fort Belvoir has been especially aggressive in compliance with the requirement for a cultural resource inventory. Investigative surveys have been done for much of the post over the last decade, excluding identifiable areas that had been severely disturbed before these requirements were promulgated.

MAAR Associates, Inc. (MAI) recently conducted an extensive survey of Fort Belvoir including EPG, mapped all known resource sites, and produced a predictive resource inventory of areas likely to be disturbed by training or future development. The report (Polk, 1990) that documented this survey and inventory, *Phase I Investigations of Various Development Sites and Training Areas, Fort Belvoir, Virginia*, also contained the compiled the results of previous surveys. This report is the source of the detailed information presented in this section, unless otherwise noted.

Archeological and historic investigations have been conducted on and in the vicinity of Fort Belvoir since the late 1880s. Early investigations of the ruins of Belvoir Mansion, the home of William Fairfax, began in the first decades of this century. Howard MacCord conducted a systematic survey along the shorelines of the Potomac River, Pohick Bay, and Accotink and Dogue Creeks in 1958, which identified five significant sites of prehistoric occupation. Several other, limited surveys were conducted in the 1970s.

The first comprehensive survey of the Fort Belvoir military reservation as a whole was conducted by Soil Systems, Inc., under the sponsorship of the National Park Service. Approximately 1,400 acres were surveyed, including areas containing known resources or that were scheduled for development, as well as a statistically selected sample of the rest of the post. This study identified 34 archeological sites (LeeDecker, et al., 1984). In 1987, Fairfax County Heritage Resources conducted another major survey, which resulted in a complete inventory of archeological resources along the tidal shoreline of Fort Belvoir.

A number of other, mostly smaller and project-specific, surveys were done in the 1980s, including Phase I (investigative) and Phase II (evaluative) surveys for the proposed Fairfax County Bypass, performed by the Karell Institute from 1981 to 1983. This

survey resulted in a determination of eligibility for three sites to the NRHP. In 1988, MAI prepared a disturbance assessment survey (Polk, 1988) that identified areas of Fort Belvoir where previous disturbances make it unlikely that any archeological resources remain. MAI then drafted a preservation plan to help direct future cultural resource management at Fort Belvoir (Ralph, Traver, and Baumgardt, 1988).

Altogether, the various investigative (Phase I) studies have resulted in the identification of 229 cultural resource sites on Fort Belvoir, containing both prehistoric and historic artifacts and features. These resource sites have been registered with the Virginia Department of Historic Resources and Fairfax County Heritage Resources. Table 3-26 lists the cultural resource surveys conducted at Fort Belvoir to date.

Evaluative (Phase II) investigations have been done for 17 sites at Fort Belvoir. Belvoir Manor has been placed on the NRHP, and six other sites are eligible for listing. The remaining 10 sites were determined to be ineligible. Many more sites still remain to be evaluated for eligibility on the NRHP list.

3.2.4.1 Historic Resources

3.2.4.1.1 Historic Context. Colonial settlement began in what is now Fairfax County in the last half of the 17th century. Tobacco planters who originally settled to the south of Fort Belvoir extended their farming into the area as soils were depleted in earlier fields. The first land patents were issued for the area between Accotink and Dogue Creeks in 1669. In the 1680s a ferry crossing at the Occoquan River and a road, called the Potomac Path, improved overland transportation into Fairfax and contributed to further settlement.

In the early 1700s, the tobacco plantation society of the area developed around large plantations such as Mount Vernon, the Belvoir estate, and Gunston Hall. Land originally granted to William Green in 1669 was bought by William Fairfax in the 1740s, and included in the Belvoir estate. Lord Fairfax lived at the estate from 1745 to 1761. The Belvoir manor house burned down in 1783 (Fehr, et al., 1988).

Land in the interior was settled in the mid- to late-18th century. William Triplett established the Triplett farm to the northeast of what is now Fort Belvoir in the 1770s. By the end of the 18th century tobacco plantations in the Tidewater area were beginning to be replaced by less extensive, family farms growing diversified crops, setting the pattern for the Fairfax area that continued into the mid-20th century.

After the Civil War, Fairfax County began to grow rapidly. Large farms were subdivided into smaller ones, which supplied much of the food for the growing cities of Washington and Alexandria. A number of Quakers moved into the area during this time, establishing the Woodlawn Friends Meeting House. Woodlawn Baptist Church was also established nearby, marking the Woodlawn area as a focus of settlement. Another focal area was Accotink, with a post office, school, Methodist church, grist mill, and several stores. A third area around which family farms tended to cluster was the Pohick Church area (LeeDecker, et al., 1984).

Table 3-26
ARCHEOLOGICAL INVESTIGATIONS CONDUCTED AT FORT BELVOIR TO DATE

Year	Author(s)	Description of Project
1869	Anthropological Society of Washington	Accotink area AmerIndian ossuary[1]
1891-1893	Holmes, Dinwiddie & Fowke	Potomac River survey
1889-1892	Holmes	Potomac River survey[1]
1924	Karrick & Koloss	Belvoir Manor ruins
1931-1933	Schulz	Belvoir Manor ruins[2]
1957	MacCord	Recreational survey
1972-1976	Shott	Belvoir Manor ruins[2]
1977	Gardner & Carr	Railroad spur
1977	Gardner, Curry & Custer	Housing area
1981	Karell Institute	Springfield Bypass, Phase I
1983	Koski-Karell	Springfield Bypass, Phase II[2]
1984	LeeDecker, et al.	Sample survey and evaluation of resources
1984	Johnson	Belvoir Life Care Facility
1985	Johnson	Accotink storm drainage
1986	DEH	Capital Area Office
1986	Johnson	Pohick sewerage pipeline
1986	Johnson	Timber harvesting
1986	Henry	Information Systems Command Facility
1987	Henry	HEC History Center & Museum
1987	Johnson	Shoreline survey
1987	Middleton	Cemetery inventory
1988	Fehr, et al.	Defense CEETA Facility (Phase I)
1989	Johnson & Owsley	Owsley Plantation site
1989	McLearen	Woodlawn Road widening
1989	Ryder	Woodlawn Road widening, Phase II
1990	Polk	Various development sites & training areas

[1]Location of site currently unknown
[2]Reinvestigation of site(s)
Source: Polk, 1990

WDCR504/026.51

A series of land transactions by the War Department, which ended in 1918, resulted in the establishment of a training area in Fairfax County, Virginia, for the Engineer Barracks (Polk, 1990). This training facility was designated Camp A. A. Humphreys in 1917, and renamed Fort Humphreys after World War I. Development of the post occurred in several stages, most notably the accelerated growth during World Wars I and II. Fort Humphreys was renamed Fort Belvoir in 1935, in recognition of the Belvoir Manor and estate.

The Army Engineer School and associated administrative buildings, built from 1928 to the 1930s, constitute some of the most attractive and historic structures on the post today. A predominant use of the facility throughout its history has been for military and engineer field training, which many of the historic military sites reflect. The current development of Fort Belvoir as an administration center marks the beginning of another distinct period in the installation's history.

3.2.4.1.2 Historic Resources Identified. Remains from early historic period occupations in the Fort Belvoir area are mostly domestic and agricultural in character, with the largest number of sites dating to the mid-19th and early 20th century. However, Colonial-period remains have been found at a total of 18 sites dated to the mid-18th century. It is possible that some of those 18th century sites may be masking evidence of earlier occupations from the late 17th century, such as have been discovered at Mount Vernon.

The most notable of the Colonial period resources are the ruins of Belvoir Manor. This site has been the subject of several excavations, beginning in the early 20th century. Extensive excavations of Belvoir Manor were sponsored in the 1970s by the Army Engineer Museum. Artifacts removed from the site are now held by Fairfax County Heritage Resources. The Belvoir ruins have been stabilized to preserve them, this having been begun in the late 1960s, and some cosmetic landscaping, path construction, and placing of information signs has been done around the site. Recommendations have been made to further enhance the site to increase the number of visits.

Other plantation sites found in the Fort Belvoir area include Cedar Grove Plantation, owned by the McCarty family, on the peninsula between Pohick and Accotink Creeks; the Owsley Plantation, which is the earliest Colonial-period site on Fort Belvoir, dating to the early or mid-18th century; and the remains of a tenant house on a plantation once owned by the West family, located in the Castle Park area of Tompkins Basin on the South Post. Both the Owsley Plantation and West family sites have been determined to be eligible for listing on the NRHP.

A number of family farm sites from the mid-19th to the early 20th century have been identified. Several historic cemeteries have been recorded and fenced, including the Woodlawn Friends Meeting House and Cemetery, the Woodlawn Methodist Cemetery, Cedar Grove Cemetery, Lacey Hill Cemetery, a mid-18th to late 19th century cemetery, the Triplett family cemetery, and the Telegraph Road or Potter family cemetery.

Some evidence of rural industry, including evidence of 18th to 19th century brick and tile manufacture in an area once known as Brick Yard Landing has also been found. A possible 19th century store and school have been located, as well as indications of 19th century fishing activity.

The other primary type of historic resource found at Fort Belvoir is, predictably, military in nature and dating mostly from the 20th century. There are, however, some identified military historical resources predating the establishment of Camp A. A. Humphreys.

No significant military action took place in the immediate area during the American Revolution, although some troop movement took place along Telegraph and Old Colchester Roads. It is possible that further investigation in those areas may produce remains of temporary encampments or items dropped in transit.

Earthworks associated with a small battle during the War of 1812, the Battle of Whitehouse Point, have been located in the Fort Belvoir ruins area. Other remains from campsites, fortifications, and the Whitehouse Point bombardment are considered likely to be found through further Phase I investigation.

Few Civil War military remains have been or are likely to be found at Fort Belvoir, because no military action, beyond skirmishes and encampments, took place any closer than the Manassas and Bull Run area. The nearest known Civil War earthworks are some attributed to Confederate forces, located near Occoquan (Polk, 1990).

3.2.4.1.3 Historic Districts and Structures. Fort Belvoir contains a designated historic district on the South Post (Figure 3-9), which includes the Parade Ground; parts of the former Engineer School and associated administrative area; the Gerber Village and Belvoir Village Family Housing areas; and some other nearby housing. Any development in or contiguous to this area must maintain compatibility with the style of the buildings, most of which were constructed between 1928 and 1935 and are representative of the Colonial and Georgian Revival style. An installation design guide, which includes architectural details for constructing projects in the historic area, has been adopted for Fort Belvoir.

Also on South Post is the Fairfax Historic Area, which surrounds the Belvoir Manor ruins and the graves of Colonel William and Deborah Fairfax. This approximately 60-acre, protected area is located southeast of Fairfax Village, extending generally from Fairfax Drive to the Potomac shore and to approximately 800 feet east of the Ponton Basin. This area is accessible, from Fairfax Drive, to visitors interested in local history.

The majority of the Woodlawn Historic District is located adjacent to Fort Belvoir. The Woodlawn Historic District incorporates Woodlawn Plantation, which is adjacent to the Lewis Heights family housing area on the North Post, and extends onto Fort Belvoir to include the Woodlawn Cemetery and crosses Richmond Highway at the intersection of Belvoir Road.

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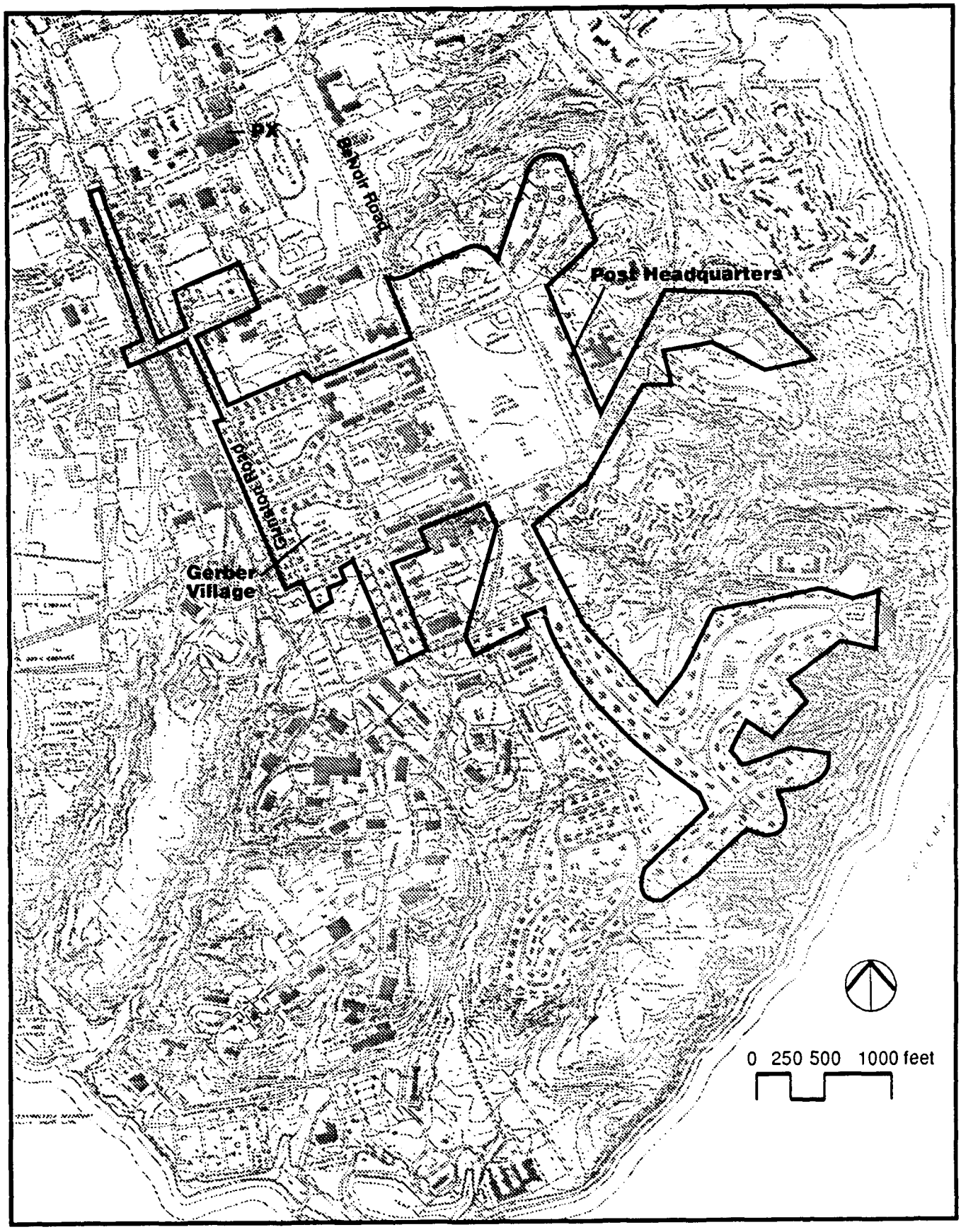


Figure 3-9
Fort Belvoir Historic District

More than 50 buildings in the Woodlawn Historic District are rated at evaluation category 3 or higher, meaning that they are historic properties of importance and contribute to the cultural heritage or visual interest of the facility (DEH, August 17, 1990). Six of these have historically significant interiors as well as exteriors:

- MacKenzie Hall (Building 20A)
- Bachelor Officers' Quarters (Building 20B)
- Hill Hall (Building 257)
- Thayer Hall (Building 270)
- Fairfax Chapel (Building T435)
- Thermo-Con House (Building 172)

Although relatively modern (1949), the Thermo-Con House has been given the highest rating of category 1, indicating it to be a historic property of great importance. Known variously as the Thermo-Con House, Gunston Road House, or Building 172, it was designed by Albert Kahn Associates as a prototype for an innovative method of building lightweight houses intended for mass production of housing, by using concrete injected with air or chemicals. It is the only example of its kind known to exist. Its unique nature, along with its association with a famous designer, resulted in its category 1 designation.

3.2.4.2 Archeological Resources

The following prehistoric temporal units were used to describe archeological resources at Fort Belvoir in the MAI report (Polk, 1990):

1.	Paleo-Indian	about 10000 - 8000 B.C.
2.	Early Archaic	about 8000 - 5000 B.C.
3.	Middle Archaic	about 5000 - 3000 B.C.
4.	Late Archaic	about 3000 - 1000 B.C.
5.	Early Woodland	about 1000 - 400 B.C.
6.	Middle Woodland	about 400 B.C. - A.D. 1000
7.	Late Woodland	about A.D. 1000 - A.D. 1600

The Fort Belvoir Preservation Plan uses the following classifications to describe archeological resources:

1.	Paleo-Indian	before 7410 B.C.
2.	Hunter-Gatherer I	7540 - 6010 B.C.
3.	Hunter-Gatherer II	5860 - 4000 B.C.
4.	Hunter-Gatherer III	4000 - 2000 B.C.
5.	Hunter-Gatherer IV	2750 B.C. - A.D. 800
6.	Early Agriculturalist	A.D. 800 - A.D. 1607
7.	Protohistoric	1607 - A.D. 1750

Fort Belvoir is currently reconciling the differences in the two classification systems to bring the MAI (Polk, 1990) report data in line with their preservation plan classification system. The overlap in the classification system accounts for geographical differences in culture development. For the purposes of this discussion, the periods used correspond to the periods that Polk uses to describe those sites where enough information was available in investigative (Phase I) surveys to determine a temporal assignment except the Protohistoric Period, which was not included in the MAI report. A number of aboriginal sites could not be accurately dated without further study, and are merely designated as "prehistoric."

There are few sites dated to the Paleo-Indian period. Most occupations can be assumed to have been in Coastal Plain areas that were later submerged by a rise in sea level following the Pleistocene era. Artifacts found at three sites on Fort Belvoir are probably remains of forays into what was then the interior, rather than from habitation sites.

Similarly, only three sites dated to the Early Archaic period have been identified. One site is considered to be a remnant of an occupation, which is now mostly submerged. However, the two sites located along Dogue Creek may be interior settlement sites, which would be of more research value.

Ten sites dating to the Middle Archaic period have been identified at Fort Belvoir. These sites are located not only in estuarine areas, but also on low interior terraces, high coastal terraces, and high interior terraces, reflecting the stabilization of the shoreline environment during this period. Three sites have been determined by a Phase II investigation to be eligible for listing on the NRHP. One site was determined to be ineligible.

Late Archaic sites are more numerous at Fort Belvoir. Twenty-nine sites with components dating to this period have been identified, 17 of which are located along tidal estuaries, illustrating the settlement patterns of this period. Because many of these estuarine sites are of mixed periods, and some are also dominated by historic period artifacts, significant information about Late Archaic behavior is not readily available from these sites. Other sites which are located on interior terraces, are smaller in terms of the number of artifacts, and probably represent temporary upland hunting/gathering camps, as opposed to the estuarine base camps.

The most well-represented prehistoric period at Fort Belvoir is that of the Early Woodland, with 31 identified sites. These sites tend to be in similar or overlapping locations with Late Archaic sites, and are distinguished by the presence of fragments of the prehistoric ceramics that came into use in this period. The larger and more intensively occupied sites are located mostly near the tidal estuarine portions of Accotink, Pohick, and Dogue Creeks. One site is considered to be an extensive shellfishing-oriented site. A smaller group of sites from the Early Woodland period are found on terraces near creeks in the interior, and are thought to be temporary foraging campsites.

There are 26 sites identified as having originated during the Middle Woodland period. Ceramic fragments are typical of those sites, with differences in material differentiating them from the Early Woodland components of these frequently overlapping period sites. Again, most sites are located along the tidal creeks, but two sites are located on high interior terraces and one on a high bluff above the Potomac and are thought to be temporary seasonal campsites.

Twenty-six sites situated largely in estuarine areas have been dated to the Late Woodland era. Seven are located along Pohick Creek, up to the mouth of the creek. Only one Late Woodland site is located on a high terrace in the interior. This site is isolated and relatively undisturbed, and is considered a good candidate for comparative study with estuarine sites.

No Protohistoric sites have been identified at Fort Belvoir. Maps of the English exploration period indicate Indian settlements in this area however, including a 1612 John Smith map showing several "Doag" villages along the Potomac near Fort Belvoir. Therefore, it is possible that sites dating to the Late Woodland period might also contain Protohistoric components, such as have been found on the west side of Mason Neck. Further evaluative studies are needed to confirm this theory.

A large group of prehistoric sites (114) in various settings could not be definitely assigned to a temporal period. Many others contain components of several different periods, or are overlain by historic occupations, making it difficult to extract useful information from them. Nevertheless, Fort Belvoir can be considered rich in prehistoric archeologic resources; many sites having high integrity and study potential.

3.2.4.3 Visual Resources

There are many visually aesthetic qualities associated with Fort Belvoir that are attributable to its diverse terrain, natural resources, and history. Some of these aesthetic values include:

- A panoramic view overlooking the Potomac River, along bluffs that form the shoreline of the South Post
- A shoreline that includes a large marsh area important to fish and wildlife
- Metamorphic outcropping of rocks
- Steeply sloping hillsides with a diverse array of vegetation
- Wetlands associated with beaver habitat and waterfowl populations
- The combined 1,315-acre Accotink Bay Wildlife Refuge and Nature Study Area and Jackson Miles Abbott Wetland Wildlife Refuge

- Wooded areas throughout the facility, but especially on North Post
- Large, open grassy areas such as parade grounds, golf courses, and playing fields
- Tree-lined streets with large brick buildings in the Colonial/Georgian Revival style on South Post
- Building complexes surrounded by trees and open spaces, with large, mature trees shading many of the developed areas
- The ruins of Belvoir Manor, which have been preserved and enhanced for visitors interested in local history
- Other historic attractions such as Woodlawn Plantation, adjacent to one of the family housing areas

3.2.5 HAZARDOUS MATERIALS

Hazardous and toxic wastes are generated and managed on Fort Belvoir, especially in the many research and development areas throughout the installation. Most of these areas produce a wide variety of laboratory reagent chemicals. Additional areas of hazardous waste generation include the DeWitt Army Community Hospital (pathological and out-dated medications), motor repair shops (solvents, paints, and fuels), and building maintenance shops (solvents, pesticides, paints, heating oils, cleaning chemicals, PCBs, and asbestos).

The installation has operated under a Resource Conservation and Recovery Act (RCRA) Part A Interim Status Permit since November 1980. This permit allows the installation to store hazardous waste in aboveground containers, typically 55-gallon drums, and in bulk underground tanks. Thermal treatment of waste is also allowed by the permit. In 1989, Fort Belvoir generated and disposed, through permitted hazardous waste treatment facilities, approximately 500 tons of hazardous waste. The RCRA Part A permit was issued by the EPA and responsibility for the permit was transferred to the Commonwealth of Virginia in the early 1980s. Fort Belvoir applied for several final permits in 1990 (two RCRA Part B Permits and one Subpart X Permit) to continue the storage and treatment operations.

On June 28, 1991, a tank investigation study of Fort Belvoir was submitted to EPA, Region 3, and the Commonwealth of Virginia. The conclusion of the study was that Fort Belvoir contains four aboveground and three underground tanks that at one time were used to store hazardous wastes. Although these tanks are no longer used to store hazardous waste, they still must be closed according to RCRA regulations.

The hazardous waste stored in these tanks consisted primarily of cleaning solvents and contaminated petroleum products. Two USTs, with a capacity of 12,000 gallons each,

at Building 1124 are used for storing bulk petroleum products and contaminated water. All solvents at Fort Belvoir are recycled through a recycling service.

The Commonwealth of Virginia has conducted an annual hazardous waste inspection on Fort Belvoir since 1983. The last inspection conducted in February 1990 resulted in Fort Belvoir receiving a Notice of Violation (NOV) in April 1990. The NOV identified 35 points in the management of hazardous waste on the installation that violated Virginia regulations. Of these points, 25 involved administrative deficiencies, 4 were violations in the operation of the program, and 6 were violations in the engineering condition of the storage facilities. All violations except seven have been corrected. Fort Belvoir submitted a correction plan for the remaining violations to the Commonwealth of Virginia in June 1990. Fort Belvoir is awaiting approval before proceeding. None of the 35 points identified any ongoing pollution.

3.3 FORT MYER

Previous development at Fort Myer has resulted in most of the property being cleared for construction or other uses. As a result all of the preferred alternatives and alternative 2 sites for each of the BRAC projects can be adequately described through the general discussion below.

3.3.1 PHYSICAL/CHEMICAL RESOURCES

3.3.1.1 Physiography and Topography

Fort Myer consists of 256 acres and occupies a plateau in Arlington County, Virginia, overlooking the Potomac River and Washington, D C. (Figure 3-10). The eastern portion of the site is cut by several ravines of varying depth and steepness. The western portions of Fort Myer have less relief. The terrain varies from 100 to 235 feet above MSL across the post (U.S. Army, MDW, 1984). Fort Myer is located within the mixed Piedmont Upland and high Coastal Plain Terrace section of the transition zone between the Piedmont and Coastal Plain physiographic provinces. This section of Arlington County is along the Fall Line (USDA, 1955).

3.3.1.2 Geology and Groundwater

The geology of the general area is discussed in more detail in Section 3.2.1.2. Soils in this area have been formed from granite gneiss and quartz schist and the sedimentary deposits are primarily fluvial, old alluvial, and marine. The sedimentary deposits usually occupy areas with broad ridge-tops and undulating slopes of less than 10 percent (USDA, 1955).

Groundwater from the shallow aquifer at Fort Myer occurs from a depth of 4.5 to 7.5 meters. Shallow groundwater on the installation is not used as a potable water supply.

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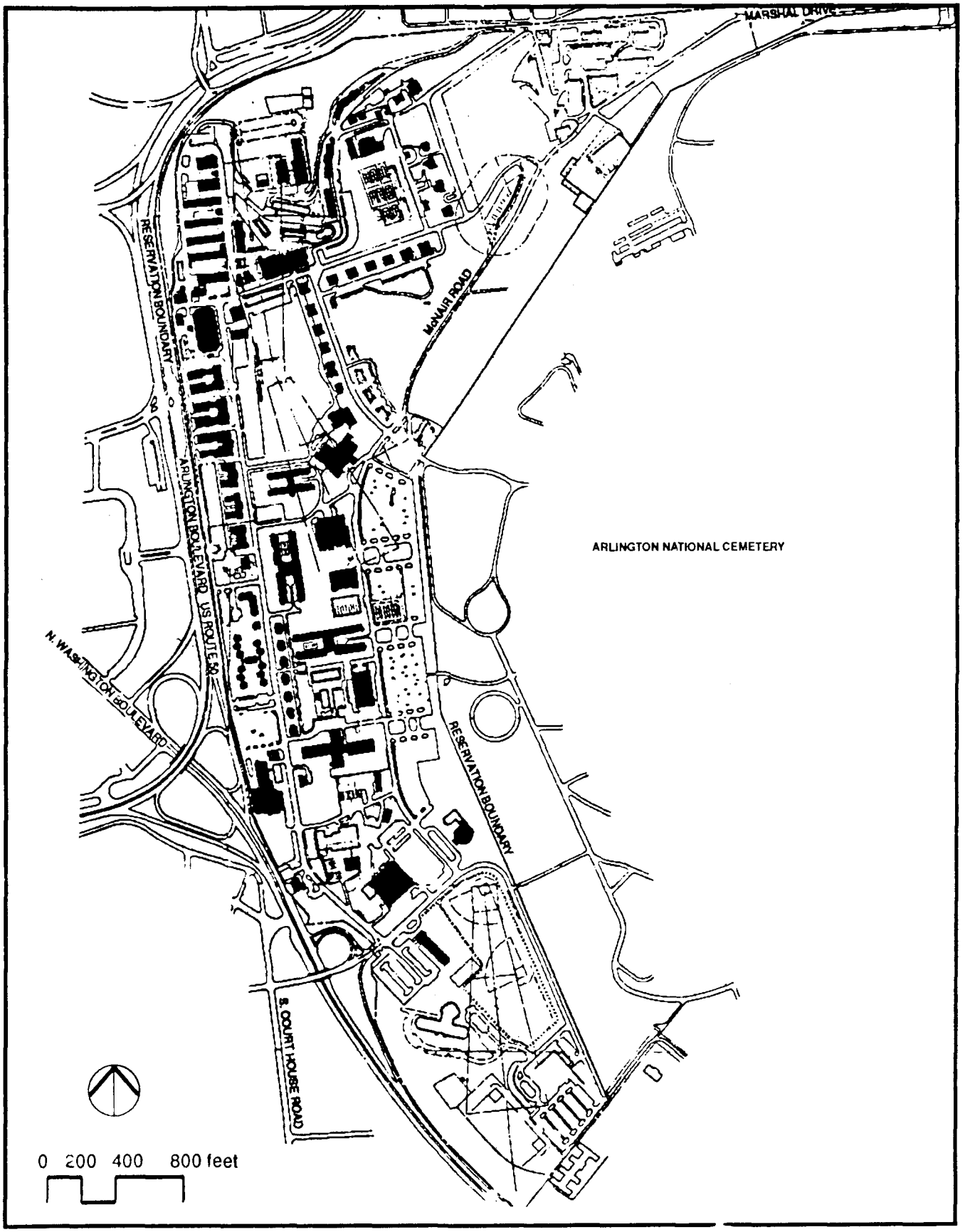


Figure 3-10
Fort Myer

The Patuxent aquifer of the Coastal Plain aquifer system underlies Fort Myer and could function as a source of potable water, along with water from the weathered and fractured top section of crystalline bedrock. Municipal water use began the early 1940s and is currently the source of water for Fort Myer. Before municipal supply, water was most likely obtained from these aquifer systems. According to historical information, Fort Myer operated six water wells during the early 1900s. These wells were located north of Whipple Field off Marshall Drive (USATHAMA, 1984).

Reportedly, two additional wells were drilled on Fort Myer in 1965 to a depth of approximately 1,500 meters. The wells were 6.35 centimeters in diameter and sample cores were recovered. The nature of the boring is believed to have been exploratory. The wells were plugged on completion of the sampling (USATHAMA, 1984).

Regionally, the deep Coastal Plain aquifer system consists of the Patuxent aquifer, the Patapsco aquifer, and the Magothy aquifer. This aquifer system increases to the southeast as the sedimentary deposits thicken and become more extensive. Aquifer recharge occurs from precipitation in the outcrop areas of each formation and from downward leakage through the confining beds in some areas (USATHAMA, 1984).

3.3.1.3 Soils

Soils on Fort Myer fall into three associations: Glenelg-Elioak-Manor, Manor-Glenelg-Elioak, and Fairfax-Beltsville-Glenelg (USDA, 1955). Except for the Beltsville soils, which have perched water tables, the soils on the post are relatively well drained. The Manor-Glenelg-Elioak soil series are subject to severe erosion if not protected. The Fairfax soils are subject to moderate erosion if cleared of vegetative cover (USDA, 1955).

3.3.1.4 Surface Water

Fort Myer lies outside all currently mapped floodplains. A small unnamed intermittent stream runs along the southwestern boundary of the post. The stream is shallow but appears to receive a large amount of runoff through culverts and drains, from Fort Myer. The stream is a tributary of Four Mile Run, which drains into the Potomac River (U.S. Army, MDW, 1984).

3.3.1.5 Climate and Air Quality

The climate and air quality of the Fort Myer area influence, and are influenced by, the same phenomena that affect all of northern Virginia. A detailed regional discussion is included in Section 3.2.1.5. The air quality discussion that follows is specific to the Fort Myer area.

The DAPC maintains a monitoring station at the Aurora Hills Fire Station, approximately one mile southeast of Fort Myer. Measurements are made with a high-volume sampler. Adverse impacts to air quality generated from Fort Myer would come from the gasoline storage tanks, combustion boilers and vehicular traffic. Both the boilers

and the gasoline storage tanks at Fort Myer are in compliance with emission regulations (U.S. Army, MDW, 1984).

Ambient air quality in Arlington County complies with EPA attainment criteria for all air quality parameters except ozone (DAPC, 1989). However, because the larger National Capital Interstate AQCR--Virginia Portion (EPA Region III, DAPC Region VII) does not meet criteria for CO, the entire air basin is currently designated as a nonattainment area for this pollutant (DAPC, 1989).

The trend in TSP at the Aurora Hills sampling station for the past 9 years is shown in Figure 3-11. TSP has actually decreased slightly over this period (dashed line), but the difference is not statistically significant (DAPC, 1989).

The maximum level of CO measured at the Aurora Hills sampling station in 1989 over a 1-hour period was 8.3 ppm, which is well below the primary National Ambient Air Quality Standard of 35 ppm. The maximum level of CO measured over an 8-hour period was 7.0 ppm, also below the primary standard of 9.0 ppm. Arlington County has not violated either of the standards over the past 5 years (DAPC, 1989).

Figure 3-12 shows the annual trend of NO_2 levels at Aurora Hills over the past 5 years. During this period NO_2 levels rose slightly (dashed line), but the difference is not statistically significant (DAPC, 1989). In all cases, the annual levels recorded have been well within the primary standard of 0.05 ppm.

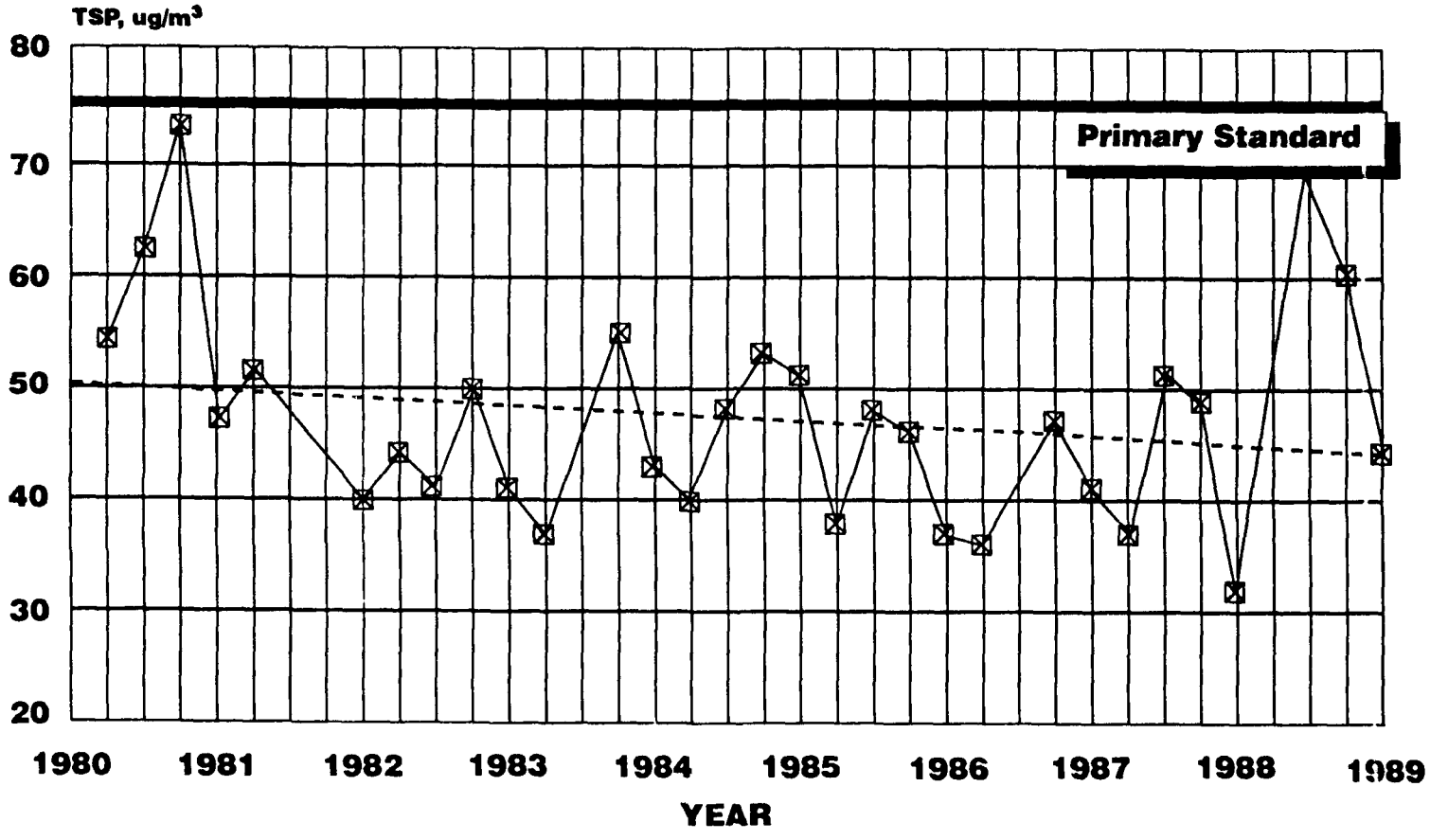
No violations of O_3 criteria were recorded in 1989 at the Aurora Hills sampling station (DAPC, 1989). However, there have been regional violations of O_3 criteria at this station over the past 7 years: three in 1982 and 1983, two in 1984, one in 1985, two in 1986, five in 1987, and nine in 1988 (DAPC, 1988, 1987). These violations are not attributable solely to the operations at Fort Myer.

3.3.2 BIOLOGICAL RESOURCES

3.3.2.1 Terrestrial Biota

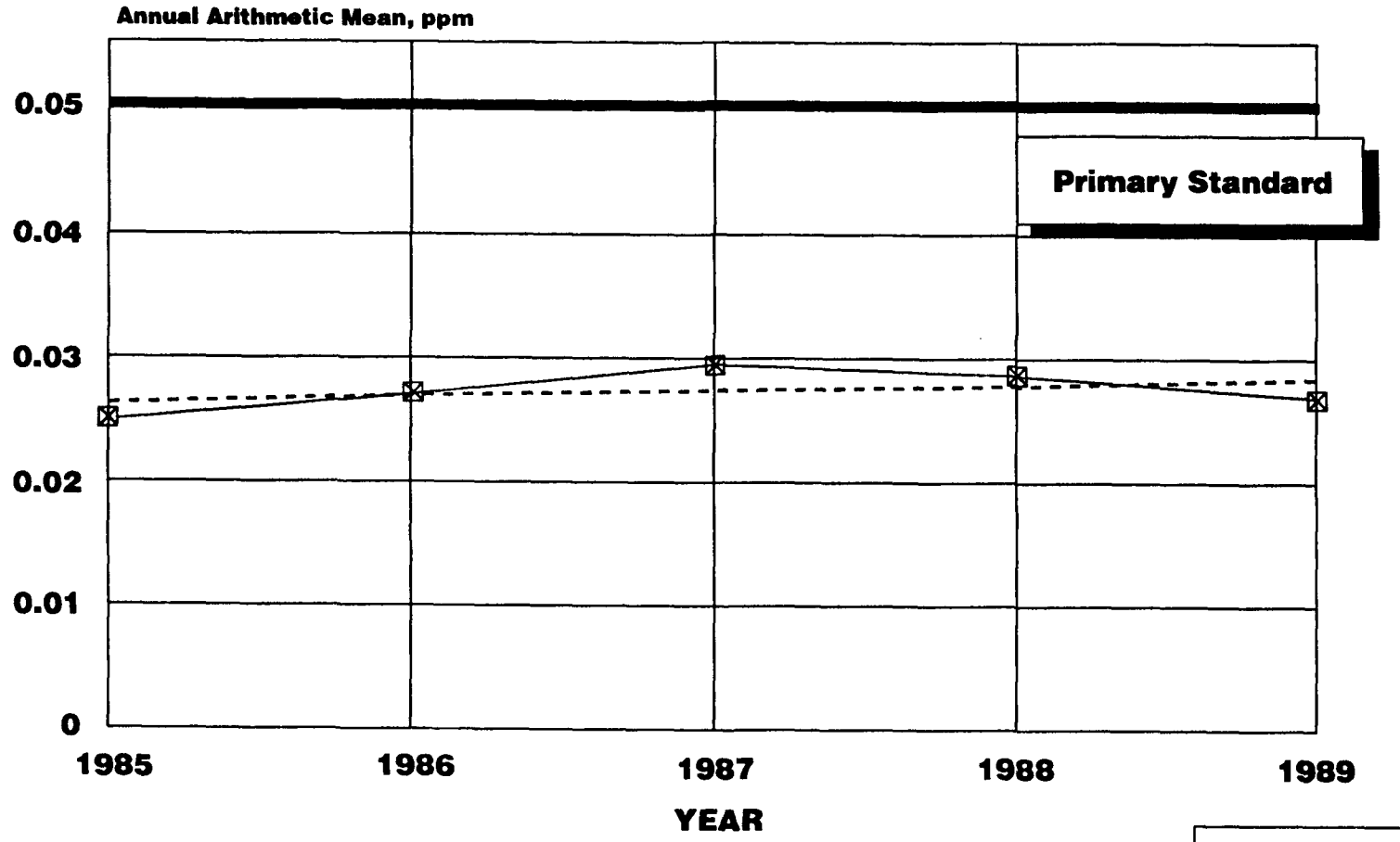
3.3.2.1.1 Vegetation. Most of the native vegetation has been removed from Fort Myer because of past development and training activities. However, substantial numbers of both native and introduced tree and shrub species have been planted for landscaping on the post. Vestiges of native vegetation still remain between McNair Road and Arlington National Cemetery, and between Sumner Street and the north boundary, as well as in a smaller area near Washington and Grant Avenues. The remnant native vegetation is composed primarily of oaks, hickories, and maples.

3.3.2.1.2 Wildlife. Because of the development at Fort Myer and the lack of native vegetation, the species of wildlife frequenting the post are limited to those adapted to an urban environment. Some species that may be using Fort Myer include the eastern gray squirrel, chipmunk, eastern cottontail, raccoon, American robin, European starling, house sparrow, house finch, northern mockingbird, rock dove, mourning dove, Carolina



Source: DAPC, 1989

Figure 3-11
Region VII - 9-Year Trend for Total Suspended Particulates (TSP)
Arlington, Virginia



Source: DAPC, 1989

Figure 3-12
NO_2 Trend, Annual Arithmetic Mean
Arlington, Virginia

chickadee, and tufted titmouse. Migrating warblers may use the small wooded area near the boundary with Arlington National Cemetery during migrations, but the small size of this area would preclude most from nesting.

3.3.2.2 Wetlands

The intermittent stream on the southwestern boundary of the post has a small area of palustrine forested wetlands associated with it. The wetlands are confined to each side of the stream channel, and are separated from the developed areas of the post by the perimeter fence.

3.3.2.3 Aquatic Biota

No surveys have been performed in the intermittent stream at Fort Myer. The small size of the stream, less than 10 feet wide, and the shallowness, 2 to 4 inches, preclude use of the stream by most aquatic organisms. No work will be performed in the stream between March 15 and June 30.

3.3.2.4 Threatened and Endangered Species

The BATES completed as part of this EIS located no rare, threatened, or endangered species at Fort Myer. The developed nature of the post would preclude colonization by these species.

3.3.3 SOCIOECONOMIC CONDITIONS

3.3.3.1 Land Use

Table 3-27 shows the existing land use at Fort Myer. Of the approximately 256 acres that comprise Fort Myer, slightly more than half (approximately 155 acres) is currently developed. The remaining 101 acres are used as parade grounds and recreational open space. Figure 3-13 shows the current land use pattern on Fort Myer.

Surrounding off-post land, except for the Arlington National Cemetery to the east, is almost entirely dedicated to low- and medium-density residential use. A small area at the northern Rolfe Street boundary is given to medium-density residential use with 31-32 dwelling units per acre. The remainder of the northern boundary as well as the western boundary are immediately adjacent to Arlington Boulevard (Route 50) and Washington Boulevard. These main thoroughfares separate the post from most other land uses.

West of Arlington Boulevard are low- and medium-density residential areas with a small shopping center opposite Henry Gate on North Pershing Drive. The U.S. Marine Corps Headquarters facility, Henderson Hall, is also located along the southern post boundary. Several multistory buildings provide housing for the marines. To the east, the post is separated from Arlington National Cemetery by a low brick wall along the entire length of the boundary.

Table 3-27
EXISTING LAND-USE PATTERNS AT FORT MYER

Category	Approximate Acreage	% of Total
Open Operational Areas		
Ammunition Storage	0.7	0.3
Parade Ground	16.3	6.4
Built-Up Cantonment Areas		
Administration	8.1	3.2
Community Facilities	36.8	14.4
NCO Family Housing	7.9	3.1
Officer Family Housing	16.4	6.4
Troop Housing and Support Facilities	44.9	17.5
Unaccompanied Officers' Housing	3.4	1.3
Medical	6.0	2.3
Recreation	84.8	33.1
Service and Storage	28.0	10.9
Training	2.7	1.1
TOTAL	**256.0**	**100.0**

Source: U.S. Army, MDW, 1983

3.3.3.2 Population

3.3.3.2.1 Arlington County. Fort Myer is located in Arlington County, Virginia. Arlington County lost population in the 1970s. The county has registered small increases for each year from 1983 to 1988 (Table 3-28). The stabilization of central jurisdictions of the Washington, D.C., metropolitan area may be partly explained by increases in births during the last few years along with reduced population shifts to suburban areas.

The population in Arlington County in 1990 is estimated to have been 170,940. The 1988 population figures were used for modeling because they were the latest figures that could be obtained for each of the counties and cities within the MSA when this document was prepared.

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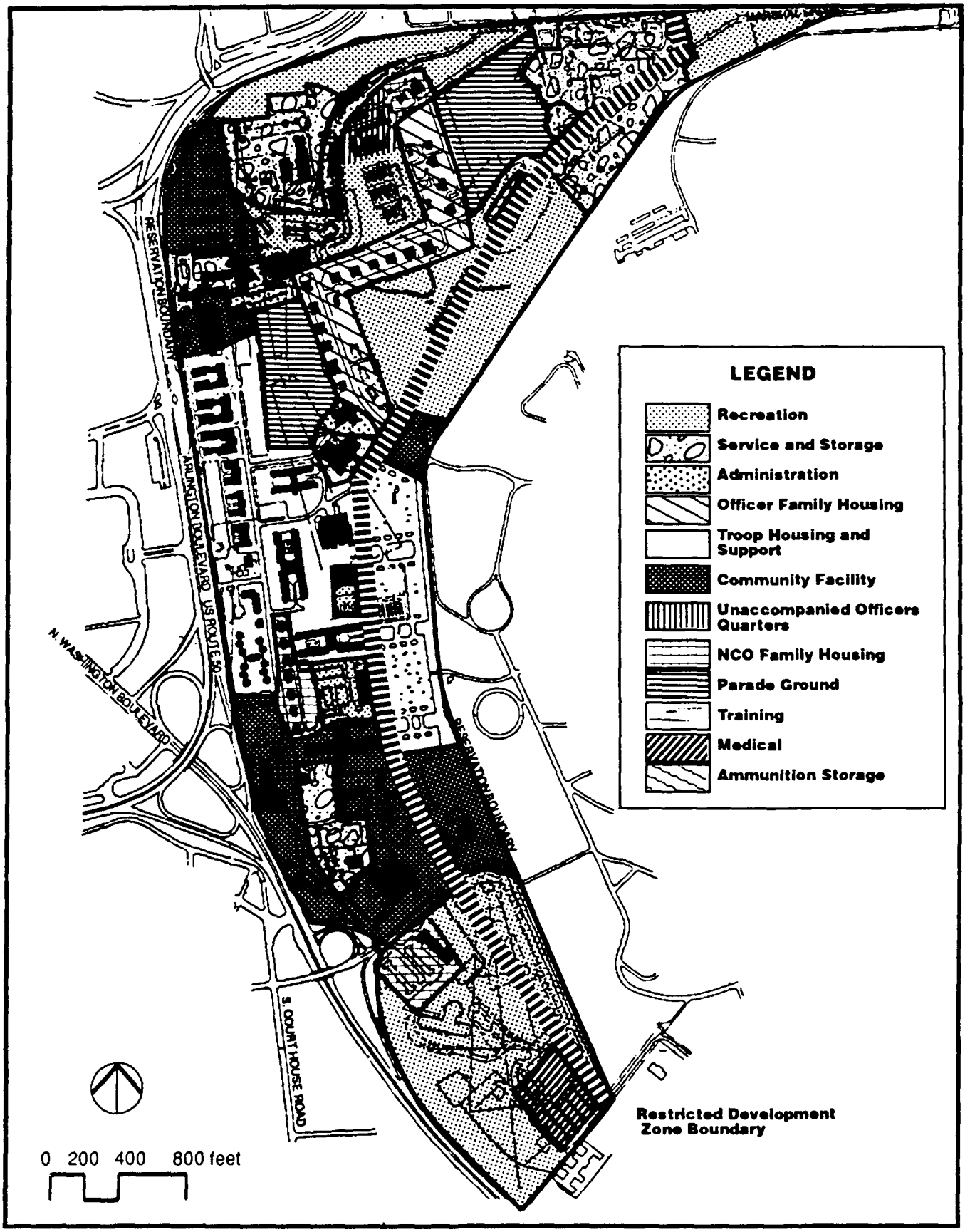


Figure 3-13
Fort Myer Existing Land Use

Table 3-28 POPULATION TRENDS IN ARLINGTON COUNTY, 1983-1988			
Year	Arlington County Population	Average Annual Change (Percent)	
		Arlington County	Washington, D.C., MSA
1983	153,200	-0-	-0-
1984	153,400	0.1	1.4
1985	153,600	0.1	1.4
1986	154,900	0.9	1.8
1987	158,900	2.6	3.0
1988	161,900	1.9	3.7
Source: Metropolitan Washington Council of Governments, 1989. Local government estimates and the Bureau of the Census reports.			

3.3.3.2.2 Fort Myer. The current population of Fort Myer is 3,854 military employees, 1,258 civilian employees, and 630 military family members. This represents 3.5 percent of Arlington County population on the basis of 1988 data.

3.3.3.3 Housing

3.3.3.3.1 Arlington County. New housing constructed in the County of Arlington represented approximately 3.1 percent of the total of new housing constructed in the Washington metropolitan area during the period from 1983 through 1988 (Table 3-29). Construction of single-family dwelling units represented approximately 24 percent of the total number of residential units constructed in Arlington County. This was the third lowest percentage of single-family construction in the jurisdictions of the Washington, D.C., metropolitan area.

3.3.3.3.2 Fort Myer. As part of its mission, Fort Myer provides housing for military personnel in the MDW, as well as for high-ranking senior officers stationed in the Washington, D.C., area. Housing is currently divided into two types, family housing and unaccompanied personnel housing.

The unaccompanied personnel housing, or barracks, at Fort Myer can house up to 3,887 enlisted personnel. A dining facility for enlisted personnel is located in proximity to the barracks.

Table 3-29 HOUSING TRENDS IN ARLINGTON COUNTY, 1983-1988				
	Total Residental Units Constructed	**Single-Family Units Constructed**	**Percent Single Family**	**Percent of Total Region**
Arlington County	6,998	1,678	24.0	3.1
Washington, D.C., MSA	223,446	170,749	76.4	100.0
Source: Metropolitan Washington Council of Governments, 1989. Permit-Authorization Construction in Selected Permit-Issuing Places. U.S. Department of Commerce, Bureau of the Census, C-40 Reports.				

Officer family housing is allocated for the Chairman of the Joint Chiefs of Staff and the Chiefs of Staff for the Army and the Air Force. In addition, quarters are allocated for 22 general officers, 6 colonels, 6 field-grade officers, 3 company-grade officers, and their families.

Quarters are also provided for 140 non-commissioned officers and their families. These families are housed in one of three ways: single-family home, duplex, or high-rise apartment.

3.3.3.4 Employment

3.3.3.4.1 Arlington County. The County of Arlington experienced a 24.2 percent increase in jobs during the period from 1983 through 1988 (Table 3-30).

Employment in Arlington County ranged between approximately 7.3 percent and 7.8 percent of the total number of jobs in the Washington, D.C., metropolitan area during the period between 1983 and 1988.

3.3.3.4.2 Fort Myer. Fort Myer currently employs a total of 3,854 military and 1,258 civilian personnel, which is approximately 3.3 percent of the employment in Arlington County, based on 1988 data.

3.3.3.5 Income

3.3.3.5.1 Arlington County. In 1983, and through 1987, Arlington County has had the greatest per capita income in the Washington, D.C., metropolitan area for each year, with the exception of 1986 when it had the second highest per capita income (Table 3-31).

Table 3-30
EMPLOYMENT TRENDS IN ARLINGTON COUNTY, 1983-1988

	Nonagricultural Wage and Salary Jobs (Thousands)						
	1983	1984	1985	1986	1987	1988	Percent Change
Arlington County	125.1	138.0	142.3	147.7	154.6	155.4	24.2
Percent of Total Employment in Washington, D.C., MSA	7.5	7.8	7.6	7.6	7.6	7.3	--

Source: Metropolitan Washington Council of Governments, 1989. Compiled by MWCOG, from the District of Columbia Department of Employment Services, Maryland Department of Economic and Employment Development, and Virginia Employment Commission Reports.

Table 3-31
ANNUAL PER CAPITA INCOME IN ARLINGTON COUNTY, 1983-1987

	1983	1984	1985	1986	1987
Arlington County	$20,610	$22,325	$23,994	$25,926	$27,243
Washington, D.C., MSA	$16,109	$17,519	$18,935	$20,148	$21,539

Source: Metropolitan Washington Council of Governments, 1989. U.S. Department of Economic Analysis Regional Economic Analysis, Regional Economic Information System.

3.3.3.5.2 Fort Myer. The average salary at Fort Myer is $24,482 per year for military personnel and $25,198 per year for civilian personnel.

3.3.3.6 Community and Army Facilities

Potable water is supplied to Fort Myer by the Washington Aqueduct Division of the U.S. Army Corps of Engineers. Water is piped from the Dalecarlia Reservoir in northwest Washington, D.C., and Montgomery County, Maryland, through a 16-inch main. The water is distributed from this line by both a 6- and 10-inch main on the post. Both of these lines feed the pumping station located in Building 301, which increases the water pressure and meters the demand. Total capacity of the pump station is 2,400 gpm. For the most part, all of the mains are located adjacent to roadways, and hydrants are all readily accessible. In 1986, the peak domestic water demand was esti-

mated to be 1,108 gpm. The average water demand between 1987 and 1990 was approximately 550 gpm. The number of personnel that the existing water supply system could effectively support is estimated at 12,000 (U.S. Army, MDW, 1987).

In addition to the main water supply, Fort Myer has an emergency use connection to the Arlington County water distribution system. Under emergency conditions, the county would open a valve on the 10-inch feeder to Fort Myer and could supply between 0.5 and 1 mgd (U.S. Army, MDW, 1987).

Wastewater from Fort Myer is collected, routed, and treated at the Arlington County Sewage plant. Peak flow rates of sewage from the post in 1986 were estimated to be 3,953 gpm, leaving an unused capacity of 1,409 gpm for future expansion (U.S. Army, MDW, 1987). Average wastewater flows were approximately 501 gpm. The existing system could effectively support a post population of approximately 9,300 (U.S. Army, MDW, 1987).

The Washington Gas Light Company supplies natural gas to Fort Myer through three high-pressure, steel mains. All of the feeder lines, distribution lines, reducing regulators, meters, and other distribution and metering equipment is owned and maintained by Washington Gas Light Company. The existing agreement guarantees a minimum pressure of 20 pounds per square inch to the post (U.S. Army, MDW, 1987). Between 1987 and 1990, gas use at Fort Myer averaged 220,000 therms per year.

Electrical power is supplied to Fort Myer by Virginia Power through three 13.8-kilovolt feeders. One of the feeders is considered standby, however, and used only during peak demand and emergency situations. The average peak demand from November 1985 through October 1986 was 4,886 kilowatts, and the average offpeak demand was 4,732 kilowatts. Peak hours are on weekdays only, between 10 a.m. and 10 p.m., June through December, and between 7 a.m. and 10 p.m. from January through May (U.S. Army, MDW, 1987). Between 1987 and 1990 the average annual electrical demand was approximately 32,600,000 kilowatt hours.

Until the end of the 1979-1980 school year, Arlington County Schools operated a grade school for dependents at Fort Myer. The school was closed at the end of that year because of low enrollments, and the facility is now used for administrative and community activities. All of the school-age family members residing at Fort Myer are currently enrolled in the Arlington County School system and attend Long Branch Elementary, Thomas Jefferson Junior High, and Wakefield Senior High schools located off post.

Off-post fire protection is provided by Arlington County Fire Companies 1, 4, 5, and 10. Police protection is provided by the Eads, South, and Courthouse police stations and the police headquarters.

Police and fire protection on post are provided internally. A kennel is located at Fort Myer, which provides training and maintenance areas for the security patrol dogs. Fort

Myer currently has a two-story fire station, as well as adequate hydrant connections (U.S. Army, MDW, 1983, 1984).

There are churches of several denominations located close to Fort Myer (within 5-6 miles). In addition to Arlington National Cemetery, the Custis Lee Mansion, and the nearby attractions of Washington, D.C., several neighborhood and county parks and recreational facilities are located in the vicinity of Fort Myer. Several county libraries are also located in proximity to Fort Myer.

The Main Chapel (Building 335) is used primarily for military funerals and is not available for post activities. The Memorial Chapel (Building 480) is available for post activities.

Four regional shopping centers are located within a short driving distance from Fort Myer. Numerous shops and services are located close by, along Pershing Drive (near Fort Myer's Henry Gate), Washington Boulevard, Wilson Boulevard in Clarendon, and Columbia Pike.

Heat for the various buildings on Fort Myer is provided in two ways. The main heating plant consists of four oil-fired boilers with an existing capacity of 92,000 pounds per hour (lb/hr) and total capacity of 132,000 lb/hr. A smaller, secondary heating plant contains two oil-fired boilers with an existing capacity of 10,250 lb/hr and a total capacity of 20,500 lb/hr. These boiler plants provide heat through steam lines to the majority of the buildings at Fort Myer. Buildings not serviced by the central heating system are heated by individual units fired either by fuel oil or natural gas (U.S. Army, MDW, 1987).

In addition to the Army facilities described above, Fort Myer also provides other facilities, which include a post office, bank, bowling center, clothing sales center, commissary, PX, the Andrew Rader U.S. Army Health Clinic, skill development center, child care center, continuing education facility, gymnasium, officers open dining facility, 3rd Infantry Museum, youth center, recreation center, theater, thrift shop, indoor racquetball courts, and a variety of outdoor playing courts and ball fields as well as four swimming pools.

3.3.3.7 Traffic and Transportation

Fort Myer was not included in the Fort Belvoir regional traffic impact analysis. The Army plans to conduct a traffic study of the Fort Myer area to obtain current baseline traffic loadings, levels-of-service, and descriptions of conditions in the locality in response to existing traffic congestion. There is no recent VDOT traffic data available. The most recent traffic information currently available is that found in master planning documents for Fort Myer. The following discussion is therefore a general one.

The main access roads servicing Fort Myer are Arlington Boulevard (Route 50) and South Washington Boulevard (Route 27). The northbound lanes of Washington Boulevard service the Second Street overpass leading to Hatfield Gate, the main entrance to

Fort Myer. Arlington Boulevard provides a second entrance to the post at Henry Gate, the original main entrance to Fort Myer.

Fort Myer is also accessible from North Meade Street servicing Wright Gate at the northern boundary. Carpenter Gate at the southern boundary is closed to traffic, but could provide access to Henderson Hall and Arlington National Cemetery. Both Hatfield Gate and Wright Gate provide 24-hour access to Fort Myer. Henry Gate is closed from 11 p.m. to 6 a.m.

Two additional gates, Cemetery Chapel and Gibson, provide limited access to Arlington National Cemetery for ceremonies and maintenance.

The primary post roads are Marshall Drive, Jackson Avenue, Sheridan Avenue, and Henry Place. These are major thoroughfares providing access to the installation and connecting all of the major areas. The secondary road network, or collector-distributor system, is composed of Sherman Road, Custer Road, Lee Avenue, McNair Road, Wainwright Road, Pershing Drive, and Carpenter Road.

No signalized intersections exist on Fort Myer. Traffic control is limited to stop signs. Military police are used when additional temporary volume requires additional controls.

The majority of the military population employed at Fort Myer is housed on the post, which greatly reduces daily traffic volumes. The civilian employee population is on "flextime" to further minimize traffic during regional peak periods.

Fort Myer is served directly by Metrobus, and indirectly by subway service to the Courthouse, Rosslyn, and Arlington National Cemetery Metro Stations. A connector Metrobus from the Courthouse Metro Station is available for commuters. Fort Myer is also part of the MDW bus service, which shuttles employees between MDW operations.

3.3.4 CULTURAL RESOURCES

3.3.4.1 Historic Resources

Fort Myer, established in 1861, was originally named Fort Whipple. The post occupies land that once belonged to the Arlington estate of Robert E. Lee. The original mission of the post was to strengthen the defenses around Washington, D.C. (U.S. Army, 1975).

From 1863 to 1869, the post housed infantry and artillery troops. In 1869, the Signal Corps were garrisoned at the post and the Signal Schools of Instruction of Army and Navy Officers were established. The post was renamed Fort Myer in 1881. The Signal Corps School was discontinued in 1886, and Fort Myer became a cavalry post. In 1902, it was recommended that Fort Myer be designated a permanent post. Fort Myer houses the Old Guard Ceremonial Unit and the U.S. Army Band. In 1972, the northern portion of Fort Myer (Figure 3-14) was designated a National Register Historic

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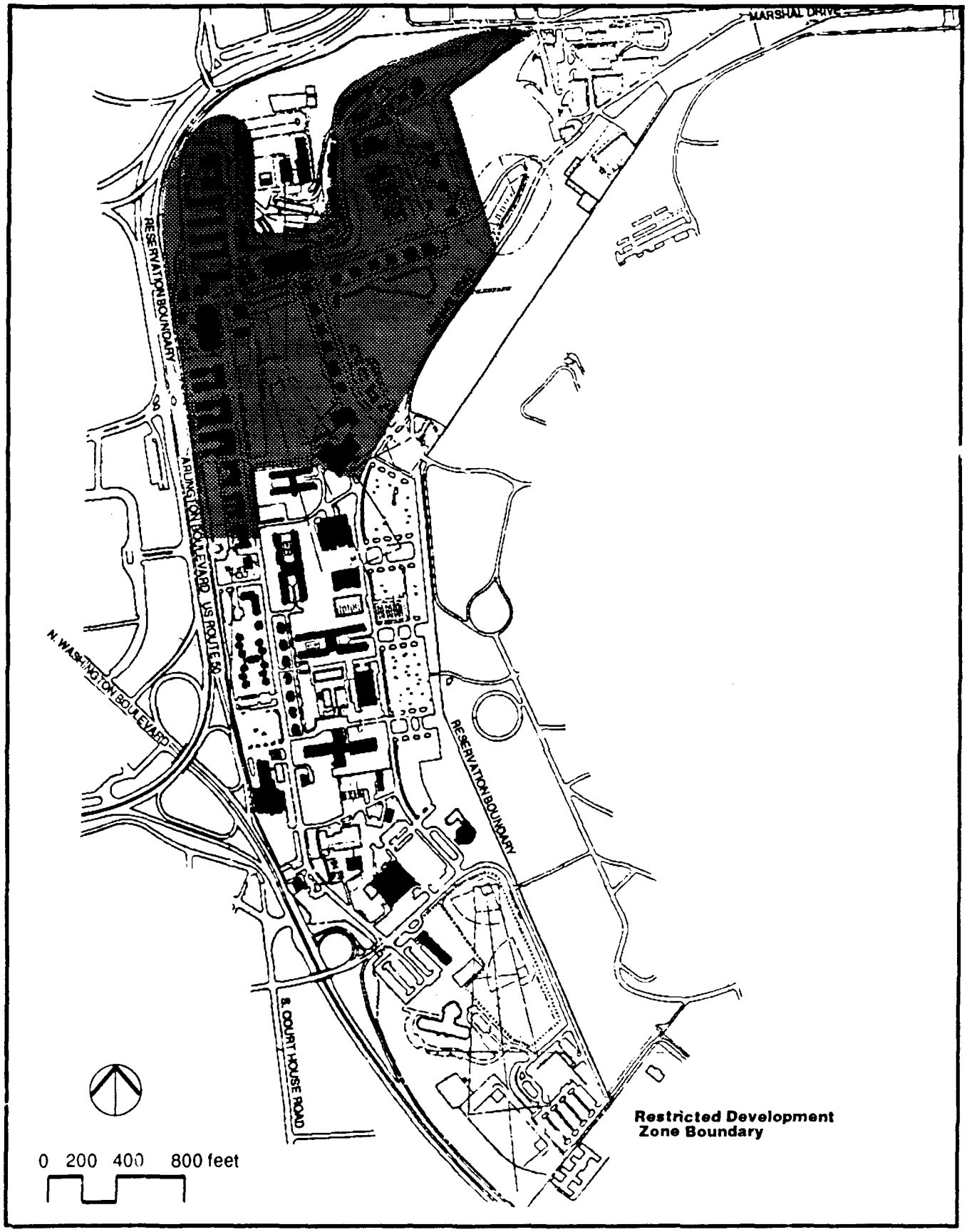


Figure 3-14
Fort Myer Historic District

District, and Quarters 1 was designated a National Historic Landmark. Because of one part of Fort Myer's present mission, to provide housing for high ranking military personnel, it is often known as the "Home of the Generals" (U.S. Army, 1975).

3.3.4.2 Archeological Resources

There are no known archeological resources on Fort Myer. A cultural resource survey will be completed to locate any archeological resources that meet the criteria of the NRHP before starting any project that may have an adverse effect on cultural resources. After completing this survey, the installation will notify the State Historic Preservation Office (SHPO) of the existence of any significant resources and complete the appropriate steps of NHPA, Section 106 (36 CFR 800).

3.3.4.3 Visual Resources

The aesthetic qualities at Fort Myer are primarily associated with the vistas of the Arlington National Cemetery, the Potomac River, and Washington, D.C. In addition, there are many historic structures located along tree-lined streets in the northern section of the post.

3.3.5 Hazardous Materials

Previous investigations identified ten aboveground storage tanks at Fort Myer. These tanks are being used to hold waste oil, diesel fuel, unleaded gas, varsol, and #2 fuel oil. The tanks range in size from 275 to 1,000 gallons. No secondary containment is provided at any of these locations. A 500-gallon tank previously used to store perchloroethylene at Building 443 is scheduled to be removed concurrent with the demolition of Buildings 442 and 443 in March 1992.

Forty-six USTs have been identified on Fort Myer. Of these, 37 are active and 9 are inactive. The Military District of Washington has decided that all abandoned tanks and all tanks installed before 1975 will be removed. Under current plans, 33 tanks will be removed, 11 will be upgraded or replaced, and 2 will require no further action. No notices of violation have been issued for Fort Myer. Table 3-32 lists the activities that generate hazardous materials at Fort Myer.

Table 3-32 SOURCES OF HAZARDOUS MATERIALS AT FORT MYER	
Activity	**Materials Generated**
Former Dry-Cleaning Plant	Perchloroethylene
Sign Shop	Solvents
Auto Shop	Fuels, lubricants, solvents
Heavy Equipment Motor Pool	Underground storage tanks; petroleum, oils, lubricants
Museum	Multiple solvents
Paint Shop	Paints, solvents
Electrical Utilities	PCBs from leaking transformers (slated for removal)
Old Guard Motor Pool	Lead acid batteries, paints, solvents, sandblasting operations

The preferred alternative for the shoppette includes Building 448, the former dry-cleaning plant. USATHAMA has completed a preliminary assessment for perchloroethylene contamination. Of the 84 soil samples taken from around Building 448, 32 tested positive for perchloroethylene. In addition, two of the samples contained ethylbenzene. Gasoline-like hydrocarbons were detected in five of the samples; however, this contamination was unrelated to the laundry plant. A Phase II environmental subsurface site investigation will be performed to determine the extent of the contamination and to develop remedial action plans.

The ammunition depot located near the intersection of McNair Road and Marshall Drive stores only ready-issue and ceremonial rounds. The facility meets all DOD safety standards for ammunition and explosives (U.S. Army, MDW, 1983). Surveys for asbestos will be conducted on Fort Myer and remediation will be completed as required.

3.4 FORT McNAIR

3.4.1 PHYSICAL/CHEMICAL RESOURCES

3.4.1.1 Physiography and Topography

Fort McNair consists of 88.9 acres and occupies the western portion of the peninsula between the Washington Channel and the Anacostia River (Figure 3-15). The land is generally flat. The seawall elevation is 4.2 feet (D.C. Datum Benchmark), and the site

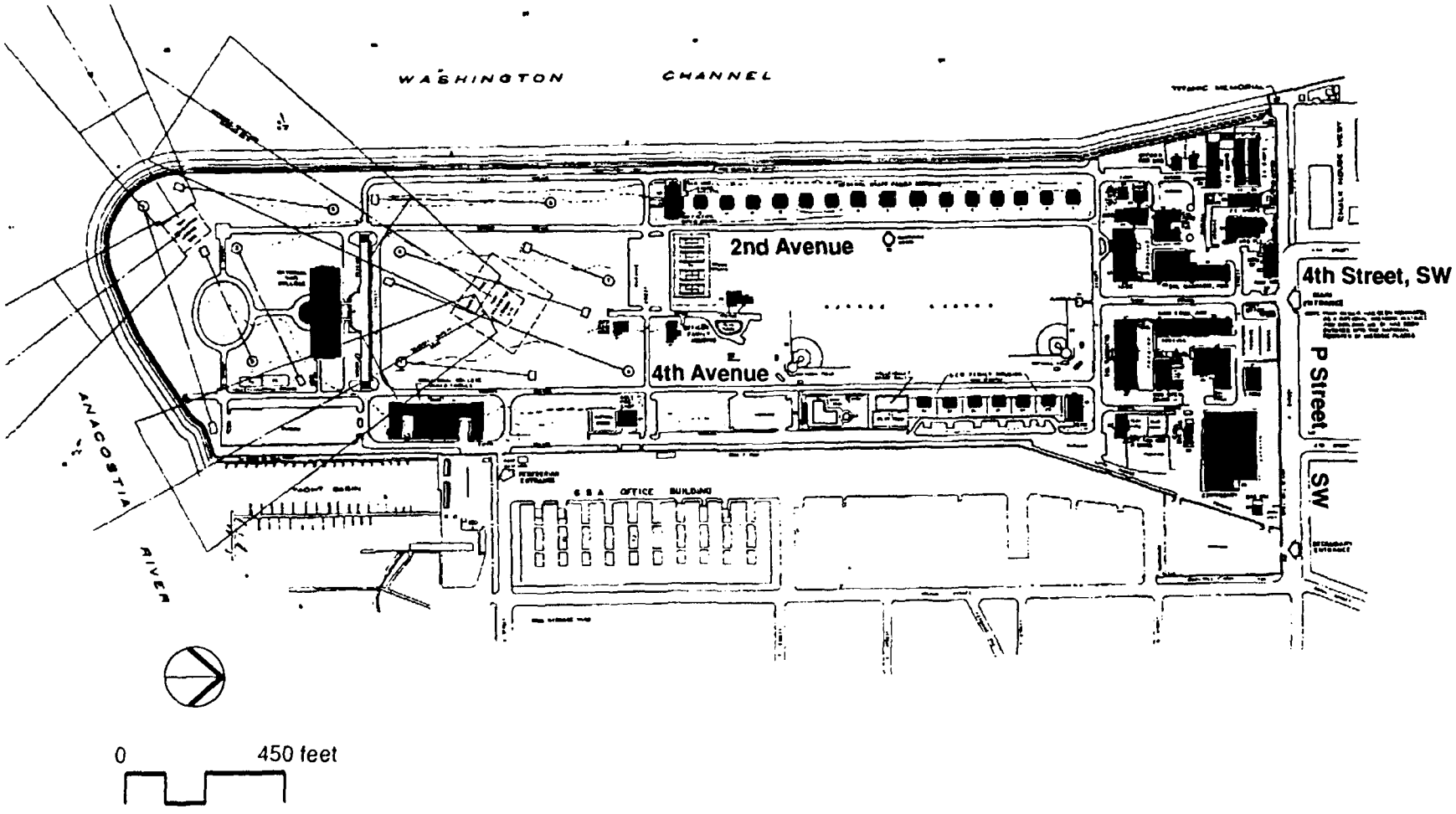


Figure 3-15
Fort McNair Site Map

ranges in height to 17 feet in the middle of the golf course. Building areas are generally 10 to 12 feet in elevation.

3.4.1.2 Geology and Groundwater

The geology of the area consists of alluvium and artificial fill. The alluvium comprises gravel, sand, silt, and clay of lowest stream terraces and bottoms deposited in recent times. The artificial fill is dredged material consisting of alluvial gravel, sand, silt, and clay. Contact with the underlying crystalline rocks occurs at a depth between 200 and 300 feet. Sound rock because of weathering could be as much as 50 feet below this contact. Groundwater is usually available near this contact.

3.4.1.3 Surface Water

There are no streams on post. Storm runoff is handled by a system of inlets and pipes outfalling into both the Anacostia River and the Washington Channel, which forms the western boundary of the installation.

3.4.2 BIOLOGICAL RESOURCES

3.4.2.1 Terrestrial Biota

3.4.2.1.1 Vegetation. Existing tree cover at Fort McNair includes tuliptrees, sweet gums, sycamores, oriental cherries, Norway maples, and lindens. These, the large oaks, and a few remaining American elms provide a pleasant visual environment, complement the historic architecture, define the large open spaces, and provide scale and texture as foreground to the views of the Washington Channel and the Anacostia River.

The original master plan for Fort McNair proposed formal tree planting of single rows, regularly spaced, along each side of post roadways, including the Main Entrance Road (Third Avenue) and the Central Mall (parade ground and golf course), perimeter roads such as Second and Fourth Avenues, and B and E Streets.

Although there are trees planted along these roads, they are placed in an irregular pattern and, in many cases, two rows of varying species exist next to each other.

3.4.2.1.2 Wildlife. Wildlife on Fort McNair, which consists primarily of squirrels, chipmunks and various songbirds, is not a significant component of the post environment. Aquatic life in surrounding waters has been adversely affected from extensive dredge and fill operations, siltation, and toxic effects of heavy metals and chemicals. The situation is improving, however, and more important forms of aquatic life such as shad, alewife, perch, and catfish have appeared recently.

3.4.2.2 Wetlands

Fort McNair is separated from the water of the Washington Channel and the Anacostia River by a seawall. The seawall consists of approximately 4,886 linear feet of stone,

brick, and concrete. It extends from the northwest corner boundary to the boundary wall on the east shore, where it connects to the yacht basin. The seawall and yacht basin preclude the formation of any tidal wetlands on the property.

3.4.2.3 Threatened and Endangered Species

No rare, threatened, or endangered species are located at Fort McNair. The developed nature of the post would preclude colonization by these species.

3.4.3 Socioeconomic Conditions

3.4.3.1 Land Use

3.4.3.1.1 Regional Development. Important development in the Fort McNair area includes the Southwest Urban Renewal Area, Waterside Mall, Waterfront Metro Station, Buzzard Point Development, Capital Gateway Complex, and the Southeast Federal Center projects.

The Southwest Urban Renewal Area is an area of mixed office, commercial, and residential uses immediately north of the post. It is a completely developed area, including high- and medium-density apartments, which reversed the population decline experienced before the 1950s. The South Capital Street-Buzzard Point area east of the post is a mixture of residential (including several attractive public housing projects), commercial, office, and industrial areas. The District of Columbia Office of Planning has targeted this area for upgrading.

East of South Capital Street is the Capital Gateway area, which is similar to Buzzard Point. Long-range plans, currently in abeyance, include an apartment and office complex, with motel and hotel facilities, and waterfront and community facilities. East of the Capital Gateway Project is the site of the planned Southeast Federal Center in the Washington Navy Yard. Long-range plans call for office space for 10,000 to 15,000 federal employees.

3.4.3.1.2 On-Post Land Use. A study was made of the existing land use of the post to determine the size and area of land uses to be retained or changed in future.

The Reservation Plan indicates proposed land-use areas allocated to accommodate future requirements. A summary of the approximate acreage in existing and proposed land-use allocations is given in Table 3-33.

3.4.3.1.3 Adjacent Off-Post Land Use. The land use surrounding Fort McNair ranges from recently renewed residential development to blighted industrial areas. The Southwest Urban Renewal Area, immediately north and northeast of the post, consists of mixed-density housing, mainly mid- and high-rise apartments. Waterside Mall, where the Environmental Protection Agency offices are located, and where the future Waterfront Metro Station is to be sited, is only four blocks north of the main gate. These residential and government office uses are highly compatible with Fort McNair.

Table 3-33
LAND-USE ALLOCATIONS AT FORT McNAIR*

Land Use	Existing		Proposed	
	Acreage	% of Total	Acreage	% of Total
Open Operational Areas				
Parade Ground	(7.8)**	-	(7.8)**	-
Built-up Cantonment Areas				
Administration	2.6	2.9	6.6	6.6
Community Facilities	6.3	7.1	6.4	6.4
Housing	17.0	19.1	17.9	17.9
(NCO Family Units)	(2.3)	(2.6)	(6.4)	(6.4)
(Officers' Family Units)	(11.1)	(12.5)	(7.9)	(7.9)
(Troop Housing and Support Facilities)	(3.3)	(3.7)	(3.3)	(3.3)
(Unaccompanied Officers' Quarters)	(0.3)	(0.3)	(0.3)	(0.3)
Medical	1.3	1.5	1.3	1.3
Recreation**	50.2	56.5	46.4	46.5
Service and Storage	2.3	2.6	1.7	1.7
Training	9.2	10.3	19.6	19.6
TOTAL ACREAGE	**88.9**	**100.0**	**99.9*****	**100.0**

*Master Plan Phase II, *Analytical/Environmental Assessment Report,* July 1984.
**Parade ground included in total recreational land-use category.
***Includes 10.5-acre acquisition-Tempo A & B site and 0.5-acre acquisition-T Street right-of-way.

WDCR504/015.51

Industrial land use, including the Potomac Electric Power Company (PEPCO) Buzzard Point Generating Plant, dominates the area east of Fort McNair and south of Potomac Avenue. In varying stages of decline, the area is in dire need of revitalization according to the District of Columbia Office of Planning.

3.4.3.2 Population

The population in the neighborhoods around Fort McNair decreased from 13,500 in 1970 to 10,148 in 1980. The trend stabilized in the mid-1980s. Households in the area increased by about 430 by 1985, principally the result of construction of the Capital Gateway Development Project. The characteristics of the area population are changing, with more single people and young married and childless couples moving into the area. The resulting drop in school enrollments may affect the post's children who attend neighborhood schools.

3.4.3.3 Housing

3.4.3.3.1 Unaccompanied Officers' Quarters. Limited facilities are located on B Street at the north end of the post. Existing facilities can house 31 unaccompanied personnel and are used primarily for transients. Adjacent buildings, streets, and the parade ground preclude expansion of the existing area.

3.4.3.3.2 NCO Family Housing. A total of 12 units are located on Fourth Avenue at the northeast corner of the parade ground. These units are well located with respect to the community/recreational activities at the northern end of the post. A total of 22 additional family units are planned between the existing development and C Street on the east side of the mall. This land allocation conforms to the McKim, Mead, and White Plan of 1903.

3.4.3.3.3 Officer Family Housing. There are 36 units of housing for officers' families sited in several locations on the post. Fifteen units of general-officer housing face the parade ground along Second Avenue; two units are located on First Avenue at the Washington Channel; and four units are located at the corner of Fourth Avenue and B Street.

3.4.3.3.4 Troop Housing. Existing barracks and attendant dining facilities for unaccompanied enlisted personnel are located at the north end of the post. The allocated areas are separated from the family housing areas and are within walking distance of medical and recreational activities. A total of 182 spaces are available at 90 square feet/person.

3.4.3.4 Community and Army Facilities

The Washington Aqueduct Division, U.S. Army Corps of Engineers supplies Fort McNair with water through two connections to the District of Columbia-owned 12-inch mains. The connections, located at the Main Gate (near Fourth and P Streets, SW) and the East Gate (Fifth Avenue and V Street, SW), are metered.

Water is distributed throughout the installation by a network of 6-inch and 8-inch cast-iron mains, which serve both domestic and fire protection functions. The system contains four major interconnected loops and several minor subloops. Sectionalizing valves are provided at loop intersections and every 300 to 500 feet between intersections. With few exceptions, the mains are located adjacent to roadways. Fire hydrants are readily accessible.

Wastewater collected at Fort McNair is discharged into the District of Columbia sewer system. Connections are made to the District of Columbia sewers at the northern boundary along P Street, and on Second Street at Q Street, T Street, and V Street.

Sewage treatment is provided by the District of Columbia's Blue Plains Treatment Plant before discharge into the Potomac River.

Natural gas is supplied to Fort McNair by the Washington Gas Light Company from a 6-inch, high-pressure main located in P Street, SW. The Washington Gas Light Company has two master meters and a pressure reducer located in Building 44. There is a fire shut-off valve in the 6-inch, high-pressure main to the meter building and a 10-inch, low-pressure main from the building that supplies the post. The system is capable of supplying all existing loads. The precise age of all piping is not known. The original piping was cast iron installed before 1959. Piping installed since 1959 has been of steel, except for a small change made in 1976, which is extra-heavy cast iron. Since that time, the cast iron pipe has been replaced with steel.

Fort McNair is served by PEPCO from its Buzzard Point 13-kilovolt substation located at First and V Streets, SW. The incoming 13.2-kilovolt underground feeders are the property of PEPCO, and the government owns the switching station equipment and the extensive underground distribution system on post. Telephone service at Fort McNair is supplied by the Chesapeake & Potomac Telephone Company.

Heating facilities for Fort McNair consist of gas- or oil-fired individual units and a high-pressure central heating plant. Twenty-seven buildings are connected to the central steam-distribution system.

On-post community facilities include the commissary, PX, a dental clinic, dispensary, and several recreational areas.

Nearly half of the total land area on post is devoted to recreation facilities, including the parade ground, Officers' Club, NCO Club and Gymnasium, and the nine-hole golf course, which surrounds the National War College. The parade ground and adjacent areas also contain softball fields, volleyball, basketball and tennis courts, and a swimming pool. Additional volleyball and handball courts are located at the south end of the installation.

3.4.3.5 Traffic and Transportation

3.4.3.5.1 Access Roads. Road access to Fort McNair is by the city street system with the primary traffic volume on 4th and P Streets, SW, the location of the main entrance. Traffic at the main entrance is controlled by a traffic signal installed by the District of Columbia Department of Highways. A secondary entrance located on P Street, SW, near Canal Street, is used as an entry point for all truck traffic and for access to the employee parking lot on the east side of the post.

3.4.3.5.2 Interior Roads. Primary traffic circulation is from the Third Avenue entrance road diverted at B Street into Second and Fourth Avenues, which parallel the mall. These roads are rather narrow (18 and 20 feet wide) and limit the volume of traffic, which the post can efficiently handle. A one-way loop provides the basis for internal circulation. The existing system effectively controls the flow and volume of traffic and helps maintain the great dignity of the post.

3.4.3.5.3 Public Transportation. Fort McNair does not have direct rail access. Fort McNair is served by three Metrobus routes, 70, M2, and M5. The nearest Metrorail station will be the Maine Avenue Station on the Green Line, currently under construction.

3.4.4 CULTURAL RESOURCES

3.4.4.1 Historic Resources

As the oldest extant U.S. Army post, Fort McNair has a rich historical background. Built in 1791 on approximately 28.5 acres of land designated by Pierre L'Enfant for military defense of the new Federal City, it has undergone many changes. The original fortifications and buildings, destroyed by the British during the War of 1812, were immediately rebuilt and reoccupied. Originally a fort, it later served as an arsenal, then became a general Army post in 1881. The Army War College and Engineer School were established in 1903. The post hospital became the General Hospital, which later moved to its present site as Walter Reed General Hospital.

The original master plan was prepared for the post in 1903 by the architectural firm of McKim, Mead, and White. This plan, sometimes referred to as a Beaux-Arts Campus Plan, exemplifies the classic principles of formality, symmetry, and balance. During the period from 1903 to 1908, the entire post was remodeled by the Corps of Engineers, which included the construction of most of the buildings that are on the post today.

The National War College was established in 1946, and today uses the original Army War College academic building. The Industrial College of the Armed Forces was established at Fort McNair in 1946, and in 1976, combined with the National War College to form the National Defense University.

Originally known as the Washington Arsenal, the post became known as Fort Lesley J. McNair in 1948 in honor of General Lesley J. McNair, who was killed at Normandy in

1944. During the intervening years, the post was known as the Washington Barracks, from 1881 to 1927; the Army War College, Washington, D.C., from 1927 to 1934; and Fort Humphrey, from 1935 to 1937.

Because of its historical significance as the oldest continuously used United States military post, the prestige of the National Defense University, and the architectural importance of its design and structures, Fort McNair meets the criteria of the National Register as a Historic District. The historic character of the post is to be maintained or restored as appropriate, and architectural compatibility achieved in future construction.

3.4.4.2 Archeological Resources

An archeological survey has not been performed at Fort McNair and is not presently being considered. No construction is planned at Fort McNair as a result of the BRAC action.

3.4.5 HAZARDOUS MATERIALS

Table 3-34 lists the sources of hazardous materials at Fort McNair. Small amounts of insecticides and herbicides are stored at Fort McNair for use on the golf course. There are small amounts of thinners and lacquers at the paint shop. Several PCB-containing transformers are in use throughout the post and are maintained in conformance with current EPA regulations governing PCB items. Regulated PCB transformers are being removed in accordance with applicable regulations. Fuel oil, No. 2 and No. 4, is stored in underground tanks and is closely monitored by engineering personnel. A post spill-prevention and spill-control program has been developed to provide guidance in cases of emergency. Surveys for asbestos will be conducted on Fort McNair and remediation will be completed as necessary. MDW has been cited by the District of Columbia Department of Environment, Division of Hazardous Materials and EPA Region III for lack of training, improper handling and storage of hazardous materials, and storage of hazardous materials for more than 90 days. All of these violations are currently being addressed in accordance with the compliance agreement signed on March 30, 1990.

Table 3-34
SOURCES OF HAZARDOUS MATERIALS AT FORT McNAIR

Activity	Materials Generated
Paint Shop	Multiple solvents
AAFES Service Station	Fuels, lubricants, solvents, USTs
Motor Pool	Fuels, lubricants, solvents, USTs
Electrical Utilities	PCBs from leaked transformers; regulated ones slated for removal
Boiler Plant	Multiple chemcials

3.5 OTHER PROJECTS

3.5.1 PROJECTS CHANGED OR DEFERRED

As pointed out during the scoping process, several other projects were planned in the region, separate from base realignment and closure and the Fort Belvoir Concept Development Plan, which could add cumulative effects to the actions being addressed in this EIS. These projects included the move of AMC headquarters to a site at Fort Belvoir, along Backlick Road near the dirt road called John J. Kingman Road; the move of the HQUSACE to a site on the HEC; the EPG public/private development project; and the development project at the GSA parcel in Franconia. Since the time of scoping for this EIS, the plans for each of these projects have changed, with the exception of the EPG development project.

The AMC has decided to relocate its headquarters to EPG, and the effects of that project will be incorporated into the EIS being prepared for EPG. Both HQUSACE and GSA have indefinitely delayed their plans. Those projects cannot, therefore, be addressed in this EIS. The Concept Development Plan includes a 500-person administration facility (MCA 42) in the vicinity of the previously proposed HQUSACE site.

3.5.2 ENGINEER PROVING GROUNDS

3.5.2.1 Physical/Biological Resources

EPG is located in a gently rolling area between 200 and 300 feet above MSL. The site is heavily wooded and divided nearly in two by the steep-sloped, narrow stream valley of Accotink Creek. On either side of the stream are broad, level terraces cut by steeply dissected slopes draining to the creek. Some of the slopes associated with the drainage ways are 15 percent or greater.

The site lies astride the boundary between two geologic provinces: the Appalachian Piedmont and the Coastal Plain. The geology of the Piedmont is characterized by metamorphic rocks, which produce soils of severe erodibility and are only marginally suited to septic tanks. The Coastal Plain sediments at EPG are poorly consolidated sand and gravel, predominantly of Cretaceous age overlain by Tertiary deposits of marine clay and esturine sand. Some hydric soils, generally associated with nontidal wetlands, are found among the mixed-alluvial soils on site.

The two sides of EPG as delineated by the creek have distinctly different ground cover. The eastern portion of the site is predominately cleared, and consists of field grasses and small areas where regeneration of native cedars and related species is occurring. Substantial tree cover is found around the edges of the eastern portion of the site and over the entire western portion, except for clearings for roads, buildings, and some small testing areas.

Fairfax County has indicated that the Accotink Creek stream valley, as an Environmental Quality Corridor, is included in the elements of EPG that would be included in a Resource Protection Area of the Chesapeake Bay Preservation Area to be established under The Chesapeake Bay Preservation Area Designation and Management Regulations.

3.5.2.2 Socioeconomic Conditions

Approximately 138 people work at EPG, 104 civilian and 34 military personnel. In addition, 10 to 12 people from the State Department and the D.C. National Guard occasionally use the facility.

Fairfax County is divided into planning districts. The EPG is located in the Springfield Planning District, which has a population of approximately 37,965, about 5 percent of the county total. Population in the area has been rising since 1980, a trend which is expected through the year 2000. By 2010, the population is expected to be 46,168.

The district contains approximately 14,493 housing units, including single-family homes, townhouses, multiplexes, and apartments. This number is forecast to increase to almost 20,517 in 2010. The average household size in this planning district is 2.71. This number roughly parallels the rest of the country and is expected to decline to less than 2.50 by 2010.

3.5.2.2.1 Land Use. The major use of land surrounding the EPG is housing. The remaining land is a mixture of small tracts of undeveloped land, some industrial uses, and a smaller amount of commercial development. Steadily increasing encroachment by these land uses on the EPG site has caused the uses of the site by the Army to be severely curtailed. During the 1940s and 1950s, EPG was used as a testing facility for military engineering equipment. Most of these activities have been relocated to other sites or eliminated. Limited research activities still occur at one location on the site.

3.5.2.2.2 Community and Army Facilities. Police protection for the area around EPG is provided by the West Springfield District Police Station to the north of EPG, and the Franconia Station to the east. Fire protection in the vicinity of EPG is provided by the Springfield Volunteer Fire Company, located one-half mile from EPG on Backlick Road. The nearest schools to the EPG are four public elementary schools (Saratoga, Rolling Valley, West Springfield, and Garfield), St. Bernadette Parochial School, Irving Intermediate, and Lee High School. Seven churches are located close by. The Richard Byrd Library is on Old Keene Mill Road, north of EPG. A variety of local shopping centers are located along Old Keene Mill and Backlick Roads. Regional facilities are the same as previously described for Fort Belvoir.

Several parks are located close to or adjoining the EPG property. A stream-valley trail system is proposed for the Accotink stream valley, which cuts through EPG, connecting Accotink Stream Valley Park to the north with Accotink Park to the south of EPG.

No Army support facilities of note are currently located at the EPG; such facilities are located on the Fort Belvoir Main Post.

3.5.2.2.3 Transportation/Access. The area around EPG is served by a road network consisting of an interstate highway, state secondary roads, and local roads. Two county parkways have been proposed in the vicinity. Access to the EPG is currently limited to the main entrance on Backlick Road. There is another entrance onto Rolling Road which is not currently in use. The road network onsite consists of the Heller Loop on the eastern section of the property and another paved road, which follows the northern border, crosses Accotink Creek and winds across the western portion of the site to the closed gate at Rolling Road. Details of the regional transportation network can be found in the Fort Belvoir section of this report.

3.5.2.3 Cultural Resources

According to the Fort Belvoir staff, none of the 39 structures on EPG has any architectural significance. Five structures are to be included in a standing structures survey to be completed in the spring 1991. Approximately 370 acres have been so severely disturbed that archaeological surveys do not need to be conducted. The remaining 450 acres have been surveyed and no significant resources were found.

3.5.2.4 Hazardous Materials

Following USAEHA protocol, an Environmental Baseline Study (EBS) was initiated at EPG under the sponsorship of USATHAMA and the Argonne National Laboratory. The purpose of the study was to determine the nature and extent of contamination before the release or development of the property.

Phase I of the EBS was used to establish the scope of the subsequent phases and determine the potential for environmental contamination at EPG. Phase II of the EBS outlined the EPG's environmental setting, identified potentially contaminated areas, and recommended areas that will require further characterization. Forty-four potential hazardous waste sites were identified at the EPG. Phase III efforts were recommended for forty of the identified sites.

Phase III of the EBS included sampling of the existing transformers, sampling of Accotink Creek, and radon testing. Concentrations of contaminants are compared with applicable state and federal regulations, with background concentrations for metals, and with average concentrations of metals in soils in the eastern United States. Phase III verified the presence or absence of contamination and recommended future action. Contamination was present at 17 of the 40 sites. The contaminant of concern at these 17 sites is petroleum hydrocarbons. Radon was not detected in significant concentrations. Three of the 66 existing transformers contain PCBs in excess of the cleanup guideline stated in 40 CFR 751.1. The sediment and surface water samples from Accotink Creek were free from contamination.

Asbestos surveys have been conducted for buildings at EPG. Asbestos-containing building materials such as transit board, pipe insulation, floor and ceiling tile, and roofing were found in 11 buildings. The complete survey report, including the recommendations for control and management of asbestos-containing building materials is available through the Environmental and Natural Resources Division at Fort Belvoir.

The construction of any project will begin only after the EPG site is clear of any identified hazardous sites. All cleanup of contaminated sites will be conducted in accordance with the requirements of the Virginia Department of Waste Management. The goal of the remediation is to remove any environmental hazard at EPG.

WDCR510/009.51

Chapter 4.0
CONSEQUENCES OF PROPOSED ACTION

4.1 CAMERON STATION

The closure of Cameron Station and its subsequent reuse may have environmental and socioeconomic effects as described below.

4.1.1 PHYSICAL/CHEMICAL RESOURCES

4.1.1.1 Physiography and Topography

Closure of Cameron Station and subsequent residential and commercial development may affect the physiography of the site because current drainage patterns of the site will probably need to be changed. This is necessary because large portions of the site are currently considered to be in the 100-year floodplain. Alterations to culverts in Cameron Lake may slightly change the relief of the site. Development in the floodplain is regulated by the City of Alexandria.

With 65 percent of the site currently covered with permanent or temporary buildings, redevelopment of the site into mixed residential and commercial use should not significantly alter the general physiography of the site, assuming that Cameron Lake will not be filled or otherwise developed. If the redevelopment of Cameron Station is built in accordance with local floodplain regulations, the physiography and topography should not be significantly affected.

4.1.1.2 Geology and Groundwater

The proposed reuse of Cameron Station as a moderately intense, mixed-use development should not significantly affect geological resources in the area. Because the groundwater level is only ten feet below the land surface in some portions of the installation, large excavations would require continuous dewatering to prevent groundwater infiltration (McMaster, et al., 1984). Assuming that no new construction would occur involving excavations in these areas, no impacts are expected to the shallow groundwater. Because municipal water lines are currently available, it is not likely that groundwater will be used for a water supply by future development.

4.1.1.3 Soils

The soils at Cameron Station have been altered by grading, filling, and development on the site. The potential for erosion at Cameron Station is decreased by its relatively flat topography. However, any building and grading activities at Cameron Station should use best management practices to minimize soil erosion and sedimentation on the site.

4.1.1.4 Surface Water

Simply closing Cameron Station should have no effect on the surface water bodies found on and adjacent to the installation. However, the PA conducted by USATHAMA recommended that Cameron Lake should be further investigated to determine the quality of the water and sediments before releasing the property.

A highest and best use study identified the need for maintaining open space in order to increase the marketability of the site for mixed residential and commercial use (Delta Research Corporation, 1989). Cameron Lake will likely be maintained to provide open space and be redesigned as a sedimentation and stormwater management basin. Therefore, Cameron Lake is unlikely to be affected directly through filling, but indirectly by possible sedimentation from land development activities and changes in the fisheries and wildlife management practices currently overseen by MDW. Possible water quality degradation in Cameron Lake may result as construction activities cause increased sediment in stormwater runoff entering the lake; this can be greatly reduced through the use of best management practices during construction. Construction will adhere to guidelines outlined in the *Virginia Erosion and Sediment Control Handbook*.

If redevelopment of the site results in an increase in impervious surfaces, water quality in Cameron Lake may be affected by increased inputs of oil, and sediment associated with overland flow from paved surfaces. Impacts to Backlick Run, Holmes Run, and Cameron Run are likely to be less than those to Cameron Lake because Cameron Lake should act as a retention and settling basin for waterborne sediments.

4.1.1.5 Climate and Air Quality

Base closure and redevelopment of Cameron Station should not significantly affect the climate of the local area or region; nor will climate significantly affect the post's potential for redevelopment and reuse after closure.

The closure of Cameron Station should slightly improve the air quality in the area, because operations will have ceased. Other effects on air quality that can be expected with reuse of Cameron Station include temporary increases in dust associated with demolition of the existing buildings and construction of new buildings on the site. Redevelopment will affect air quality because of emissions of carbon monoxide and suspended particulates from construction equipment and fugitive dust from construction activities.

Although the final reuse of Cameron Station is not determined at this time, it is likely that traffic to and from the site will increase over the preclosure traffic volume, and increases in carbon monoxide and suspended particulate emissions will ensue. In contrast to current impacts associated with the Cameron Station operation, the magnitude of these impacts will depend on the final development of the property.

4.1.2 BIOLOGICAL RESOURCES

Because of the developed nature of Cameron Station and its lack of biological resources, no significant impacts are expected as a result of base closure or subsequent redevelopment and reuse. The waterfowl currently using Cameron Lake will likely continue to use the lake or relocate to other waterbodies nearby.

4.1.3 SOCIOECONOMIC CONDITIONS

Socioeconomic impacts of the proposed BRAC actions have been determined by the Institute for Water Resources (IWR) using the Economic Impact Forecast System (EIFS). The outputs of the EIFS model are discussed here in terms of changes (losses or gains) within the region where a realignment-associated installation is located. Impacts (regional losses or gains) associated directly with alignment actions are considered to be primary impacts. Primary impacts include the changes in the following parameters: personnel employed at the installation and their salaries; procurement; and the initial expenditures of realignment-associated construction. Secondary impacts are those effects induced by the initial (primary) impact; for example, a decrease (change) in the regional demand for goods and services that is associated with a regional decrease (change) in the number of people earning wages and salaries. In this case, the change (decrease) in demand is the secondary impact that was induced by the primary impact, which is the change (decrease) in the number of actual or potential purchasers (persons earnings wages and salaries). Total impacts for a region include all of the primary and secondary impacts within the region. The primary and secondary regional socioeconomic impacts of the BRAC actions include the following:

- There will be a net loss of approximately 329 permanent positions[1] (260 civilian and 69 military) in the region, precipitating an annual $12.3 million decrease in total regional wages and salaries. The number of people holding second jobs and the number of working dependents is expected to increase by the equivalent of 42 full-time positions and their wages will increase by $0.5 million.

- The total decrease in regional purchasing power from all sources will be offset by nearly $200 million in realignment-associated construction and by $34.1 million in one-time expenditures.

- A net total of approximately 215 employees (148 civilian and 67 military) are expected to leave the region because of the Fort Belvoir realignment. The actions are expected to result in a 594-person decrease in regional population. The total decrease in regional population will include a decrease in persons living off post and a decrease in children attending

[1]All numbers for acreage, square footage, and personnel within this EIS are subject to fluctuations and are therefore approximate.

public schools. In addition, there will be a decrease in the total number of occupied housing units within the region.

- The region's general economic activity (i.e. sales, employment, and income) will increase because of the positive effects of BRAC-related construction and one-time expenditures, although demographic changes will be negative. The socioeconomic effects of these actions are not significant to the affected region (IWR, 1990).

- The expected changes in population, employment, income, and sales volume within the region are expected to represent approximately 0.02%, 0.02%, 0.07%, and 0.2% of their 1987 levels, respectively (IWR, 1990).

4.1.3.1 Land Use

Cameron Station is scheduled for closure in 1995. Upon closure, the land at Cameron Station may lay idle until it is reused. It is possible that other federal agencies, state or local governments may acquire the property for their use. The Alexandria City Council has zoned the property for mostly residential use, with some commercial and open space.

4.1.3.2 Population

Cameron Station is scheduled for closure in 1995, affecting a total of approximately 3,949 personnel (3,630 civilian and 319 military). Of that total, 3,835 people (3,518 civilian and 317 military) are expected to be transferred to Fort Belvoir, Fort Myer, or Fort McNair, all of which are located within the region. Two military and 112 civilian positions will be eliminated. It is assumed that the people holding these positions will remain in the region. The closure of Cameron Station, therefore, will produce no change in regional population.

4.1.3.3 Housing

The transfer of positions within the region, principally to Fort Belvoir, is not expected to result in a change of residence for the affected personnel, but rather a change of commuting pattern. None of the affected personnel live on Cameron Station. Fort Belvoir is located approximately 12.5 miles south of Cameron Station, Fort Myer approximately five miles to the west of Cameron Station, and Fort McNair is approximately six miles north of Cameron Station. Transfer of personnel from Cameron Station to installations within the region, therefore, is not expected to affect the supply or demand for local housing.

Proposed reuse plans for Cameron Station include mixed-use development with single-family detached and townhouse units with a density of 6 to 12 units per gross acre. Housing demand in the City of Alexandria is regarded as strong, more so for town-houses than for single-family detached units.

4.1.3.4 Employment

Closure of Cameron Station will result in the elimination of 112 civilian positions and two military positions.

4.1.3.5 Income

The number of permanent-party military personnel will decrease by 319 and civilian personnel will decrease by 3,630. None of the affected military personnel live on post. It is estimated that military wages and salaries will decrease by $9.9 million and civilian wages and salaries will decrease by $157.4 million. Second job income is expected to decrease by $35.4 million (IWR, 1990). The elimination of 112 civilian positions and two military positions at Cameron Station represents a loss of $4.9 million in annual wages and salary in the immediate area.

4.1.3.6 Construction and One-Time Expenditures

A one-time expenditure of $9.8 million is expected because of the closure of Cameron Station. All one-time expenditures will occur during the construction period of 1991 through 1994. The total primary and secondary impacts of realignment-associated one-time expenditures will result in the regional sales volume increasing by $5.3 million, regional employment increasing by 58 person-years and regional income increasing by $1.0 million.

Realignment-associated construction expenditures will be $15.4 million. All construction impacts will occur during the construction period of 1991 through 1994. The total primary and secondary impacts of realignment-associated construction will result in the regional sales volume increasing by $7.2 million, regional employment increasing by 124 person-years, and regional income increasing by $2.6 million.

4.1.3.7 Community and Army Facilities

As personnel are reassigned, the demand for community facilities typically affected by the normal operation of the installation will diminish. Because the relocations are relatively close to Cameron Station however, no significant drop in use of schools, churches, shops, and similar community facilities is expected. The timing of increased demands which are expected when the property is redeveloped, is unknown at this time, as is the actual magnitude of the redevelopment.

Cameron Station has provided commissary and PX facilities for a large active-duty and retired military population that resides or is stationed in the region. The relocation of these facilities to Fort Belvoir and to Fort Myer may cause longer commutes for those personnel and their dependents in the immediate vicinity of Cameron Station. Those affected will either adjust their travel for shopping at the new commissary and PX or will frequent nonmilitary stores. Patrons residing closer to Fort Myer and Fort Belvoir will have their travel reduced after the commissary and PX are relocated.

Most of the other Army community facilities at Cameron Station will be relocated to Fort Belvoir or Fort Myer. No significant impacts are anticipated. The class VI store at Cameron Station, however, will not be relocated. This could result in the loss of up to $1 million in morale, welfare, and recreation funds for MDW Installations.

4.1.3.8 Traffic and Transportation

4.1.3.8.1 Year 1995. Access to a redeveloped Cameron Station will need to be analyzed in detail upon the preparation of a specific site plan, especially for access to and egress from the site. The future owner or developer and the state and local highway departments should coordinate their plans to provide transportation improvements for the site-specific reuse, if required.

As expected, the vacating of the Cameron Station site as part of BRAC will result in some temporary reduction in traffic volumes in the study area.

4.1.3.8.2. Year 2000. Traffic generated by the proposed level of private redevelopment of Cameron Station warrants the addition of a third left turn lane from westbound South Pickett Street to Van Dorn Street (Figure 4-1). The existing interchange access at Duke Street may require modification by means of ramp reconstruction or signalization to eliminate the weave between Cameron Station egress and access points on eastbound Duke Street (Figure 4-1).

4.1.3.8.3. Year 2010. The requirements for the year 2000 (above) will meet the needs of the year 2010.

4.1.4 CULTURAL RESOURCES

4.1.4.1 Historic Resources

Pursuant to Section 106 of the National Historic Preservation Act, 36 CFR 800, and a Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers, the Army will consult with the Virginia SHPO and the Alexandria City archeologist and execute a Memorandum of Agreement (MOA) stipulating what actions will be carried out to avoid or mitigate adverse effects of disposal on archaeologic and historic resources. The Programmatic Agreement and the MOA also apply to Fort Belvoir, Fort Myer, and Fort McNair (Appendix F). In order to comply with the MOA, the Army will complete the actions detailed below.

- Review the history of Cameron Station from its inception at another site in 1919 to the present using files from the Army, SHPO, the city archeologist, National Archives, and the Library of Congress

- Consider the history of Cameron Station in the context of military activities in Washington, D.C., southern Maryland, and northern Virginia

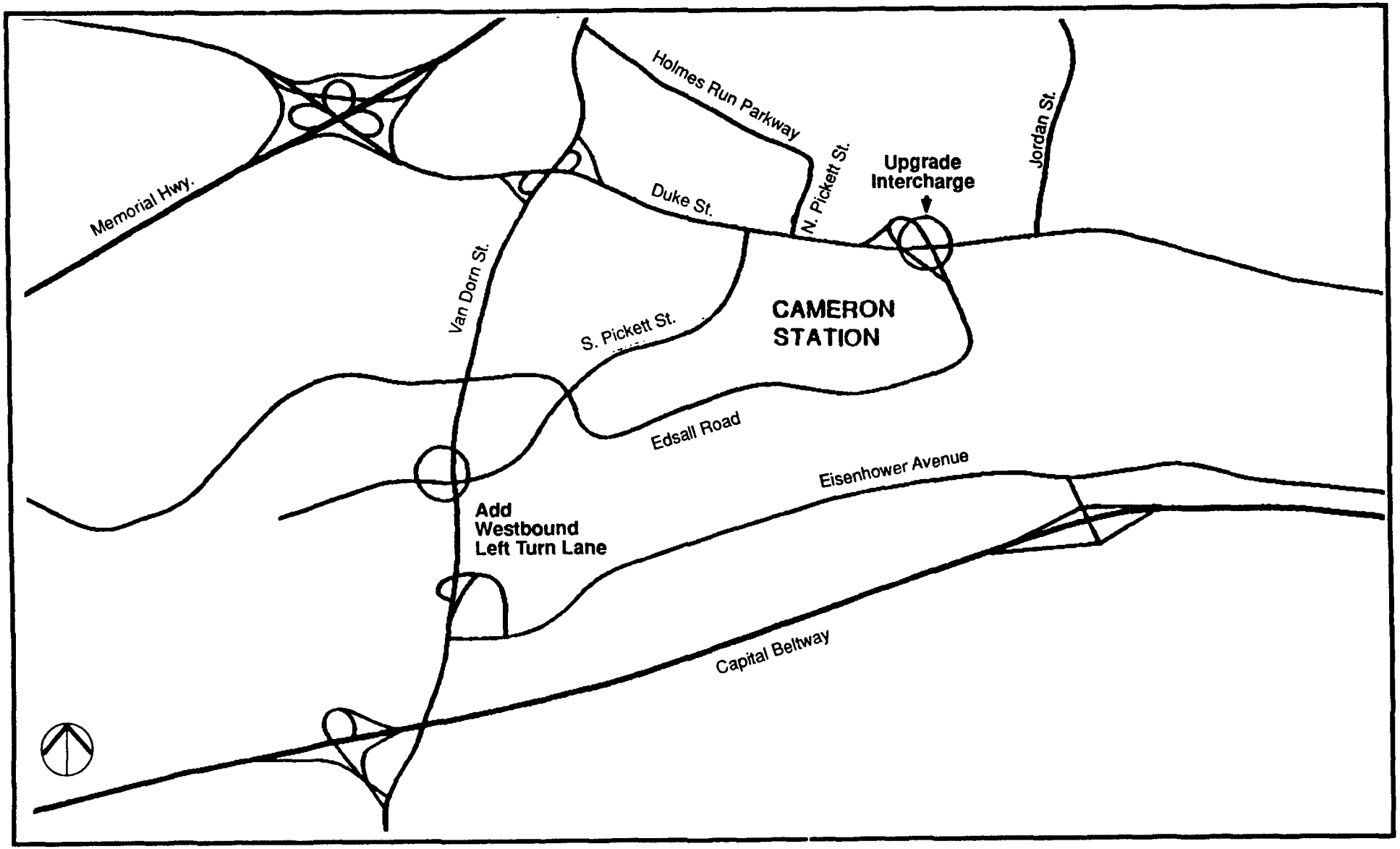


Figure 4-1
Year 2000 and 2010 Improvements to Mitigate Cameron Station Development Impacts

- Provide a summary of this history, with emphasis on:
  - The role of Cameron Station in the conduct of World War II
  - The role of Cameron Station in the conduct of the Korean conflict
  - The role of Cameron Station in the conduct of the Vietnam War
  - The role of Cameron Station in other activities of the U.S. Army in the Washington, D.C., area since 1941
  - The functions of key buildings and structures at Cameron Station in carrying out the post's various roles during the course of history
  - Determine which of these structures appear to have such a great historical significance that they should be considered for long-term preservation

4.1.4.2 Archeological Resources

Cameron Station is located at the confluence of two watercourses on the floodplain of the Potomac River, and thus is an area of high potential for prehistoric and early historic archeological sites. It appears that much of the area of the post has been covered with fill presumably during the construction of the post in 1941; this fill may cover significant archeological sites. However, previous grading, building construction, and other activities may have destroyed such sites. The Army will address potential archeological resources at Cameron Station as follows:

- Review currently available predictive models for the region, and on the basis of these models outline general areas where prehistoric and early historic sites might be expected at Cameron Station
- Study the deeds, censuses, tax rolls, historical maps, and other documentary sources relating to the property to determine historical land use before 1941, and from these data predict where archeological sites might be found
- Review available data from the Army, Virginia SHPO, city archeologist, and others on Cameron Station's soils, as-built plans, and descriptions of grading and construction work, as well as other information pertinent to the modification of the land surface during and after 1941. Information will also be collected, by interviews, from former Cameron Station employees known to either the Army or the city archeologist in order to identify areas where pre-1941 land surfaces exist and are not likely to be under fill

- Identify locations where:
  - Modeling predicts that archeological sites may be preserved under fill
  - Modeling predicts that such preservation is unlikely; and subsurface testing is thought to be needed to test these predictions
- Consult with the Virginia SHPO, city archeologist, and other parties regarding the need for and design of subsurface sampling programs

4.1.5 HAZARDOUS MATERIALS

A PA has been completed for Cameron Station. Results reported by USATHAMA (1989) recommend additional studies. The Army is conducting comprehensive studies to investigate all areas of potential concern. The Army will remediate problem areas as required.

On the basis of available information, Cameron Station cannot be considered an imminent or substantial threat to the health of the surrounding populations or the environment. However, significant potential does exist for contaminant releases. Before the property is sold, the following specific actions are being taken:

- *Investigate Cameron Lake water and sediments*
- Investigate the area around the pesticide storage facility (Building 30) to locate contaminated soil
- Leak-test underground storage tanks (USTs) and sample soil in the vicinity of the tanks that have not already been tested under the current program
- Sample oil-stained areas near motor pool facilities
- Test samples of soil taken from nonregulated transformer locations for PCBs
- Sample the landfill area in the southeast corner and test for priority pollutants
- Conduct a survey to characterize, quantify, and assess risks associated with asbestos

These studies will determine the risks that may be associated with redevelopment of the site. The Army will continue to investigate USTs and bring them into compliance. Asbestos will be identified, risks evaluated, and remedied where imminent health threats exist. Air emissions from the Army operations will cease, discharges to sanitary

sewers will cease, and drum storage operations will stop when Cameron Station is closed. PCB risks associated with regulated transformers have been evaluated and are being remedied as necessary. Previous pesticide use will be evaluated and remedied. Previous landfill operations and past surface water and sediment impacts to Cameron Lake, and the surrounding shoreline, including Cameron Run, Backlick Run, and Holmes Run will be assessed. Drums and other debris previously dumped in Cameron Lake will be investigated and removed, if necessary. Water and sediment samples from Cameron Lake, as well as groundwater samples from other areas of the post, are being tested to determine if contaminants are present. All of these actions will be coordinated with the community and regulatory agencies.

Table 4-1 presents a summary of impacts expected from the closure of Cameron Station.

4.2 FORT BELVOIR

4.2.1 BRAC ACTIONS

The realignment of ISC from Fort Belvoir to Fort Devens is not expected to have any significant effect on any resource at Fort Belvoir and will not be discussed further in this section.

4.2.1.1 Physical/Chemical Resources

4.2.1.1.1 Physiography and Topography. None of the alternative sites for any of the proposed BRAC projects is expected to have any significant effects on physiography and topography because non-water-dependent structures will be sited outside the limits of Resource Protection Areas (RPAs) as required under Fairfax County's RPA definition. This requirement limits the available buildable area on BRAC 1, Alternative 2 and BRAC 8, Alternative 2 to elevations above the 125-foot contour. Most of the development sites are located in areas that have already been disturbed because of other facilities or intensive training activities. Buildings will be sited to minimize grading and designed to complement the existing topography. The use of existing structures will also minimize the effects to physiography and topography.

4.2.1.1.2 Geology and Groundwater. Because no significant subsurface activities are planned, construction of the new facilities at any of the proposed alternative sites should not have any significant effect on the geology at Fort Belvoir.

Likewise, because seismic activity is not significant in this region, geological conditions should not affect building design. None of the proposed projects will need wells to supply drinking or process water. The water for these projects will be provided by the FCWA. Fort Belvoir has a supply agreement with FCWA, which will be modified when the demand for water begins to increase at the installation. Water and sewer lines will be constructed to connect the proposed projects that require potable water to the

Table 4-1
SUMMARY OF EFFECTS OF CLOSURE ON CAMERON STATION

Resource	Effect
Physiography & Topography	No significant effects expected.
Geology and Groundwater	No significant effects expected. However, reuse could be affected by the 100-year floodplain that encompasses 97% of the site.
Soils	No significant effects expected.
Surface Water	Implementation of best management practices during redevelopment will minimize potential effects.
Climate & Air Quality	No impact
Vegetation	No impact
Wildlife	No impact
Wetlands	No impact
Aquatic Biota	No impact
Threatened & Endangered Species	No impact
Land Use	The land use at Cameron Station will change under the proposed reuse scenario.
Population	3,835 positions will be realigned as part of the closure of Cameron Station. However, this is not significant because the personnel shifts occur within the same region. The loss of 112 civilian and 2 military positions is not considered to be a significant regional impact.
Housing	No significant effects expected.
Employment	3,949 positions will be lost when Cameron Station is closed. However, all but 114 of these positions are being realigned to other posts within the region and no significant effects are expected.
Income	No significant effects expected because the personnel being realigned are expected to remain in the region.
Community and Army	No significant effects expected because additional facilities will be constructed to replace those eliminated.
Traffic & Transportation	The closure should reduce traffic volumes somewhat. Additional traffic analysis will be needed when a specific reuse plan is developed.
Cultural Resources	NHPA Section 106 and 110 coordination will be completed by the Army before disposal.
Hazardous Materials	Contamination assessments are being conducted. Remediation will be completed as necessary.

*All numbers for personnel in this table, although accurate at the time of this writing, are subject to slight fluctuations and are therefore approximate.

existing water supply system. Therefore, there will be no effect on the quantity of groundwater at Fort Belvoir.

Groundwater quality can also be affected by surface development activities. Facilities where fuels or hazardous materials are handled can be responsible for affecting groundwater if those materials are accidentally spilled where they cannot be contained and collected. Some of the proposed development projects, like BRAC 9, which will have USTs for gasoline, and BRAC 8, which will use hazardous materials (e.g., solvents), albeit in small quantities, will be required to comply with Fort Belvoir's hazardous materials program. The program is administered by DEH to comply with federal and state regulations.

4.2.1.1.3 Soils. A number of facilities or actions have been proposed for soils that may present building constraints. The obstacles are in the form of regulatory constraints related to the Chesapeake Bay Preservation Act. The soil properties of concern include reduced iron content, high water tables, and steep slopes, all of which may also present physical constraints to development. Hydric soils generally indicate the presence of wetlands and high water tables suggest the potential for wetland areas. According to the Chesapeake Bay Preservation Act, development is not allowed in wetland areas that are connected to waters draining into the Chesapeake Bay in Virginia. In fact, the Chesapeake Bay regulations require a buffer around these wetland areas. A buffer is also required along steep slopes ($\geq$15%) that are adjacent to wetland and deep-water areas within the Chesapeake Bay drainage basin. The only exceptions within the RPA are for water-dependent facilities. Table 4-2 identifies potential developmental constraints that will be considered in the site layout and design process for each alternative for each of the BRAC projects. Further field analysis may be required to accurately determine if these proposed facilities are indeed affected by these physical conditions and require special engineering, such as dampproofing foundations. However, final site selection is not dependent upon the completion of this analysis. The constraints will be analyzed during the detailed site layout and design phase of each project on the selected site in order to minimize impacts to the RPA and assure compliance with the Chesapeake Bay Preservation Act.

4.2.1.1.4 Surface Water. None of the alternative sites for BRACs 4, 5, 6, 7, 9, and 10 will effect surface water or be effected by RPAs and, therefore will not be discussed further in this section. Control and management of stormwater will be required at all projects. In areas developed within the resource management area, best management practices (BMPs) will be used to control stormwater and sediments in compliance with the *Virginia Erosion and Sediment Control Handbook.* All stormwater management facilities will be designed and permitted in accordance with all applicable regulations. The final designs for each BRAC action will be incorporated into the postwide stormwater management plan currently being developed.

The northern and western boundaries of the preferred alternative for BRAC 1 follow the edge of a plateau bordering a stream. The RPA requirement for this stream constrains the site somewhat (Figure 4-2). In addition, an ephemeral stream partially

Table 4-2
DEVELOPMENT CONSTRAINTS FOR PROPOSED BRAC PROJECT ALTERNATIVES AT FORT BELVOIR

Action/Facility	Building Constraint
Headquarters Complex (BRAC 1):	
Preferred Alternative	None
Alternative 2	Soil survey incomplete, subsurface investigation required.
Alternative 3	None
Industrial Park (BRAC 2):	
Preferred Alternative	100% high water table
Alternative 2	10% hydric soil/90% high water table
BRAC Roads, North (BRAC 3):	
Preferred Alternative	7% hydric soil/19% high water table/11% steep slope
Alternative 2	50% high water table/10% steep slope
BRAC Roads, South (BRAC 3):	
Preferred Alternative	5% high water table
Commissary Warehouse Addition (BRAC 4):	
Alternative 1	25% high water table
Alternative 2	None
Post Exchange (BRAC 5):	
Preferred Alternative	100% high water table
Alternative 2	None
Commissary (BRAC 6):	
Preferred Alternative	None
Alternative 2	None
Material Research Facility (BRAC 8):	
Preferred Alternative	15% high water table
Alternative 2	75% high water table, 15% steep slope
Exchange Branch (BRAC 9):	
Preferred Alternative	None
Alternative 1	None
Alternative 2	40% high water table

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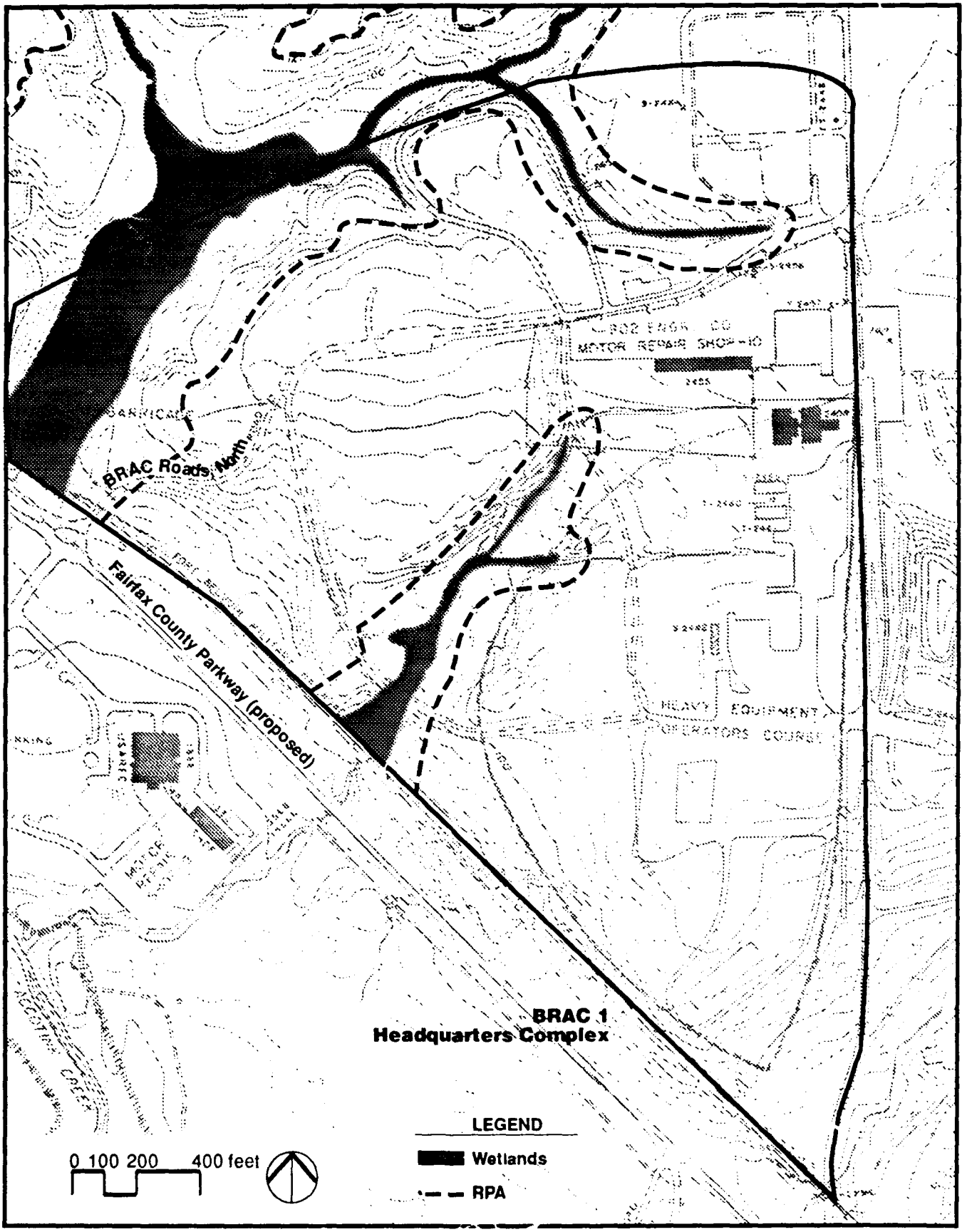


Figure 4-2
BRAC 1, Preferred Alternative
Environmental Constraints

bisects the southwestern portion of the site. Final site layout will need to consider the RPA boundary and all structures should be located outside this area.

BRAC 1, alternative site 2 is virtually surrounded by wetlands and RPAs (Figure 4-3). These features constrict the size of the site, considerably limiting the buildable area to elevations greater than 125-feet MSL. In addition, substantial amounts of bridging will be required to minimize the effects of the access roads on the wetlands and streams that bound the site. The construction and placement of these mitigation measures for this site would have a temporary negative effect on water quality by the increased amounts of suspended solids in the water. In addition, the oils and greases present in the stormwater runoff from the access roads could also negatively affect the existing water quality.

BRAC 1, alternative site 3 will not have any effect on surface water quality.

The preferred alternative for BRAC 2 will neither affect surface waters nor be affected by RPAs.

Alternative 2 for BRAC 2 contains an ephemeral stream that bisects the site limiting the area available for construction (Figure 4-4). The RPA buffer required for the stream would necessitate the industrial park being designed in two parts to avoid affecting either the RPA or the stream. Even with this design option a bridge or culverting would be required to connect the two portions of the site.

The preferred alternative for BRAC 3, North, will require six stream crossings and will effect the RPA's surrounding the streams (Figure 4-5). While road crossings are allowed within the RPA, the regulations recommend that clearing and grading be limited to the minimum needed to complete the project. Bridging and oversized culverts will be incorporated into the final design to minimize the effects of this project on the streams and surrounding RPAs. Construction activity at stream crossings has the potential to increase the levels of suspended sediments, nutrients, and other contaminants associated with those sediments. These effects are temporary and can be minimized through the use of BMPs as prescribed by the Virginia Soil Conservation Service. Likewise, surface water runoff from construction sites can affect water quality in streams.

Alternative 2 for BRAC 3, North, will only require three stream crossings because it is a much shorter road segment (Figure 4-5). However, this road is much shorter than the preferred alternative and would remove Woodlawn Road as an access point to the preferred alternative for BRAC 1.

The preferred alternative for BRAC 3, South, will require a maximum of two stream crossings (Figure 4-6). The final alignment may be moved south so only one stream crossing would be required. Oversized culverts will be used to minimize the effects of this project on the stream and RPAs. As with BRAC 3, North, BMPs will be used to minimize sedimentation.

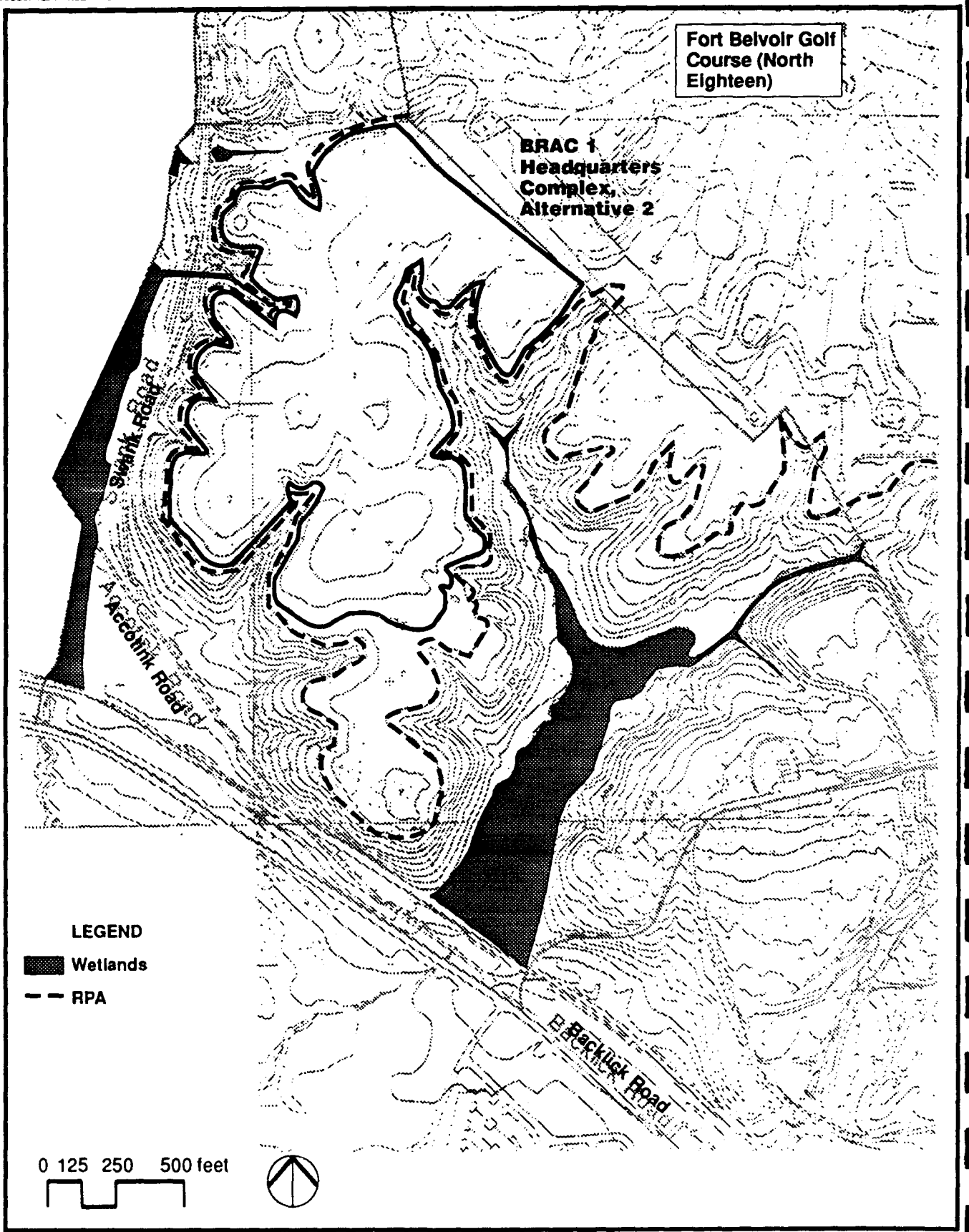


Figure 4-3
BRAC 1, Alternative 2
Environmental Constraints

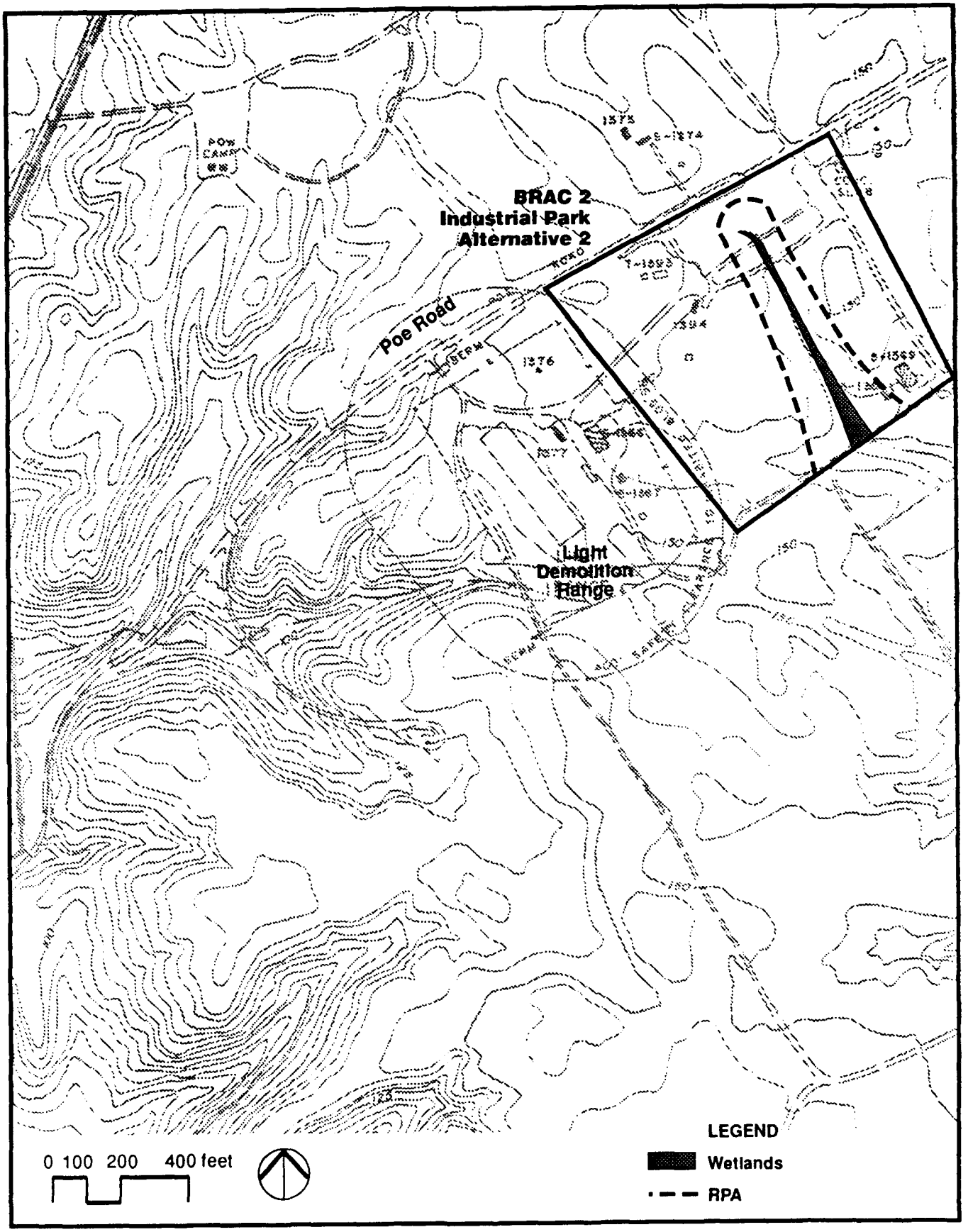


Figure 4-4
BRAC 2, Alternative 2
Environmental Constraints

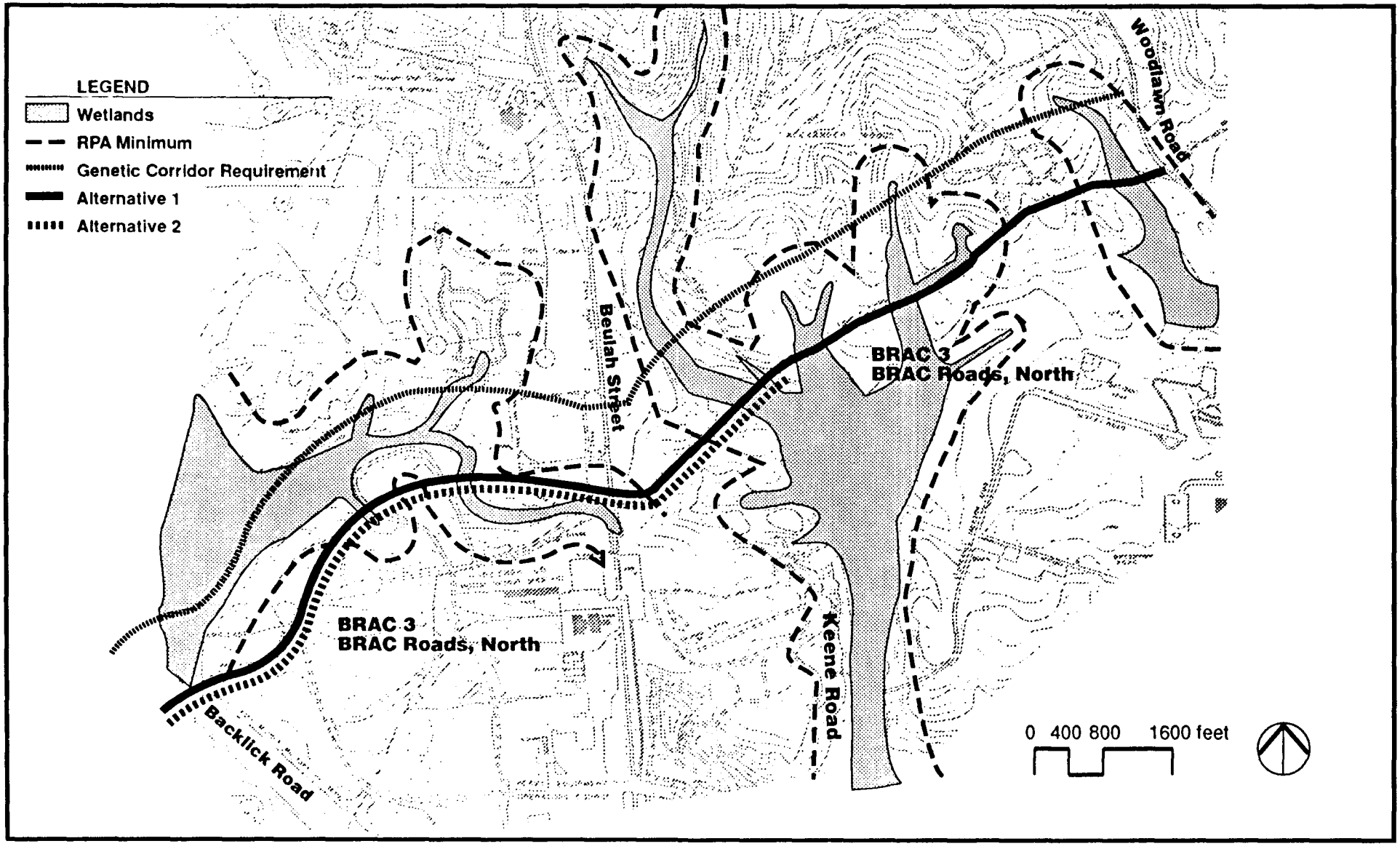


Figure 4-5
BRAC 3, Preferred Alternative and Alternative 2
Environmental Constraints

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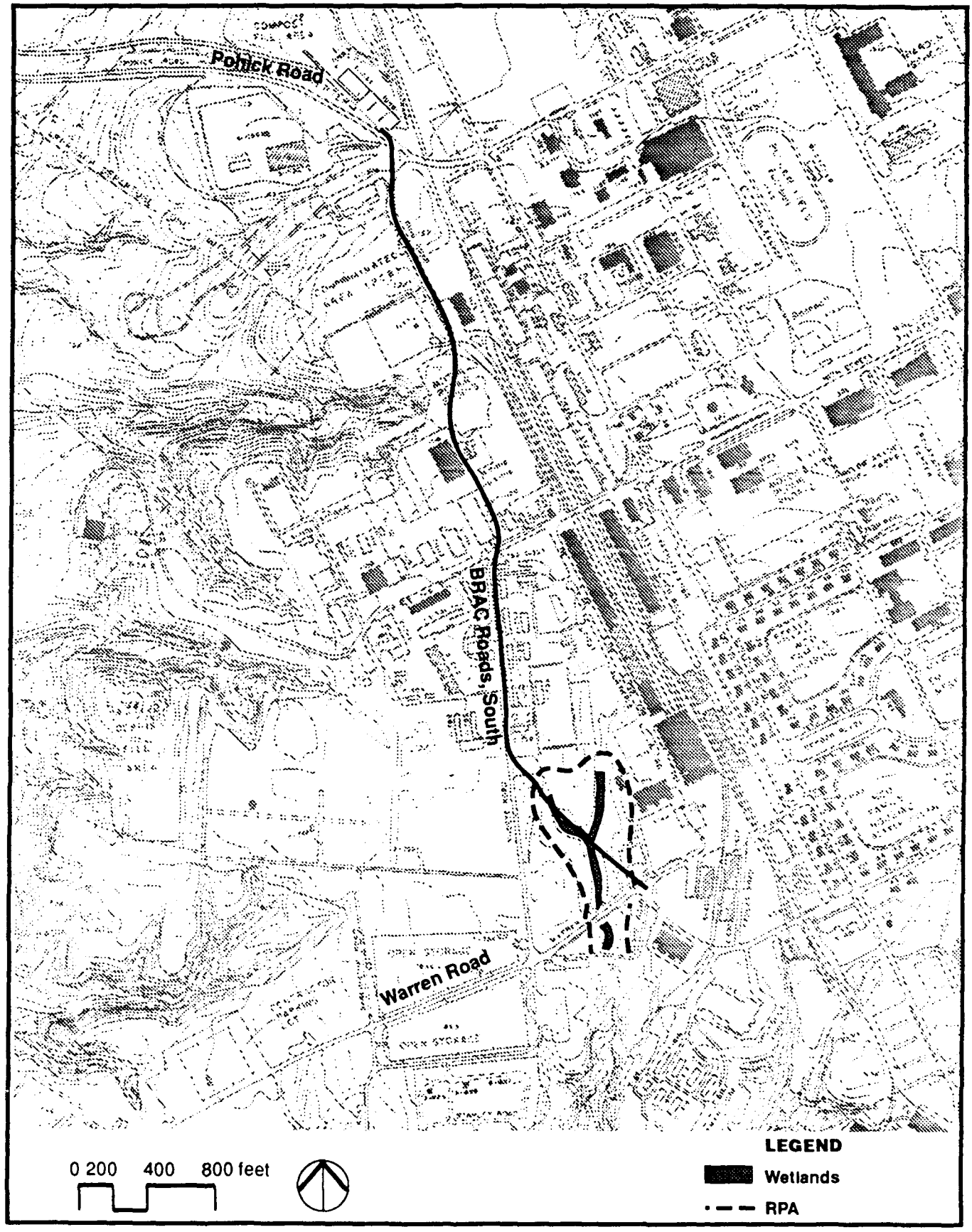


Figure 4-6
BRAC 3, South,
Preferred Alternative
Environmental Constraints

The preferred alternative for BRAC 8 will not affect either surface waters or RPAs.

Alternative 2 for BRAC 8 is restricted to elevations above 125-feet MSL to avoid encroaching on the RPAs that are required for the streams and wetlands that bound the site (Figure 4-7).

4.2.1.1.5 Climate and Air Quality. The construction and relocation of the new facilities and activities is not expected to have any effect on climate, nor is climate expected to have a significant effect on the activities regardless of the alternative site selected for any of the BRAC projects.

As Fort Belvoir will experience a net increase of approximately 3,856 personnel because of the BRAC actions, the influx of vehicles into the area will probably have a slight effect on local air quality. Carbon monoxide and O_3 levels within the local area may increase slightly because of the increased traffic on Fort Belvoir. Carpooling is actively encouraged at Fort Belvoir and public transportation is available. These factors could reduce somewhat the actual number of new commuter vehicles in the area.

Earthmoving, which will occur at each of the proposed construction sites, will comply with erosion and sediment control BMPs (e.g., wetting sediments) to reduce the potential for dust blowing at construction sites. These BMPs are required in order to protect adjacent vegetation and surface waters as well as existing buildings and people working on the installation.

The laboratories associated with the Material Research Facility, which are planned for BRAC 8, use a variety of volatile chemicals (e.g., acetone, methanol, and isopropanol). The laboratory facilities will be designed to control the minor air emissions from these chemicals. Vented hoods and exhaust fans will be installed to control the interior air quality; all fans and hoods will be part of the building's heating, ventilation and air conditioning system. The technology used will include best available control technology. Any emissions from the building will comply with federal and state air quality regulations.

4.2.1.2 Biological Resources

4.2.1.2.1 Terrestrial Biota. Development of either the preferred alternative or Alternative 2 for BRACs 1 and 3 could potentially affect biological resources and are discussed in detail below. The alternatives for the remaining construction projects, however, are not expected to have significant effects on biological resources because they are located in areas that provide little habitat of value because of previous disturbance and will not be discussed further in this section.

4.2.1.2.1.1 Wildlife Genetic Corridor. Both the preferred alternative and Alternative 2 for BRAC 3 could have a detrimental effect upon species attempting to disperse across this roadway. The effect of Alternative 2 would be less than the preferred alternative because it is a smaller section of road. Small mammals are reluctant to cross paved roads (Giger, 1973; Oxley, et al., 1974; Joule and Cameron, 1974) or even gravel roads

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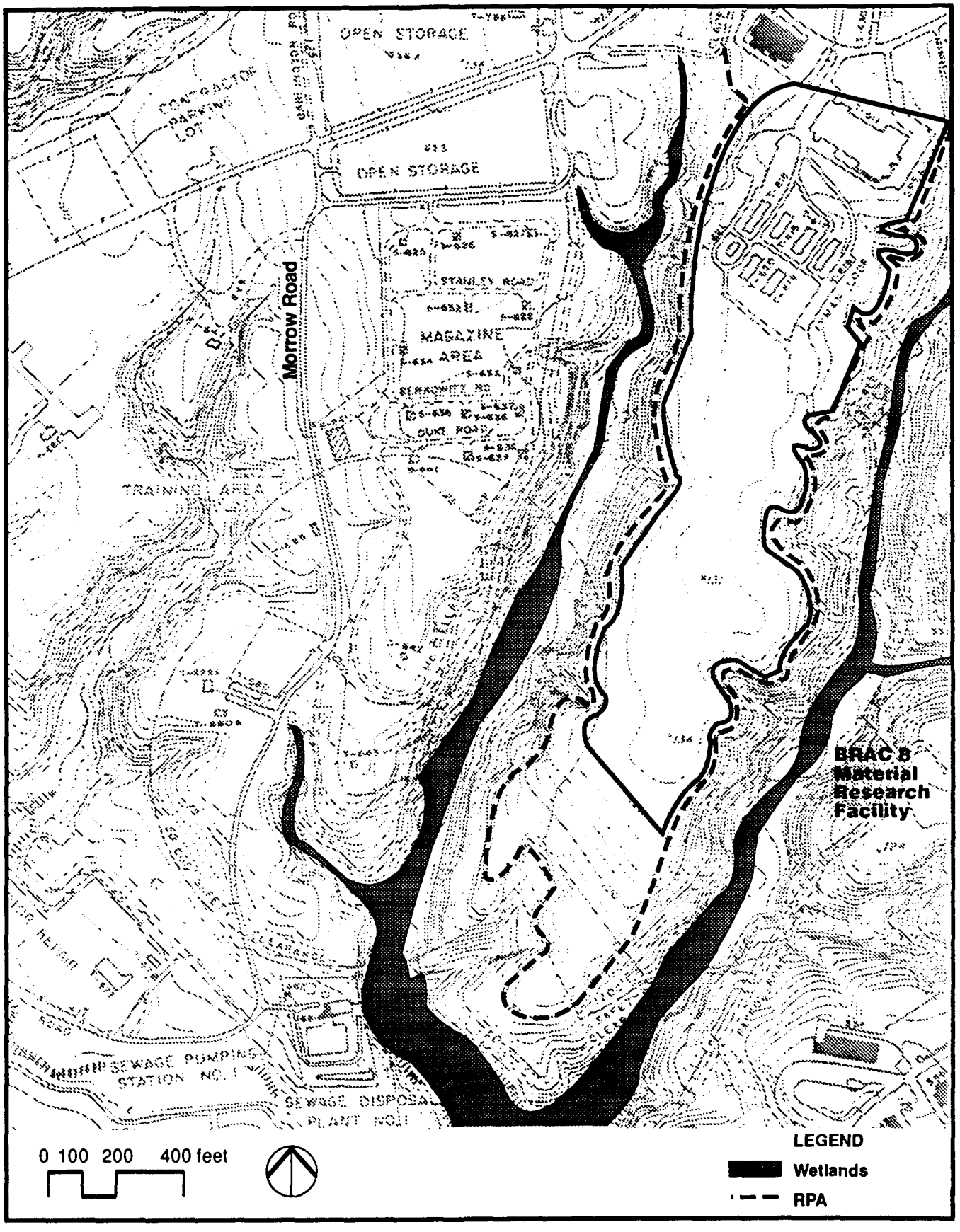


Figure 4-7
BRAC 8, Alternative 2
Environmental Constraints

(Meserve, 1971; Kozel and Fleharty, 1979; Wilkins, 1982; Swihart and Slade, 1984). Some species are even reluctant to cross lightly worn dirt roads (Swihart and Slade, 1984). This seems to indicate that roadways can significantly inhibit the movements of these species.

Underpasses and culverts have been shown to be heavily used by mammals avoiding contact with open space (Lalo, 1989). Reed, et al. (1975) and Carbough, et al. (1975) showed not only that deer would use 9 x 9 x 90-foot box culverts, but could be funneled towards them using topography, guard rails and chain-link drift fences. This substantially reduces mortality during road crossings. At Fort Belvoir, most of the road kills occur from September through December. In 1988, 11 deer were killed and in 1989, 9 deer were killed (Ernst, et al., 1990 and S. Belfit, personal communication).

Large numbers of amphibians and reptiles are also killed each year attempting to cross roadways (Dodd, et al., 1989). In England and Europe, construction of underpasses at popular crossing points for critical populations has shown these tunnels to be successful in allowing amphibians to move to and from breeding areas (Diesener and Reicholf, 1986; Langton, 1987; Esterik, et al., 1989; and Banks, 1987).

To minimize impacts to the corridor along the BRAC Roads, underpasses and box culverts as a means of allowing dispersal, will be evaluated for the final design for the preferred alternative. Topography and six-foot-high, chain-link drift fences could also be used to funnel species toward the underpasses and culverts to maximize their use and minimize road kills. The *Preliminary Evaluation of Vertebrate Diversity at Fort Belvoir, Fairfax County, Virginia* (1990), noted that skunks, rats, opossums, raccoons, other small mammals, reptiles, and amphibians made use of culverts to avoid detection when moving among habitat areas. Some of the larger culverts (up to 6-feet high) may be used by whitetail deer as well. A 250- to 300-foot buffer will also be maintained on the north side of BRAC Roads where practicable.

Construction of BRAC 1 at either the preferred alternative or Alternative 2 will cause an increase in the existing constriction of the genetic corridor at the site. Dispersing animals will be restricted to the woodlands associated with the stream valley to the west of the property line after construction is completed. Development at the preferred alternative site will be restricted to areas south of the BRAC Roads, and a 250- to 300-foot buffer will be retained to the north of the development site to maintain the corridor.

4.2.1.2.1.2 Vegetation. While most of the BRAC sites will require some clearing of indigenous vegetation, because of its size and scope, the preferred alternative for BRAC 1 will require the largest amount of clearing. However, the past use of the site as a heavy-equipment training course has disturbed or removed approximately 70 percent of the original native vegetation. The present vegetative cover at the preferred alternative consists primarily of early successional species. The clearing required for the BRAC projects is not expected to significantly affect the amount of vegetative cover or diversity at Fort Belvoir. To the extent possible, native vegetation will be saved.

This could provide a vegetative screen, tree islands for parking lots, as well as habitat for wildlife.

For each of these projects, Fort Belvoir will comply with the recently passed Fairfax County tree ordinance by maximizing canopy areas retained at development sites. As part of a continuing effort of post beautification, trees have been planted annually throughout the post under Fort Belvoir DEH's natural resource program.

4.2.1.2.1.3 Wildlife. Although the projects discussed in Section 2.4.2.3 will have an effect on the movements of terrestrial species, none of the proposed disturbances at any of the preferred or alternative sites for any of the BRAC projects will significantly affect habitats at Fort Belvoir. Animals displaced by construction should relocate into the remaining woodland. Competition for food and territories could stress the populations; however, and road kills could increase, especially after BRAC Roads are improved.

The goals of the *Fort Belvoir Natural Resources Management Plan* (April, 1983) should include studying and monitoring the post's resources so that plans for growth will accommodate the post's mission. To that end, it will be important to protect key wildlife corridors, wetlands, and other sites; water quality; and to manage habitat so that resources are not adversely affected by the post's mission. The plan will be used to manage forest fragmentation to protect species like the barred owl, which require large blocks of forest cover for breeding. Wildlife mitigation to offset habitat losses could include cavity- and nest-tree improvement, creation of brush shelter, landscaping with important wildlife plants, and stormwater management practices.

4.2.1.2.1.4 Game Species. The mitigation measures outlined in Section 4.2.1.2.1.1 will minimize road kill mortality, and as a result, none of the proposed actions at any of the preferred or alternative sites should have a significant effect on whitetail deer.

4.2.1.2.2 Wetlands. Wetlands are protected by the Clean Water Act, and impacts to this resource should be minimal. Jurisdictional wetland delineations will be completed for all BRAC sites before final site layout and design are completed. In the event that wetlands may be impacted, Fort Belvoir will use the principles of the MOA between the U.S. Army Corps of Engineers and the EPA concerning the guidelines in the Clean Water Act, Section 404(b)(1), for the determination of mitigation. Avoidance and minimization of wetlands impacts need to be addressed before any mitigation is deemed appropriate for compensating for unavoidable adverse effects.

Virginia enacted the Chesapeake Bay Preservation Act in 1989. This act mandates that 27 counties in Virginia, including Fairfax County, implement at minimum, the state regulations. Fairfax County expects to have its ordinances in place in early 1991. The ordinance would require a 100-foot vegetated buffer between construction disturbance and components designated as RPAs. The limits of the RPA are defined by the following natural features:

- Tidal wetlands

- Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams
- Tidal shores
- Other lands, which under the provisions of Subsection A of 3.2 of the state regulations, are necessary to protect the quality of state waters

Fairfax County staff have proposed to incorporate steep slopes ($\geq$15%) adjacent to wetlands and tributary streams into the local ordinance. The ordinance will need the approval of the County Board of Supervisors before it can be implemented. Development in the RPA is specifically restricted to water-dependent facilities, passive recreation (paths, boardwalks, etc.), water wells, and historic preservation and archeological activities.

In addition to the RPA requirements, the act also requires that there be a Resource Management Area (RMA) contiguous to the entire landward boundary of the RPA, which can include the following natural features:

- Floodplains
- Highly erodible soils, including steep slopes
- Highly permeable soils
- Nontidal wetlands not included in the RPA
- Other lands, which under the provisions of Subsection A of 3.3 under RMAs, are necessary to protect the quality of state waters

Development in the RMA requires the use of BMPs to control stormwater runoff and downstream sedimentation.

DOD has agreed to comply with these regulations with the issuance of the 1987 Chesapeake Bay Agreement; the *Federal Facilities Strategy*; *Federal Workplan*; issued in July 1988; and an April 1990 memorandum of agreement with EPA to restore the Chesapeake Bay. The MOA includes a list of DOD facilities in the Chesapeake Bay region with a significant potential to affect the Bay's water quality. Fort Belvoir is included on this list. Portions of these documents are included in Appendix E. Detailed wetland delineations will be conducted before the development at any of the sites to avoid affecting the wetlands and in order to accurately map RPA limits. Fort Belvoir will obtain and comply with all required wetland permits. Jurisdictional wetland delineations indicate that both the preferred alternative and Alternative 2 for BRACs 1 and 3, North, the preferred alternative for BRAC 3, South, Alternative 2 for BRAC 2, and Alternative 2 for BRAC 8 are affected by wetlands and RPAs (Figures 4-2, 4-3, 4-4, 4-5, 4-6, and 4-7).

Although the Army will avoid these wetlands to the extent practicable, examination or preliminary design information indicates that it may be necessary to fill approximately 2.1 acres and .3 acres of palustrine forested wetlands to construct BRAC 3, North, and BRAC 3, South, respectively. An additional .4 acres of emergent wetlands may need to be filled to construct BRAC 1. The Army will obtain an Individual Section 404 Permit before construction begins. The Army will also create wetlands at a one-to-one ratio to replace those lost in order to comply with the president's no net loss of wetlands program.

4.2.1.2.3 Aquatic Biota. The preferred alternative and Alternative 2 for BRAC 1 and BRAC 3, North, and Alternative 2 for BRACs 2 and 8 have the greatest potential to affect aquatic biota. However, the preferred alternative for BRAC 1 has less of an effect than Alternative 2; site development will not require bridging and culverts because the stream, which borders the property, can be easily avoided. The location of the stream at Alternative 2 requires that bridging and culverts be used as part of the access roads to the site. The construction and placement of these mitigative measures for the site would have a temporary negative effect on aquatic biota. In addition, the oils and greases present in the storm water runoff from the access roads could also negatively affect the existing aquatic biota. No construction will occur in the stream during the spawning season of the shad, river herring, and alewives, which is between March 15 and June 30.

The preferred alternative for BRAC 3, North, has a greater potential to affect aquatic biota than Alternative 2 because of the greater number of stream crossings required. However, the road will be designed with oversized culverts and bridging as necessary to minimize these effects. The construction of Alternative 2, BRAC 3, North, would not provide the degree of access required for the preferred alternative, BRAC 1, because it eliminates access from Woodlawn Road. This would require that all of the incoming traffic use Richmond Highway, the Fairfax County Parkway, or Beulah Street to access the Headquarters Complex.

The remaining BRAC project sites are upland, and should have a minimal effect on aquatic biota. Water quality can be affected by surface water runoff from development sites. An increase in suspended solids can reduce dissolved oxygen levels, clog respiratory organs, and smother aquatic biota. Effects of site development will be minimized by using BMPs at each project to control stormwater runoff and reduce soil erosion. Sedimentation control will comply with the *Virginia Erosion and Sediment Control Handbook*, and sites will have adequate stormwater management. Compliance with the Chesapeake Bay Preservation Act will also minimize the effects of site development on aquatic biota at those sites containing surface water bodies. Areas developed within the RMA will use adequate BMPs to control stormwater and sediments.

4.2.1.2.4 Threatened and Endangered Species. The preferred alternative for BRAC 3, North, will involve constructing the roads into wood turtle habitat near the intersection of Woodlawn Road. The wood turtle is expected to be elevated to threatened status in Virginia during the 1990 session of the Virginia General Assembly. Site surveys and additional coordination may be required with the appropriate state agencies before

constructing this portion of the roadway to minimize impacts on the turtles. The road will be aligned to avoid affecting wood turtle habitat.

4.2.1.3 Socioeconomic Conditions

Realignment of personnel to Fort Belvoir from installations primarily located within the region, will result in a net increase of approximately 426 military and 3,430 civilian personnel[2] at Fort Belvoir. Although some of the effects discussed below appear to be significant locally, the effects are not significant regionally (see Section 4.1.3).

4.2.1.3.1 Land Use. Both the preferred and alternative sites for all of the BRAC actions, as currently sited, are compatible with the future land use plan (Figure 4-8). The land use plan identifies land use zones at Fort Belvoir that are consistent with the existing land use and that consider Fort Belvoir's evolving mission from training to administration. As such, the training areas (T-7, T-9, and T-10) are limited primarily to the southwest peninsula outside of Accotink Bay Wildlife Refuge. These areas are currently being used for training activities that do not have adverse impacts on the refuge. Most of the undeveloped sites on both the North and South Posts have been designated for either administrative or community facilities to allow for future growth. In addition, several recreational areas are designated on both the North and South Posts. The research and development activities are restricted to the South Post near Tompkins Basin and the Defense Communications Electronics Evaluation and Testing Activity area on the North Post. The supply and storage areas are located adjacent to the research and development areas to improve efficiency and coordination. The proposed BRAC actions will not have a significant impact because they follow the current land use plan.

4.2.1.3.2 Population. It is estimated that 497 military and 3,679 civilian personnel will be realigned to Fort Belvoir from installations principally located within the Washington, D.C., metropolitan region. The effect of these actions is a net increase of approximately 426 military and 3,430 civilian personnel at Fort Belvoir.

Transfers out of the region include 88 military and 338 civilian personnel, who are expected to be realigned to Fort Devens in Massachusetts from Fort Belvoir and the leased ISC space within the Washington, D.C., metropolitan region. According to the information generated by the EIFS model, a total of 215 employees (67 military and 148 civilians) are expected to leave the region because of the realignment actions. These actions are expected to result in a 594-person decrease in regional population, which corresponds to a regional population decline of less than 0.02 percent. Table 4-3 shows the detailed income and population shifts expected because of BRAC actions.

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[2]All numbers for acreage, square footage, and personnel within the EIS are subject to fluctuations and are therefore approximate.

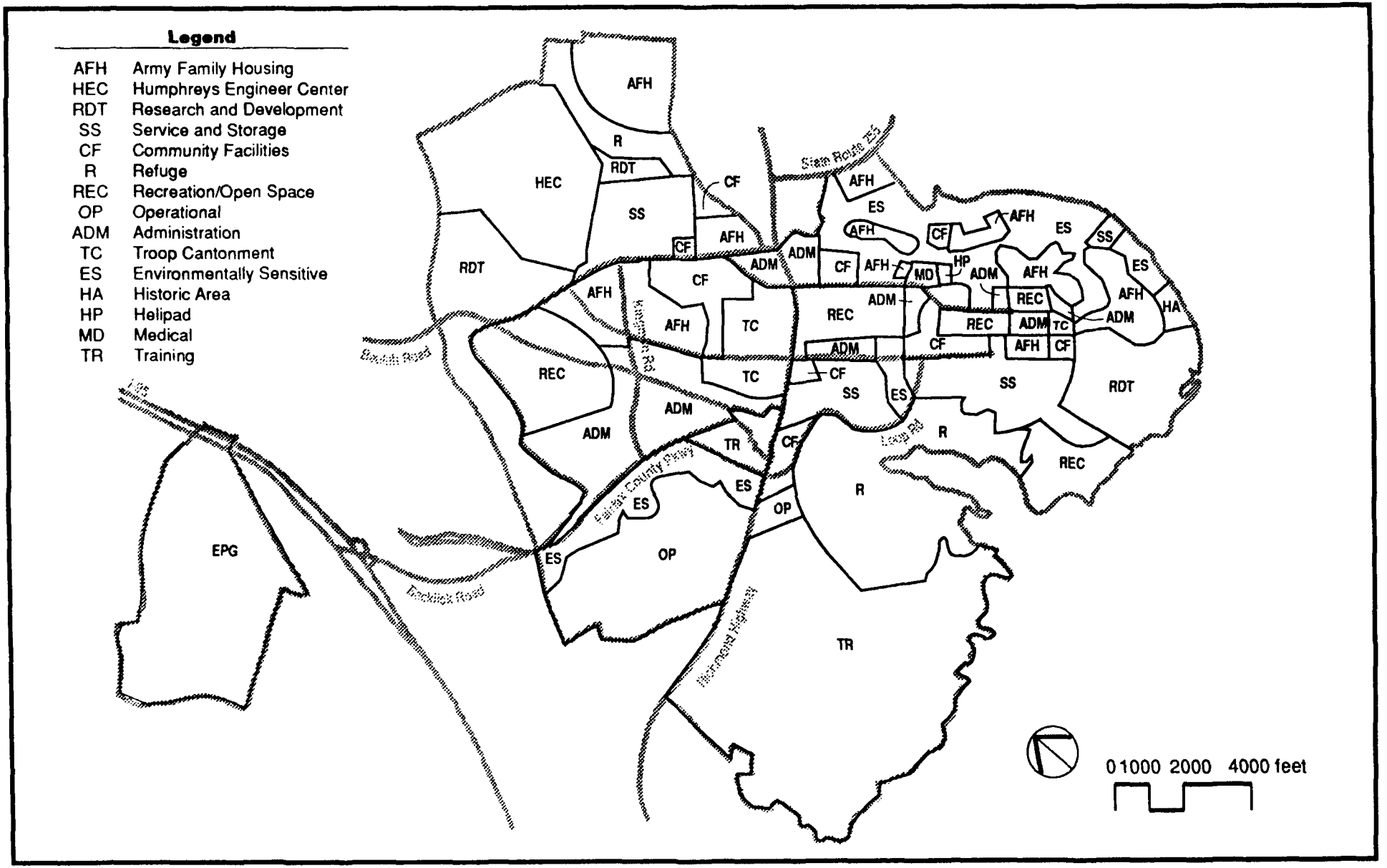


Figure 4-8
Fort Belvoir Future Land Use Plan

ENVIRONMENTAL IMPACT STATEMENT
Comprehensive Base Realignment/Closure
and Fort Belvoir Development
Arlington and Fairfax Counties and the City of Alexandria, VA

Table 4-3
MAJOR PERSONNEL CHANGES AT FORT BELVOIR, CAMERON STATION, AND FORT MYER AS A RESULT OF BRAC ACTIONS[a]

	Fort Belvoir (Additions)	Fort Belvoir (Deletions)	Cameron Station (Deletions)	Fort Myer (Additions)
Civilian Personnel				
Number	3,679	(249)	(3,518)	177
Wages & Salary[b]	$44,773	$44,773	$43,374	$25,198
Military Personnel				
Number	497	(71)	(317)	15
Wages & Salary	$31,162	$31,162	$31,033	$24,482
% On-Post	15%	15%	0%	
BRAC Construction	$173,040	$0	$15,400	$15,150
One-Time Expenditures	$24,311	$0	$9,811	$2,373
Total Other Jobs[c]				
Number	2,723	(199)	(2,596)	126
Wages & Salary	$13,595	$13,444	$13,647	$13,648

NOTES:
[a]This table does not include DOD activities in leased space, contractor personnel, or NAF personnel.
[b]Wages and salaries are annual averages.
[c]"Total Other Jobs" is applicable to civilian and military personnel and their resident family members.
SOURCE: *Socioeconomic Effects Report 1990. Socioeconomic Impacts of Fort Belvoir Related BRAC Actions*, EIFS Model data.

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4.2.1.3.3 Housing. The transfer of personnel out of the region from Fort Belvoir is expected to result in approximately a 120-unit decrease in the total number of occupied housing units within the region.

Transfer of personnel from Cameron Station, Fort Meade, and Fort Holabird to Fort Belvoir, principally from within the region, is not expected to result in a change of residence for the affected personnel, but rather a change of commuting pattern.

Locally, the action may increase the demand for housing in the outer Virginia suburban jurisdictions. The increased demand would not be considered significant as most affected personnel are believed to reside within commuting distance of Fort Belvoir. The realignment of AMTL facilities from Watertown, Massachusetts, will involve the transfer of 5 military personnel and 195 civilian personnel and their families.

Realignment of personnel to Fort Belvoir may increase housing demand in the immediate area over time, as employees may choose to eventually relocate closer to their place of employment. Given the proximity of the sending facilities, the number of employees that would consider this option is not considered high. The Concept Development Plan outlines several whole-house renewal projects and the construction of new on-post housing, which should help to alleviate impacts on the local housing market.

4.2.1.3.4 Employment. The primary and secondary impacts of BRAC actions at Fort Belvoir are expected to result in an approximate 6,684-person-year increase in regional employment. People holding second jobs and working dependents will increase regional employment by 3,115 person-years.

4.2.1.3.5 Income. Addition of personnel to Fort Belvoir is expected to increase military wages and salaries by more than $31.1 million, and civilian wages and salaries by more than $44.7 million. Most of these salaries are being paid to people in the region, at Cameron Station. It is also estimated that student wages and salaries will increase by $.798 million, and trainee wages and salaries will increase by $.063 million. Second job income is also expected to increase by $34.3 million (SEA. 1990). The disposable portion of this income spent in the region is defined as sales volume. In the absence of a significant change in residence, the actions of realignment are not expected to have a significant impact on the regional income.

4.2.1.3.6 Construction and One-Time Expenditures. Construction costs and one-time expenditures associated with P.L. 100-526 at Fort Belvoir are estimated to be nearly $200 million. Construction impacts will occur during the construction period of 1991 through 1994. The total primary and secondary impacts of realignment-associated construction will result in the regional sales volume increasing by $80.4 million, regional employment increasing by 1,397 person-years, and regional income increasing by $29.5 million. One-time expenditures will result in the regional sales volume increasing by $13.2 million, regional employment increasing by 143 person-years, and regional income increasing by $2.6 million.

4.2.1.3.7 Community and Army Facilities. The effects of alternative sites for the BRAC projects on community and army facilities are independent from basic siting considerations, except Alternative 2 for BRAC 2. As a result, a site-specific comparison of potential effects for each of the alternatives is not necessary. However, Alternative 2 for BRAC 2 is located in an area that would require significant upgrades to the existing utility infrastructure to support the facility. These upgrades could be prohibitive if adequate service connections could not be located nearby.

The net increase of military and civilian personnel at Fort Belvoir from the realignment of Cameron Station is not expected to have an immediate significant effect on local community facilities because few of these people are expected to move into the area. Some increased demand by employees on local retail services may occur. The increase in school enrollment is not expected to be significant. Because Fort Belvoir provides both fire and police protection on post, the demand on county services is not expected to be significant. Recreational and other facilities are also provided by the post, and can be used by both military and civilian employees.

The net increase of approximately 3,856 personnel at Fort Belvoir resulting from the realignment of BRAC activities to Fort Belvoir is expected to increase the waste volume from 42 tons per day to approximately 49 tons per day, a 16.6 percent increase in the current generation volume.

The activities realigned to Fort Belvoir as part of the BRAC will participate, to the extent practicable and allowable under their missions, in the postwide recycling program. Assuming a recycle rate of 25% of the waste stream, the overall waste generation rate for the post would be about 37 tons per day.

The previous solid waste landfilling at Fort Belvoir has the potential to affect one of the proposed sites. The preferred alternative for BRAC 2 is adjacent to an active debris landfill. As part of the site development plan, a design will be developed to prevent the migration of landfill gases to the surrounding areas. As a precautionary measure, a methane monitoring system will be installed within the buildings at this site.

Potable water usage is expected to increase by approximately 0.6 mgd because of the BRAC population increase. This increase is, however, well within the maximum usage agreement currently in effect between Fort Belvoir and the FCWA.

Wastewater generation is expected to increase by approximately 0.3 mgd because of the BRAC population increase. As with the water demand, the increase is well within the post's current agreement with the LPPCP. It should be noted that the LPPCP is currently planning to expand their treatment capacity to 54 mgd. This should also help offset the increased volumes generated at Fort Belvoir because of BRAC projects.

The realignment of personnel to Fort Belvoir will affect existing Army community facilities. However, this action should not have a significant long-term impact, as four of the BRAC actions (BRACs 4, 5, 6, and 9) should offset demand created on parallel services in the local community by the newly realigned personnel.

Development of the BRAC projects at Fort Belvoir is not expected to create any new noise sources. The additional traffic resulting from the construction of the projects is not expected to significantly increase existing ambient noise levels.

4.2.1.3.8 Traffic and Transportation. The preferred alternative and Alternative 2 for BRAC 1 are located adjacent to each other on the North Post. As a result, traffic heading towards either of these two sites would use the same access roads. However, the environmental constraints at Alternative 2 limit the number of access points to the site to two. These same constraints also dictate that primary site access will be from the Fairfax County Parkway. The preferred alternative provides for two access point from BRAC 3 and two access points from Beulah Street (Figure 4-9).

The use of Alternative 3 for BRAC 1 would require that all of the activities, which would be centralized at either the preferred alternative or Alternative 2, be scattered throughout the post in buildings vacated by the Engineer School. Although this would disperse traffic somewhat, the majority of these vacated buildings are located on the South Post in areas that are already heavily congested. In addition, these buildings have already been assigned for occupancy by other smaller activities, including some that will also relocate to Fort Belvoir from Cameron Station.

The preferred alternative for BRAC 2 locates the Industrial Park near industrial activities. The construction of MCA 31, will allow truck traffic to and from BRAC 2 to avoid the main sections of the South Post by providing direct access to BRAC 2.

Poe Road would be the only access point to Alternative 2 for BRAC 2. This road is already heavily traveled by trucks going to and from the landfill, as well as troop vehicles during training exercises. The road would need to be upgraded from its current condition, unimproved dirt, to a minimum of two paved lanes to support the traffic generated by BRAC 2.

Locating BRAC 4 at the preferred alternative on the North Post minimizes additional truck traffic on the South Post in the vicinity of the South Post commissary (Alternative 2). The shopping area on the South Post generates large volumes of patron traffic in an area already congested by traffic accessing nearby housing and the BRDEC.

The preferred alternative for BRAC 5 creates a second shopping area on Fort Belvoir. Patrons shopping at the North Post commissary will most likely also shop at the North Post PX minimizing traffic flows during peak shopping periods. Because of the concentration of post housing on the South Post, most of the patrons using the South Post shopping area are expected to be Fort Belvoir residents after BRAC 5 is constructed at the preferred alternative. The patrons using the new shopping facility on the North Post are expected to come primarily from off post.

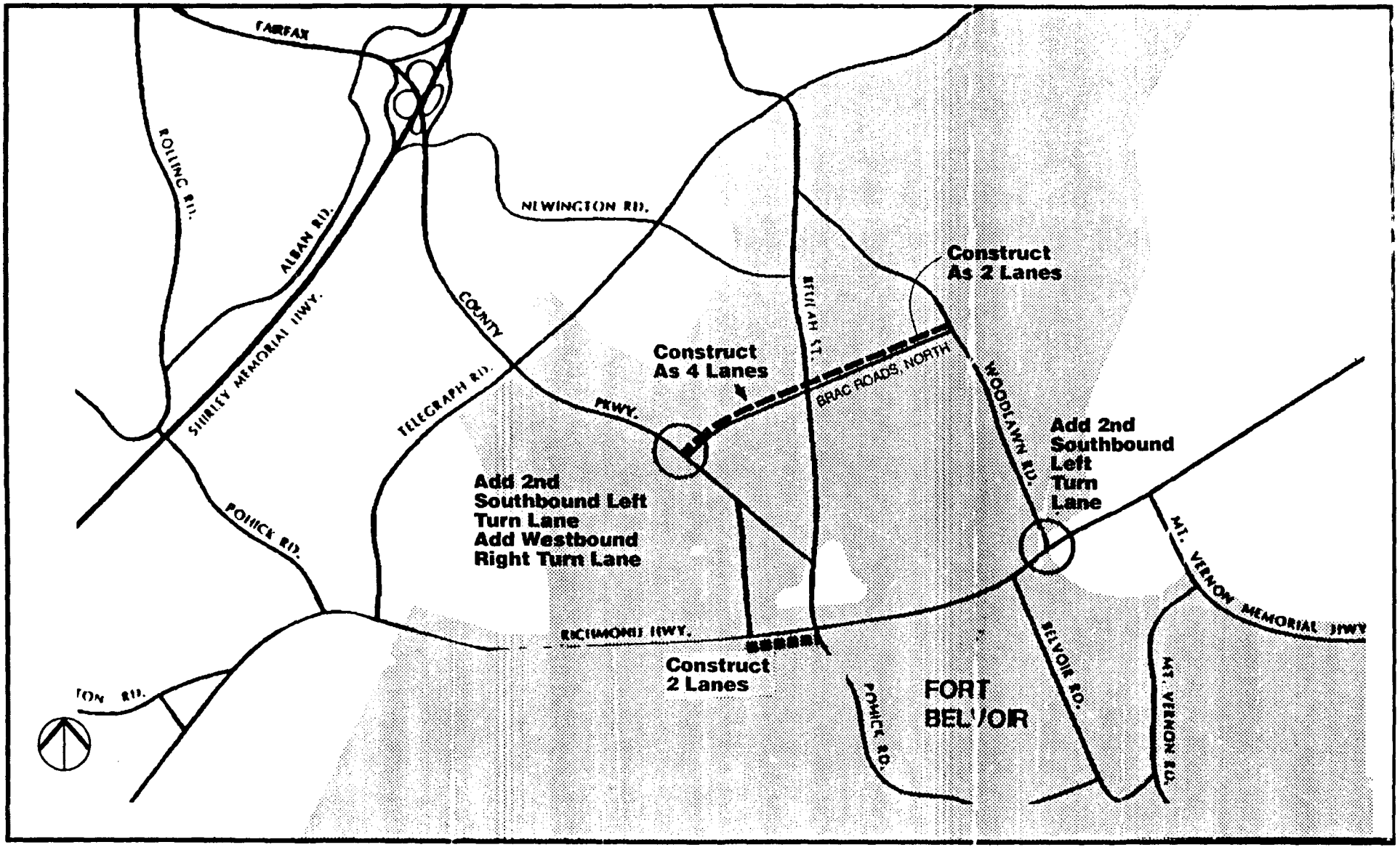


Figure 4-9
1995 Improvements to Mitigate BRAC Impacts

The construction of BRAC 6 at the preferred alternative should have an effect similar to that of BRAC 5. By creating a centralized shopping facility on South Post, traffic between the North Post and South Post during peak shopping periods should be reduced.

Neither the preferred alternative nor Alternative 2 for BRACs 7 and 8 is expected to significantly affect local traffic patterns because of their proximity to each other. Alternative 2 for both BRACs 7 and 10 required that additional facilities be constructed to house the activities being realigned into existing structures. This alternative has not been actively pursued because of the costs involved. As a result, neither BRAC 7 nor BRAC 10 is expected to have a significant impact on local traffic patterns.

4.2.1.3.8.1 Baseline Assumption. With the addition of the Fort Belvoir BRAC projects, traffic volumes on study-area roadways may increase above baseline levels. Figure 4-9 shows the locations where improvement may be required because of the addition of the approximately 3,856 jobs resulting from BRAC projects. Baseline transportation systems were defined in order to provide a benchmark for determining the effects of the proposed development. The baseline systems contain improvements that are planned or programmed by public agencies to be in place, and any other improvements required to accommodate future-year baseline traffic conditions. Baseline traffic is the existing traffic plus normal growth without Fort Belvoir development. The baseline transportation systems encompass the principal travel modes in northern Virginia. These travel modes include the roadway network, the high-occupancy vehicle (HOV) lane network, and the existing and planned transit systems (rail and bus). Additional details of the base network and major improvement assumptions are described in the *Fort Belvoir Regional Traffic Impact Analysis: Assessment of Horizon Year Traffic Impacts* (June 1990) (hereafter referred to as the *Regional Traffic Impact Analysis*). Improvements to the public highways (Fairfax County Parkway and Richmond Highway) are the responsibility of VDOT. Funding of practicable improvements will be negotiated among VDOT, Fairfax County, and the Department of the Army.

4.2.1.3.8.2 Year 1995. Table 4-4 presents a summary of the effects of BRAC development on traffic at intersections in the Fort Belvoir area. The table shows the forecast 1995 LOS at the intersection before any BRAC development, but with the additional traffic generated by normal growth in the region and with a set of assumed transportation system improvements. As shown in the table, these baseline improvements are structured to bring the 1995 baseline conditions to LOS D or better at each of the locations analyzed. Assuming the same baseline transportation system, the addition of BRAC-generated traffic, as shown in the table, would significantly affect traffic operations at three of the intersections that were analyzed. Appropriate measures to mitigate traffic may need to be taken.

Table 4-5 shows volume-to-capacity ratios of the traffic demand under several different transportation system and development scenarios for the intersections in the Fort Belvoir area that were analyzed. The second column of the table lists the 1990 volume-to-capacity ratios for the morning and evening peak hours. Several of the intersections

Table 4-4
IMPACT OF BRAC DEVELOPMENT ON INTERSECTION LEVEL OF SERVICE

Intersection	1995 Baseline		1995 With BRACs	
	AM	PM	AM	PM
Armistead Road/Richmond Highway	D	D	E	E
Backlick Road/BRAC Roads, North	-	-	B	C
Backlick Road/Richmond Highway	A	B	A	B
Belvoir Road/Richmond Highway	C	A	C	A
Beulah Street/Telegraph Road	C	D	D	D
Mount Vernon Memorial Highway/ Richmond Highway	C	C	D	D
Newington Road/Telegraph Road	B	C	B	C
Pohick Road/Richmond Highway	D	D	E	E
Richmond Highway/Woodlawn Road	B	D	B	D
Richmond Highway/Telegraph Road	D	D	E	E

Note: Baseline roadway network assumes improvements by public agencies to provide LOS D at all locations. Levels of service shown for "1995 With BRACs" condition do not include recommended improvements to mitigate impacts.

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Table 4-5
VOLUME-TO-CAPACITY RATIOS:
FORT BELVOIR STUDY AREA

Intersection	1990	1995 With Baseline Improvements		1995 Without Baseline Improvements	
		Baseline	BRAC	Baseline	BRAC
AM PEAK HOUR					
Armistead Road/ Richmond Highway	0.98	0.84	0.92	1.25	1.39
Backlick Road/ Telegraph Road	0.88	NA	NA	1.26	1.51
Backlick Road/ BRAC Roads, North	NA	NA	0.63	NA	0.80
Backlick Road/ Richmond Highway	0.65	0.58	0.60	1.46	1.74
Belvoir Road/ Richmond Highway	0.63	0.73	0.74	0.93	0.94
Beulah Street/ Telegraph Road	0.97	0.79	0.87	1.11	1.20
Mount Vernon Memorial Highway/ Richmond Highway	0.69	0.77	0.86	1.01	1.14
Newington Road/ Telegraph Road	0.69	0.66	0.67	0.75	0.79
Pohick Road/ Richmond Highway	1.08	0.83	0.94	1.22	1.37
Richmond Highway/ Woodlawn Road	0.56	0.68	0.71	0.93	0.96
Richmond Highway/ Telegraph Road	0.97	0.89	0.95	1.18	1.32

Table 4-5
VOLUME-TO-CAPACITY RATIOS:
FORT BELVOIR STUDY AREA

Intersection	1990	1995 With Baseline Improvements		1995 Without Baseline Improvements	
		Baseline	BRAC	Baseline	BRAC
PM PEAK HOUR					
Armistead Road/ Richmond Highway	0.88	0.91	0.96	1.27	1.35
Backlick Road/ Telegraph Road	0.98	NA	NA	1.57	1.69
Backlick Road/ BRAC Roads, North	NA	NA	0.79	NA	1.09
Backlick Road/ Richmond Highway	1.06	0.67	0.70	1.62	1.89
Belvoir Road/ Richmond Highway	0.48	0.55	0.56	0.73	0.74
Beulah Street/ Telegraph Road	1.05	0.84	0.84	1.29	1.32
Mount Vernon Memorial Highway/ Richmond Highway	0.76	0.79	0.82	0.99	1.12
Newington Road/ Telegraph Road	0.84	0.75	0.76	0.83	0.85
Pohick Road/ Richmond Highway	1.11	0.90	0.98	1.41	1.53
Richmond Highway/ Woodlawn Road	0.77	0.86	0.89	1.13	1.17
Richmond Highway/ Telegraph Road	1.09	0.88	0.99	1.35	1.50

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have current volume-to-capacity ratios between 0.90 and 1.00 (LOS E conditions, which are less than desirable) and several exceed 1.00 (LOS F conditions, which means excessive delays).

The third and fourth columns list the forecast volume-to-capacity ratios in the year 1995, assuming that the appropriate baseline improvements are implemented by Fairfax County and the VDOT in order to bring the baseline conditions at all analyzed intersections to LOS D or better. Under the "baseline" heading, the volume-to-capacity ratios indicate that the intersections are forecast to operate at LOS D or better. If BRAC-generated traffic is included, as shown under the "BRAC" heading, several of the intersections would degrade to LOS E conditions.

The last two columns in Table 4-5 show the estimated effect if the baseline improvements are not implemented (i.e., if the existing transportation system is not improved by the year 1995). Under the "baseline" heading, the majority of the analyzed intersections would degrade to LOS F. For the intersections with estimated volume-to-capacity ratios that exceed 1.10, the actual conditions will reflect demand that substantially exceeds available capacity. Therefore, some of this vehicular demand would be diverted to other corridors, which in this sector of the region are almost at or above capacity, or the demand have to be spread over a longer peak period. The impact of the BRAC-generated traffic being loaded into a system with no improvements is shown in the last column of the table.

The forecast 1995 composition of the traffic flow in the Fort Belvoir area is shown in Figure 4-10. The traffic flows at a cordon drawn around Fort Belvoir are divided by facility into either BRAC-generated traffic or baseline (or background) traffic. This figure presents an accurate portrayal of the relative magnitude of the impact of BRAC-generated traffic on overall traffic flows by facility.

The traffic volumes generated by the development that is proposed as part of Fort Belvoir BRAC Plan may require the following additional roadway improvements:

- Widen Richmond Highway (U.S. Route 1) by an additional two lanes between Lorton/Armistead Roads and the Fairfax County Parkway (i.e., from the baseline requirement of 6 lanes to 8 lanes)

- Develop BRAC Roads as post roads open to the public from Fairfax County Parkway to Gunston Road as a 4-lane facility and from Gunston Road to Woodlawn Road as a 2-lane facility

- Improve the intersection of the Fairfax County Parkway and BRAC Roads

Widening Richmond Highway by an additional two lanes (i.e., from the required six lanes from 1995 baseline conditions to eight lanes) between Lorton/Armistead Roads

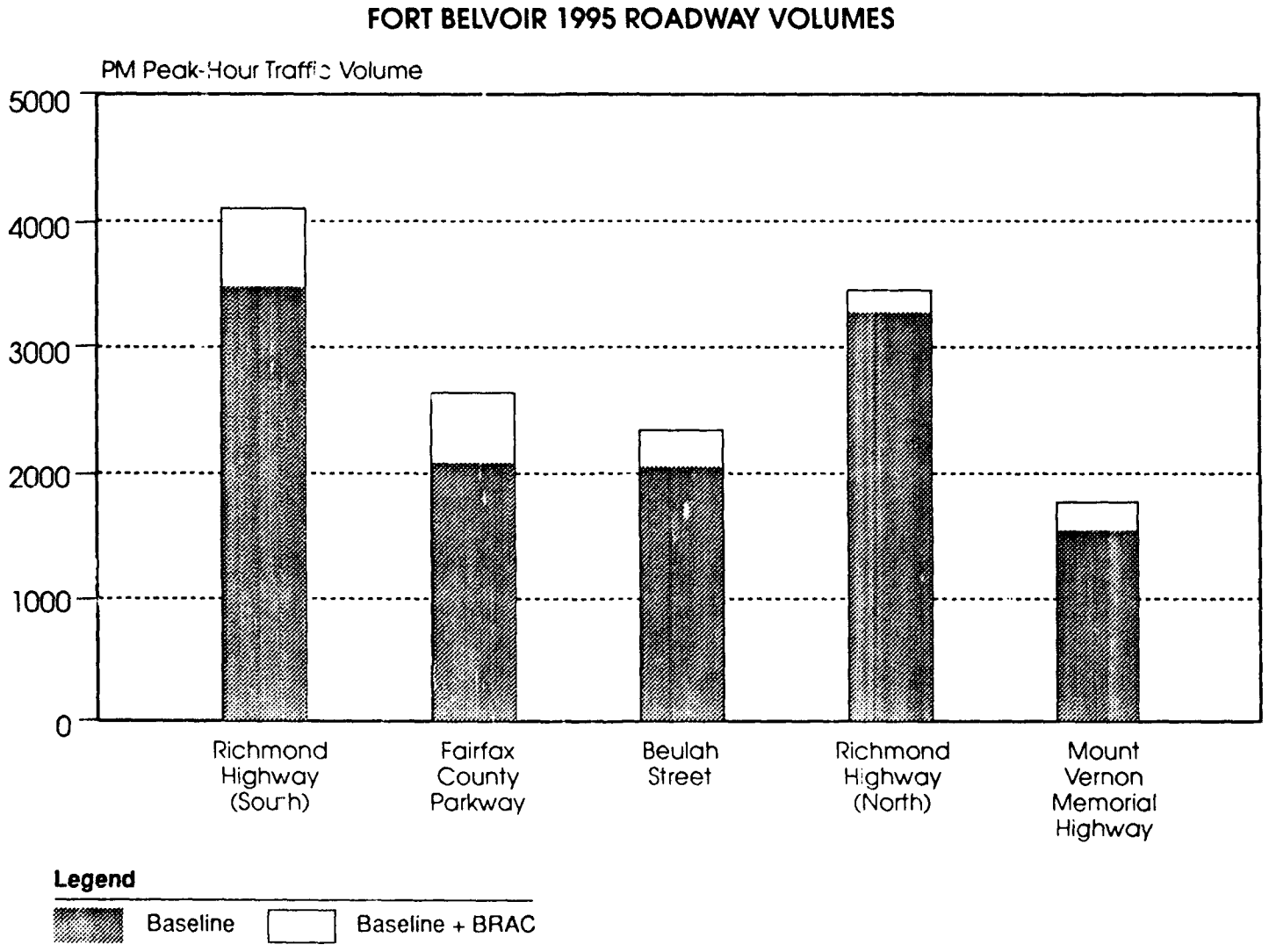


Figure 4-10
Impact of BRAC Traffic

and the Fairfax County Parkway would be one of the single most expensive improvements necessary. Right-of-way costs would be minimized, however, because approximately one-half of the necessary additional right-of-way is Fort Belvoir property. The environmental impacts of this project could also be minimized by widening Richmond Highway primarily on the north side in order to avoid the more extensive wetlands that are located to the south of the current alignment. Because Richmond Highway would need to be flared as part of the baseline improvements at Telegraph Road in order to accommodate a second left turn lane from eastbound Richmond Highway onto northbound Telegraph Road, the plan to widen Richmond Highway on the north side would also reduce potential impacts on Pohick Church.

An alternative to the 8-lane cross section for Richmond Highway would be to upgrade Richmond Highway to a controlled-access, 6-lane expressway with grade-separated interchanges at Telegraph Road and at the Fairfax County Parkway. It should be noted that these interchanges are called for in the *Comprehensive Plan for Fairfax County, Virginia* (July 24, 1989), hereafter called the *Fairfax County Comprehensive Plan*. The 6-lane expressway (or the 8-lane arterial) is also required for year 2000 baseline conditions.

An alternative to the additional widening of Richmond Highway between Lorton/Armistead and Backlick Roads is to widen Richmond Highway between Armistead and Telegraph Roads and to widen Telegraph Road to four lanes from Richmond Highway to Franconia Road. Widening Telegraph Road to six lanes (as called for in the *Fairfax County Comprehensive Plan*) does not further reduce the number of lanes required for Richmond Highway.

Another alternative for the corridor is to widen I-95 to 10 lanes (4-2-4) as called for in the *Fairfax County Comprehensive Plan*. Richmond Highway could then remain as a 6-lane facility as dictated by 1995 baseline conditions.

BRAC Roads, North, should be constructed as 4-lane facilities between Fairfax County Parkway and Gunston Road in order to accommodate traffic volumes and vehicle turning movements, and should be extended from Gunston Road to Woodlawn Road as a 2-lane facility. East of Woodlawn Road the roadway cross section should be further evaluated in terms of circulation on base and pedestrian safety as part of the transportation planning that will be included in the future Master Plan. Between the Fairfax County Parkway and Gunston Road, the road should have four lanes with a center median to accommodate separate turn lanes as necessary. Turn lanes will probably be needed at the entrances to BRAC 1, at Beulah Street, and at Gunston Road. Between Gunston Road and Woodlawn Road, a 2-lane cross section with curb, gutter, and sidewalks should be provided.

The other necessary improvement in the Fort Belvoir area is the addition of a second turn lane from southbound Fairfax County Parkway to BRAC Roads, North, and the provision of a free right turn lane from BRAC Roads, North, at that location. These lanes should be included in the initial intersection construction. They are identified here as amendments to VDOT's preliminary design plans for the intersection.

In addition to the intersections cited above, it is expected that improvements may be needed at the currently unsignalized intersections of Beulah Street with Woodlawn Road and Backlick Road. The former intersection is planned to be reconstructed as part of the Beulah Road widening project. However, final design of the roadway cross section and of the intersection has not yet been completed; therefore, the impact of site-generated traffic cannot be accurately assessed. In fact, it is quite possible that the final design to accommodate baseline needs may also accommodate the Fort Belvoir BRAC projects and the Concept Development Plan. The latter intersection will be particularly affected by the siting of BRAC 1 along BRAC Roads, North, and Beulah Street. Upon completion of the preliminary site plan, a detailed assessment of traffic operations through this intersection should be conducted.

The Army will coordinate its traffic improvement plans with state and local highway departments to determine the best methods to mitigate the regional transportation impacts generated both by the Army and by local growth. These improvements will include the addition of left- and right-turn lanes, traffic signals or significant upgrades, and additional lanes, or participation in new highway projects. These projects will support traffic generated by Army development between Backlick Road and Beulah Street, south of Telegraph Road.

4.2.1.4 Cultural Resources

4.2.1.4.1 Historic and Archeological Resources. Development activities at Fort Belvoir may affect some of the many identified prehistoric and historic archeological sites, either directly through earth movement or, in most cases, indirectly through increased use of areas in the vicinity of resource sites. Building locations for the realigned activities are now in the planning phase, and may change somewhat, because of design criteria, environmental constraints, or other factors during the detailed design phase. Because exact building "footprints" for most of these projects are not yet available, direct impacts to historic and archeological sites can only be analyzed in general.

Pursuant to Section 106 of the National Historic Preservation Act, 36 CFR 800, and a Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers, the Army will consult with the Virginia SHPO and the Alexandria City archeologist and execute a Memorandum of Agreement (MOA) stipulating what actions will be carried out to avoid or mitigate adverse effects of disposal on archaeologic and historic resources. The Programmatic Agreement and the MOA also apply to Fort Belvoir, Fort Myer, and Fort McNair (Appendix F).

Table 4-6 lists the proposed BRAC facility alternatives and identifies additional surveys that will be required before construction begins on each site. None of the BRAC projects will affect a known cultural resource site. However, Phase I cultural resource surveys have not been completed for the preferred sites for BRACs 1, 2, 3, 8, and 9. In addition, Phase I cultural resource surveys have not been completed for Alternative

Table 4-6
STATUS OF CULTURAL RESOURCE SURVEYS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR

	Proposed Action	Status of Cultural Resource Surveys
BRAC 1 Preferred Alternative	Headquarters Complex	Most of site is surveyed or severely disturbed; small area around Buildings 2455-2457 needs a Phase I survey (currently listed as moderately disturbed)
BRAC 1 Alternative 2	Headquarters Complex	Surveys completed
BRAC 1 Alternative 3	Headquarters Complex	Standing-structures survey required before renovation of some buildings
BRAC 2 Preferred Alternative	Industrial Facilities	Most of site is surveyed or severely disturbed; small area around Buildings T-753 and T-754 needs a Phase I survey (listed as moderately disturbed)
BRAC 2 Alternative 2	Industrial Facilities	Portions moderately or severely disturbed, portions still need Phase I and standing-structure survey
BRAC 3, North Preferred Alternative	BRAC Roads	Phase I survey needed for entire project
BRAC 3, North Alternative 2	BRAC Roads	Phase I survey needed for entire project
BRAC 3, South Preferred Alternative	BRAC Roads	Most of site is moderately to heavily disturbed; southern portion needs a Phase I survey
BRAC 4 Alternative 1	Commissary Warehouse Addition	Severely disturbed, no survey needed
BRAC 4 Alternative 2	Commissary Warehouse Addition	Severely disturbed, no survey needed
BRAC 5 Preferred Alternative	Post Exchange	Severely disturbed, no survey needed
BRAC 5 Alternative 2	Post Exchange	Severely disturbed, no survey needed
BRAC 6 Preferred Alternative	Commissary	Severely disturbed, no survey needed
BRAC 6 Alternative 2	Commissary	Most of site moderately disturbed Phase I needed for easternmost portion
BRAC 7 Preferred Alternative	Administration Facility	Standing-structure survey needed (Building 1465)
BRAC 8 Preferred Alternative	Material Research Facility	Most of project site is severely disturbed; one portion needs a Phase I survey
BRAC 8 Alternative 2	Material Research Facility	Some portions moderately or severely disturbed; most of site needs Phase I and standing-structure surveys
BRAC 9 Preferred Alternative	Exchange Branch	Severely disturbed; no survey needed
BRAC 9 Alternative 1	Exchange Branch	Entire site needs a Phase I survey; classified as moderately disturbed
BRAC 9 Alternative 2	Exchange Branch	Site severely disturbed; no survey needed
BRAC 10 Preferred Alternative	Modify Buildings 1466 & 1445 for Base Closure	No archeological or historical impacts

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3 for BRAC 1, and Alternative 2 for BRACs 2, 3, 6, and 8. These surveys will be completed before final siting and design, and follow-up action (Phase II, evaluation, and Phase III, recovery, surveys) will be taken if required. The Army has initiated coordination with the SHPO for all of the surveys.

Alternative 1 for BRAC 9, the Exchange Branch, is located near the Woodlawn Friends Meeting House and Cemetery site. However, this resource site is fenced and is across the road from the project site, therefore no impact is expected. Similarly, the North Post Commissary Warehouse is in the vicinity of, but is not expected to affect, two historic cemeteries, Lacey Hill and Woodlawn Methodist. None of the BRAC actions are within Fort Belvoir's Historic District. However, one structure that will be affected by BRAC 7, Building 1465, is old enough to require a standing-structure survey to determine if it is eligible for placement on the National Register of Historic Places.

4.2.1.4.2 Visual Resources. The BRAC projects are sited in developed areas of Fort Belvoir. No significant effects to visual resources are expected at any of the alternatives for any of the BRAC projects. The *Installation Design Guide, Fort Belvoir, Virginia* will be followed as site designs are developed.

4.2.1.5 Hazardous Materials

Most of the closure-related activities going to Fort Belvoir are administrative functions that do not use or generate hazardous materials. Those activities that use or generate hazardous materials as part of their mission will continue to do so regardless of final siting decisions. None of the alternative sites proposed for any of the BRAC projects would be eliminated because of this criteria alone. The AAFES gas station (BRAC 9) will have three USTs and will require compliance with the Fort Belvoir, state, and local guidelines for installing new USTs. The new tanks will also have to comply with Fort Belvoir's spill prevention, control, and countermeasure (SPCC) plan.

The Institute of Heraldry discharges about 5 to 8 liters of photodeveloping solutions a week into the local sanitary sewer system at Cameron Station. This practice will be discontinued at the new facilities at Fort Belvoir because a silver-recovery system will be incorporated into the design. The DLA and the *Soldiers Magazine* publication office also operate photographic laboratories. After silver recovery they have historically discharged about 37 to 74 liters/month of photodeveloping solution into the sanitary system. Their plans include the same operating procedures when they relocate to Fort Belvoir. Their solid wastes have typically been placed in containers and deposited into dumpsters with other refuse.

The AMTL activity that will be relocating from Massachusetts conducts research on material development and failure. The staff works with various metal alloys. A number of acids, solvents, bases, inorganic inhibitors, thermal spray powders, coating compounds (e.g., epoxy resins), and general chemicals (e.g, sodium chloride, potassium chloride, and magnesium fluoride) are used in relatively minor amounts in their research. This laboratory research is conducted in facilities with hoods to vent emissions and to maintain a safe work place. The DEH will determine whether an air

emissions permit will be required from the Virginia State Air Pollution Control Board on the basis of the actual functions that will be transferring to Fort Belvoir. Any waste will be handled under the direction of DEH, which is responsible for the hazardous materials program at the installation. A PA was conducted of AMTL activities in Watertown, Massachusetts, by USATHAMA and it was found that these activities were in compliance with hazardous waste regulations. Air emissions impacts are discussed in Section 4.2.1.1.5. Used acetone and dichloroethane are collected for disposal outside the laboratory, however, small quantities may enter lab sinks during rinsing. Approximately 20 gallons of acetone and 55 gallons of dichloroethane are currently collected each year.

Section 4.2.1.1.2 also discusses the potential for adverse effects to groundwater quality at Fort Belvoir. None of the proposed BRAC projects will use groundwater as drinking- or process-water, therefore, no effects on the quantity of groundwater at Fort Belvoir are expected.

To protect the quality of groundwater at Fort Belvoir, those projects that require the transfer of fuels or hazardous chemicals will be required to comply with Fort Belvoir's SPCC plan and applicable federal, state, and local regulations. The plan is in place to reduce the potential for significant impacts in case of accidental releases and to increase the efficiency of responses and cleanup to any releases.

On December 31, 1990, a Federal Facilities Compliance Agreement, Docket Number III-FF-RCRA-007, was signed between representatives of Fort Belvoir and EPA, Region 3. All NOVs cited in an August 30, 1990, letter from EPA have been corrected on schedule, as agreed.

The next submissions on January 1, 1992, will include the following.

- A comprehensive environmental audit
- A hazardous waste minimization study
- A complete chemical inventory

The findings of these investigations will dictate the course of action taken at Fort Belvoir after January 1, 1992.

4.2.1.6 Conclusions

Table 4-7 summarizes the impacts for the various alternatives for each of the BRAC projects. The accompanying text provides a more detailed discussion of the potentially significant site-specific impacts for each of the BRAC projects.

4.2.1.6.1 BRAC 1. The preferred alternative for BRAC 1 will have minimal effects on biophysical, socioeconomic, and cultural resources. Figure 4-11 shows a preliminary site layout for this alternative. A 250- to 300-foot vegetated buffer will be maintained to the north of the site to maintain the genetic corridor. As previously discussed all federal, state, and county environmental regulations will be followed during construction.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 1 Headquarters Complex Preferred Alternative	BRAC 1 Headquarters Complex Alternative 2
Physiography and Topography	Final site design will minimize cut and fill.	Buildable area restricted to elevations above 125-feet MSL because of RPA requirements.
Geology and Groundwater	No impact.	No impact.
Soils	No building constraints.	Soil survey incomplete, subsurface investigation required.
Surface Water	Bordered by a perennial stream, RPAs infringe slightly into site.	Runoff from the bridges and culverts required may increase amounts of pollutants in streams.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	Will constrict corridor, site design will include a 250- to 300-foot vegetated buffer to maintain corridor.	Will constrict corridor, site design will include a 250- to 300-foot vegetated buffer to maintain corridor.
Vegetation	No impact.	No impact.
Wildlife	Road kills could increase; vegetated buffer (see above) can minimize.	Road kills could increase; vegetated buffer (see above) can minimize.
Game Species	Same as above.	Same as above.
Wetlands	.4 acres of emergent wetlands will be filled during the construction of this project. A Section 404 Permit will be required and the wetlands will need to be recreated elsewhere on post.	Preliminary screening indicates no wetlands on site; jurisdictional delineation will be completed before construction; no effects on RPA buffers.
Aquatic Biota	No impact.	No work will be performed in the stream between March 15 and June 30. Runoff from the required bridges and culverts may negatively affect aquatic biota.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	Will increase population at Fort Belvoir by approximately 3,280 employees.	Will increase population at Fort Belvoir by approximately 3,280 employees.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will increase demand on some facilities; will generate an additional 6 tons per day of solid waste, will participate in recycling program.	Will increase demand on some facilities; will generate an additional 6 tons per day of solid waste, will participate in recycling program.
Traffic and Transportation	Road network will be needed, BRAC 3, preferred alternative and MCA 16 will mitigate.	Road network will be needed, BRAC 3, preferred alternative and MCA 16 will mitigate.
Cultural Resources	Phase I survey needed on part of site.	No impacts, surveys completed.
Hazardous Materials*	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 1 **Headquarters Complex** **Alternative 3**	
Physiography and Topography		
Geology and Groundwater	No impact.	
Soils	No impact.	
Surface Water	No impact.	
Climate and Air Quality	No impact.	
Wildlife Genetic Corridor	No impact; outside corridor.	
Vegetation	No impact.	
Wildlife	No impact.	
Game Species	No impact.	
Wetlands	No impact.	
Aquatic Biota	No impact.	
Threatened and Endangered Species	No impact.	
Land Use	Compatible with existing land use.	
Population	Will increase population at Fort Belvoir by approximately 3,280 employees.	
Housing	No impact.	
Employment	No impact.	
Income	No impact.	
Community and Army Facilities	Will increase demand on some facilities; will generate an additional 6 tons per day of solid waste, will participate in recycling program.	
Traffic and Transportation	Will increase congestion on Richmond Highway and the South Post.	
Cultural Resources	Standing structure survey required.	
Hazardous Materials*	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 2 Industrial Park Preferred Alternative	BRAC 2 Industrial Park Alternative 2
Physiography and Topography	Site is located adjacent to closed debris landfill.	No impact.
Geology and Groundwater	No impact.	No impact.
Soils	100% high water table; may present engineering constraints.	50% high water table; 10% steep slope.
Surface Water	No impact.	Runoff from the required culverts may increase amounts of pollutants in streams.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	Preliminary screening indicates no wetlands on site; jurisdictional delineation will be completed before construction; no effects on RPA buffers.
Aquatic Biota	No impact.	No work will be done in the stream between March 15 and June 30. Runoff from the required bridges and culverts may negatively affect aquatic biota.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	Will increase population at Fort Belvoir by approximately 173 employees.	Will increase population at Fort Belvoir by approximately 173 employees.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will increase demand on some facilities; will generate an additional 0.32 tons per day of solid waste, will participate in recycling program.	Will increase demand on some facilities; will generate an additional 0.32 tons per day of solid waste, will participate in recycling program; will require significant utility infrastructure upgrades.
Traffic and Transportation	Road network will be needed, BRAC 3, South, will mitigate.	New access roads will be required to handle truck traffic.
Cultural Resources	Phase I survey needed on part of site.	Phase I and standing-structure surveys required.
Hazardous Materials*	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 3, NORTH BRAC Roads Preferred Alternative	BRAC 3, NORTH BRAC Roads Alternative 2
Physiography and Topography	Final site design will minimize cut & fill.	No impact.
Geology and Groundwater	No impact.	No impact.
Soils	7% hydric soil, 19% high water table; 11% steep slopes; engineering constraints.	50% high water table; 10% steep slopes.
Surface Water	Will need culverts to minimize effects of the 6 stream crossings needed.	Will need culverts to minimize the effects of the 3 stream crossings needed.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	Road will be designed with bridges and box culverts to permit safe movement of wildlife within corridor.	Road will be designed with bridges and box culverts to permit safe movement of wildlife within corridor.
Vegetation	Clearing will be required in the right-of-way.	Clearing will be required in the right-of-way.
Wildlife	Road kills could increase; box culverts (see above) could minimize numbers of road kills.	Road kills could increase; box culverts (see above) could minimize numbers of road kills.
Game Species	Same as above.	Same as above.
Wetlands	A Section 404 Permit will be required because 2.1 acres of wetlands will be affected; RPA buffers will be affected.	A Section 404 Permit will be required because 1.8 acres of wetlands will be affected; RPA buffers will be affected.
Aquatic Biota	No work will be done in the stream between March 15 and June 30. Temporary construction impacts; BMPs will be used to minimize downstream sedimentation.	No work will be done in the stream between March 15 and June 30. Temporary construction impacts; BMPs will be used to minimize downstream sedimentation.
Threatened and Endangered Species	Complete survey required for final right-of-way; wood turtles located near intersection with Woodlawn Road.	No impact.
Land Use	No impact.	No impact.
Population	No impact.	No impact.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will mitigate effects of BRAC.	Will mitigate effects of BRAC, however, not as effectively as the preferred alternative.
Traffic and Transportation	Should improve traffic locally.	Will not mitigate traffic increases as well as the preferred alternative because this alternative eliminates Woodlawn Road as an access point.
Cultural Resources	Phase I survey needed for right-of-way.	Phase I survey needed for right-of-way.
Hazardous Materials*	No impact.	No impact.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 3, SOUTH BRAC Roads *Preferred Alternative*	
Physiography and Topography	No impact.	
Geology and Groundwater	No impact.	
Soils	5% high water table.	
Surface Water	Will need culverts to minimize effects of the 2 stream crossings required.	
Climate and Air Quality	No impact.	
Wildlife Genetic Corridor	No impact.	
Vegetation	Minimal clearing required.	
Wildlife	No impact.	
Game Species	No impact.	
Wetlands	A Section 404 Permit will be required because .3 acres of wetlands will be affected; a Section 401 water quality certificate will be required for 2 stream crossings.	
Aquatic Biota	Temporary construction impacts; BMPs will be used to minimize downstream sedimentation.	
Threatened and Endangered Species	No impact.	
Land Use	No impact.	
Population	No impact.	
Housing	No impact.	
Employment	No impact.	
Income	No impact.	
Community and Army Facilities	Will mitigate effects of BRAC 2.	
Traffic and Transportation	Should improve traffic locally.	
Cultural Resources	Phase I survey needed for a portion of the right-of-way.	
Hazardous Materials*	No impact.	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 4 Commissary Warehouse Addition Alternative 1	BRAC 4 Commissary Warehouse Addition Alternative 2
Physiography and Topography	Final site design will minimize cut & fill.	No impact.
Geology and Groundwater	No impact.	No impact.
Soils	25% high water table; may present engineering constraints.	No impact.
Surface Water	No impact.	No impact.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	Will increase population at Fort Belvoir by approximately 51 employees.	Will increase population at Fort Belvoir by approximately 51 employees.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will mitigate effects of BRAC (Cameron Station commissary closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.	Will mitigate effects of BRAC (Cameron Station commissary closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.
Traffic and Transportation	Will increase local traffic.	Will increase local traffic.
Cultural Resources	Severely disturbed, no survey needed.	Severely disturbed, no surveys needed.
Hazardous Materials*	No impact.	No impact.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 5 Post Exchange Preferred Alternative	BRAC 5 Post Exchange Alternative 2
Physiography and Topography	No impact.	No impact.
Geology and Groundwater	No impact.	No impact.
Soils	100% high water table; possible building constraints.	No impact.
Surface Water	No impact.	No impact.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	No impact.	No impact.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will mitigate effects of BRAC (Cameron Station PX closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.	Will mitigate effects of BRAC (Cameron Station PX closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.
Traffic and Transportation	Will increase local traffic.	Will increase local traffic.
Cultural Resources	Severely disturbed, no surveys needed.	Severely disturbed, no surveys needed.
Hazardous Materials*	No impact.	No impact.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 6 Commissary Preferred Alternative	**BRAC 6 Commissary Alternative 2**
Physiography and Topography	Final site design will minimize cut & fill.	No impact.
Geology and Groundwater	No impact.	No impact.
Soils	100% high water table; possible building constraint.	No impact.
Surface Water	No impact.	No impact.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	No impact.	No impact.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will mitigate effects of BRAC (Cameron Station commissary closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.	Will mitigate effects of BRAC (Cameron Station commissary closure); will increase solid waste generation, will participate in recycling program, specifically cardboard recycling.
Traffic and Transportation	Will increase local traffic.	Will increase local traffic.
Cultural Resources	Severely disturbed, no surveys needed.	Phase I survey needed on part of site.
Hazardous Materials*	No impact.	No impact.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 7 Administration Facility Preferred Alternative	
Physiography and Topography	No impact.	
Geology and Groundwater	No impact.	
Soils	No impact.	
Surface Water	No impact.	
Climate and Air Quality	No impact; outside corridor.	
Wildlife Genetic Corridor	No impact.	
Vegetation	No impact.	
Wildlife	No impact.	
Game Species	No impact.	
Wetlands	No impact.	
Aquatic Biota	No impact.	
Threatened and Endangered Species	No impact.	
Land Use	Compatible with existing land use.	
Population	Will increase population at Fort Belvoir slightly.	
Housing	No impact.	
Employment	No impact.	
Income	No impact.	
Community and Army Facilities	No impact on most facilities; will generate an additional 0.72 tons per day of solid waste, will participate in recycling program.	
Traffic and Transportation	Will increase local traffic.	
Cultural Resources	Stand-structure survey needed.	
Hazardous Materials*	Asbestos in building will be removed before renovation.	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 8 Material Research Facility Preferred Alternative	**BRAC 8 Material Research Facility Alternative 2**
Physiography and Topography	Final site design will minimize cut & fill.	Buildable area restricted to elevations above 125 feet MSL because of RPA requirements.
Geology and Groundwater	No impact.	No impact.
Soils	15% high water table; may present engineering constraints.	50% high water table, 20% steep slope
Surface Water	No impact.	No impact.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	Compatible with existing land use.
Population	Will increase population at Fort Belvoir by approximately 200 employees.	Will increase population at Fort Belvoir by approximately 200 employees.
Housing	Will increase area demand slightly.	Will increase area demand slightly.
Employment	No impact.	No impact.
Income	Minimal (positive) effect.	Minimal (positive) effect.
Community and Army Facilities	Will increase demand on some facilities; will generate an additional 0.38 tons per day of solid waste; will participate in recycling program.	Will increase demand on some facilities; will generate an additional 0.38 tons per day of solid waste; will participate in recycling program.
Traffic and Transportation	Will increase local traffic.	Will increase local traffic.
Cultural Resources	Phase I survey needed on part of site.	Phase I and standing structure survey needed
Hazardous Materials*	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 9 Exchange Branch Preferred Alternative	BRAC 9 Exchange Branch Alternative 1
Physiography and Topography	No impact.	Final site design will minimize cut & fill.
Geology and Groundwater	No impact.	No impact.
Soils	No impact.	No impact.
Surface Water	No impact.	No impact.
Climate and Air Quality	No impact.	No impact.
Wildlife Genetic Corridor	No impact; outside corridor.	No impact; outside corridor.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened and Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use	Change in land use from troop cantonment to community facility.
Population	No impact.	No impact.
Housing	No impact.	No impact.
Employment	No impact.	No impact.
Income	No impact.	No impact.
Community and Army Facilities	Will mitigate effects of BRAC (Cameron Station closure).	Will mitigate effects of BRAC (Cameron Station closure).
Traffic and Transportation	No impact.	No impact.
Cultural Resources	Severely disturbed, no survey needed.	Phase I survey needed.
Hazardous Materials*	Will have three underground storage tanks (fuel oils and degreasers).	Will have three underground storage tanks (fuel oils and degreasers).

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 9 Exchange Branch Alternative 2	
Physiography and Topography	No impact.	
Geology and Groundwater	No impact.	
Soils	No impact.	
Surface Water	No impact.	
Climate and Air Quality	No impact.	
Wildlife Genetic Corridor	No impact; outside corridor.	
Vegetation	No impact.	
Wildlife	No impact.	
Game Species	No impact.	
Wetlands	No impact.	
Aquatic Biota	No impact.	
Threatened and Endangered Species	No impact.	
Land Use	Compatible with existing land use	
Population	No impact.	
Housing	No impact.	
Employment	No impact.	
Income	No impact.	
Community and Army Facilities	Will mitigate effects of BRAC (Cameron Station closure).	
Traffic and Transportation	No impact.	
Cultural Resources	Severely disturbed, no survey needed.	
Hazardous Materials*	Will have three underground storage tanks (fuel oils and degreasers).	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-7
Comparison of Effects of Proposed BRAC Alternatives at Fort Belvoir

	BRAC 10 Modify Buildings 1466 & 1445 for Base Closure Preferred Alternative	
Physiography and Topography	No impact.	
Geology and Groundwater	No impact.	
Soils	No impact.	
Surface Water	No impact.	
Climate and Air Quality	No impact.	
Wildlife Genetic Corridor	No impact; outside corridor.	
Vegetation	No impact.	
Wildlife	No impact.	
Game Species	No impact.	
Wetlands	No impact.	
Aquatic Biota	No impact.	
Threatened and Endangered Species	No impact.	
Land Use	Compatible with existing land use.	
Population	Will increase population at Fort Belvoir by approximately 206 employees.	
Housing	No impact.	
Employment	No impact.	
Income	No impact.	
Community and Army Facilities	No impact.	
Traffic and Transportation	Will increase local traffic.	
Cultural Resources	No impact.	
Hazardous Materials*	Asbestos in building will be removed before renovation.	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

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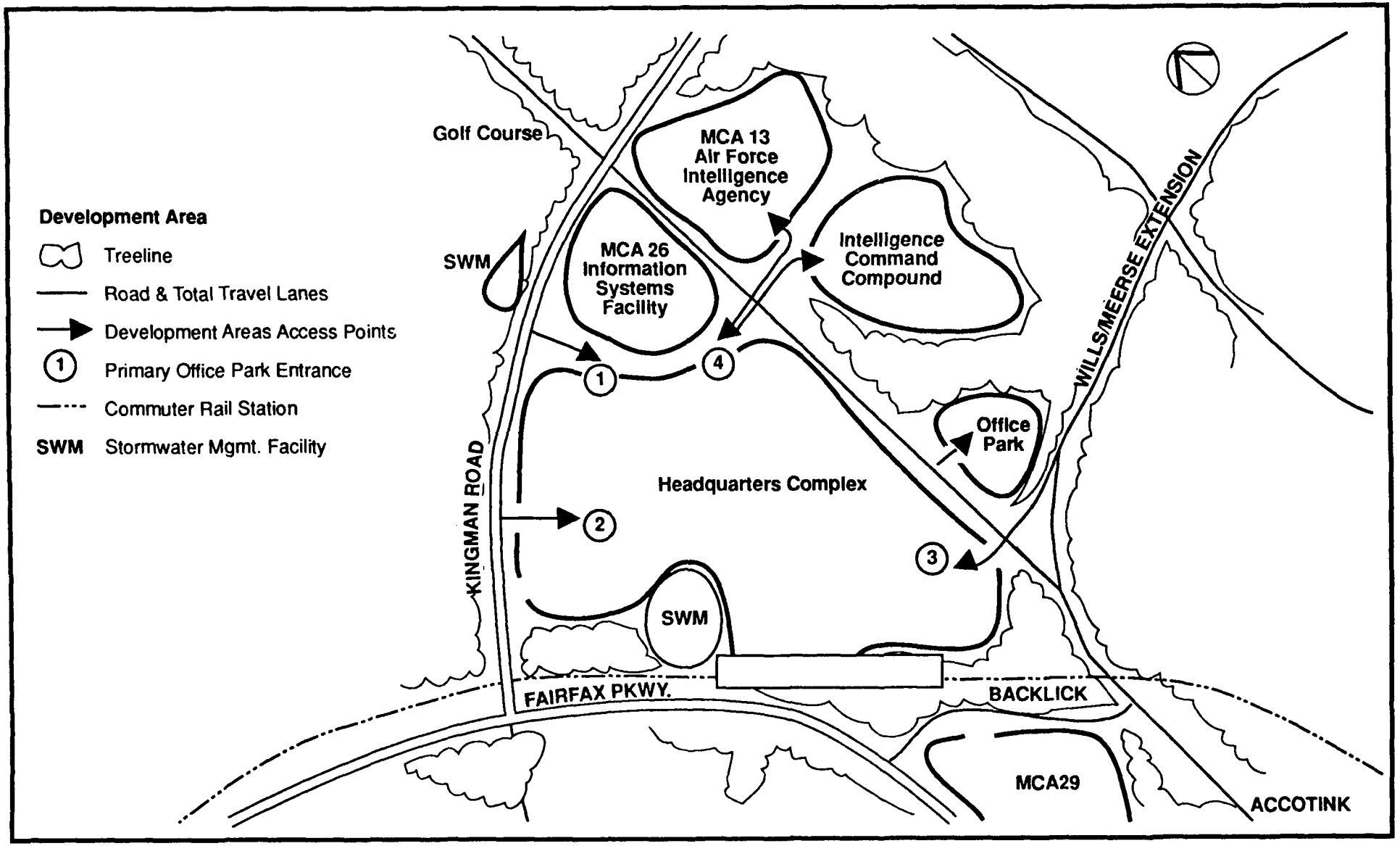


Figure 4-11
BRAC 1 Post Development Preferred Alternative, Preliminary Layout

Although all applicable regulations would be followed during the development of Alternative 2 for BRAC 1, the need for bridges to minimize impacts to wetlands, the need for extensive RPA buffers, and the restricted access afforded by the site all limit the buildable area on the site. Meeting these parameters would cause more significant traffic problems than the preferred alternative.

Alternative 3 for BRAC 1 does not meet the needs of the activities being relocated to Fort Belvoir because the activities would be scattered at various locations on the South Post. This would make coordination among activities difficult because they would be physically separated. In addition, many of the buildings proposed for use as part of this alternative will be required by other agencies relocating to Fort Belvoir under P.L. 100-526, and the remainder are already assigned to other activities.

4.2.1.6.2 BRAC 2. The preferred alternative for BRAC 2 is located near the other service and storage facilities at Fort Belvoir. Figure 4-12 shows a preliminary site layout for this alternative. The proposed MCA 31 will provide direct access to the site for the anticipated truck traffic. In addition, the existing utility infrastructure is adequate at this location.

BRAC 2, Alternative 2, is located near the Poe Road Landfill. The existing utility infrastructure would need to be upgraded and a new road constructed for this site to be considered a feasible alternative. The costs associated with the utility upgrades may be prohibitive.

4.2.1.6.3 BRAC 3. The preferred alternative for BRAC 3, North, would be the construction of a two-lane road between Woodlawn Road and Gunston Road and a four-lane road between Gunston Road and the Fairfax County Parkway. This alternative would provide multiple access points to the preferred alternative for BRAC 1. Although this alternative would require three more stream crossings than Alternative 2, once the engineering plans are completed, all required permits will be obtained and mitigation completed as required.

BRAC 3, North, Alternative 2 would be the construction of a four-lane road between the Fairfax County Parkway and Gunston Road. This alternative would limit access to BRAC 1 by removing Woodlawn Road as an access point which would require that all traffic accessing the site use Richmond Highway, Beulah Street, or the Fairfax County Parkway (currently Backlick Road). These roads are already heavily congested during peak periods.

The preferred alternative for BRAC 3, South, would be the construction of a two-lane road between Pohick Road and Warren Road. This would isolate the truck traffic going to and from BRAC 2.

Alternatives 1 and 2 for BRAC 3, South, would route truck traffic through the South Post on existing roads. Both of these alternatives would require substantial road

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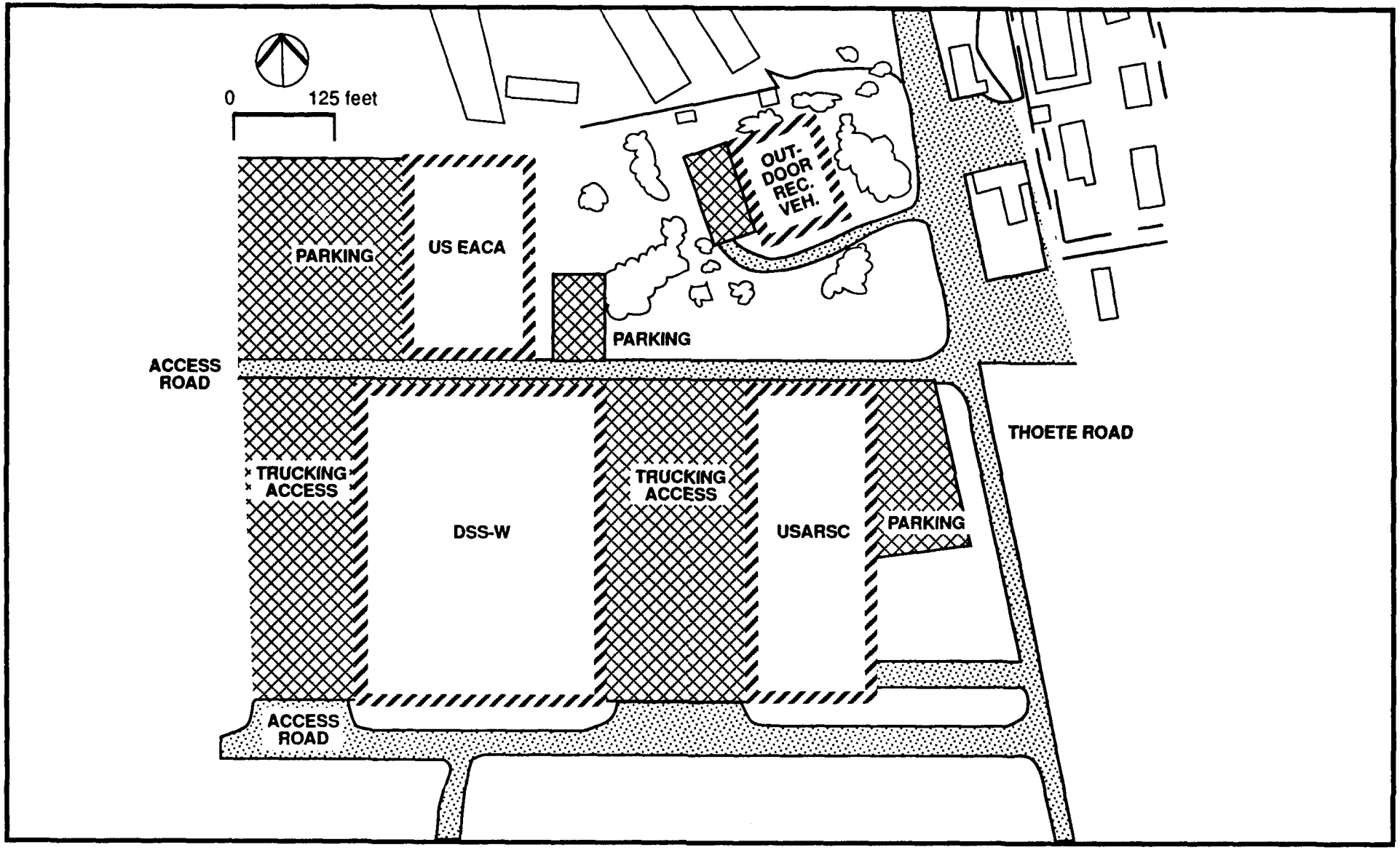


Figure 4-12
BRAC 2 Post Development Preferred Alternative

improvements to ensure that the existing roads are not damaged by the truck traffic. In addition, the trucks would need to be routed near some of the housing areas that are not now affected by industrial traffic.

4.2.1.6.4 BRAC 4. The No-Action Alternative has been selected for this project because funding was withdrawn by Congress. Construction of the commissary warehouse addition would be preferred at the site for Alternative 1 because Alternative 2 is not large enough to accommodate the structure. In addition, this warehouse could support the commissary at Fort Myer. Locating the structure on the South Post would increase truck traffic in an area already congested with traffic. Construction at either site would not be expected to cause any significant environmental effects.

4.2.1.6.5 BRAC 5 and BRAC 6. Construction of both of these facilities at the preferred alternatives will create two distinct shopping areas on Fort Belvoir. It is anticipated that the North Post facility will serve primarily offpost patrons and the South Post facility will serve Fort Belvoir residents. The creation of these shopping centers should decrease traffic flows between the North Post and South Post during peak shopping hours by providing a commissary and PX in two locations.

4.2.1.6.6 BRAC 7 and BRAC 10. The preferred alternatives for both of these projects involve the renovation of vacated buildings to house activities being relocated to Fort Belvoir under P.L. 100-526. The alternative to this action would be to construct new facilities for these activities. Renovation of the existing structures is considered to be a more cost-effective alternative for BRAC 7 and 10.

4.2.1.6.7 BRAC 8. The preferred alternative for BRAC 8 locates the facility within the BRDEC area of Fort Belvoir near other facilities where similar functions are performed. This area is secure, with controlled access points. Construction of the Material Research Facility at the preferred alternative is not expected to cause any significant environmental effects.

BRAC 8, Alternative 2, is located outside the secured BRDEC area and is surrounded by wetlands, steep slopes, and RPAs. The utilities at this site would also need to be upgraded to provide adequate service. These two factors, coupled with the need to relocate the EPG test facilities (MCA 24) to a suitable area on Fort Belvoir, eliminate this site from serious consideration for BRAC 8.

4.2.1.6.8 BRAC 9. The preferred alternative for this BRAC project located the Exchange Branch, near Richmond Highway, with the North Post Commissary and PX creating a centralized shopping area and allowing easy access for all personnel. Alternative 1 would place the facility near the Woodlawn Friends Meeting House and Cemetery and away from the other shopping facilities on the North Post. Alternative 2 would place BRAC 9 near the North Post shopping center in an area currently proposed for housing (AFH 3).

4.2.2 THE CONCEPT DEVELOPMENT PLAN

Table 4-8, a comparison matrix of cumulative effects, has been prepared for 37 MCA, eight NAF, one AAFES, and 13 AFH actions planned for Fort Belvoir. The five MCA and one AFH actions omitted from the table are currently under construction and have their own specific NEPA documentation. The two AAFES actions omitted from the table are still in the early planning stages and have not been formally sited and the environmental effects of these two projects could not be adequately addressed given the minimal amount of information available at the time this EIS was prepared. The table indicates the physical/chemical, biological, socioeconomic, and cultural resources that may be affected by each of the proposed actions. The following is a more detailed discussion of each of the potentially significant cumulative effects. Final analysis of the site development will identify impacts and provide appropriate investigation measures.

4.2.2.1 Physical/Chemical Resources

4.2.2.1.1 Physiography and Topography. The construction of new facilities at Fort Belvoir should have minimal effects on the existing topography. Most of the development sites are located in areas that have already been disturbed from other facilities or intensive training activities. Buildings will be sited to minimize grading and designed to complement the existing topography.

4.2.2.1.2 Geology and Groundwater. Construction of the new facilities at Fort Belvoir should have no significant effects on the existing geology because no significant subsurface activities are planned.

4.2.2.1.3 Soils. A number of actions/facilities have been proposed in soils that may present building constraints. The obstacles are in the form of regulatory constraints related to the Chesapeake Bay Preservation Act. The soil properties of concern include iron content, high water tables, and steep slopes, which also may present physical constraints to development. Hydric soils generally indicate the presence of wetlands and high water tables suggest the potential for wetland areas. According to the Chesapeake Bay Preservation Act, development is not allowed in wetland areas that are connected to waters draining into the Chesapeake Bay in Virginia. In addition, the Chesapeake Bay regulations require a buffer around these wetland areas. A buffer is also required along steep slopes ($\geq$15%) that are adjacent to wetland and deep-water areas within the Chesapeake Bay drainage basin. The only exceptions within the RPA are for water-dependent facilities. The proposed projects listed in Table 4-9 may be located in an RPA. This table identifies potential developmental constraints that will be considered in the siting and design process. Further field analysis may be required to accurately determine if these proposed activities are indeed affected by these physical conditions. The constraints will be analyzed during the detailed design phase of each project in order to minimize impacts to the RPA.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 6 Veterinary Clinic	MCA 7 Operations Building Renovation, Engineer School Backfill	MCA 8 Telephone Switch Upgrade
Physiography & Topography	Final site design will minimize cut & fill	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	100% high water table; possible engineering constraints	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No significant impact; existing permitted incinerator to be moved	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	No impact
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact on most facilities; will increase solid waste generation somewhat, will participate in recycling program	Mitigation for other Concept Development Plan projects
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	Phase I survey needed	Building 201 is in Historic District; design of exterior work will be compatible with surrounding architecture	No impact
Hazardous Materials*	No impact	Asbestos in building will be removed before renovation	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 9 Fixed-Wing Runway Extension	MCA 10 Old Guard Horse Stables	MCA 11 Main Sewer Line Upgrade, Post-Wide
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	25% high water table; may present siting constraint	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	Will open new hole in south end of corridor; not a critical constriction	No impact
Vegetation	Will require waiver for extensive clearing, required for runway approaches	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	Preliminary assessment indicates wetlands at north end of site; permit may be required; jurisdictional delineation will be completed before construction	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	No impact	Land use category to change	No impact
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact on most facilities; horse manure will be composted	Mitigation for other Concept Development Plan projects
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	No impact	Two archeological resource sites identified; Phase II survey ongoing	No impact
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 12 North Post Fire Station	MCA 13 Headquarters, Air Force Intelligence Agency	MCA 14 Physical Fitness Center
Physiography & Topography	No impact	Topography limits buildable acreage	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	50% high water table; possible engineering constraint	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	Will cause constriction in corridor; 250- to 300-foot buffer will be required to maintain corridor south and west of the site	No impact
Vegetation	No impact	Clearing required: will comply with Fairfax County tree ordinance	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	Jurisdictional delineation needed; site will be affected by RPA buffers	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	Compatible with existing land use
Population	No impact	Will increase population at Fort Belvoir by approximately 125 employees	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	Mitigation for other Concept Development Plan projects	No impact on most facilities; will generate an additional 0.24 tons per day of solid waste, will participate in recycling program	No impact
Traffic & Transportation	No impact	Will increase traffic locally	No impact
Cultural Resources	May affect potential historic building; standing-structure survey will be done	No impact	May affect potential historic building; standing-structure survey will be done
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 15 Virginia National Guard Armory/Headquarters (29th LID)	MCA 16 Gunston Road Extension	MCA 17 DC National Guard Hanger
Physiography & Topography	No impact	Final site design will minimize cut & fill	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	10% high water table; may be engineering constraint	27% hydric soils; 50% high water table, 2% steep slope; constraints	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	Will cut off corridor; road will be designed with box culverts to facilitate wildlife movements	No impact
Vegetation	No impact	Will require clearing along right-of-way	No impact
Wildlife	No impact	Road kills could increase; box culverts (see above) can minimize	No impact
Game Species	No impact	Same as above	No impact
Wetlands	Site may be affected by RPA buffers for offsite wetlands; jurisdictional delineation required	An Individual Section 404 permit will be required; RPA buffers will be affected	No impact
Aquatic Biota	No impact	Temporary construction impacts; BMPs will be used to minimize downstream sedimentation	No impact
Threatened & Endangered Species	No impact	Complete survey required for final right-of-way	No impact
Land Use	Compatible with existing land use	No impact	Compatible with existing land use
Population	Will increase weekend population at Fort Belvoir by approximately 500	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	Will mitigate impacts caused by other Concept Development Plan projects	No impact
Traffic & Transportation	Will increase local traffic on weekends	Should improve traffic locally	No impact
Cultural Resources	Portion of site surveyed, no sites found; rest of site needs Phase I survey	Portion of site surveyed, no sites found; rest of site needs Phase I survey	No impact
Hazardous Materials*	No impact	No impact	Oils, lubricants, solvents, and degreasers; disposal according to regulations

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 18 Seabee Operational Storage Facility	MCA 19 Renovate Heat Plant	MCA 20 Renovate Building 361 for ADP
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	May decrease emissions when facilities are modernized	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	Compatible with existing land use
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	No impact	No impact	No impact
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 21 D.C. National Guard Academy	MCA 22 Electrical Upgrade, Post-Wide Phase I	MCA 23 Lateral Sewer Line Repair, Post-Wide
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	90% high water table, 10% hydric soils; engineering constraints	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	May be affected by RPA buffer for offsite wetlands; jurisdictional delineation required	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land use	Compatible with existing land use	No impact	No impact
Population	Will increase weekend population at Fort Belvoir by approximately 500	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	Mitigation for other Concept Development Plan projects	Mitigation for other Concept Development Plan projects
Traffic & Transportation	Will increase local traffic on weekends	No impact	No impact
Cultural Resources	Phase I survey needed	No impact	No impact
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 24 Relocate EPA Test/Storage Facilities	MCA 25 Ammunition Storage	MCA 26 Information Systems Facility
Physiography & Topography	Site constrained by existing topography	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	50% high water table; 20% steep slope	80% high water table; engineering constraint	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	Will open up new hole; not a critical constriction	No impact
Vegetation	No impact	No impact	Clearing required; will comply with Fairfax County tree ordinance
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	May be affected by RPA buffer for offsite wetlands; jurisdictional delineation required	No impact	Jurisdictional delineation needed; site will be affected by RPA buffers
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	Just outside required bald eagle nest buffer area	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	Compatible with existing land use
Population	No impact	No impact	Will increase population at Fort Belvoir by approximately 300 employees
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & army Facilities	No impact	No impact	No impact on most facilities; will generate an additional 0.6 tons per day of solid waste; will participate in recycling program
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	Phase I survey needed	No impact	Portion of project area needs a Phase I survey
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 27 CIDC Field Operations Building	MCA 28 DC National Guard Cantonment	MCA 29 Main Post Library
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	5% high water table, 10% hydric soils; engineering constraints	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	May be affected by RPA buffer for offsite wetlands; jurisdictional delineation required	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Change in land use from recreation and open space to administrative	Compatible with existing land use	Compatible with existing land use
Population	Will increase population at Fort Belvoir by approximately 60 employees	Will increase weekend population at Fort Belvoir by approximately 500	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact on most facilities; will generate an additional 0.1 tons per day of solid waste, will participate in recycling program	No impact	Mitigation for other Concept Development Plan projects
Traffic & Transportation	Will increase local traffic	Will increase local traffic on weekend	No impact
Cultural Resources	No impact	Phase I survey needed	Part of site needs Phase I survey; adjacent to Historic District; will do standing-structure survey
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 31 Loop Road	MCA 32 Community Center/ Welcome Center	MCA 33 Facility Engineer Maintenance Shop
Physiography & Topography	Final site design will minimize cut & fill	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	18% hydric soils, 30% steep slope, 29% high water table; constraints	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	Road will be designed with bridges and box culverts to permit safe movement of wildlife within corridor	No impact	No impact
Vegetation	Will require clearing along right-of-way	No impact	No impact
Wildlife	Goes through refuge; road kills may increase, box culverts can minimize	No impact	No impact
Game Species	Same as above	No impact	No impact
Wetlands	An Individual Section 404 permit will be required; RPA buffers will be affected	No impact	No impact
Aquatic Biota	Temporary construction impacts; BMPs will be used to minimize downstream sedimentation	No impact	No impact
Threatened & Endangered Species	Complete survey required for final right-of-way	No impact	No impact
Land Use	No impact	Change in land use from troop cantonment to community facility	Compatible with existing land use
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	Mitigation for other Concept Development Plan projects	Mitigation for other Concept Development Plan projects	No impact
Traffic & Transportation	Should improve traffic locally	No impact	No impact
Cultural Resources	Portion of project area needs a Phase I survey	Phase I survey needed	Standing-structure survey and Phase I survey required
Hazardous Materials*	No impact	No impact	Fuel oils, lubricants, solvents, and degreasers; disposal according to regulations

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 34 Warehouses	MCA 35 Tactical Energy Systems Lab	MCA 36 Conforming Storage Building (DRMO)
Physiography & Topography	No impact	No impact	Final site design will minimize cut & fill
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	85% high water table
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	Will open up new hole; not a critical constriction
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	Site may be affected by RPA buffer; jurisdictional determination required	May be affected by RPA buffer for offsite wetlands; jurisdictional delineation required
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	Within known range of pygmy shrew on Fort Belvoir
Land Use	Compatible with existing land use	Compatible with existing land use	Change in land use from training to service/storage
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	Adjacent to Historic District	No impact	No impact
Hazardous Materials*	No impact	No impact	No hazardous wastes will be stored; hazardous materials will be handled and stored according to regulations

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 37 Military Police Station	MCA 38 Reserve Center/Operational Maintenance Activity (80th Div)	MCA 39 Maintenance Shop (DOL)
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	50% high water table	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	Will be affected by RPA buffers; will require nonwater-dependent facilities to be built 100 feet from the shoreline	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	Boat traffic may affect nesting bald eagle in wildlife refuge	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	Compatible with existing land use
Population	No impact	Will increase weekend population at Fort Belvoir by approximately 500	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	Mitigation for other Concept Development Plan projects	No impact	No impact
Traffic & Transportation	No impact	Will increase weekend traffic locally	No impact
Cultural Resources	May affect potential historic building; standing-structure survey will be done	Part of site needs Phase I survey; adjacent to Historic District, will do standing-structure survey	May affect historic building, standing-structure survey will be done; disturbed, no Phase I survey needed
Hazardous Materials*	No impact	No impact	Fuel oils, lubricants, solvents, and degreasers; disposal according to regulations

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	MCA 40 Electro-Optics Laboratory	MCA 41 Fatigue Test Facility	MCA 42[b] Potential 500-Person Administrative Facility, HEC
Physiography & Topography	No impact	No impact	Final site design will minimize cut & fill
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	20% hydric soils, 20% high water table, 20% steep slope; constraint
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	Will open new hole in north end of corridor; not a critical constriction
Vegetation	No impact	No impact	Will require clearing; will comply with Fairfax County tree ordinance
Wildlife	No impact	No impact	Will relocate to similar habitat nearby
Game Species	No impact	No impact	Will relocate to similar habitat nearby
Wetlands	No impact	No impact	Wetlands and RPA buffer on site
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Compatible with existing land use	Compatible with existing land use	No land-use zones have been established at HEC
Population	No impact	No impact	Will increase population at HEC by approximately 500 employees
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	Will increase traffic locally
Cultural Resources	No impact	No impact	Phase I survey needed
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AFH 2 Lewis Heights Renewal, Phase 2	AFH 3 1,500 Housing Units	AFH 4 Dogue Creek Village Renewal Phases 1 and 2
Physiography & Topography	No impact	Final site design will minimize cut & fill	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	5% hydric soils, 5% steep slopes, 55% high water table	No impact
Surface Water	No impact	Two streams on site	No impact
Climate & Air Quality	No impact	Minor effect	No impact
Wildlife Genetic Corridor	No impact	Major effect because project may create constriction if 250- to 300-foot contiguous buffers are not maintained around site	No impact
Vegetation	No impact	Major effect because project will require clearing; will comply with Fairfax County tree ordinance	No impact
Wildlife	No impact	Road kills will be increased unless BRAC 3 mitigation is implemented	No impact
Game Species	No impact	Same as above	No impact
Wetlands	No impact	Jurisdictional determination required; permits will be obtained; RPA buffers will be maintained	No impact
Aquatic Biota	No impact	Temporary construction impacts; BMPs will be used to minimize downstream sedimentation	No impact
Threatened & Endangered Species	No impact	Major because wood turtles could be affected	No impact
Land Use	No impact	Compatible with existing land use	No impact
Population	No impact	Major effect because project will increase Fort Belvoir population by approximately 4,500 residents	No impact
Housing	No impact	Provides housing for military personnel stationed in region	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	Will increase demand on local and post facilities including schools; will generate 8.75 tons per day of solid waste, will participate in recycling program	No impact
Traffic & Transportation	No impact	Major effect because project will increase local traffic road network needed	No impact
Cultural Resources	No impact	Phase I survey needed	No impact
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AFH 5 George Washington Village Whole-House Renewal	AFH 6 River Village Whole-House Renewal	AFH 7 Belvoir Village Whole-House Renewal
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	No impact	No impact	No impact
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	No impact	No impact	In Historic District; exterior renovations must be compatible with Historic District architecture
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AFH 8 Gerber Village Whole-House Renewal	AFH 9 Visiting Officers Quarters Renovation	AFH 10 Jadwin Loop Whole-House Renewal
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	No impact	No impact	No impact
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	In Historic District; exterior renovations must be compatible with Historic District architecture	No impact	In Historic District; exterior renovations must be compatible with Historic District architecture
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AFH 11 Colyer Village Whole-House Renewal	AFH 12 Rossell Loop Whole-House Renewal	AFH 13 Woodlawn Village Whole-House Renewal
Physiography & Topography	No impact	No impact	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	No impact
Surface Water	No impact	No impact	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	No impact	No impact	No impact
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	No impact
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	No impact	No impact	No impact
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AFH 14 Fairfax Village Whole-House Renewal	NAF 1 Youth Center	NAF 2 Tompkins Basin Armed Forces Recreation Area
Physiography & Topography	No impact	No impact	Site layout will be designed around topography
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No impact	20% high water table, 80% steep slopes; engineering constraints
Surface Water	No impact	No impact	BMPs will be used to control erosion
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	No impact
Vegetation	No impact	No impact	Will require clearing; will comply with Fairfax County tree ordinance
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	Site design will incorporate RPA buffers
Aquatic Biota	No impact	No impact	Temporary impacts from turbidity caused by dredging
Threatened & Endangered Species	No impact	No impact	Boat traffic may affect nesting bald eagle in wildlife refuge
Land Use	No impact	Compatible with existing land use	Compatible with existing land use
Population	No impact	No impact	Will increase Fort Belvoir population using recreation area on weekends
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact	No impact	Facility provided to reduce demand on other park recreational facilities; will increase solid waste generation
Traffic & Transportation	No impact	No impact	Will increase traffic locally on weekends
Cultural Resources	No impact	Needs Phase I survey and standing-structure survey	Phase I & II surveys done; 2 sites identified; 44FX1328-eligible for NRHP. 44FX1654-Phase II ongoing
Hazardous Materials*	No impact	Asbestos will be removed from existing structures before demolition	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	NAF 3 Horse Stables	NAF 4 Benyuard Pool Addition	NAF 5 Golf Course
Physiography & Topography	No impact	No impact	Large areas with steep slopes, severe engineering constraints
Geology & Groundwater	No impact	No impact	No impact
Soils	25% high water table	No impact	10% hydric soils, 35% high water table, 40% steep slopes; constraints
Surface Water	No impact	No impact	Will need to comply with RPA buffer requirements
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	No impact	Will almost completely severe the corridor unless 250- to 300-foot contiguous buffers are maintained around the site
Vegetation	No impact	No impact	Will require clearing; will comply with Fairfax County tree ordinance
Wildlife	No impact	No impact	Buffers (see above) should protect nesting barred owl, Cooper's hawk
Game Species	No impact	No impact	No impact
Wetlands	No impact	No impact	Individual Section 404 permit will be required
Aquatic Biota	No impact	No impact	Herbicides and pesticides may decrease diversity and populations
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	Change in land use	No impact	Change from administrative use; adjacent to land zoned recreational
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	No impact on most facilities; horse manure will be composted	Mitigation for other Concept Development Plan projects	Will alleviate demand on other recreational facilities in the area; will increase generation of solid waste somewhat
Traffic & Transportation	No impact	No impact	Will increase traffic locally on weekends
Cultural Resources	Two archeological resource sites identified; Phase II survey ongoing	No impact	Part of site needs Phase I survey; previous survey identified 44FX673-needs Phase II survey.
Hazardous Materials*	No impact	No impact	Pesticides and herbicides will be used in accordance with regulations

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	NAF 6 Corporate Fitness Center	NAF 7 Child Development Center	NAF 8 Temporary Lodging Facility
Physiography & Topography	No impact	Final site design will minimize cut & fill	No impact
Geology & Groundwater	No impact	No impact	No impact
Soils	No impact	No building constraints	75% high water table
Surface Water	No impact	Ephemeral stream on site	No impact
Climate & Air Quality	No impact	No impact	No impact
Wildlife Genetic Corridor	No impact	Will constrict corridor; site design will include 250- to 300-foot vegetated buffer to maintain corridor	No impact
Vegetation	No impact	No impact	No impact
Wildlife	No impact	No impact	No impact
Game Species	No impact	No impact	No impact
Wetlands	No impact	Preliminary screening; no wetlands on site; jurisdictional delineation will be done before construction; no effects on RPA buffers	No impact
Aquatic Biota	No impact	No impact	No impact
Threatened & Endangered Species	No impact	No impact	No impact
Land Use	No impact	Compatible with existing land use	Compatible with existing land use
Population	No impact	No impact	No impact
Housing	No impact	No impact	No impact
Employment	No impact	No impact	No impact
Income	No impact	No impact	No impact
Community & Army Facilities	Will alleviate demand on other recreational facilities in the area	Mitigation for other Concept Development Plan projects	No impact on most facilities; will increase solid waste generation somewhat
Traffic & Transportation	No impact	No impact	No impact
Cultural Resources	Needs Phase I survey	Needs Phase I survey	Disturbed, no survey necessary; visual resources: close to Route 1, will follow installation design guide
Hazardous Materials*	No impact	No impact	No impact

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Table 4-8
SUMMARY OF EFFECTS OF CONCEPT DEVELOPMENT PLAN ACTIONS AT FORT BELVOIR[a]

	AAFES 1 Fast Food Facility (Burger King)	
Physiography & Topography	No impact	
Geology & Groundwater	No impact	
Soils	No impact	
Surface Water	No impact	
Climate & Air Quality	No impact	
Wildlife Genetic Corridor	No impact	
Vegetation	No impact	
Wildlife	No impact	
Game Species	No impact	
Wetlands	No impact	
Aquatic Biota	No impact	
Threatened & Endangered Species	No impact	
Land Use	Compatible with existing land use	
Population	No impact	
Housing	No impact	
Employment	No impact	
Income	No impact	
Community & Army Facilities	No impact on most facilities; will alleviate increased demand on existing food services; will increase solid waste generation	
Traffic & Transportation	No impact	
Cultural Resources	No impact	
Hazardous Materials*	No impact	

*If hazardous materials are discovered during detailed site investigations, they will be handled and disposed of in accordance with the appropriate regulations.

Note: Population figures are approximate and will fluctuate over time.
[a]Projects already under construction, MCAs 1-5 and AFH 1 and projects not yet sited. AAFESs 2 and 3, are not included.
[b]Included for cumulative impact analysis

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Table 4-9 DEVELOPMENTAL CONSTRAINTS OF PROPOSED CDP PROJECTS AT FORT BELVOIR	
Action/Facility	**Building Constraint**
MCA 6	100% high water table
MCA 10	25% high water table
MCA 13	50% high water table
MCA 15	10% high water table
MCA 16	27% hydric soil/50% high water table/2% steep slopes
MCA 21	10% hydric soil/90% high water table
MCA 24	50% high water table/20% steep slopes
MCA 25	80% high water table
MCA 28	10% hydric soil/90% high water table
MCA 31	18% hydric soil/29% high water table/30% steep slopes
MCA 36	85% high water table
MCA 37	50% high water table
MCA 42	10% hydric soil/20% high water table/20% steep slopes
AFH 3	5% hydric soil/55% high water table/5% steep slopes
NAF 2	20% high water table/80% steep slopes
NAF 3	25% high water table
NAF 5	10% hydric soil/35% high water table/40% steep slopes
NAF 8	75% high water table

4.2.2.1.4 Surface Water. As most of the proposed sites are essentially upland, they should have minimal effects on surface water quality. Any effects on surface water from stormwater flows and soil erosion should be temporary. BMPs will be used to reduce the potential for significant impacts from increased sedimentation, nutrient levels, and other sediment-associated contaminants. Those sites that have surface water features nearby will be separated by the required RPA buffer, which should minimize any effects these sites would have on surface water quality. Sedimentation control will be performed in compliance with the *Virginia Erosion and Sedimentation Control Handbook*, and sites will be provided with adequate stormwater management. In areas

developed within the RMA, best management practices will be used to control storm-water and sediments.

As discussed in Section 4.2.2.1.2 above, Fort Belvoir has management programs that are designed to protect the quality of surface water. The post's SPCC plan ensures that the potential for accidental releases is reduced and that if they should occur, they can be quickly contained and cleaned up.

The Tompkins Basin Armed Forces Recreation Area (NAF 2) and the Reserve Center/ OMA (80th DIV) (MCA 38) have the potential to affect surface water quality through the proposed shoreline development and channel dredging for the marina. Development of both projects could affect the physical and chemical quality of Gunston Cove and adjacent waters by 1) introducing sediments and nutrients into the water during construction and by actions that cause soil erosion on the site; 2) introducing sediments, and contaminants associated with the sediments, into the water from the dredging and the dredged material placement necessary for construction of the proposed marinas; 3) changing water currents and sediment transport in Gunston Cove by the construction of the breakwater for the proposed marinas, and 4) introducing pollutants, specifically oil and gas, into the water from boating operations.

Fort Belvoir is committed to using appropriate techniques for preventing erosion from the site during construction and maintenance of NAF 2 in order to minimize the introduction of sediments to adjacent waters. The proposed breakwater will be designed to minimize any changes to sedimentation patterns within the marina. Therefore, the effects of sediment transport will be minimized. Runoff from the development may add nutrients in the form of fertilizers, herbicides, and pesticides to the cove; Fort Belvoir can minimize this by limiting the use of fertilizers, especially in the floodplains, and by using other BMPs as prescribed by the Virginia Soil Conservation Service.

The severity of the dredging impacts on water quality will depend on the method used for dredging; some dredging techniques promote greater turbidity than others. A separate environmental assessment of dredging techniques and disposal sites will be prepared to determine the method that minimizes environmental impacts to the greatest extent possible and is still economically feasible. This study will evaluate available dredging methods and will evaluate these methods for potential effects on water quality, efficacy for Gunston Cove sediments, and compatibility with the planned disposal of the dredged material. Fort Belvoir will be required to obtain permits from the Army Corps of Engineers and the Commonwealth of Virginia Marine Resources Commission for the dredging and other construction that would take place in tidal wetlands or in waters of the United States and Virginia.

Results of the chemical analyses conducted on the sediments of Gunston Cove (Table 4-10) suggest that no deleterious levels of heavy metals will be introduced by the dredging activities. Because the sediments comprise mostly silt, a compatible site for disposal must be identified. Temporary effects to water quality may occur from the introduction of silt into the water column during dredging activities; however, no toxins are associated with these sediments.

The areal extent of substrate and the depth of sediments to be dredged also determine the severity of dredging effects on water quality and the feasibility of disposal of the dredged material. The preliminary estimate indicates that approximately 21,000 cubic yards of material will be dredged and disposed of to construct the proposed marina facilities. Dredging will take place solely to allow access to the marina facilities; no dredging will occur near the shoreline adjacent to the boardwalk and piers near the proposed restaurant.

The discharge of oil into or upon the waters of Virginia is prohibited by law (Section 62.1 of the Virginia Code). Fort Belvoir plans to minimize the chance that an accidental spill could occur through site design and through coordinated management with Fort Belvoir's Environmental and Natural Resources Division. No fuel pumps are planned for the marina.

Fort Belvoir will use a breakwater designed to protect the boat slips, but not accumulate sediments. Such a design will minimize the trapping of sediments borne by outgoing waters. Fort Belvoir is committed to protecting the shoreline of Gunston Cove and Accotink Bay, and will therefore limit shoreline construction to those features that are necessary for operation of the marina. Fort Belvoir will use appropriate vegetation to stabilize the shoreline and to revegetate remaining areas that have experienced erosion as a result of wave energy and training activities.

NAF 5 also has the potential to affect surface water quality on the post. Golf courses traditionally use concentrations of herbicides, pesticides, fungicides, and fertilizers to maintain tees, fairways, and greens. However, an EPA-reviewed plan for an integrated pest management program will be developed during the design phase of NAF 5. The plan will evaluate design options such as recycling irrigation water and the establishment and maintenance of a 200-foot, chemical-free buffer along drainages. The plan will also examine ways to minimize chemical applications during maintenance operations. The plan will be implemented when construction begins.

Additional background information relating to surface water impacts can be found in the ongoing *Environmental Assessment: Tompkins Basin Recreational Area, Fort Belvoir, Virginia* (RGH, 1990) and *Environmental Assessment: U.S. Army 1,000-Man Reserve Center, Fort Belvoir, Virginia* (RGH, 1990).

4.2.2.1.5 Climate and Air Quality. The construction and relocation of the new facilities and activities is not expected to have any effect on climate, nor is climate expected to have a significant effect on the activities.

Table 4-10
CHARACTERISTICS OF SEDIMENT SAMPLES COLLECTED IN GUNSTON COVE

Parameters	Units	COE Guidelines	Sampling Stations							
			Deep Water Sites				Shallow Water Sites			
			1	2	3	4	5	6	7	8
Chemical Oxygen Demand	mg/kg	100,000	14,000	1,900	26,000	29,000	26,000	9,800	23,000	9,500
Oil and Grease	mg/kg	5,000	2,900	650	3,200	1,100	8,900	860	6,200	130
Total Organic Carbon	mg/kg	20,000	3,300	7,700	5,600	3,200	7,000	1,500	3,200	1,700
Cadmium	mg/kg	2	<0.40	<0.42	<0.37	<0.30	<0.38	<0.29	<0.41	<0.38
Chromium, Total	mg/kg	80	8.2	18.2	16	15	13.3	9.8	11.7	3.3
Copper	mg/kg	80	8.8	16.9	15.4	14.7	12.1	3.4	10.3	4.5
Lead	mg/kg	100	25.9	32.5	31.1	30.6	22.8	8.3	26.6	13.4
Mercury	mg/kg	1	<0.13	<0.12	0.19	0.14	0.17	<0.11	<0.11	<0.11
Nickel	mg/kg	NA	7.2	84.4	13.3	13.9	12.3	3.2	8.5	2.8
Zinc	mg/kg	300	38.6	89.3	70.4	71.4	67.2	16.2	17.8	20.2
Total Kjeldahl Nitrogen	mg/kg	2,500	670	1,200	1,100	1,200	870	160	1,000	570
Total Phosphorus	mg/kg	2,500	15	13	19	18	20	7.1	16	25
Total Volatile Residue	%	11	0.9	6.2	3.3	6.1	7.4	4.2	5.1	1.2
Specific Gravity	25C/25C	NA	1.8	1.3	1.5	1.4	1.2	1.7	1.3	1.9
Grain Size (Percent by weight finer than silt)	%	NA	74	58	56	37	53	10	57	10

The modernization of the heating plant (MCA 19) should lower emissions somewhat when the old boilers are replaced with more efficient, cleaner-burning units.

The construction of MCA 6 will require that the permitted incinerator, which was part of the original facility, be designed into the new structure. No significant impacts are expected from this facility.

Air quality impacts can also occur during construction activities when wind-blown particulates are transported. Vegetation and surface waters can be affected. Likewise, the nuisance particulates can affect ventilation systems in existing buildings as well as people working downwind. Dust control should be implemented using BMPs, such as the wetting of sites where vegetation has been removed and grading has occurred. This should help reduce windblown particulates.

4.2.2.2 Biological Resources

4.2.2.2.1 Terrestrial Biota. Most of the sites designated for development at Fort Belvoir should not significantly affect biological resources because they are located in areas that are either heavily disturbed from training activities or already developed for other purposes. As a result, only those activities from which potentially significant impacts are expected are discussed below.

4.2.2.2.1.1 Wildlife Genetic Corridor. The construction of AFH 3 is expected to have the greatest impact on the genetic corridor (Figure 4-13). This project is located within a constriction below the North Eighteen Golf Course. Site development here could virtually eliminate all of the remaining unfenced wooded corridor. While the remaining golf course green space would allow passage for some species, many small animals and reptiles are reluctant to venture into the open (Ernst, et al., 1990) and their southwestern distribution and dispersal may be inhibited by development at the AFH 3 site. A 250- to 300-foot contiguous buffer composed of existing native vegetation, and additional planting as required, will be maintained between the proposed development and the golf course. This width has been shown to be the minimum required to allow movements of species (Johnson, 1986 & Jones, 1986).

MCA 16 and 31 could also have a detrimental effect upon species attempting to disperse across these roadways. The issues for MCAs 16 and 31 are similar to those discussed for BRACs 1 and 3 in Section 4.2.1.2.1.1.

Construction of NAF 5 and its associated service roads will adhere to the limitations and constraints outlined in *Environmental Assessment: Relocation of Headquarters, U.S. Army Materiel Command to Fort Belvoir, Virginia* (RGH, 1988) to minimize effects on the corridor in this area. Figure 4-14 shows the post-development corridor boundary at NAF 5.

Both MCA 15 and MCA 26 are sited near a critical wildlife corridor constriction between Accotink Village and Davison Airfield. Future construction in this area should be minimized to avoid completely severing the corridor.

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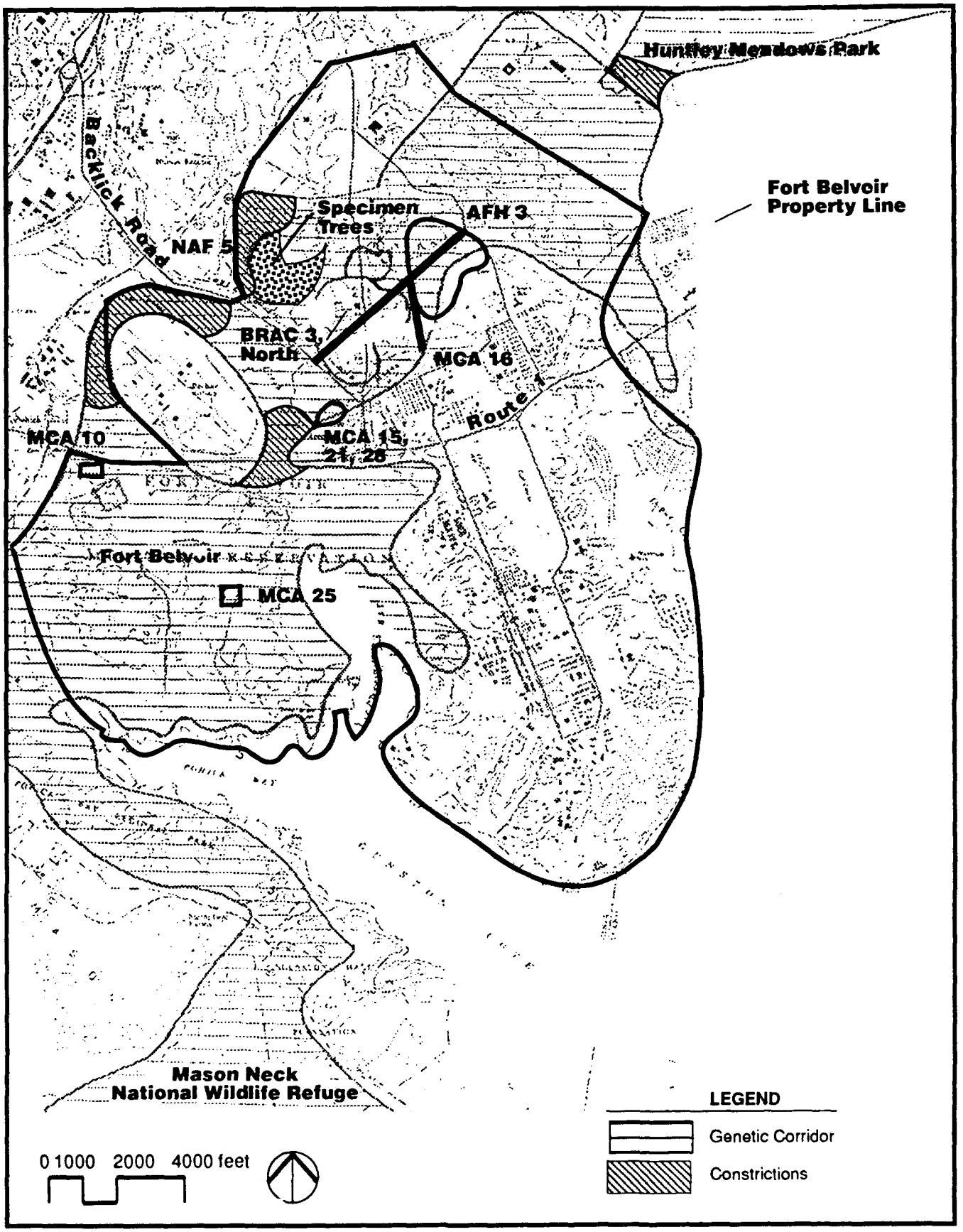


Figure 4-13
Impacts to the Genetic Corridor Alignment and Critical Constrictions on Fort Belvoir

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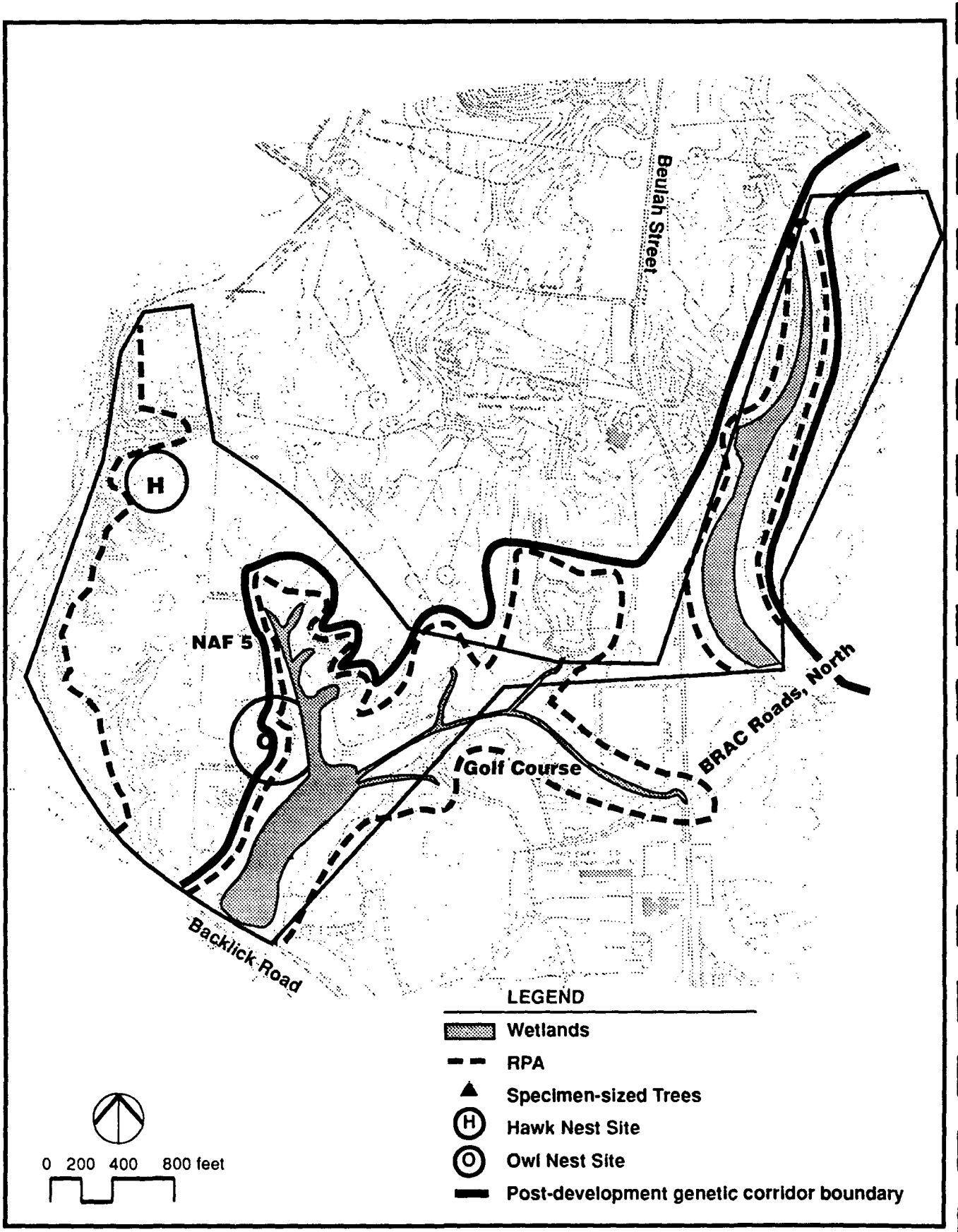


Figure 4-14
NAF 5
Environmental Constraints

MCA 10 will open a new hole in a broad area of the corridor. The proximity to Richmond Highway will minimize the area available for future construction. Currently, the corridor connections at Richmond Highway are limited to the area surrounding Davison Airfield. Future construction east of MCA 10 should be carefully studied to ensure that the corridor will not be severed.

As with MCA 10, MCA 25 will open up a new hole within the corridor. However, the isolated nature of this site minimizes the effect the construction of this project in the corridor. The new hole is not in a critical area of the corridor.

Individually, each of the projects discussed above will not have a significant effect on the corridor. However, collectively, the projects sited north of Backlick Road will have a significant effect on the corridor. In order to minimize these effects, Fort Belvoir will prepare a genetic corridor management plan as part of the update to the *Fort Belvoir Natural Resources Management Plan* (April, 1983).

4.2.2.2.1.2 Vegetation. Although all of the sites discussed above will require clearing of indigenous vegetation, AFH 3 and NAF 5 will require the largest amount of clearing. *The Environmental Assessment: Relocation of Headquarters, U.S. Army Materiel Command to Fort Belvoir, Virginia* (RGH, 1988) outlined areas that contained specimen-sized trees that should be saved. Figure 4-14 shows the locations of these trees as well as other environmental constraints for the NAF 5 site.

Because the scope of AFH 3 is large (1,500 housing units), it could necessitate clearing large areas. To the extent possible, native vegetation will be saved. This could provide screening from other structures, as well as habitat for animal species. Multiple dwellings or apartments can further reduce impacts by concentrating more housing units in a smaller area than would be required by detached or semi-detached dwellings.

For all of the projects, Fort Belvoir will comply with the recently passed Fairfax County tree ordinance by maximizing canopy areas at development sites. Revegetation for landscaping purposes should incorporate the planting of indigenous species to increase the chances for successful establishment and to reduce the likelihood of failure from drought or other climatic conditions. Landscaping plans should also require the use of species that currently provide most of the material used by wildlife on the post.

4.2.2.2.1.3 Wildlife. Although the projects discussed in Section 4.2.2.2.1.1 will have an effect on the movements of terrestrial species, most of the proposed disturbances will not significantly affect habitats at Fort Belvoir. Some of the animals displaced by construction will relocate into the remaining woodland. Competition for food and territories could stress the populations, however. In addition, some area-sensitive species (barred owl, ovenbird, Cooper's hawk, pileated woodpecker, etc.) could be lost from some areas of the North Post as their remaining habitat is further fragmented. Impacts to nesting Cooper's hawks and barred owls on NAF 5 will be reduced by retaining the buffers shown on Figure 4-14. These nesting sites, along with others on Fort Belvoir, will be protected by the *Fort Belvoir Natural Resources Management Plan*.

4.2.2.2.1.4 Game Species. None of the proposed actions should have a significant effect on the whitetail deer population provided that the mitigation measures to reduce road kills outlined in the discussion of the wildlife genetic corridor (Sections 4.2.1.2.1.1 and 4.2.2.2.1.1) are implemented.

4.2.2.2.2 Wetlands. Wetlands are protected by the Clean Water Act, and impacts to this resource should be minimal. However, initial site surveys indicate that large areas of wetlands are associated with both the NAF 5 and AFH 3 sites (Figures 4-14 and 4-15). Both NAF 5 and AFH 3 will be designed to avoid affecting wetlands and to conform to the President's goal of no net loss of wetlands. Jurisdictional wetland delineations will be completed and the required permits obtained before construction begins in these areas.

The following additional sites also contain wetlands either on the site or immediately adjacent to the site: NAF 2, and MCAs 9, 13, 15, 21, 24, 28, 31, and 42. Figures 4-16 through 4-22 show the environmental constraints for these sites. Site layouts will be designed to avoid all wetlands and minimize impacts with a goal of no net loss of wetlands.

In addition to the wetlands issue, a number of projects will be affected by the Chesapeake Bay Preservation Act enacted by the Virginia General Assembly in 1989. The act was discussed in Section 4.2.1.2.2. Approximate RPA buffers for AFH 3, NAF 2, and NAF 5 are shown on Figures 4-15, 4-16, and 4-14, respectively. It must be noted that detailed field delineations are required to accurately define the wetlands and the buffer boundaries. This work has been initiated by the Army. In addition, MCAs 3, 9, 13, 16, 31, and 42 could be affected by the RPA requirements of either onsite or adjacent offsite wetlands. This will be determined once site-specific jurisdictional wetland delineations are completed for these sites.

4.2.2.2.3 Aquatic Biota. Most of the proposed sites are upland and should have minimal effects on aquatic biota. Sedimentation control will be performed in compliance with the *Virginia Erosion and Sediment Control Handbook*. Fort Belvoir will incorporate a regional stormwater management program to accommodate stormwater runoff from all proposed activities. Areas developed within the RMA will have adequate BMPs to control stormwater and sediments. Work in the stream will not be performed between March 15 and June 30.

NAF 2 and MCA 38 have the greatest potential to impact the aquatic biota because they are sited on Gunston Cove and dredging is proposed to create a channel to the Potomac River for a marina. Impacts associated with this project include increased amounts of suspended sediments immediately after dredging, which may result in some temporary dispersal of fish populations and loss of diversity until the sediments settle. Some shallow water habitat will be lost, but not enough to be detrimental to the

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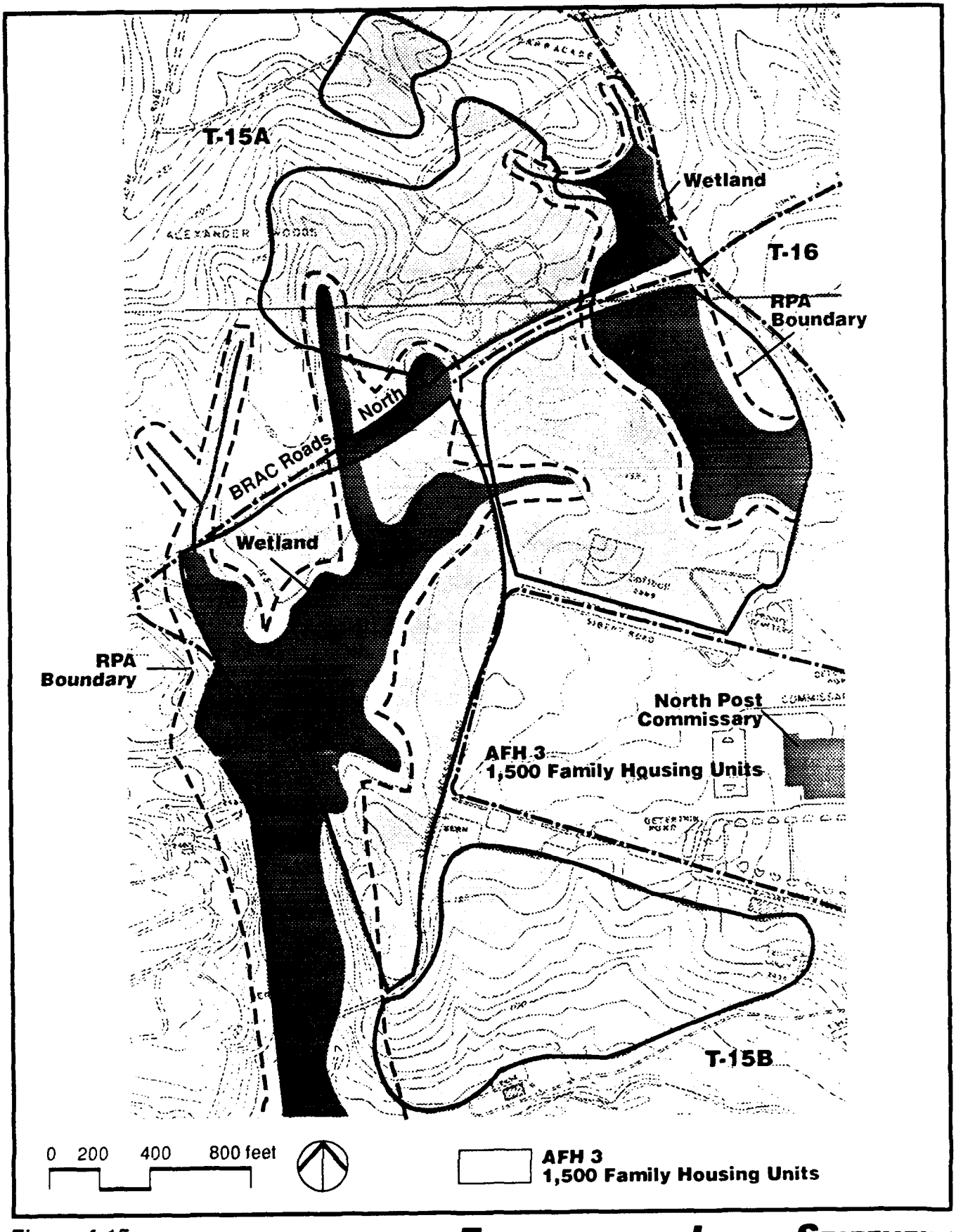


Figure 4-15
AFH 3
Environmental Constraints

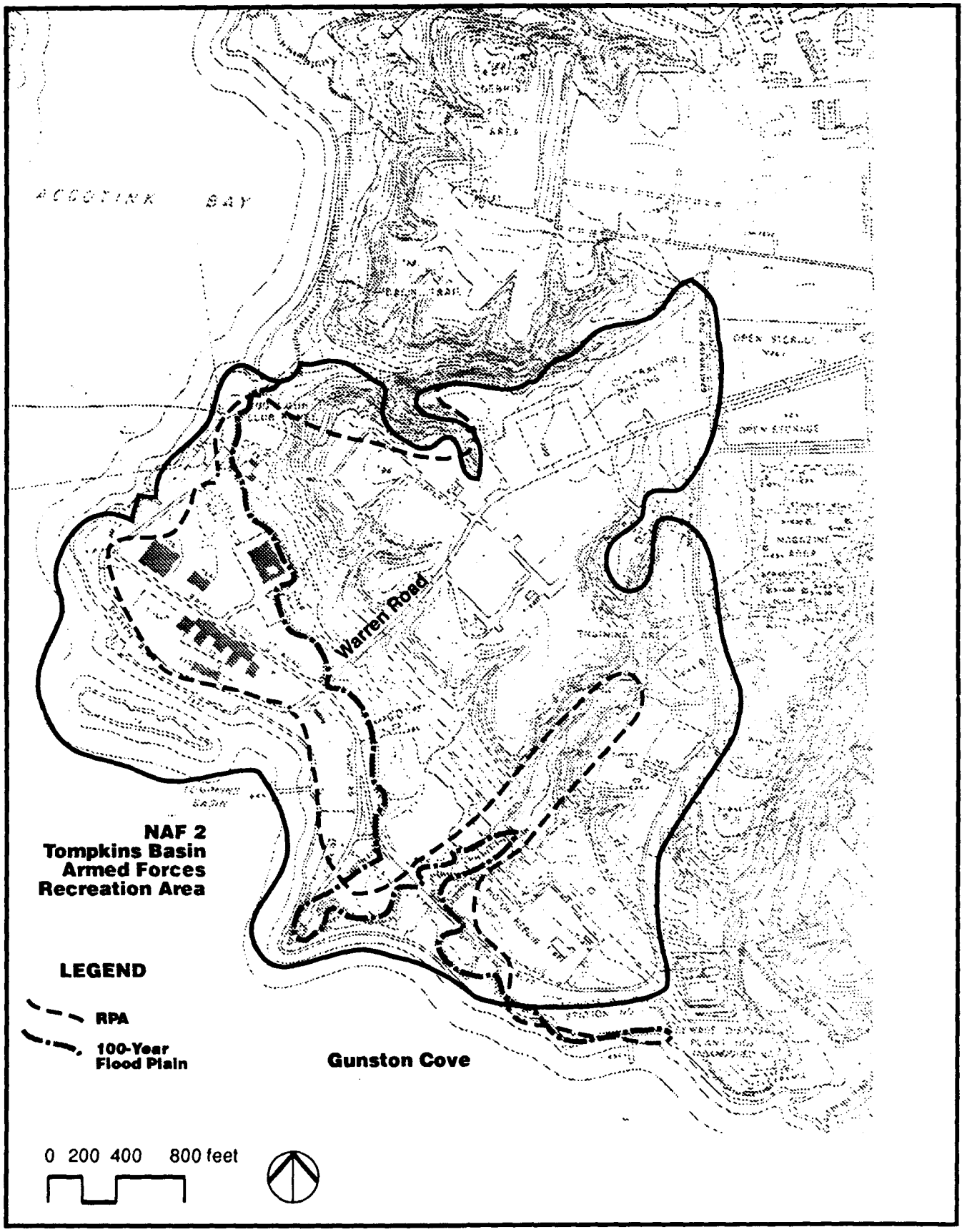


Figure 4-16
NAF 2
Environmental Constraints

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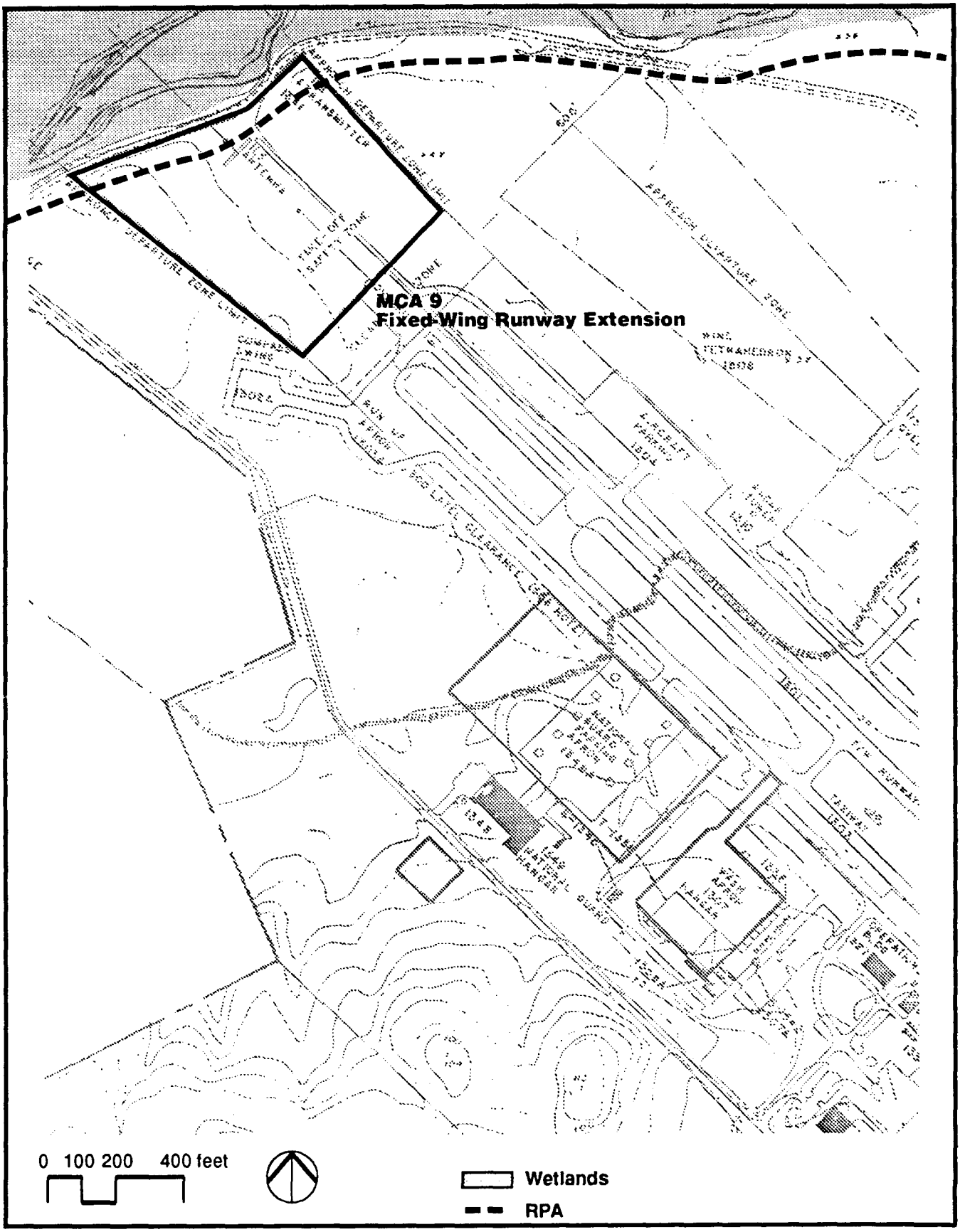


Figure 4-17
MCA 9
Environmental Constraints

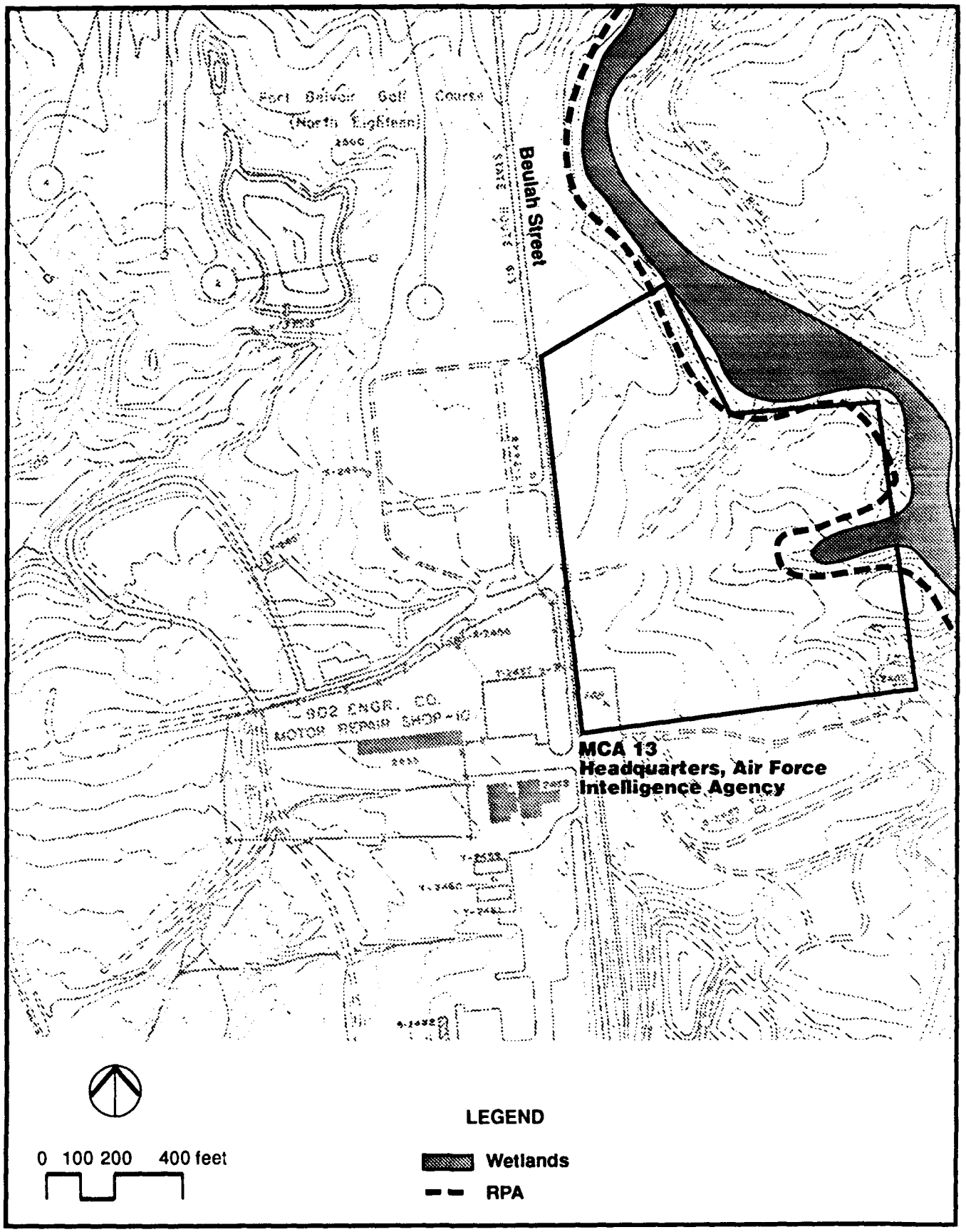


Figure 4-18
MCA 13
Environmental Constraints

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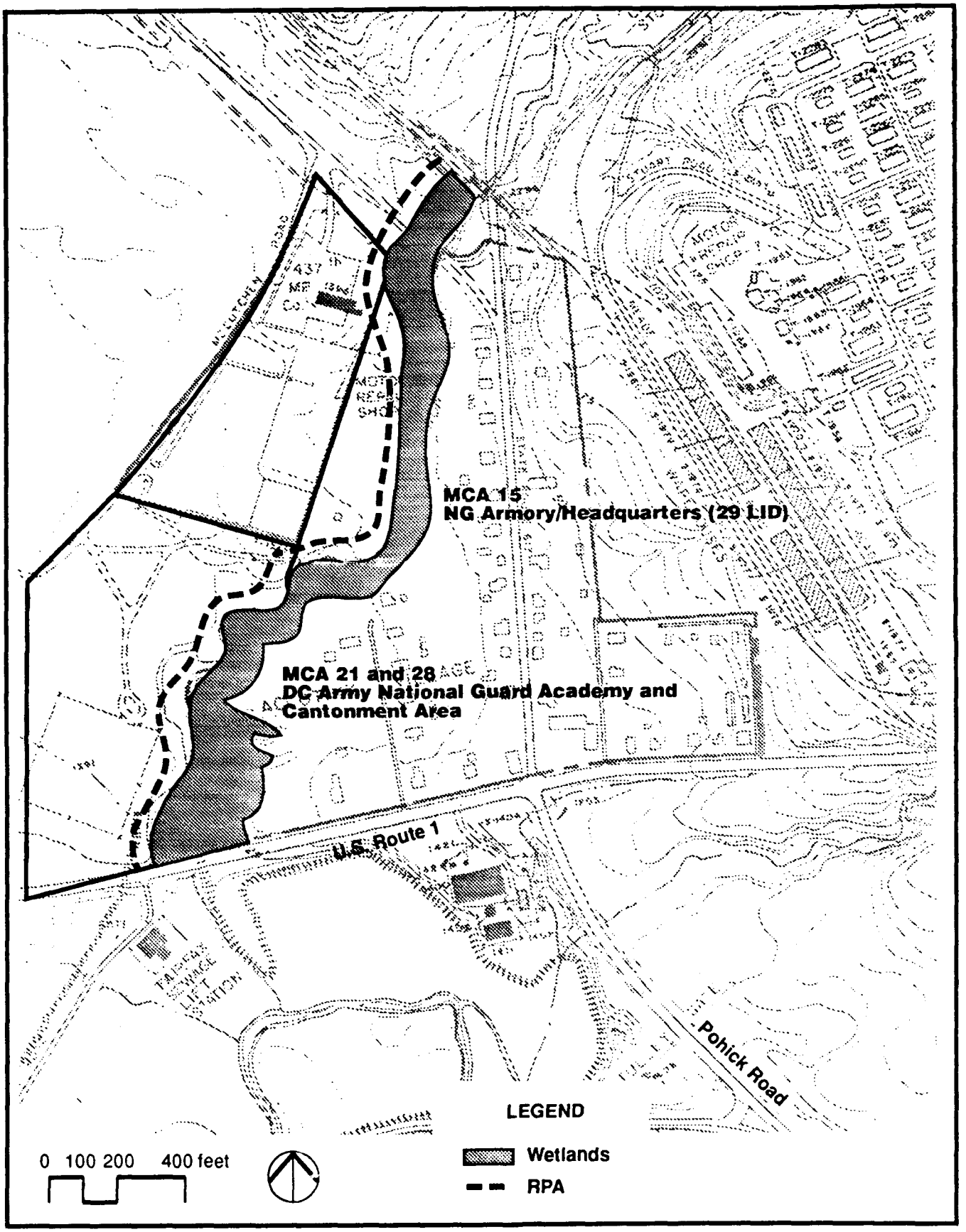


Figure 4-19
MCA 15, 21, and 28
Environmental Constraints

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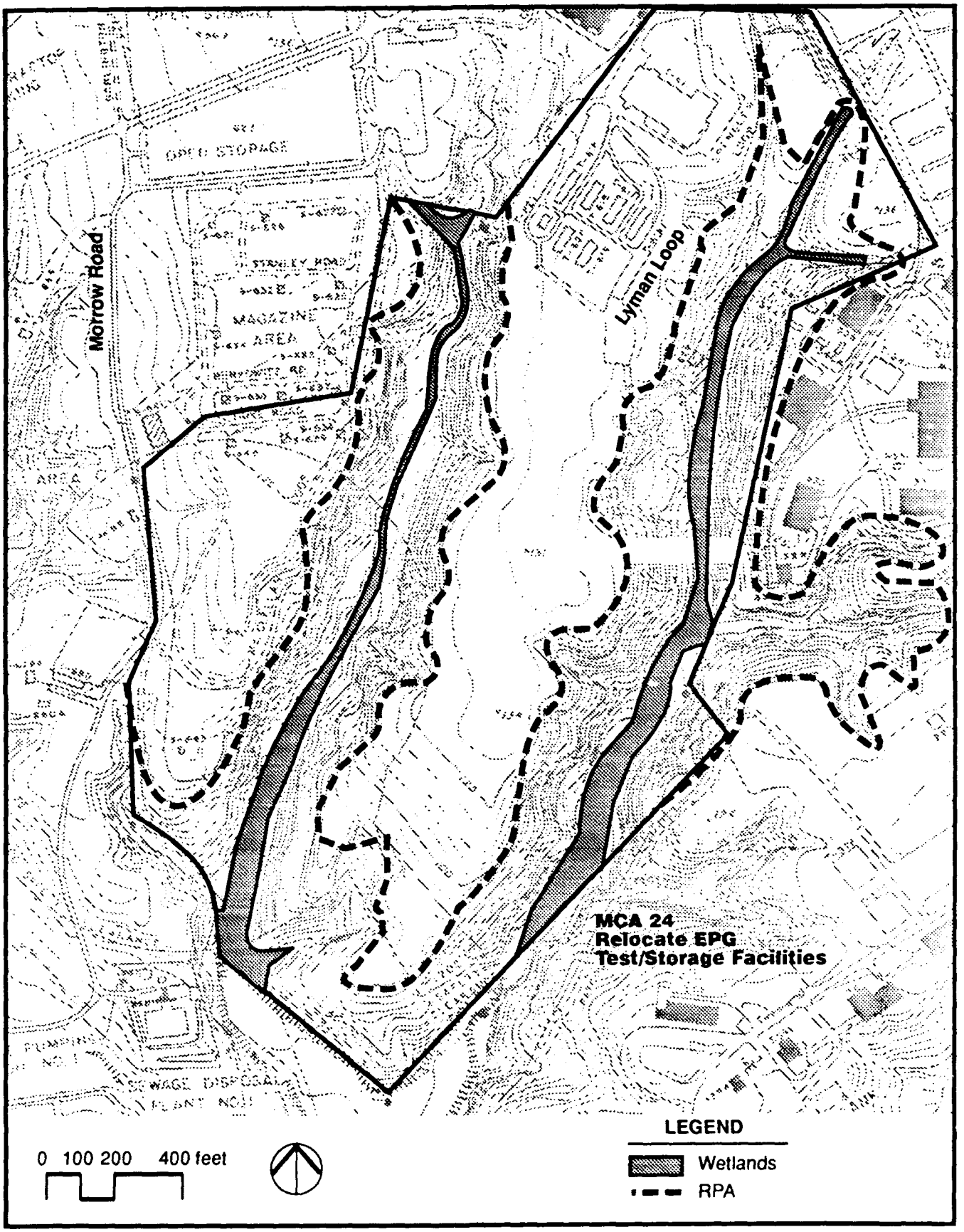


Figure 4-20
MCA 24
Environmental Constraints

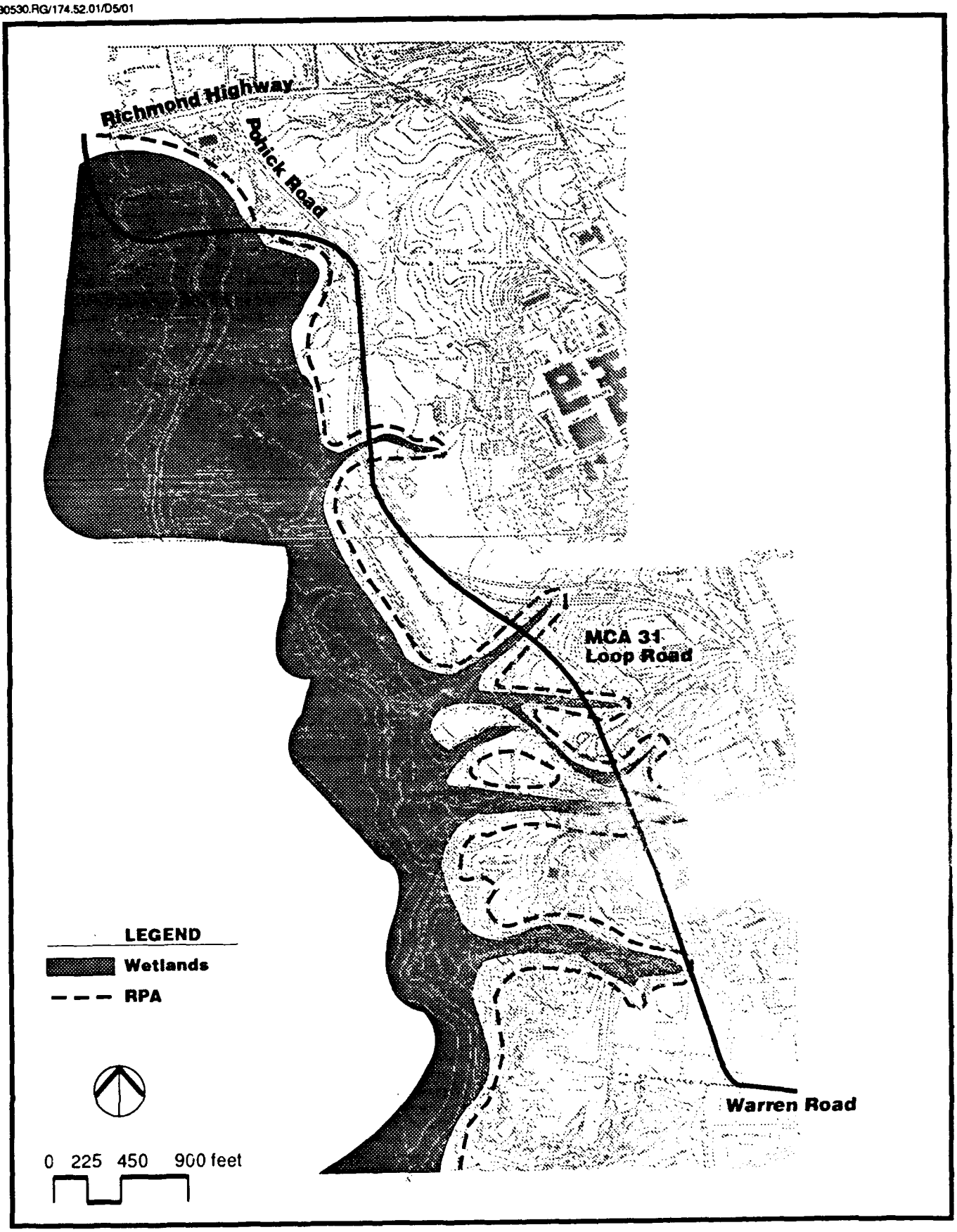


Figure 4-21
MCA 31 Loop Road
Environmental Constraints

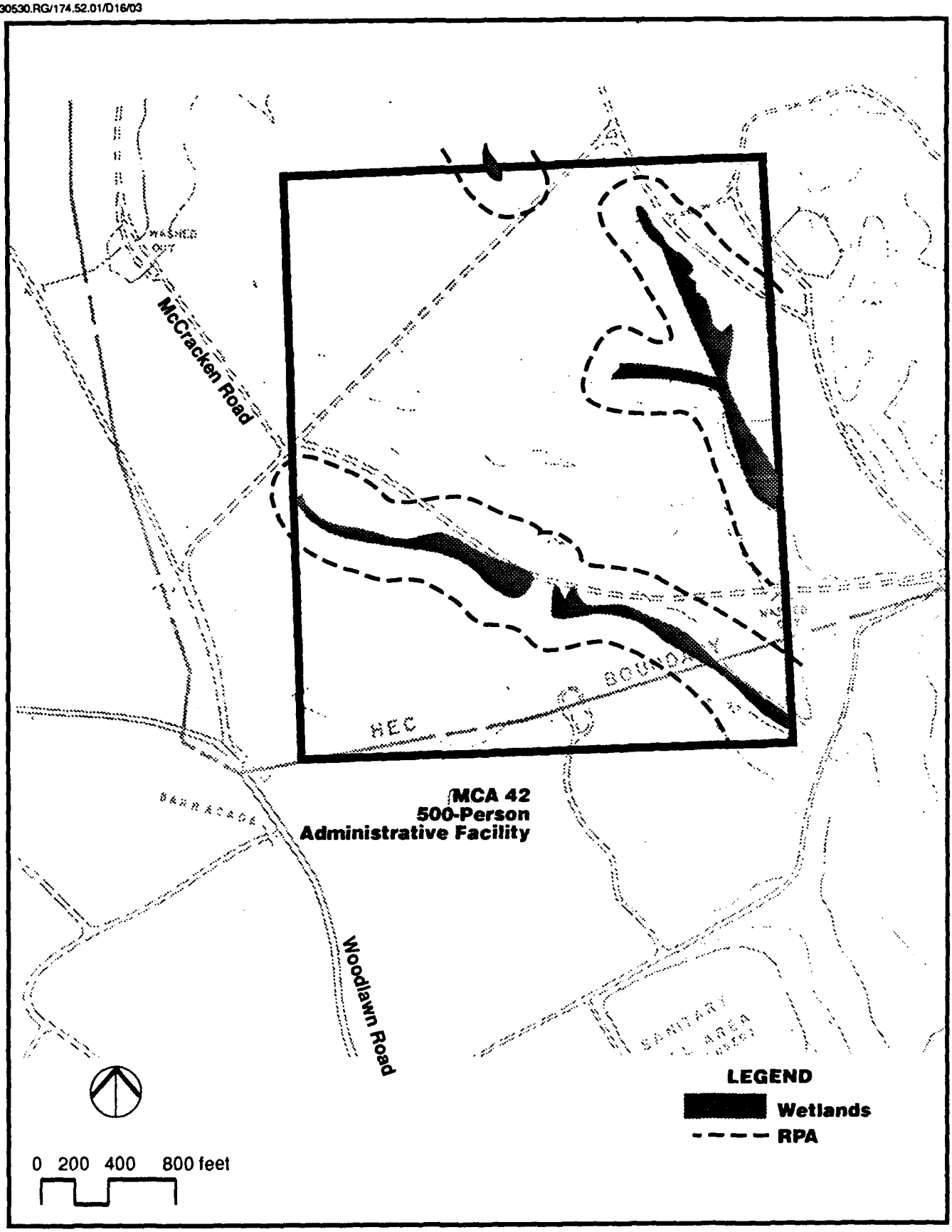


Figure 4-22
MCA 42
Environmental Constraints

existing population of shallow-water fishes. Benthic organisms will be lost, both in the dredged channel and in nearby areas from the settling of suspended particles. However, the loss of benthic invertebrates is temporary and should not have a significant effect on the total benthic population or diversity. Recolonization by benthic invertebrates is rapid, often occurring within two weeks after a disturbance.

The dredging may have a positive effect on the cove by increasing flushing after storm events. This flushing could minimize phytoplankton blooms and encourage the growth of submerged aquatic vegetation by allowing more light penetration. NEPA documentation has been prepared for both NAF 2 and MCA 38. Impacts on aquatic biota are discussed in more detail in *Environmental Assessment: Tompkins Basin Recreational Area, Fort Belvoir, Virginia* (RGH, 1990) and *Environmental Assessment: U.S. Army 1,000-Man Reserve Center, Fort Belvoir, Virginia* (RGH, 1990).

NAF 5 also has the potential to affect aquatic biota. However, the integrated post management plan discussed in Section 4.2.2.1.4 will help minimize these effects.

4.2.2.2.4 Threatened and Endangered Species. All but four of the actions proposed as part of the CDP are sited in areas that are either significantly disturbed by training of heavy equipment use, or already contain structures or parking lots. Construction of the proposed facilities in these areas is not expected to have any significant effect upon any rare, threatened, or endangered species. These projects and any other projects found to have threatened or endangered species and which have the potential to affect them will be coordinated appropriately with state and federal agencies. The projects that do have the potential to affect threatened and endangered species are:

- MCA 25--bald eagle
- MCA 38--bald eagle
- NAF 2--bald eagle
- AFH 3--wood turtle

The boat traffic generated at both MCA 38 and NAF 2 has the potential to affect the three pairs of bald eagles nesting in the vicinity of Gunston Cove. One pair is located within the Accotink Bay Wildlife Refuge at Fort Belvoir, a second pair is located at Mason Neck National Wildlife Refuge, and a third pair is located on private property on Hallowing Point between Pohick Bay Regional Park and Mason Neck National Wildlife Refuge.

The reserve center operations will be structured so that training exercises are planned in areas that will cause the least disturbance to the bald eagles during the breeding season. The most critical months for nesting eagles in this area are typically December through February. Sections of Gunston Cove may need to be restricted during the breeding season to minimize disturbing the breeding eagles.

In addition, MCA 25 is sited just outside the buffer requirements for the nesting pair of bald eagles at Fort Belvoir. Traffic to and from the facility during the breeding season should be monitored to ensure that the pair is not affected.

AFH 3, currently sited in area T-15B (Figure 4-8), with additional units planned for the eastern half of T-15A, could affect a small population of wood turtles. Although this species is currently classified as rare in Virginia, the 1989 Virginia Endangered Species Conference recommended that this species be upgraded to endangered because of its extremely restricted range in Virginia. The Virginia General Assembly is expected to take action on the recommendation during the next session. In addition to the wood turtles, the large area of wetlands on the site contains habitat for several rare, threatened, and endangered plant species. These plants, however, are not readily identifiable until late May to early June and were not located in the March 1990 surveys. Additional surveys may be necessary before construction in these areas to determine if any rare, threatened, or endangered species exist on the site.

4.2.2.3 Socioeconomic Conditions

Because only preliminary information is available about the facilities planned as part of the CDP, broad assumptions were used to evaluate potentially significant impacts. More detailed evaluations will be provided in the Master Plan and accompanying NEPA documentation, which are currently under revision.

4.2.2.3.1 Land Use. The projects proposed as part of the CDP are consistent with the land use plan developed for Fort Belvoir.

4.2.2.3.2 Population. Approximately 5,300 additional military and civilian personnel could be relocated to Fort Belvoir by the year 2010 as part of the CDP as shown in Table 4-11. This includes the relocation of an estimated 4,500 military personnel and dependents (assuming 1,500 couples, each with 1 child) now living elsewhere in the Washington, D.C., metropolitan area to Fort Belvoir after construction of AFH 3.

Because most of the personnel affected by these actions are currently in the area, the population increase is expected to have a negligible effect at the regional level. However this increase could have a significant effect on the local area. Many of the CDP projects are planned to minimize the effects of the potential population increase.

MCAs 15, 21, 38, AFH 3, and NAF 2 will result in increased numbers of people in the immediate vicinity of Fort Belvoir on the weekends; however, the increase is not expected to be significant because the total number of personnel is still significantly less than the number of personnel on base during the week.

4.2.2.3.3 Housing. It is expected that there will be some impacts to housing, over time, as additional personnel are relocated to Fort Belvoir as part of the CDP. However, it is not known at this time how many personnel involved will relocate into the area because of these actions. More detailed analysis will be completed when NEPA documentation is prepared for each of these projects. The CDP includes several whole-house renewals (AFHs 1, 2, and 4 through 14), as well as construction of 1,500 new family housing units (AFH 3).

Table 4-11
POTENTIAL POPULATION INCREASE AT FORT BELVOIR BY THE YEAR 2010 AS A RESULT OF DEVELOPMENT

	Activity	Population Increase
MCA 13	HQ, U.S. Air Force	200
MCA 15	Virginia Army National Guard Armory/HQ*	25
MCA 21	D.C. Army National Guard Academy*	25
MCA 38	Reserve Center/OMA (80th Div)	25
MCA 42	Administrative Facility, HEC	500
AFH 3	1,500 Family Housing Units	4,500
TOTAL		**5,275**

*For planning purposes, assumes facilities are roughly the same scale as MCA 38. *It should also be noted that the full-time weekday population for MCAs 15, 21, and 38 is approximately 5 percent of the expected weekend training population.*

4.2.2.3.4 Employment. It is expected that there will be some impacts to employment, over time, as additional personnel are relocated to Fort Belvoir as part of MCAs 15, 17, 21, 28, 38, 42, and AFH 3. Temporary employment associated with all construction activities will increase for the duration of the individual projects. However, it is not known at this time how many personnel involved will relocate into the area because of these actions. More detailed analysis will be completed when NEPA documentation is prepared for each of these projects.

4.2.2.3.5 Income. It is expected that there will be some impacts to income, over time, as additional personnel are relocated to Fort Belvoir as part of the CDP. However, it is not known at this time how many personnel involved will relocate into the area because of these actions. More detailed analysis will be completed when NEPA documentation is prepared for each of these projects.

4.2.2.3.6 Community and Army Facilities. MCAs 13, 15, 21, AFH 3, and 38 involve personnel that are already located within the region. Therefore, minimal impacts to community facilities are expected from the relocation of these activities to Fort Belvoir. MCA 42 may have a slight effect on community facilities, if the transfer of personnel from outside the region is necessary. The construction of AFH 3 will allow an estimated 4,500 military personnel and their dependents, now living elsewhere in the Washington, D.C., metropolitan area, to move to Fort Belvoir. The impacts on community facilities may be offset by the upgrade and addition of comparable Army

facilities, including schools. Many of the facilities identified in Table 4-12 would provide services that would otherwise be provided by the community, and for that reason, impacts should minimal.

Table 4-12
NEW COMMUNITY AND ARMY FACILITIES PLANNED AS PART OF THE CONCEPT DEVELOPMENT PLAN

	Action	Facility Type
MCA 1	Child Development and Religious Education Centers	Army
MCA 6	Veterinary Clinic	Army/Community Comparable
MCA 8	Telephone Switch Upgrade	Army
MCA 11	Main Sewer Line Upgrade, Postwide	Army
MCA 12	North Post Fire Station	Army/Community Comparable
MCA 14	Physical Fitness Center	Army
MCA 22	Electrical Upgrade, Postwide, Phase I	Army
MCA 23	Lateral Sewer Line Repair	Army
MCA 29	Main Post Library	Army/Community Comparable
MCA 32	Community Center/Welcome Center	Army/Community Comparable
MCA 37	Military Police Station	Army/Community Comparable
NAF 1	Youth Center	Army/Community Comparable
NAF 2	Tompkins Basin Armed Forces Recreation Area	Army/Community Comparable
NAF 3	Horse Stables	Army/Community Comparable
NAF 4	Benyuard Pool Addition	Army/Community Comparable
NAF 5	Golf Course	Army/Community Comparable
NAF 6	Corporate Fitness Center	Army/Community Comparable
NAF 7	Child Development Center	Army/Community Comparable
NAF 8	Temporary Lodging Facility	Army
AAFES 1	Fast Food (Burger King™)	Army/Community Comparable
AAFES 2	Fast Food (Chicken)	Army/Community Comparable
AAFES 3	Car Care Facility	Army/Community Comparable

Upgrades to some facilities and most utilities are planned in the CDP to mitigate the effects of proposed CDP activities. The facilities that are proposed to mitigate impacts to both Army facilities and comparable community facilities are listed in Table 4-12. The addition of these facilities, as well as the facilities described in Section 4.2.1.3.7, to Fort Belvoir should lessen the impacts to parallel facilities found in the surrounding localities.

Solid waste impacts were discussed for BRAC actions in Section 4.2.1.3.6. The site development and renovation work proposed under the CDP will generate a large volume of debris (i.e., stumps, grubbing and clearing debris, and demolition and construction waste). Fort Belvoir's plan is to dispose of this debris at the existing Poe Road landfill. As capacity diminishes Fort Belvoir intends to secure a permit from the Virginia Department of Waste Management to expand that landfill for the purpose of disposing of debris waste.

Fort Belvoir intends to dispose of the municipal solid waste (MSW) generated by the CDP projects off the post. The installation will enter into an agreement with Fairfax County to dispose of their MSW at the County's incinerator at Lorton. Because many of the projects are not funded and specific details are uncertain, it is difficult to estimate the volumes of trash to be generated by CDP projects. Some of the projects, such as NAF 2, will have seasonally different uses while some projects will simply be new facilities for existing personnel. Section 4.2.2.3.2 indicates an estimated increase of about 5,300 people by the year 2010 as a result of CDP projects. On the basis of existing waste-generation rates, this population increase would increase the MSW an additional 10.1 tons per day. Therefore, in the year 2010, Fort Belvoir could generate about 59.1 tons per day without recycling or about 44.3 tons per day assuming a recycling rate of 25 percent.

4.2.2.3.7 Traffic and Transportation. The base network and major improvement assumptions are described in detail in the *Regional Traffic Impact Analysis*. In the year 2000, there will be an additional 1,500 units of on-post family housing at Fort Belvoir and MCA 42 will have been constructed.

The forecast 2000 composition of the traffic flow in the Fort Belvoir area is shown in Figure 4-23. The traffic flows at a cordon drawn around Fort Belvoir are divided by facility into either background traffic or traffic generated by BRAC or CDP development. This figure presents an accurate portrayal of the relative magnitude of the impact of BRAC- and CDP-generated traffic on overall traffic flows by facility. Impacts that cause conditions to degrade to undesirable levels of service have been identified along with appropriate mitigation measures.

The additional Fort Belvoir CDP improvements to public highways may not require significant widening of roadway links in the year 2000. It is assumed that, if Richmond Highway is widened to eight lanes for baseline conditions (or to a six-lane expressway), the resultant baseline roadway configuration will meet the Fort Belvoir (i.e, BRAC and Concept Development Plan) development traffic needs in terms of the number of lanes

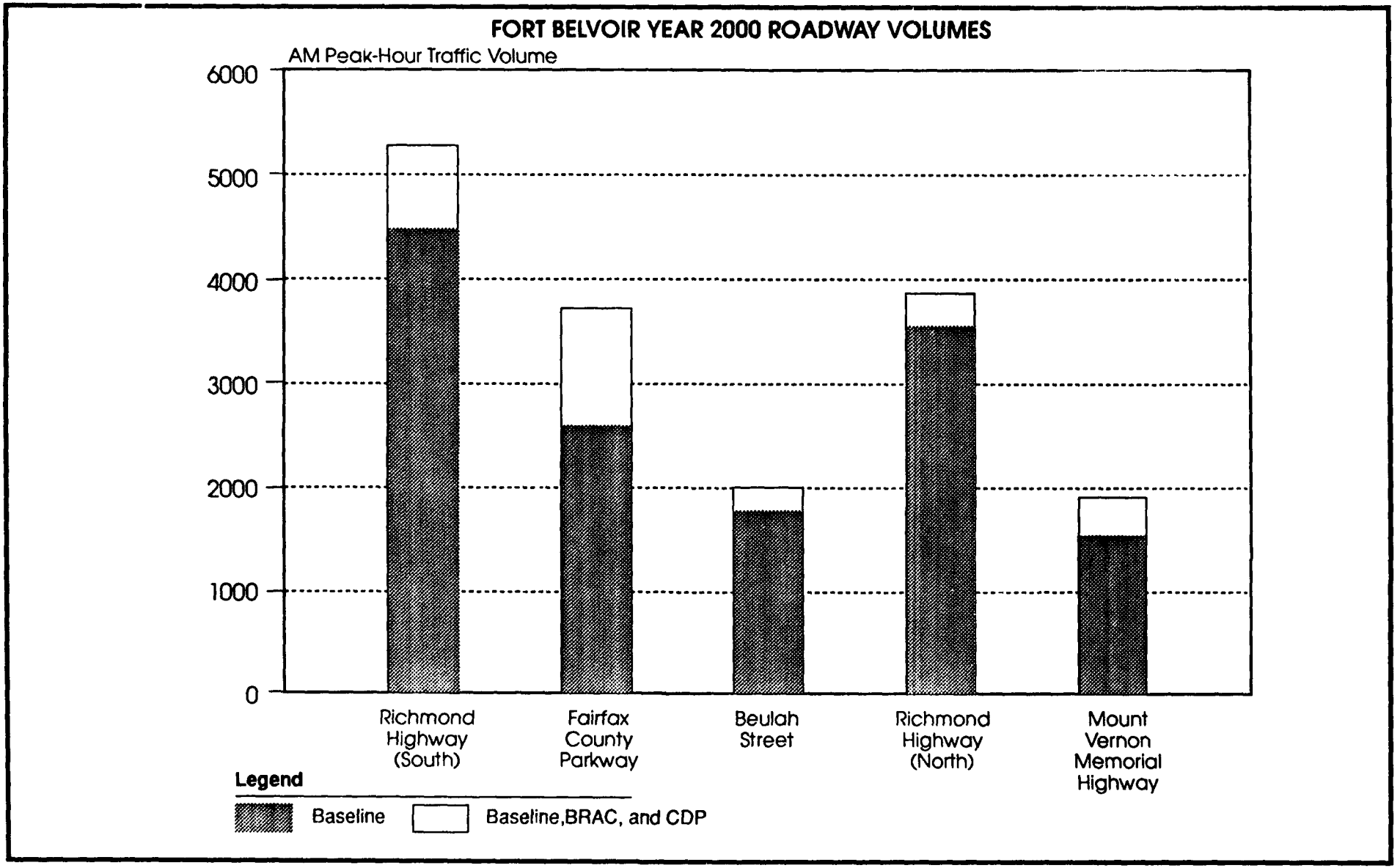


Figure 4-23
Impact of BRAC and CDP Traffic

within the traffic corridor. Improvements to the public highways (e.g., Fairfax County Parkway and Richmond Highway) are the responsibility of VDOT. Funding of practicable improvements to these roads will be negotiated among VDOT, Fairfax County, and the Department of the Army. These improvements include the addition of left- and right-turn lanes, traffic signals or signal upgrades, and additional lanes or participation in new highway projects. These projects will support traffic generated by Army development.

As shown in Figure 4-24, additional intersection improvements may be needed to compensate for the traffic generated by the implementation of the Fort Belvoir Concept Development Plan, including BRAC. These improvements include adding turning lanes to the following intersections:

- Richmond Highway and Woodlawn Road (1995 BRAC requirement)
- Richmond Highway and Mount Vernon Memorial Highway
- Fairfax County Parkway and BRAC Roads (1995 BRAC requirement)

An additional two lanes are required on BRAC Roads, North, between Woodlawn Road and Gunston Road. If MCA 42 is built, southbound Telegraph Road may require a second left turn lane (Figure 4-24) at Beulah Street and Telegraph Road.

4.2.2.4 Cultural Resources

4.2.2.4.1 Historic Resources. The Operations Building 201 (MCA 7a), Belvoir Village (AFH 7), Gerber Village (AFH 8), and Jadwin Loop (AFH 10) are located in Fort Belvoir's Historic District, and MCAs 29 and 34 are adjacent to it (see Table 4-13). Gerber Village, Belvoir Village, and Jadwin Loop each contain one building that has a significant interior, as well as exterior. The Lewis Heights renovation is in the Woodlawn Plantation Historic District. Development in historic districts must be architecturally compatible with existing buildings. Construction activities near, as well as on, historic buildings should be monitored and controlled to avoid affecting the stability of those buildings.

From the information available, it appears that MCAs 12, 14, 37, and 38 will involve the demolition of potentially historic buildings. Standing-structure surveys are required to assess the historic value of these buildings. Not here enough information is yet available about these proposed projects to determine the extent of the effects, if any. Subsequent NEPA documentation for these individual projects will need to address this issue specifically.

4.2.2.4.2 Archeological Resources. Development activities at Fort Belvoir will inevitably affect some of the many identified prehistoric and historic archeological sites, either directly through earth movement or, in most cases, indirectly through increased use of areas in the vicinity of these sites.

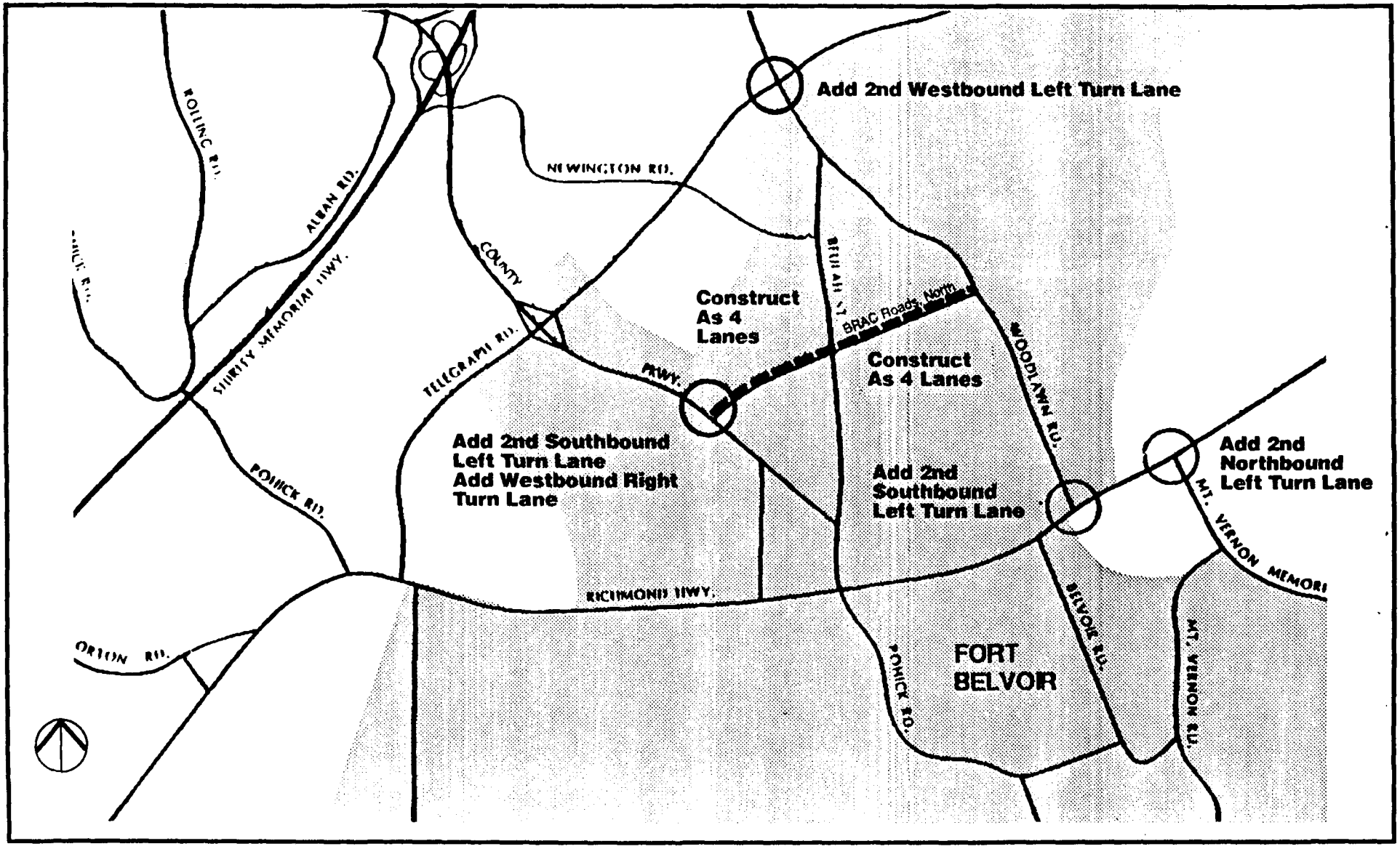


Figure 4-24
Year 2000 Improvements to Mitigate Fort Belvoir Concept Development Plan and BRAC Impacts

ENVIRONMENTAL IMPACT STATEMENT

Comprehensive Base Realignment/Closure and Fort Belvoir Development
Arlington and Fairfax Counties and the City of Alexandria, VA

Table 4-13
EFFECTS OF PROPOSED CDP PROJECTS AT FORT BELVOIR ON CULTURAL RESOURCES

Proposed Action	Status of Cultural Resources on Project Site
MILITARY CONSTRUCTION ACTIVITY (MCA)	
1. Child Development and Religious Education Centers	Under construction
2. Electronics Supply and Maintenance Facility	Severely disturbed; portions need Phase I survey
3. D.C. Army National Guard Armory	Under construction
4. D.C. Army National Guard Aircraft Parking Apron	Severely disturbed, no survey needed
5. Convert Buildings 206 and 208 to Classrooms	Under construction
6. Veterinary Clinic	Portions severely disturbed; rest need Phase I survey
7. Operations Building Renovation, Engineer School Backfill	Building 201 is in Historic District; all exterior renovations will be coordinated with the SHPO and the Advisory Council on Historic Preservation; design will be compatible with other buildings in the district.
8. Telephone Switch Upgrade, Post-wide	No impacts (existing utilities, no siting involved)
9. Fixed-Wing Runway Extension	Severely disturbed, no survey needed
10. Old Guard Horse Stables	Two sites identified in project area, Phase II survey ongoing
11. Main Sewer Line Upgrade, Post-wide	No impacts (existing utility rights-of-way, disturbed)
12. North Post Fire Station	Severely disturbed, no survey needed; involves demolition of potentially historic building (built in 1941)
13. Headquarters, Air Force Intelligence Agency	Survey complete, no archeological sites found
14. Physical Fitness Center	Severely disturbed, no survey needed; involves demolition of two potentially historic buildings (built in 1940)
15. Virginia Army National Guard Armory/Headquarters (29th Light Infantry Division)	Partially surveyed, no sites found; rest needs Phase I
16. Gunston Road Extension	Portion severely disturbed; rest needs Phase I survey
17. D.C. Army National Guard Hangar Addition	Severely disturbed, no survey needed
18. Seabee Operational Storage Facility	Severely disturbed, no survey needed
19. Renovate Heat Plant	No survey needed, no effects on historic properties
20. Renovate Building 361 for ADP	No survey needed, no effects on historic properties
21. D.C. Army National Guard Academy	Entire project site needs Phase I survey
22. Electrical Upgrade, Post-wide, Phase I	None (existing utilities, no siting involved)
23. Lateral Sewer Line Repair, Post-wide	No impacts (existing utility rights-of-way, disturbed)
24. Relocate EPG Test/Storage Facilities	Entire project site needs Phase I survey
25. Ammunition Storage Facility	Surveyed, no archeological sites found; there is a site adjacent to project area
26. Information Systems Facility	Portion needs Phase I survey; rest severely disturbed
27. CIDC Field Operations Building	Survey completed; no archeological sites found
28. D.C. Army National Guard Cantonment	Entire project site needs Phase I survey

Table 4-13
EFFECTS OF PROPOSED CDP PROJECTS AT FORT BELVOIR ON CULTURAL RESOURCES

Proposed Action	Status of Cultural Resources on Project Site
MILITARY CONSTRUCTION ACTIVITY (MCA) (cont'd.)	
29. Main Post Library	Portion needs Phase I survey; rest severely disturbed; adjacent to Historic District
30. *(there is no MCA 30)*	*(n/a)*
31. Loop Road	Most of the site severely disturbed; rest needs survey
32. Community Center/Welcome Center	Entire project needs Phase I survey
33. Facility Engineer Maintenance Shop	Needs standing-structure survey; portion of site needs Phase I survey; rest severely disturbed, no survey needed
34. Warehouses	Severely disturbed, no survey needed; adjacent to Historic District
35. Tactical Energy Systems Lab	Severely disturbed, no survey needed; no effects on historic structures
36. Conforming Storage Building (DRMO)	Survey completed; no archeological sites found
37. Military Police Station	Severely disturbed, no survey needed; could affect potentially historic building (built in 1940)
38a. Reserve Center/OMA (80th Div): North Post site	Phase I survey needed on most of site (moderately disturbed); involves demolition of many potentially historic buildings; standing-structure survey required
38b. Reserve Center/OMA (80th Div): South Post (Marina)	Survey completed; no archeological sites found
39. Consolidated Maintenance Shop (DOL)	Severely disturbed, no survey needed; could affect potentially historic buildings
40. Electro-Optics Laboratory	Severely disturbed, no survey needed; no effect on historic structures
41. Fatigue Test Facility	Severely disturbed, no survey needed; no effect on historic structures
42. Potential 500-person Administrative Facility, HEC	Phase I survey needed
NON-APPROPRIATED FUNDS (NAF)	
1. Youth Center	Needs Phase I and standing-structure surveys
2. Tompkins Basin Armed Forces Recreation Area	One site is eligible for the National Register of Historic Places; Phase II study ongoing for a second site
3. Horse Stables	See MCA 10 (same site)
4. Benyuard Pool Addition	Severely disturbed, no survey needed; no impact to historic structures
5. Golf Course	One site needs Phase II study; rest needs Phase I survey
6. Corporate Fitness Center	Needs Phase I survey; classified as moderately disturbed
7. Child Development Center	Part needs Phase I survey; rest severely disturbed
8. Temporary Lodging Facility	Severely disturbed, no survey needed

Table 4-13
EFFECTS OF PROPOSED CDP PROJECTS AT FORT BELVOIR ON CULTURAL RESOURCES

Proposed Action	Status of Cultural Resources on Project Site
ARMY AND AIR FORCE EXCHANGE SERVICES (AAFES)	
1. Fast Food Facility (Burger King™)	Severely disturbed, no survey needed
2. Fast Food Facility (Chicken)	Severely disturbed, no survey needed
3. Car Care Facility	Severely disturbed, no survey needed
ARMY FAMILY HOUSING (AFH)	
1. Lewis Heights Renewal, Phase 1	No archeological sites; in the Woodlawn Historic District
2. Lewis Heights Renewal, Phase 2	No archeological sites; in the Woodlawn Historic District
3. 1,500 NCO Housing Units (New)	Needs Phase I survey
4. Dogue Creek Village Whole-House Renewal	No survey needed, no impacts
5. George Washington Village Whole-House Renewal	No survey needed, no impacts
6. River Village Whole-House Renewal	No survey needed, no impacts
7. Belvoir Village Whole-House Renewal	In Historic District; exterior renovations must be architecturally compatible
8. Gerber Village Whole-House Renewal	In Historic District; exterior renovations must be architecturally compatible
9. Visiting Officers' Quarters Renovation	No survey needed, no impacts
10. Jadwin Loop Whole-House Renewal	In Historic District; exterior renovations must be architecturally compatible
11. Colyer Village Whole-House Renewal	No survey needed, no impacts
12. Rossell Loop Whole-House Renewal	No survey needed, no impacts
13. Woodlawn Village Whole-House Renewal	No survey needed, no impacts
14. Fairfax Village Whole-House Renewal	No survey needed, no impacts

Notes:
See figures in Chapter 3 for locations of project sites.
All proposed actions affecting existing buildings require a standing-structure survey.
Phase I - Investigative Survey
Phase II - Evaluative Survey

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Site locations for the facilities proposed by the Concept Development Plan are now in the planning phase and may change somewhat because of design criteria, environmental constraints, or other factors during the detailed design phase. Because exact building "footprints" are for the most part not yet available, direct impacts to historic and archeological sites can only be analyzed in general. Coordination with the SHPO and the Advisory Council on Historic Preservation will be completed, along with the required NEPA documentation, when these projects are funded and final siting is under way.

Table 4-13 lists all MCA, AFH, and other proposed facilities/activities and identifies any potentially significant resource sites known to be on or near these actions. Disturbance to recorded sites that have been determined to be ineligible for listing on the National Register of Historic Places and do not require further study is considered to be an insignificant impact; these sites are not included.

Direct impacts to potentially significant resource sites will be avoided by detailed site design wherever possible. Direct impacts will be mitigated, if they are unavoidable, by means of evaluative study (Phase II) and removal of artifacts (Phase III), in accordance with accepted scientific procedures, under the supervision of a qualified professional. Because of the potential for indirect impacts to nearby sites whenever a new facility is built, evaluative surveys should be a priority for resource sites contiguous to, but not directly affected by, the proposed facilities as well.

NAF 2 has the greatest potential to affect significant cultural resources. A category 1 resource site, determined to be eligible for the National Register of Historic Places, has been located within the site boundaries of NAF 2. In addition, a Phase II evaluative study is in progress for a second site.

Several other actions, MCA 10, NAF 3, and NAF 5, may directly affect sites that require additional evaluative study to determine their eligibility. Indirect impacts to nearby sites requiring further study are possible at MCA 24, MCA 25, and AFH 3.

While the majority of the areas to be affected have been surveyed for the presence of archeological and historic resources or are so severely disturbed that no survey is necessary, a number of the proposed CDP projects still require a Phase I survey on all or part of the proposed project sites: MCAs 2, 6, 15, 16, 21, 24, 26, 28, 29, 31, 32, 33, 38, and 42; and NAFs 1, 6, and 7 (personal communication, Fort Belvoir DEH Staff, September 8, 1990). Phase I investigative surveys, and Phase II evaluative studies, of any significant resources identified in locations likely to be affected, will be completed before these areas are disturbed.

4.2.2.4.3 Visual Resources. Development in currently undeveloped areas of Fort Belvoir, many of which feature rolling, tree-covered slopes, will reduce the overall aesthetic value of the areas, although it will provide an aesthetically pleasing environment to the future occupants of office buildings and houses. The *Installation Design Guide, Fort Belvoir, Virginia* will be followed as site designs are developed. Buildings should be designed to fit the existing topography, minimize effects of grading, and retain mature

trees in order to minimize aesthetic impacts. NAF 2 will alter the view from the Potomac River, from that of a tree-lined bluff to that of a recreational development.

4.2.2.5 Hazardous Materials

Five of the projects proposed by the Concept Development Plan would store or generate hazardous materials as part of their mission. Table 4-14 lists these activities. All hazardous materials on post will be handled and stored in compliance with all applicable county, state, and federal regulations. Any asbestos removal required as part of demolition or renovation will be conducted in accordance with all federal, state, and local regulations.

Table 4-14
CONCEPT DEVELOPMENT PLAN ACTIONS THAT MAY RESULT IN THE GENERATION OR STORING OF HAZARDOUS MATERIALS/SUBSTANCES

Project	Generates or Stores
NAF 5	May store herbicides and pesticides
MCA 35	May generate and store unspecified materials from research, development, and testing activities
MCA 25	Ammunition will be stored in accordance with TM 9-1300 and AR 190-11 as well as all other applicable non-military regulations
MCA 24	Hazardous materials will be handled according to all applicable regulations
MCA 36	Hazardous materials will be handled according to all applicable regulations
MCA 39	Will handle, store, and dispose of all solvents, oils, lubricants, and degreasers in accordance with applicable regulations.
MCA 40	May generate and store unspecified materials as a result of research, development, and testing activities

Projects such as the proposed golf course (NAF 5) and other large-area projects that typically require the maintenance of fairways, greens, and lawns, have the potential to affect groundwater if pesticides, fungicides, and herbicides are applied incorrectly. To reduce the potential for accidents, staff will be trained and certified in the application of these chemicals and will adhere to the installation's integrated pest management program.

4.3 FORT MYER

4.3.1 PHYSICAL/CHEMICAL RESOURCES

4.3.1.1 Physiography and Topography

The construction of the new DOL facilities, commissary, shoppette, and PX expansion at either the preferred alternative or Alternative 2 for each of the projects at Fort Myer will have minimal effects on existing topography. Buildings will be sited to minimize grading activities and designed to complement the topography at each of the proposed sites.

4.3.1.2 Geology and Groundwater

Construction of the four new facilities required by the realignment will not have any significant effect on the existing geology at either the preferred alternative or Alternative 2 for any of the projects because no extensive subsurface activities are planned.

4.3.1.3 Soils

No detailed soil survey is available for Fort Myer; therefore, subsurface investigations will be conducted at the proposed sites to determine the suitability of the soils for development. This will be done under design engineering contracts issued for the new facilities. Of the soil associations that make up Fort Myer, only the Fairfax-Beltsville-Glenelg association may require special design considerations, such as dampproofing the foundation, because of the presence of expansive clays in the Beltsville series soils (USDA, 1955).

As outlined in the *Virginia Erosion and Sediment Control Handbook* (2nd edition, 1980), all applicable soil erosion measures will be taken to minimize downstream erosion.

4.3.1.4 Surface Water

No impacts to surface water are expected because none of the sites or their alternatives is currently located near surface water at Fort Myer. Soil and erosion control measures will use BMPs to minimize effects of surface water runoff at construction sites. No floodplains will be affected.

4.3.1.5 Climate and Air Quality

The realignment will have no effect on the regional climate, nor will the climate affect the activities being realigned. Local ambient air quality may be temporarily affected by a slight increase in total suspended particulates during clearing and grading operations. Dust control measures, however, will be taken to minimize the effect of the grading on the local air quality. The additional traffic on post after the transfer of DOL personnel, and on the weekends after the new commissary, shoppette, and PX expansion are

constructed, should have a minimal, although permanent, effect on local ambient air quality. This effect will occur independently from this project. An additional permanent degradation in local air quality will occur because of the increase in the equipment stored at Fort Myer.

4.3.2 BIOLOGICAL RESOURCES

4.3.2.1 Terrestrial Biota

4.3.2.1.1 Vegetation. Because of the limited amount of native vegetation located at each of the proposed alternative sites, impacts to vegetation will be minimal.

4.3.2.1.2 Wildlife. Because of the developed nature of Fort Myer and its lack of undisturbed habitat, the construction of the four new facilities will have minimal effects on the urban wildlife currently using the sites.

4.3.2.2 Wetlands

No wetlands were located within the boundaries of any of the four sites during the field survey conducted as part of the BATES. The only wetlands located on Fort Myer were along the unnamed stream on the western boundary of the post.

4.3.2.3 Aquatic Biota

Because of the absence of any surface water or wetlands near the proposed sites there will be no impact to aquatic resources from the construction of the DOL facilities, the commissary, shoppette, or the PX expansion. No work will be performed in the stream between March 15 and June 30.

4.3.2.4 Threatened and Endangered Species

No rare, threatened, or endangered species occur at Fort Myer. No impacts to these species are expected.

4.3.3 SOCIOECONOMIC CONDITIONS

Realignment of personnel to Fort Myer from Cameron Station is expected to involve approximately 15 military and 177 civilian personnel. Again, although some of the effects discussed below appear to be significant at the local level, the effects are not significant at the regional level (see Section 4.1.3).

4.3.3.1 Land Use

The proposed facilities are consistent with existing land use patterns both on Fort Myer and in the surrounding neighborhoods, and, therefore, minor impacts are expected. Figure 4-25 shows the new land-use pattern at Fort Myer after the construction of the

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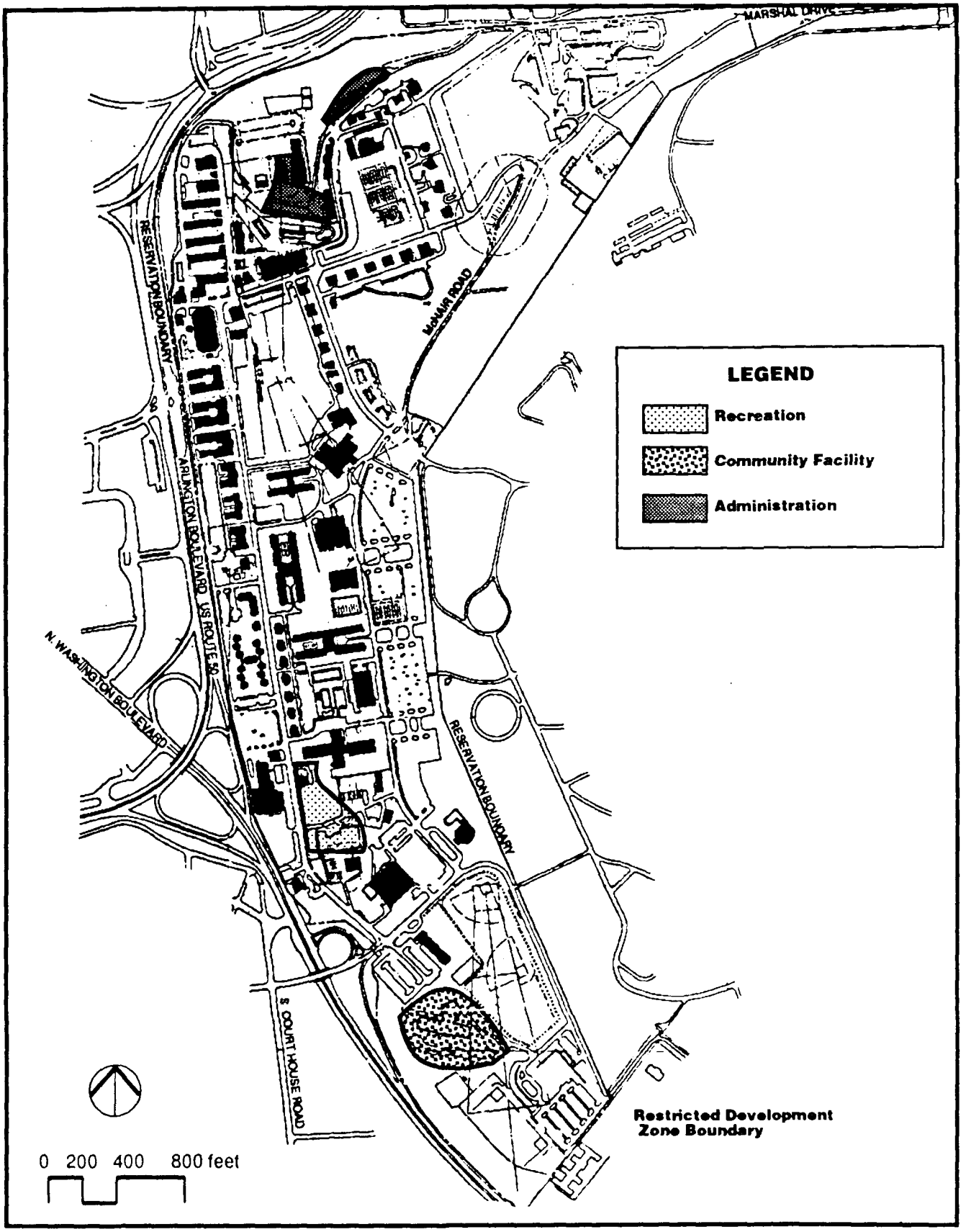


Figure 4-25
Fort Myer
Proposed Land Use

DOL facility, commissary, shoppette, and PX expansion. Some of the existing open space at Fort Myer will be lost when the PX expansion, shoppette, and commissary are constructed at the preferred alternative. These facilities would be constructed in lieu of a three-story administration building that was previously planned for the site.

4.3.3.2 Population

Approximately 15 military and 177 civilian personnel will be realigned to Fort Myer from Cameron Station. No personnel will be realigned from outside of the region.

4.3.3.3 Housing

Transfer of personnel from Cameron Station is not expected to result in a change of residence for the affected personnel, but rather a change of commuting pattern.

4.3.3.4 Employment

The primary and secondary effects of realignment to Fort Myer are estimated to be a 272-person-year increase in regional employment and a more than $6.3-million increase in regional income. The number of people holding second jobs is expected to increase by the equivalent of 8 full-time jobs, and the number of working dependents is expected to increase by 118 person-years (IWR, 1990).

4.3.3.5 Income

Total wages and salaries at Fort Myer are expected to increase by $0.3 million for military personnel and $4.5 million for civilian personnel. Second job income is expected to increase by $1.7 million (IWR, 1990).

4.3.3.6 Construction and One-Time Expenditures

Construction and one-time expenditures associated with BRAC actions at Fort Myer will total approximately $15.1 million.

4.3.3.7 Community and Army Facilities

The addition of approximately 192 personnel to Fort Myer should have a minimal effect on the existing water supply. The existing system is currently sized to support 12,000 personnel. The increase in population at Fort Myer resulting from the realignment, to approximately 5,350, is well within the existing capacity of the water supply.

The wastewater system is also currently sized to handle the proposed population increase. Current maximum system flows can service 9,300 personnel. The projected post-realignment population of 5,350 falls well within the existing system capacity.

Although additional feeders may be installed to provide gas service to the new facilities, the existing natural gas distribution system is adequate to handle the proposed increase in facilities at Fort Myer.

Virginia Power plans to upgrade electric service to Fort Myer with the installation of a new substation near the post. In addition, the *1987 Analytical/Utilities Report for Fort Myer* (U.S. Army, MDW) indicates that two additional 13.8-kilowatt feeders would be required to supply power to all of the master plan actions being considered at that time. These upgrades should also have sufficient capacity to adequately power the realignment activities. Because Virginia Power provides electric service to Cameron Station, the relocation of Cameron Station personnel and facilities to Fort Myer will not increase their service requirements.

As most of the personnel being transferred from Cameron Station to Fort Myer live within the region, no effects to the schools, churches, shopping centers, and recreation facilities serving Fort Myer are expected.

The two steam plants on post will be able to provide sufficient heat for the proposed facilities on the basis of existing capacities; therefore, no significant upgrading of the heating system is expected to be necessary because of personnel and facility realignments to Fort Myer.

The construction of the new commissary, shoppette, and PX expansion will also lessen the effect of the closure of the Cameron facility by providing additional facilities for military personnel. Other facilities available at Fort Myer, listed in Section 3.3.3.7, are not expected to be significantly affected by this action.

4.3.3.8 Traffic and Transportation

Adequate parking will be provided at each of the development sites. There will be increased truck traffic and increased commissary tractor-trailer traffic in proximity to family housing on Fort Myer and military funeral and ceremonial processions. Coordination with Arlington County and Metrobus officials will provide improved access.

4.3.4 CULTURAL RESOURCES

4.3.4.1 Historic Resources

Pursuant to Section 106 of the National Historic Preservation Act, 36 CFR 800, and a Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers, the Army will consult with the Virginia SHPO and the Arlington County Archeologist. The Army will also execute an MOA stipulating the actions that will be carried out to avoid or mitigate adverse effects of the construction of the new BRAC facilities at Fort Myer on archaeologic

and historic resources. In order to comply with the MOA, the Army will complete the actions detailed below.

- Review the history of Fort Myer from its inception as part of the Arlington Estate to the present day on the basis of Army, SHPO, county archeologist, National Archive, and Library of Congress and their files

- Consider the history of Fort Myer in the context of military activities in Washington, D.C., southern Maryland, and northern Virginia

- Provide a summary of this history, with emphasis on:

  - The role of Fort Myer in the conduct of World War II
  - The role of Fort Myer in the conduct of the Korean conflict
  - The role of Fort Myer in the conduct of the Vietnam War
  - The role of Fort Myer in other activities of the U.S. Army in the Washington, D.C., area since 1866

- Consider the functions of key buildings and structures at Fort Myer in carrying out the post's various roles during the course of history

- Determine which of these structures appear to have such notable historical significance that they should be considered for long-term preservation

4.3.4.2 Archeological Resources

Fort Myer is located on high ground above the Potomac River, and thus is an area of high potential for prehistoric and early historic archeological sites. However, past grading, building construction, and other activities may have destroyed such sites. The Army will address potential archeological resources at Fort Myer as follows:

- Review currently available predictive models for the region and, on the basis of these models, outline general areas where prehistoric and early historic sites might be expected at Fort Myer

- Study deeds, censuses, tax rolls, historical maps, and other documentary sources relating to the property to determine historical land use before 1941, and from these data predict where archeological sites might be found

- Review available data from the Army, Virginia SHPO, and county archeologist, and others on Fort Myer's soils, as-built plans, and descriptions of grading and construction work, as well as other information pertinent to the modification of the land surface during and after 1941. Information will also be collected by interviewing former Fort Myer employees, known to either the Army or the county archeologist, to identify areas where pre-1941 land surfaces are and are not likely to be preserved under fill

- Identify locations where it is predicted that archeological sites may be preserved under fill, locations where it is predicted that such preservation is unlikely, and identify where subsurface testing is thought to be needed to test these predictions

- Consult with the Virginia SHPO, county archeologist, and other parties regarding the need for and design of subsurface sampling programs

4.3.4.3 Visual Resources

Design of the DOL facility will minimize visual impacts from Arlington National Cemetery by vegetative screening, and potentially by siting the building into the hillside, which will also maximize the site area available for parking.

4.3.5 HAZARDOUS MATERIALS

The two buildings scheduled to be demolished to make room for the shoppette and PX expansion will be screened for asbestos before demolition begins. If the structures are contaminated, the asbestos will be removed and disposed of in accordance with all local, state, and federal regulations. In addition, the perchloroethylene contamination at Building 448 will be remediated in accordance with all local, state, and federal regulations. The contaminated soils will be disposed of in accordance with EPA guidelines. All remedial action will be completed before construction begins.

The new facilities required for DOL will generate solvents, fuels, oils, lubricants, and degreasers, which will be handled, stored, and disposed of in accordance with applicable regulations. The new shoppette, commissary, and PX expansion are not expected to generate or use hazardous materials. No impacts are expected.

4.3.6 CONCLUSIONS

Table 4-15 provides a summary of the effects expected from each of the BRAC projects at each of the proposed sites. A more detailed discussion of the effects is provided below.

4.3.6.1 PX Expansion, Shoppette, and Commissary

Construction of these three facilities at the preferred alternative will provide a shopping area located near the main entrance to the base. This will minimize the amount of traffic driving on the base because the sites are located near the main gate.

Construction of the new facilities at Alternative 2 would not only separate the shopping areas, but would also result in limited parking because of the size of the sites. In addition, construction of a new commissary at Alternative 2 would require the demolition of the existing structure, eliminating the commissary from Fort Myer during construction. Patrons currently using the commissary at Fort Myer would need to drive to either Fort McNair, Walter Reed Army Medical Center, or Fort Belvoir.

Table 4-15
COMPARISON OF EFFECTS OF PROPOSED BRAC ALTERNATIVES AT FORT MYER

	Commissary, Preferred Alternative	Commissary, Alternative 2
Physiography & Topography	Final site design will minimize cut & fill.	Final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed.	Subsurface investigations needed.
Surface Water	Will increase stormwater runoff. This will be mitigated by a stormwater management plan.	No impact.
Climate & Air Quality	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	Will change land use from open space to community facilities.	Will change land use from open space to community facilities.
Population	Will increase population at Fort Myer by approximately 28.	Will increase population at Fort Myer by approximately 28.
Housing	No impact.	No impact.
Employment	Will increase employment at Fort Myer by approximately 28.	Will increase employment at Fort Myer by approximately 28.
Income	No impact.	No impact.
Community & Army Facilities	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction at this site, along with the PX and shoppette, will create a centralized shopping area on Fort Myer.	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction at this site would result in the temporary loss of commissary facilities at Fort Myer.
Traffic & Transportation	Additional parking areas needed, onpost road upgrades may be required.	Additional parking areas needed, but size of site restricts area available, onpost road upgrades may be required.
Cultural Resources	Phase I survey needed.	Phase I survey needed.
Hazardous Materials	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.	Minimal amounts of hazardous materials will be generated and disposed of according to regulations.

Table 4-15
COMPARISON OF EFFECTS OF PROPOSED BRAC ALTERNATIVES AT FORT MYER

	Shoppette, Preferred Alternative	Shoppette, Alternative 2
Physiography & Topography	Final site design will minimize cut & fill.	Final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed.	Subsurface investigations needed.
Surface Water	No impact.	No impact.
Climate & Air Quality	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	No impact.	No impact.
Population	Will increase population at Fort Myer slightly.	Will increase population at Fort Myer slightly.
Housing	No impact.	No impact.
Employment	Will increase employment at Fort Myer slightly.	Will increase employment at Fort Myer slightly.
Income	No impact.	No impact.
Community & Army Facilities	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction at this site, along with the commissary and PX will create a centralized shopping area on Fort Myer.	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction on this site would create two separate shopping areas on Fort Myer.
Traffic & Transportation	Additional parking areas needed, onpost road upgrades may be required.	Additional parking areas needed, but size of site restricts area available, onpost road upgrades may be required.
Cultural Resources	Phase I survey needed.	Phase I survey needed.
Hazardous Materials	Asbestos surveys will be completed for buildings scheduled to be demolished.	No impact.

Table 4-15
COMPARISON OF EFFECTS OF PROPOSED BRAC ALTERNATIVES AT FORT MYER

	Post Exchange, Preferred Alternative	**Post Exchange, Alternative 2**
Physiography & Topography	Final site design will minimize cut & fill.	Final site design will minimize cut & fill.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed.	Subsurface investigations needed.
Surface Water	No impact.	No impact.
Climate & Air Quality	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	No impact.	Will change land use from open space to community facilities.
Population	Will increase population at Fort Myer slightly.	Will increase population at Fort Myer slightly.
Housing	No impact.	No impact.
Employment	Will increase employment at Fort Myer slightly.	Will increase employment at Fort Myer slightly.
Income	No impact.	No impact.
Community & Army Facilities	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction at this site, along with the commissary and shoppette, will create a centralized shopping area on Fort Myer.	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program. Construction on this site would create two separate shopping areas on Fort Myer.
Traffic & Transportation	Additional parking areas needed, onpost road upgrades may be required.	Additional parking areas needed, but size of site restricts area available, onpost road upgrades may be required.
Cultural Resources	Phase I survey needed.	Phase I survey needed.
Hazardous Materials	No impact.	No impact.

Table 4-15
COMPARISON OF EFFECTS OF PROPOSED BRAC ALTERNATIVES AT FORT MYER

	Logistics Complex, Preferred Alternative	Logistics Complex, Alternative 2*
Physiography & Topography	Final site design will minimize cut & fill.	No impact.
Geology & Groundwater	No impact.	No impact.
Soils	Subsurface investigations needed.	No impact.
Surface Water	Will increase stormwater runoff. This will be mitigated by a stormwater management plan.	No impact.
Climate & Air Quality	No impact.	No impact.
Vegetation	No impact.	No impact.
Wildlife	No impact.	No impact.
Game Species	No impact.	No impact.
Wetlands	No impact.	No impact.
Aquatic Biota	No impact.	No impact.
Threatened & Endangered Species	No impact.	No impact.
Land Use	Compatible with existing land use.	No impact.
Population	Will increase population at Fort Myer by approximately 161.	No impact.
Housing	No impact.	No impact.
Employment	Will increase employment at Fort Myer by 161 employees.	No impact.
Income	No impact.	No impact.
Community & Army Facilities	Will increase demand on some facilities; will increase generation of solid waste somewhat, will participate in recycling program.	No impact.
Traffic & Transportation	Additional parking areas needed, onpost road upgrades may be required.	No impact.
Cultural Resources	Phase I survey needed.	No impact.
Hazardous Materials	Multiple solvents, fuels, battery acids, greases, and oils will be handled in accordance with all applicable county, state, and federal regulations.	No impact.

*This alternative places the Logistics Complex at Fort Belvoir and, therefore, no impacts at Fort Myer would be expected.

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4.3.6.2 Logistics Complex

The preferred alternative at Fort Myer would place the DOL activities close to their primary service area (Fort Myer, Fort McNair, and the Pentagon). Location of these activities to Alternative 2, Fort Belvoir DOL, would put these facilities farther away from their primary service area.

4.4 FORT MCNAIR

The proposed action at Fort McNair only involves the transfer of two persons and a limited amount of office equipment from Cameron Station to the Information Management Office at Fort McNair. This action does not require the modification of any existing facilities, so there will be no physical, chemical, or biological impacts to the facility.

No socioeconomic or traffic impacts are expected because the number of personnel involved is low. No additional buildings or cost structure changes are required to house the two individuals being realigned to Fort McNair from Cameron Station, and as a result, no Section 106 requirement of the NHPA exists for this action.

4.5 ENGINEER PROVING GROUNDS

The development scenario for the public-private development initiative proposed at EPG is for a mixture of uses: approximately 3.1 million square feet of Army office space, 4.9 million square feet of private office space, more than 1.6 million square feet of other non-residential space including hotel, retail, and related uses, and approximately 5,600 high density residential units with a projected population of up to 15,000 persons at buildout in the year 2010. Development of the proposed office, hotel, and residential space at EPG is phased over a 15- to 20-year period. This phasing is expected to facilitate market absorption of housing units and office space. A separate EIS is being prepared for EPG development.

4.5.1 PHYSICAL/CHEMICAL RESOURCES

4.5.1.1 Physiography and Topography

Most of the slopes on EPG exceeding 15 percent are located in the environmental quality corridor (EQC). Moderate slopes in the western portion of the site would be graded to some extent. Most of the commercial development is planned for the southwest area, which is relatively flat.

4.5.1.2 Geology and Groundwater

No effects on either geology or groundwater are expected.

4.5.1.3 Soils

No significant impact is expected. Soil erosion would be controlled by a erosion and sediment control plan approved by Fairfax County.

4.5.1.4 Surface Water

Minimal impacts to streams are expected because the EQC would be protected. The 100-year floodplain surrounding Accotink Creek and its tributaries is included in the EQC.

4.5.1.5 Climate and Air Quality

No effects on climate are expected at EPG because of development. There may be an increase in air pollution to the region from increased vehicular traffic. Temporary effects because of construction activities are likely, and would be controlled as required. There are no point sources of air pollution currently planned for this development.

4.5.2 BIOLOGICAL RESOURCES

4.5.2.1 Terrestrial Biota

4.5.2.1.1 Vegetation. Approximately 225 acres of existing vegetative cover would be preserved in the EQC. In areas to be cleared for development, the Fairfax County tree preservation ordinance would be adhered to.

4.5.2.1.2 Wildlife. There would be a loss of habitat as a result of clearing for construction; however, the EQC would allow wildlife to relocate to other suitable habitat.

4.5.2.1.3 Wetlands. Because Fairfax County is including the EQC designation in their definition of RPA for the Chesapeake Bay Preservation Act, no impacts are expected.

4.5.3 SOCIOECONOMIC CONDITIONS

4.5.3.1 Land Use

The residential development area is being sited adjacent to existing housing areas in the northern part of EPG. Entrances to the property in this area are expected to serve residential rather than office traffic, reducing the impact on adjoining neighborhoods. The commercial development in the western part of EPG would be separated from existing residential areas to the west by Rolling Road and the Fairfax County Parkway alignment. Office and commercial development is planned for the southern portions of the site.

According to the draft EIS for the EPG development project, only about half of the total 820 acres at EPG are available for buildings and parking; 25 percent of the site would be needed for roads and stormwater management. About 27 percent of the total acreage is potentially restricted because of probable wetlands (hydric soils) and the designation of the Accotink stream valley as an EQC. Visual resources would be affected by loss of wooded areas, but enhanced by removal of deteriorating structures now on the site. The commercial areas would mostly be visible from Shirley Highway and other commercial areas in the vicinity.

4.5.3.2 Population

The projected residential population at buildout of EPG in the year 2010 is between 14,000 and 15,000. Since the development would be phased in over a 20-year period, the population increase should be absorbed with minimal effects.

4.5.3.3 Housing

The project may increase the availability of affordable housing in the area, depending upon the final zoning and design.

4.5.3.4 Employment

The EPG development would have a positive effect on the local job market.

4.5.3.5 Income

The EPG development should have a positive effect on local income.

4.5.3.6 Community and Army Facilities

Current county police, fire, and rescue facilities in the vicinity of EPG are considered adequate for the initial phases of this development, but may not be for future phases. A new Fairfax County Fire and Rescue station about 5 miles from EPG (to be built sometime before the year 2000) is under consideration. The high-density residential development at EPG could contribute approximately 1,377 school-age children over the 15- to 20-year building period, allowing adequate time to plan new schools if necessary. No impacts to Army facilities are expected.

4.5.3.7 Traffic and Transportation

4.5.3.7.1 Year 1995 EPG Stage I Development. Stage I development at EPG would include approximately 700,000 square feet of Army-related development, 465,000 square feet of commercial office space, and 525 dwelling units. Within the EPG study area, development would have some impact on intersection operation. Assuming that the development at EPG would have three access points (i.e., two on the Fairfax County Parkway and one on Backlick Road), site-generated traffic would be distributed

fairly evenly among these access points. At each of these points, exclusive turn lanes may be needed.

4.5.3.7.2 Year 2000 EPG Stage II Development. The post network and major improvement assumptions are described in detail in the *Regional Traffic Impact Analysis*. In the year 2000 the EPG development is assumed to include approximately four million gross square feet of commercial development and 2,275 dwelling units. The year 2000 development for the EPG site has an incremental effect on transportation system needs in the EPG study area. The development at this stage would have approximately 1.5 million square feet of Army-related development, 2 million square feet of commercial office space, 550,000 square feet of retail space and 2,275 dwelling units. This development scenario requires (as one option) the 10-lane I-95 cross section (as called for in the *Fairfax County Comprehensive Plan*) and the Richmond Highway expressway with eight through lanes between Armistead Road and Telegraph Road. The effects of the site-generated traffic at the EPG are detailed in the EPG EIS.

Modifications and improvements may be required for the intersections listed below. Because these are public highways, improvements would be determined and funded jointly by VDOT, Fairfax County, the Department of the Army, and private developers.

Ramp Modification

- I-95 and Fairfax County Parkway
- Fairfax County Parkway and Franconia/Springfield spur
- Fairfax County Parkway and Rolling Road
- Franconia/Springfield spur and Backlick Road

Intersection Improvements

- Fairfax County Parkway and Old Hooes Road
- Fairfax County Parkway and Fullerton Road
- Backlick Road and BRAC Roads

The proximity of Fullerton Road and I-95 would likely necessitate grade separation of Fullerton Road at the Fairfax County Parkway.

4.5.3.7.3 Year 2010 EPG Stage III Development. A development concept, which included a total of 3.1 million square feet of Army office space, approximately 5 million square feet of commercial office space, 1.7 million square feet of other non-residential space, and up to 5,600 dwelling units, was used for EPG.

The ongoing EPG planning process and EIS would result in a refined plan that would be used to develop a transportation plan meeting the needs of the development plan and acceptable to Fairfax County.

The EPG would add significant volumes of traffic to the highway system in the immediate vicinity of the EPG. Fortunately, the new roadways currently under construction or programmed would absorb much of the newly generated traffic. These new or improved roadways include:

- The Fairfax County Parkway
- The Franconia-Springfield Parkway
- The widening of Backlick Road and Rolling Road
- The extension of the I-95 HOV lanes with a southbound flyover from I-95 to Backlick Road

Further transportation improvements would be needed to handle EPG traffic at full buildout. The studies thus far completed, using the assumed EPG development levels, indicate that the transportation system would likely require the following improvements:

- Widen the Fairfax County Parkway from a 4- to 6-lane cross section from the Franconia-Springfield Parkway Interchange to I-95
- Provide an 8-lane section of the Fairfax County Parkway between Rolling Road and Sydenstricker Road, as recommended in the regional transportation plan, which is part of the *Fairfax County Comprehensive Plan*
- Upgrade the Fairfax County Parkway interchange serving EPG to a full cloverleaf
- Improve the at-grade intersection of the Fairfax County Parkway serving the northwest portion of EPG
- Consider a new access point from the Fairfax County Parkway west of Backlick Road, providing right-turn access and egress
- Provide access from the Franconia-Springfield Parkway at its proposed interchange with Neuman Street
- Upgrade Neuman Street
- Upgrade the existing entrance to EPG from Backlick Road
- Provide direct access to EPG from the southbound I-95 flyover ramp
- Provide a new access point to EPG from Backlick Road south of the existing access point
- Improve other local intersections

The transportation-related effects of the EPG development are also being addressed in a separate EIS.

4.5.4 Cultural Resources. Several cultural resource surveys have been conducted at EPG, but only one artifact has been found. Because of this, EPG has been determined to be free of archaeological resources (Polk, 1990).

A standing-structure survey would be required before any of the structures at EPG can be demolished.

4.5.5 Hazardous Materials. The EPG would be cleared of all hazardous materials before development. No sources of hazardous materials are planned for the development of EPG.

4.6 CUMULATIVE IMPACTS

The proposed actions, whether they are associated with BRAC or the CDP, have the potential to affect their immediate surroundings as well as the region. Each action has been reviewed according to certain criteria. This section presents an assessment of the cumulative effect of each separate proposed action on each resource category considered. The effects of the development of EPG and implementation of the CDP are based on the level of information available at the time this EIS was prepared. The effects of the construction of a 500-person administration building at HEC are discussed in general terms in the CDP analysis.

Table 4-16 details the compliance of each of the BRAC actions with major federal environmental laws as known at this time. Table 4-17 details the permits that may be required for each of the BRAC actions based on information available at the time of this report.

4.6.1 PHYSICAL/CHEMICAL RESOURCES

Several of the categories in this section are general or they represent physical features that are so large that even on a cumulative basis, when regional development trends are considered, there are no significant effects. There do not appear to be any cumulative effects for physiography and topography, geology and groundwater, soils, or climate.

4.6.1.1 Surface Water

Affects on surface water should be minimal. Final site plans for all projects will incorporate BMPs to minimize erosion and downstream sedimentation. In addition, Fort Belvoir will comply with the Chesapeake Bay Preservation Act.

Table 4-16
COMPLIANCE WITH ENVIRONMENTAL QUALITY PROTECTION STATUTES AND OTHER ENVIRONMENTAL REVIEW REQUIREMENTS FOR BASE CLOSURE ACTIONS, MDW

Installation	Proposed Action	Historic Preservation Acts	Clean Air Act	Clean Water Act & CBPA	Endangered Species Act	Harbors, Scenic River Acts	Watershed Protection Act	E.O. 11988, Floodplain Management	E.O. 11990, Wetlands Protection	RCRA
Cameron Station	Closure	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
Fort Belvoir	Headquarters Complex	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Industrial Park	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	BRAC Roads	1	Complies	2	1 and 2	2	2	2	2	2
	Commissary Warehouse Addition	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Post Exchange	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Commissary	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Administration Facility	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Material Research Facility	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Exchange Branch	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Modify Buildings 1466 & 1445	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	ISC Personnel Realignment	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies
Fort Myer	DOL	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Commissary	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	PX Expansion	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
	Shoppette	1	Complies	Complies	1	Complies	Complies	Complies	Complies	Complies
Fort McNair	MDW Information Management Personnel Realignment	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies

Legend:
E.O. = Executive Order
CBPA = Chesapeake Bay Preservation Act
1 = Coordination in process, full compliance anticipated
2 = Detailed studies in process, full compliance anticipated

Table 4-17
PERMITS POTENTIALLY REQUIRED FOR CONSTRUCTION OF BASE CLOSURE PROJECTS, MDW

Installation	Proposed Action	General Building	Trade Permits	Subaqueous Bed Permit	Section 401 Water Quality Certificate	Section 404 Wetlands Permit
Cameron Station	Closure	No	No	No	No	No
Fort Belvoir	Headquarters Complex	Yes	Yes	No	No	No
	Industrial Park	Yes	Yes	No	No	No
	BRAC Roads	Yes	Yes	Yes	Yes	Yes
	Commissary Warehouse Addition	Yes	Yes	No	No	No
	Post Exchange	Yes	Yes	No	No	No
	Commissary	Yes	Yes	No	No	No
	Administration Facility	Yes	Yes	No	No	No
	Material Research Facility	Yes	Yes	No	No	No
	Exchange Branch	Yes	Yes	No	No	No
	Modify Buildings 1466 & 1445	Yes	Yes	No	No	No
	ISC	No	No	No	No	No
	Personnel Realignment					
Fort Myer	DOL	Yes	Yes	No	No	No
	Commissary	Yes	Yes	No	No	No
	PX Expansion	Yes	Yes	No	No	No
	Shoppette	Yes	Yes	No	No	No
For McNair	MDW Information Management	No	No	No	No	No
	Personnel Realignment					

Note:
Permit requirements are based upon information available at the time of this EIS. Jurisdictional wetland delineations will be performed for each of the sites; upon their completion, permit requirements for individual projects may change.

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4.6.1.2 Air Quality

Most of the vehicles associated with the BRAC activities at Fort Belvoir are owned by employees at Cameron Station. Because these vehicles are already in the region, regional ambient air quality is not expected to be significantly affected by these projects.

4.6.2 BIOLOGICAL RESOURCES

4.6.2.1 Terrestrial Biota

Fort Belvoir is committed to maintaining at least 35 percent of its acreage as natural areas, refuges, and protected wetlands. This commitment will be formalized by identifying these areas as either refuges or environmentally sensitive areas in the next update of the installation's Master Plan. The total acreage and location of the areas will be determined by the *Fort Belvoir Natural Resources Management Plan*.

4.6.2.1.1 Genetic Corridor. Because BRAC 1, MCA 13, and NAF 5 are contiguous, if they are all constructed the genetic corridor will be significantly affected. These projects together could result in the corridor being completely severed in this area. This would result in the isolation of wildlife populations at Huntley Meadows Park and Mason Neck National Wildlife Refuge. It may also result in the loss from the North Post area of some area-dependent species currently found on Fort Belvoir (barred owl, ovenbird, pileated woodpecker, great horned owl, and Cooper's hawk) because of habitat fragmentation. BRAC 1 has been designed to provide 250- to 300-foot buffer on the northern boundary of the site to protect the corridor. When final NEPA documentation is prepared for NAF 5 and MCA 13, final siting of one or both of these facilities may change to prevent the corridor from being severed.

Construction of AFH 3 and MCAs 15, 21, and 28 could cause additional constrictions (Figure 4-26), limiting movements of wildlife south of Backlick Road and Beulah Street. The Fort Belvoir Master Plan, currently being revised, will provide a management plan to protect the genetic corridor on the post from future development, including these projects, as part of the *Fort Belvoir Natural Resources Management Plan*. The plan will ensure that, at minimum, a contiguous corridor of native vegetation at least 250 feet wide is maintained between Huntley Meadows Park and Mason Neck National Wildlife Refuge.

Oversized box culverts or bridges will be designed into all road projects at all drainages determined to be either jurisdictional wetlands or critical wildlife habitat. These structures will be monitored monthly for two years using track census methods to evaluate their effectiveness and assist with future design efforts.

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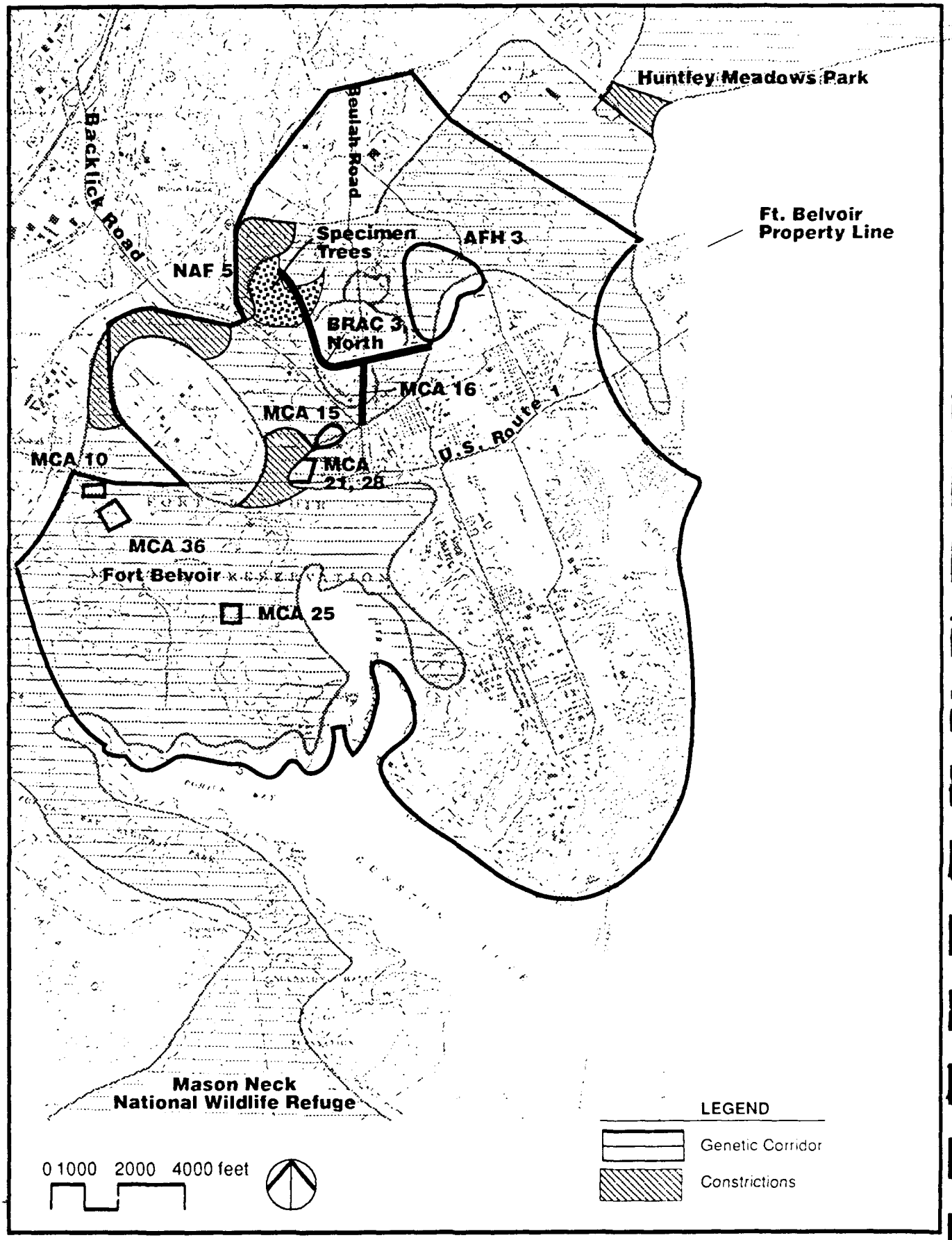


Figure 4-26
Cumulative Impacts to the Genetic Corridor Alignment and Critical Constrictions on Fort Belvoir

4.6.2.1.2 Vegetation. NAF 5 and AFH 3 could require the largest amounts of clearing for construction. The clearing of these sites will reduce the amount of tree cover on Fort Belvoir. However, each project will be required to comply with the Fairfax County tree ordinance. The remaining projects at the post should not have significant effects on vegetative cover. The development of approximately 600 acres at EPG will significantly reduce the amount of open space remaining in the study area. To the extent possible, native vegetation will be preserved in the developed areas. This could provide a vegetative screen and tree islands for parking lots, as well as habitat for wildlife.

4.6.2.1.3 Wildlife. In general no significant effects on wildlife are expected. However, if the genetic corridor is severed or constricted to the point that it no longer functions to facilitate animal movements, subpopulations of species could become isolated at Fort Belvoir, Huntley Meadows Park, and Mason Neck National Wildlife Refuge. This could lead to inbreeding, overexploitation of resources, and a loss of species diversity in some areas of the post. The revised Master Plan will contain a strategy to protect the corridor and minimize impacts.

The same situation would also occur at EPG; however, the maintenance of the EQC should allow species to relocate to other suitable habitat.

4.6.2.2 Wetlands

There will be no significant cumulative effects from the planned actions on wetlands. Wetlands are protected by the Clean Water Act, and jurisdictional wetland delineations will be performed on all sites that could contain wetlands. Permits will be acquired and mitigation completed when required.

The Army has agreed to adhere to state and local water-quality ordinances and regulations implemented to protect the Chesapeake Bay as outlined in Appendix E. Sites will be designed to avoid affecting designated RPA features and buffers, and no significant effects are expected.

4.6.2.3 Aquatic Biota

There will be temporary effects to aquatic biota because of the dredging required for NAF 2 and MCA 38. However these effects are not expected to be significant.

Herbicide and pesticide use at NAF 5 could affect aquatic biota in the streams on the site. The golf course should be designed to minimize runoff of these chemicals into the streams. The EQC will be protected at EPG and no effects are expected. Work will not be performed in the streams between March 15 and June 30.

4.6.2.4 Threatened and Endangered Species

When the details of the CDP projects are known, coordination with federal and state agencies will occur for each project in order to minimize the effects to threatened and endangered species. Site surveys will also be completed as part of this process.

Boating activities generated by both MCA 38 and NAF 2 will be controlled to minimize impacts to the three pairs of federally endangered bald eagles nesting in the area. Fort Belvoir personnel will monitor the activities of the eagles on the post to determine critical roosting and feeding areas. A management plan will be developed that will minimize the effects of boaters on the eagles during critical periods. This plan may include restrictions on boating or other similar activities in Gunston Cove during the breeding season and other critical periods.

The U.S. Fish and Wildlife Service recommends a 1/4-mile protection area around all bald eagle nests (Cline, 1985). This protection area is divided into three management zones. Different activities are permitted in each of the zones at different times of the year. Studies by Buehler, et al. (1991) and Anthony and Isaacs (1989) indicate that the management zones may be insufficient as currently defined by the U.S. Fish and Wildlife Service. They suggest that all human activity be restricted for a distance of between 1,640 and 2,625 feet of a nest site between December 15 and June 15. Anthony and Isaacs (1989) also recommend that no boat launching facilities or marinas be located within 1,312 feet (approximately 1/4 mile) of a nest.

An eagle management plan has been prepared for Fort Belvoir that restricts human activity within 1,640 feet of the nest site between December 1 and July 31. Partial restrictions apply during the rest of the year. In addition, most of Accotink Bay and the northern half of Pohick Bay is being designated as a restricted zone. Boat traffic will be limited to current use levels between October 1 and December 15 to minimize activities near wintering roosts and foraging perches. Boat traffic will likewise be limited between March 1 and July 1 to minimize the disturbance of foraging adult eagles. Boat traffic in the remaining areas of Gunston Cove will be controlled by permit and be limited to current use levels. Additional details of the plan can be found in *Eagle Management Plan: Fort Belvoir, Virginia* (January 1991).

BRAC 3 will be designed to minimize impacts to wood turtles found in the surrounding woodlands.

4.6.3 SOCIOECONOMIC CONDITIONS

Overall the effects associated with socioeconomic conditions are expected to be insignificant because a net increase of only 123 military and civilian personnel is expected in the region from BRAC realignments. It is considered extremely unlikely that all of the families being transferred to Fort Belvoir from outside the Washington, D.C., metropolitan area as a result of P.L. 100-526 would relocate in the immediate vicinity of Fort Belvoir. In addition, the population increases resulting from the CDP projects are

associated primarily with weekend use of the base by personnel either already in the region or transient personnel assigned temporarily to the post.

4.6.3.1 Land Use

Land use will be altered at specific sites, but when considered by installation and by region, the effects are insignificant. Many of the changes are simply reallocations of uses from one area to another within the same installation. At Cameron Station and EPG, there will be the conversion from government to private ownership, and the land-use classification will change. There will also be the conversion of some open space to development uses. The intensity of development at EPG will increase greatly. The local governments will determine the new land-use categories through the rezoning process.

4.6.3.2 Population

Effects on population are not significant regionally because most of the actions are simply a transferring of people from one site in the region to another. The actions that involve bringing additional people into the region will also not have a significant effect on population.

4.6.3.3 Housing

The change in demand for housing will not be significant for reasons similar to those stated in the previous section. An increase in on-post housing will reduce the demand for off-post housing. Under the development scenarios presented in this EIS, residential development at both EPG and Cameron Station will increase housing in the region.

4.6.3.4 Employment

There will be a shift in the location of some of the existing employment as well as the creation of new employment opportunities. The increase in new jobs will not be regionally significant.

4.6.3.5 Income

Income trends tend to follow those of employment. Because the cumulative effect on employment is that relatively few new jobs will be created, there will be a corresponding effect on income levels. Income levels should be unaltered for government employees. Some increase in resident income levels would be anticipated from the private development of EPG and Cameron Station.

4.6.3.6 Community and Army Facilities

Some community-related Army facilities will be closed because of some of the proposed actions. These facilities are being replaced with new facilities at Fort Belvoir and Fort Myer. The need for additional school capacity will be addressed in the revised Master Plan and coordinated with Fairfax County.

4.6.3.7 Traffic and Transportation

As the Washington, D.C., metropolitan area continues to grow during the next 20 years, there will be a need to improve and enhance the current transportation system in northern Virginia. The VDOT, Fairfax County, City of Alexandria, Metropolitan Washington Council of Governments, and the Washington Metropolitan Area Transit Authority have developed plans to address the anticipated needs. Construction of the Fairfax County Parkway and the Franconia-Springfield Parkway, the extension of the Shirley Highway HOV express lanes, the planned extension of the Metrorail system to Franconia-Springfield, initiation of regional commuter rail service, and the widening of the Capital Beltway are examples of actions geared to improve the region's mobility.

Traffic generated by the planned development at Fort Belvoir, EPG, and Cameron Station will affect area traffic conditions. Determine the number of trips each of these developments will generate, as well as the travel patterns these trips will create, is relatively straightforward. Determining the specific offsite improvements these new developments will require, as well as the additional needs continually being created by other regional development, is more difficult. Many of the offsite improvements, which are identified as being needed to support one or more of the Army developments, would be required within several years even without any Army development. The Army's developments account for merely a part of the total development-related transportation needs in northern Virginia and, in most cases, merely accelerate the need for an improvement that would be required at a later date regardless of Army activity.

A complicating factor in the assessment of needs is that the major north-south access roads in the vicinity of Fort Belvoir (i.e., Richmond Highway, and Telegraph Road) largely serve the same corridor and currently the number of lanes is deficient. Adding capacity on one route results in a shift of traffic within the corridor until levels of congestion are balanced.

Table 4-18 presents a summary of the existing conditions, baseline requirements, and additional improvements needed for roads and intersections affected by the proposed development at Cameron Station, Fort Belvoir, and EPG in the years 1995, 2000, and 2010. Baseline requirements are those improvements to roads and intersection needed to support existing traffic and planned regional growth in the years specified. The additional improvements listed are those upgrades recommended to support the proposed development at Cameron Station, Fort Belvoir, and EPG in the benchmark

Table 4-18
MATRIX OF RECOMMENDED HIGHWAY IMPROVEMENTS

	Current Number of Lanes[2]	Baseline Requirements LOS D				Additional Improvements Needed for Development[1]		
		1990	1995	2000	2010	1995	2000	2010
Roadway Construction								
FCP: (Sydenstricker Road to Rolling Road)			6	6	6			2-EPG
FCP: (Rolling Road to I-95)			4	4	4			2-EPG
FCP: (I-95 to Richmond Hwy)			4	4	4			
BRAC Roads, North: (FCP to Gunston Road)						4-FTB	4-FTB	4-FTB
BRAC Roads, North: (Gunston Road to Woodlawn Road)						2-FTB	4-FTB	4-FTB
Neuman Street: (Upgrade from FSP to EPG Site; Extend within site)							2-EPG	2-EPG
Roadway Widening								
I-95: Mainline lanes (Gordon Boulevard to FCP)	6		6	6	8			0-EPG
Richmond Highway: (Gordon Boulevard to Telegraph Road)	4	6	6	6	6	2-FTB[4]	*-FTB	*-FTB
Richmond Highway: (Telegraph Road to Backlick Road or FCP)	4	6	6	6	6	2-FTB	*-FTB	*-FTB
Intersection Modification								
I-95 and Backlick Road or FCP			X[3]					EPG
I-95 and Backlick Road (slip ramp)								EPG
Richmond Highway and FCP						FTB	FTB	FTB
FCP and FSP								EPG
FCP and Rolling Road (south of EPG)								EPG
FCP and Fullerton Road								EPG
Duke Street and Cameron Station Site Access						CAM	CAM	CAM

Table 4-18
MATRIX OF RECOMMENDED HIGHWAY IMPROVEMENTS

	Current Number of Lanes[2]	Baseline Requirements LOS D				Additional Improvements Needed for Development[1]		
		1990	1995	2000	2010	1995	2000	2010
Intersection Modification (continued)								
Richmond Highway and Woodlawn Road			X			FTB	FTB	FTL
Richmond Highway and Mount Vernon Memorial Highway		X	X				FTB	FTB
Telegraph Road and Beulah Street		X	X	X		FTB	FTB	
FCP and EPG Site Access						EPG		
FCP and Old Hooes Road							EPG	
FCP and Fullerton Road							EPG	
FCP and BRAC Roads, North						FTB	FTB	FTB
Van Dorn Street and S. Pickett Street		X	X			CAM	CAM	CAM

NOTE:
FCP = Fairfax County Parkway, CAM = Cameron Station, EPG = Engineer Proving Grounds, FTB = Fort Belvoir.
* = Indicates that roadway widening recommended for 1995 will not be necessary in 2000 or 2010 if grade separations identified as 2000 and 2010 baseline requirements are constructed.

[1]Improvements which provide LOS D for baseline plus development scenario. Development site identified for each improvement (e.g., FTB). Improvements do not carry over from 1995 to 2000 to 2010; each improvement is listed in each year for which it is necessary.
[2]Shown only for Roadway Widening projects.
[3]An X in a column indicates that some improvements are needed at the location specified in the year specified.
[4]From Armistead Road to Telegraph Road.

years. Roads and intersections that require improvements to support planned regional growth, but are not affected by the proposed development, are not included in Table 4-18. The improvements to these roads and intersections would be required regardless of any actions covered by this EIS. These improvements would be the responsibility of local and state highway departments.

4.6.4 CULTURAL RESOURCES

4.6.4.1 Archeological and Historic Resources

The cumulative effects of BRAC and CDP actions on cultural resources is primarily dependent on final siting of the construction projects at Fort Belvoir. The two areas of greatest concern are the category 1 historic site at NAF 2 and the project area for AFH 3, which has not been surveyed for cultural resources. These and several other proposed actions (BRAC 3, MCA 10, AFH 3, NAF 3, and NAF 5) could affect up to 15 potentially significant archeological sites. If possible, disturbance of these resource sites will be avoided. If disturbance is unavoidable, evaluative study and mitigation will be conducted in accordance with all of the applicable regulations and the memorandum of agreement on file between the Army and the SHPO and the Advisory Council on Historic Preservation. Any exterior (or interior, where applicable) alterations to buildings scheduled for renovation in the historic district will be coordinated with the SHPO and the Advisory Council on Historic Preservation to ensure compliance with regulations.

The Army will complete an inventory of resources and any other required actions regarding cultural resources at Cameron Station before construction activities or disposal of land. Development related to BRAC actions at Fort Myer may affect the historic district at that post. At minimum, a Phase I cultural resource survey will be completed for the proposed sites before construction begins.

A Programmatic Agreement among the Army, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation (signed on February 5, 1990) describes the process the Army will use to satisfy its obligations under Section 106 of the NHPA, so that NEPA can be completed before the actual completion of the NHPA responsibilities. Section 106 and 110 responsibilities under NHPA will be completed by the Army before initiation of construction activities or disposal of lands.

4.6.4.2 Visual Resources

There will be an impact on visual resources when EPG and Cameron Station are redeveloped as mixed-use developments. The loss of open space at EPG will be noticeable as buildings are constructed. The redevelopment at Cameron Station may have a positive impact as the industrial facilities, which are currently on the property, are replaced with commercial, retail, and residential structures more compatible with adjacent structures in the City of Alexandria. The Army is providing development plans for both EPG and Cameron Station to minimize visual impacts.

Development in currently undeveloped areas of Fort Belvoir, many of which feature rolling, tree-covered slopes, will reduce the overall aesthetic value of those areas, although it will provide an aesthetically pleasing environment to the future occupants of office buildings and housing. The *Installation Design Guide, Fort Belvoir, Virginia* will be followed as site designs are developed. Buildings should be designed to fit the existing topography, minimize the effects of grading, and retain mature trees in order to minimize aesthetic impacts. NAF 2 will alter the view in from the Potomac River, from that of a tree-lined bluff to that of a recreational development.

4.6.5 Hazardous Materials

Cameron Station and EPG will be evaluated for the presence of hazardous materials, and a statement of condition will be prepared for each installation before its disposal and redevelopment. Any hazardous materials generated at Fort Belvoir will be handled, stored, and disposed of in a manner consistent with applicable federal, state, and local regulations.

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Chapter 5.0
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Mr. Donald Fowler
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Alexandria Volunteer Bureau

Mr. John Sullivan
Representative
Alexandria Federation of Civic Associations
Cameron Station Task Force

Ms. Redella Pepper
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Cameron Station Task Force

Mr. Daniel Burns
Representative
Chamber of Commerce Representative
Cameron Station Task Force

Mr. Melvin Johnsrud
Citizen Representative
Cameron Station Task Force

Mr. James Marx
Citizen Representative
Cameron Station Task Force

Converse M. West
Citizen Representative
Cameron Station Task Force

Col. and Mrs. Bernard Brenman
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Northern Virginia Community
Appearance Alliance

Mr. Paul R. Brockman

Mr. and Mrs. Francis Corry

Mr. Earl Flanagan
Mount Vernon Council

Mr. William Plissner

Ms. Mary Shackelford
Newberry Station

Mr. Tom E. Snavely
Hayfield Citizens Association

Mr. Louis G. Bruhn
Pohick Pilots Association

Mr. Bob Brown
Chief Engineer
Foxchase of Alexandria

Mr. Geoffrey Hechtman
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Ms. Norma Hoffman
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Citizen's Alliance to Save Huntley Meadows

Mr. Howard E. Morrison
Hayfield Citizens Association

Mr. Dennis Gallagher
Place One

Mr. Joseph Guiffre
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Public Libraries (for public access purposes)

Branch Manager
Fairfax City Regional Library

Branch Manager
Pohick Regional Library

Branch Manager
John Marshall Community Library

Branch Manager
Kings Park Community Library

Branch Manager
Martha Washington Community Library

Branch Manager
Richard Byrd Community Library

Branch Manager
Lorton Community Library

Manager
Arlington County Central Library

Branch Manager
Aurora Hills Branch Library

Branch Manager
Columbia Pike Branch Library

Branch Manager
Glencarlyn Branch Library

Branch Manager
Shirlington Branch Library

Public Information Office
District of Columbia Public Libraries

Manager
Martin Luther King Memorial Library

Headquarters Manager
City of Alexandria Public Libraries

Branch Manager
Ellen Coolidge Burke Branch Library

Branch Manager
James M. Duncan Jr. Branch Library

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Chapter 8.0
GLOSSARY

Agency coordination - Process by which appropriate federal, state, and local agencies are notified of a proposed action and the EIS in order to solicit their comments on the proposed action.

Alternative actions - All alternative scenarios for a proposed action.

Aquatic biota - Organisms that spend a predominant portion of their lives in water, including fish, frogs, salamanders, and aquatic insects.

Aquifer - A permeable rock formation or zone below the earth's surface that bears water.

Archaeological resource - Identified location of man-made artifacts, dated to prehistoric or historic periods, which have the potential to contribute to the knowledge of human history. Both the artifact and the integrity of the site in which it is found contribute to the significance of the resource.

Benthic invertebrates - Those animals lacking a spine that inhabit the bottom of creeks, streams, rivers, ponds, lakes, and oceans.

Bloom conditions - Conditions that promote the concentrated growth of algae in the water, usually high nutrient concentrations resulting from pollution.

Brackish - Water that is saline, but less so than sea water. Salinity typically ranges from 0.03 - 2.2 percent chlorine.

Brackish water tidal wetlands - Wetlands that are found in tidal brackish water. These wetlands are predominantly emergent and are critical nursery areas for anadromous fish (fish that live in the ocean and spawn in fresh water).

Cambrian - The oldest of the periods of the Paleozoic Era; also the system of rock formations and soil layers deposited during that time period (570 to 500 million years ago).

Coastal plain - Any plain that has its margin on the shore of a large body of water, particularly the sea, and generally represents a strip of recently (geologically speaking) emerged sea bottom.

Conglomerate - Rounded or waterworn fragments of rocks or pebbles, cemented together by another mineral substance.

Corrosion prevention - Technology and methodology used to minimize corrosion.

Cultural Resource - All historic structures and archaeologic sites.

Endangered species - Any species that is in danger of extinction throughout all or a significant portion of its range, excluding any species of the class Insecta determined by the U.S. Secretary of Interior to constitute a pest whose protection would present an overwhelming and overriding risk to man.

Environmental Impact Statement (EIS) - A public document prepared for the primary purpose of ensuring that NEPA policies and goals are incorporated early into the programs and actions of federal agencies. An EIS is also prepared for private and municipal projects receiving federal funding and when required by other federal laws such as the Clean Water Act. An EIS is required when a proposed action may significantly affect environmental quality, public health or safety, or resources. Resources include, but are not limited to, historic and archaeological resources, parks, wilderness areas, wildlife refuges, threatened and endangered species, wetlands, prime or unique farmland, and other areas of critical environmental concern.

Expansive clays - Clays that shrink and swell under changing moisture regimes.

Fall line - An imaginary line, marked by waterfalls and rapids, where rivers descend abruptly from an upland to a lowland.

Federal candidate species - A species that is being considered for listing as a federally threatened or endangered species.

Floodplains - That portion of a river, stream, or creek valley adjacent to the channel that is covered with water when the river, stream, or creek overflows its banks at flood stages.

100-year floodplain - That portion of the floodplain that has a 1 percent chance of flooding during a storm event in any given year.

Fluvial - Of or pertaining to rivers.

Fluvial-deltaic - River deltas where sediments were deposited.

Footprint - The actual shape, size, and location of a structure's foundation on a construction site.

Formal screening process - Procedure to follow for disposing of military installations closed under P.L. 100-526.

Genetic corridor - A band of native vegetation that allows for the movement of species between larger patches of habitat, thus allowing species to survive in landscapes where they would not normally occur.

Highest and best use - That use, from among reasonable, probable, and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and results in the highest land-use value.

Historic property - A building, structure, site, object, or district that meets the criteria of the National Register of Historic Places.

Historic resource - Historic structures and archeological sites that are dated after 1607 AD.

Infrastructure - The utilities and road networks required to support an area.

Metamorphic rocks - Includes all those rocks that have formed in the solid state in response to temperature, pressure, and the chemical environment. These effects take place, in general, below the ground.

Mitigation - All measures planned to minimize or offset expected significant environmental impacts.

Non-tidal wetlands - Those areas above the limit of tidal influence that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that do support, a prevalence of vegetation typically adapted for life in saturated-soil conditions.

Notice of Intent (NOI) - Public notice advertising the lead agency's intent to prepare an EIS for a proposed action. The NOI is published in the *Federal Register* and appropriate newspapers in the localities affected by the proposed action.

Paleozoic - One of the eras of geologic time; also refers to the rocks deposited during the Paleozoic Era, which occurred 570 to 280 million years ago.

Palustrine emergent wetlands - Freshwater wetlands that are dominated by herbaceous (non-woody) plants.

Palustrine forested wetlands - Freshwater wetlands that are dominated by woody vegetation 20 feet or taller.

Piedmont - Lying or formed at the base of mountains.

Phase I Cultural Resource Survey - An inventory of a defined area, designed to provide a narrative overview derived from existing cultural resource information and a compilation of existing recorded data regarding a cultural resource site.

Phase II Cultural Resource Survey - A sample-oriented field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a portion of a defined area. The inventory will be conducted in a manner that will allow an objective estimate of the nature and distribution of cultural resources in the defined area.

Phase III Cultural Resource Survey - An intensive field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a specific area.

Physiography - The study of genesis and evolution of land forms.

Phytoplankton - One-celled microscopic plants that live in water.

Polychlorinated biphenyl (PCB) - Synthetic lubricant used in electrical parts, especially transformers.

Potentially significant impact - An effect that has a reasonable likelihood, but not a certainty, of occurring. It is treated as a significant effect, requiring identification of possible mitigation measures.

Precambrian - All rocks formed before the Cambrian (more than 570 million years ago) period.

Realign/realignment - The movement of military activities from one location to another.

Record of Decision (ROD) - Final documentation prepared as part of an EIS. The ROD states the decision reached on the proposed action that is described and analyzed in the EIS; identifies and discusses all factors that were weighed during the decision making process; states how these considerations affected the final decision; and states if all practicable means to avoid or minimize environmental harm from the selective alternative have been adopted, and if not, why they were not.

Relief - The difference in elevation between the high and low points of a land surface.

Resource Site - Location where a resource, such as an endangered species, or archaeologic or historic find, is found.

Runoff - The overland discharge of water through surface streams. A significant source of non-point source pollution because runoff can cause or increase erosion and transport sediments (and therefore nutrients) as well as pesticides, herbicides, and oil from other surfaces into water bodies, degrading water quality.

Schist - A medium- or coarse-grained metamorphic rock.

Scrub/shrub wetlands - Wetlands dominated by woody plants less than 20 feet tall.

Sediment - Solid material, both mineral and organic, that is in suspension, or has been transported or moved from its site of origin by air, water, or ice. Sediment usually contains nutrients or pollutants that contribute to the degradation of water quality.

Sedimentation - Process by which sediment is deposited in water bodies, often causing constriction or cessation of surface water flow. Sandbars and other upland areas are also created in surface water bodies by this process.

Sedimentary - Rocks formed from sediment, especially sandstones and shales.

Significant impact - Impacts that violate existing pollution standards; cause water, air, noise, soil, or underground pollution; impair visibility for substantial periods of any day; cause interference with the reasonable peaceful enjoyment of property; interfere with visual or auditory amenities; limit multiple-use management programs for an area; cause danger to the health, safety, or welfare of humans; or cause irreparable harm to animal or plant life in an area.

Species of concern - Species that are not listed as threatened or endangered, or considered as candidates for imminent listing, but species that could become candidates or eligible for listing if populations continue to decline throughout all or a significant portion of their ranges.

Specimen-sized trees - Mature trees that are at or near the maximum size recorded for the species as determined by the state Department of Forestry.

Statement of Condition - Report prepared by USATHAMA describing the condition of a property after their remedial actions and investigations.

Submerged aquatic vegetation (SAV) - Vascular plants that grow completely submerged or just up to the surface of the water.

Terrestrial biota - Organisms that spend the predominance of their lives on land, including birds, lizards, and most mammals.

Triassic - The earliest of the three periods of the Mesozoic Era; or the layers of rock and soils deposited during that time (240 to 205 million years ago).

Threatened species - Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Topography - The physical features of a district or region, especially the relief and contour of the land.

Visual resources - Aesthetically pleasing aspects of the natural or man-made environment.

Wetlands - Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

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APPENDIX A

Agency Coordination

APPENDIX A

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COMMENTS AND RESPONSES CONCERNING THE DRAFT EIS

The following comments were received regarding the *Draft Environmental Impact Statement* (EIS), which was available for public review from June 14 to July 29, 1991. Some of the comments were written and some were presented orally during the public hearing, which was held July 16, 1991, at Edison High School on Franconia Road in Alexandria, Virginia. Approximately 65 people attended the public hearing and 5 people presented oral statements. A complete transcript of the public hearing follows the written comments.

WRITTEN COMMENTS

FAIRFAX COUNTY HEALTH DEPARTMENT, letter dated May 14, 1991.

1. Contact FCHD if construction, demolition, or reconstruction activities encounter well water supplies or improperly abandoned septic tanks. Also, contact FCHD if permits are needed for abandonment of well water supplies or installation of well water supplies and/or individual sewage disposal systems.

RESPONSE: Comment noted.

VIRGINIA MARINE RESOURCES COMMISSION, letter dated June 13, 1991.

2. Any proposed encroachment over, under, or in the State-owned subaqueous bottom would require a Joint Permit Application and approval by all applicable local, state, and federal agencies.

RESPONSE: Comment noted.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, letter dated July 8, 1991.

3. The EIS should contain a map showing the location, by type, of all the wetlands in the area.

RESPONSE: Because of the size of the installation, a map showing all of the wetlands on Fort Belvoir was not prepared. Rather, the wetlands for each of the proposed BRAC project sites (see Figures 4-2 through 4-7) and proposed CDP projects (see Figures 4-14 through 4-22) are shown.

4. Section 3.2.2.3 AQUATIC BIOTA. It is recommended that no in-stream work be conducted during the spawning season of shad, river herring, and alewives which occurs from March 15 through June 30.

RESPONSE: Sections 3.2.2.2 and 4.2.1.2.3 have been revised to indicate that no in-stream construction work will occur between March 15 and June 30.

5. Section 3.3.2.3 AQUATIC BIOTA. It is recommended that the intermittent stream at Fort Myer be surveyed for anadromous fish between March 15 and June 1.

RESPONSE: The use of this stream by migrating fish would be minimal because of its size, less than 10 feet wide, and depth, 2 to 4 inches. None of the proposed BRAC projects at Fort Myer will affect any aquatic systems. Section 4.3.2.3 has been revised to indicate that no in-stream work will be conducted in this stream between March 15 and June 1.

6. Section 3.4.2.1.2 Wildlife. Insert a separate section on aquatic biota and add language as stated in comment #4.

RESPONSE: A separate section on aquatic biota is not considered necessary because Fort McNair has no aquatic resources on post, although it is bounded by two water bodies. Neither water body would be affected by the realignment of two employees. No new construction will occur at Fort McNair.

7. Section 4.2.1.2.3 AQUATIC BIOTA. Insert language similar to comment #4.

RESPONSE: See comment #4.

8. Table 4-7. Wherever impacts are shown for aquatic biota, the table should show that they will be reduced by the suggested time of year restriction, March 15 through June 30.

RESPONSE: A footnote at the end of Table 4-7 has been added to indicate the time-of-year restriction.

9. Table 4-8. Wherever impacts are shown for aquatic biota, the table should show that they will be reduced by the suggested time of year restriction, March 15 through June 30.

RESPONSE: A footnote at the end of Table 4-8 has been added to show the time-of-year restriction.

10. Section 4.2.2.2.3 AQUATIC BIOTA. Insert language similar to comment #4.

RESPONSE: Section 4.2.2.2.3 has been revised to include a time-of-year restriction.

11. Section 4.6.2.3 AQUATIC BIOTA. Insert language similar to comment #4.

RESPONSE: Section 4.6.2.3 has been revised to include a time-of-year restriction.

MANAGER, OFFICE OF THE COUNTY, ARLINGTON COUNTY, VIRGINIA, letter dated July 18, 1991.

12. Tables 3-28, 3-29, 3-30, and 3-31. Update demographic information.

RESPONSE: Sections 3.3.2.1, 3.3.3.1, and 3.3.3.4.1 have been revised with the updated data.

13. Section 3.3.3.6 COMMUNITY AND ARMY FACILITIES. The data on electrical usage, water demand, and wastewater flow for Fort Myer is from 1986. More recent data may provide a better evaluation of existing usage.

RESPONSE: Section 3.3.3.6 has been revised to include data through 1990. The current use of these utilities is not expected to differ significantly from that shown by the 1986 data because the activities at Fort Myer have not changed significantly within the last 5 years.

14. Section 4.3.3.1 CONSEQUENCES OF PROPOSED ACTION. This section states that proposed facilities are consistent with existing land use patterns on Fort Myer. Information in Tables S-7 and 4-15 seem to conflict with this statement. These tables state that for the proposed commissary, shoppette, and post exchange that land use will have a minor impact because the projects will change land use from open space to community facilities.

RESPONSE: Section 4.3.3.1 and tables S-7 and 4-15 have been revised to indicate that the construction of the BRAC projects would have minor impacts on the land use.

NATIONAL CAPITAL PLANNING COMMISSION, letter dated July 26, 1991.

15. Recognition of the need to preserve the wildlife genetic corridor and the sensitivity to historic preservation and cultural resources impacts are particularly noteworthy.

RESPONSE: Comment noted.

16. The planned uses of the fort, including the Engineer Proving Ground, reflect a change from the predominant training and testing functions currently shown for the site in the Comprehensive Plan. Therefore, a modification to the Comprehensive Plan will be required.

RESPONSE: The Concept Development Plan provides some preliminary information regarding this change. The revised Master Plan will fully address this change in mission.

17. A revised Master Plan will be needed, including justification for the projected employment increase.

RESPONSE: A revised Master Plan, which is being prepared and will be coordinated with NCPC, will include a justification for projected employment increases.

18. Although the CDP addresses cumulative effects of changes at Fort Belvoir, long-term impacts of CDP proposal and development of the Engineer Proving Ground cannot be evaluated without more detailed comprehensive land use information.

RESPONSE: Evaluations of the long-term impacts of CDP proposals will be included in the revised Master Plan. Evaluations of the long-term impacts of the Engineer Proving Ground will be included in separate site-specific NEPA analysis along with the more detailed comprehensive land use information.

19. The revised Master Plan should include existing site conditions and surrounding features, functional arrangement of uses, circulation patterns and major access points, general building forms and parking, and landscaping.

RESPONSE: The revised Master Plan will include these items.

20. Structured parking or a combination of structured and surface parking should be considered for the Headquarters Complex in order to provide more open space and landscaping. A parking standard of 1.5 employees should be incorporated in the master plan update.

RESPONSE: Structured parking and a combination of structured and surface parking were considered and found to be costly at the Headquarters Complex. This project requires a parking density higher than the standard of 1.5 employees per space because of its location and the lack of public transportation to the site. The revised Master Plan will address lowering the parking standard of 1.5 employees per space.

21. Large-scale facilities that do not reinforce the role and function of Fort Myer should be accommodated at Fort Belvoir. The Army is examining ways to minimize the scope of these facilities, and is sensitive to the need to maintain the character of Ft. Myer.

RESPONSE: The facilities relocated to Ft. Myer will be the minimum required to support the role and function of Ft. Myer.

22. The established trees and shrubbery serve to buffer the planned Logistics Complex from the Arlington National Cemetery and should be preserved. Also, regrading the site should be minimized.

RESPONSE: The design of the Logistics Complex will minimize regrading and impacts to the surrounding buffer.

23. Special Streets and Special Places should be designated in the Fort Myer Master Plan, in accordance with the criteria established in the Comprehensive Plan for the National Capital.

RESPONSE: The Fort Myer Master Plan, now under development, will designate special streets and special places on the post.

24. The EIS should provide a discussion of the aesthetic impacts and implications of the many new buildings proposed for Fort Belvoir and Fort McNair.

RESPONSE: Section 4.2.1.4.2 addresses the aesthetic impacts of the new buildings proposed for Fort Belvoir. Base Realignment and Closure at Fort McNair is not expected to necessitate construction.

25. Particularly important is the Army's recognized responsibility under Section 110 of the National Historic Preservation Act to identify buildings and archaeological resources that would qualify for inclusion in the National Register of Historic Places.

RESPONSE: Section 106 and Section 110 responsibilities under the National Historic Preservation Act will be completed by the Army before construction of projects begins or disposal of land occurs.

26. All floodplains and wetlands should be clearly delineated. These features, as well as natural shorelines, should not be disturbed by building construction.

RESPONSE: Floodplains are discussed in Section 3.1.1.1 for Cameron Station, Section 3.2.1.1 for Fort Belvoir, and Section 3.3.1.4 for Fort Myer (Fort McNair contains no floodplains). No construction will occur in the floodplains because of Base Realignment and Closure actions. Wetlands were delineated and identified on figures 4-2 through 4-7 and 4-14 through 4-22. Wetland impacts will be minimized and affected wetlands will be replaced.

27. A discussion of conformance with Chesapeake Bay Preservation Act criteria is warranted, particularly as it pertains to Resource Management Areas and Resource Protection Areas. Information about steep slopes should be provided.

RESPONSE: The Chesapeake Bay Preservation Act is discussed in sections 4.2.1.1.3 and 4.2.1.2.2. The Resource Management Areas and Resource Protection Areas are

discussed in sections 4.2.1.1.3, 4.2.1.1.4, 4.2.1.2.2, 4.2.2.1.3, 4.2.2.2, 4.2.2.2.1.3, 4.2.2.3, and 4.6.2.2.

28. Reliance of the surrounding population on groundwater for drinking purposes should be addressed in the EIS.

RESPONSE: The use of groundwater as drinking water by the surrounding population has been added to Section 3.2.1.2.

29. A noise quality section would be useful for examining impacts on human and animal life.

RESPONSE: Sections 3.2.3.6 and 4.2.1.3.7 have been revised to include this information.

30. The Final EIS should include an explanation of the options to be considered if the monitoring mitigation structures for wildlife movement are ineffective.

RESPONSE: Section 4.2.2.2.1.1 has been revised to include this information.

31. Information on the schedule for correction of the remaining parts of the April 1990 Notice of Violation pertaining to hazardous materials at Fort Belvoir should also be included.

RESPONSE: Section 4.1.5 has been revised to include this information.

32. Transportation Management Programs (TMPs) that emphasize restrictions in transportation demand should be provided for all Military District of Washington posts, particularly Fort Myer and Fort Belvoir, which see an influx of new personnel. Investigation of the use of commuter rail service is encouraged for the Fort Belvoir TMP.

RESPONSE: TMPs are part of planning at all Military District of Washington posts. Mass transit, including commuter rail service, is being studied as part of the revision to the Fort Belvoir Master Plan.

MOUNT VERNON SIERRA CLUB, letter dated July 22, 1991.

33. In our judgment, expansion of bus service, which would place more emphasis on moving people as opposed to moving cars, should be investigated as an alternative to road construction. Expanded bus service should include links to Metrorail, improved coverage of other areas of northern Virginia, and express-bus service.

RESPONSE: The Army will continue to work with the local transportation agencies to increase the mass transportation options available for Army personnel.

34. The DEIS does not adequately outline the current status of carpooling at Fort Belvoir, nor does it examine the impact of added incentives, such as opening parking lots only to personnel who participate in carpools, on transportation patterns.

RESPONSE: Carpooling at Fort Belvoir has been increased because of active support by the post. However, the number of people carpooling is still small because of the commuting patterns of post personnel. The commuter patterns of personnel are being evaluated to see if additional incentives can be developed to increase carpooling and reduce the Army impacts to the public highway system. The Army will continue to actively pursue carpooling programs.

35. Alternative 3 for BRAC 1, Headquarters Complex, would have the least impact on surface water quality, RPAs, and the Fort Belvoir genetic corridor while making use of existing structures at Fort Belvoir. In addition, we encourage the Army to study methods for redistributing the activities assigned to the buildings proposed for use as Alternative 3.

RESPONSE: BRAC 1, Headquarters Complex, will be designed to minimize any impacts to surface water quality, RPAs, and the genetic corridor. The rehabilitation of the existing structures under Alternative 3 would be costly. Also, the efficiencies of realigning similar activities to a single complex would be lost. After the Engineers School left Fort Belvoir many tenants were redistributed to structures that did not need major rehabilitation to economize on space. As part of the revised Master Plan, a space utilization study will identify further opportunities to consolidate activities in existing structures.

36. Alternative 3 for BRAC 1, Headquarters Complex, would also eliminate the adverse impacts of BRAC 3, North (constricted area in the genetic corridor, wetlands, and water quality) by eliminating the requirement for this road project (BRAC 3, North).

RESPONSE: BRAC 3 would provide the required transportation improvements associated with the increased traffic at each of the rehabilitated structures included in the BRAC 1, Alternative 3, plan. Although these impacts may not involve wetlands, the genetic corridor, or water quality, there would be significant road improvements that would be costly. The effects of BRAC 3, North, will be lessened by designing the road to minimize impacts to wetlands and the genetic corridor. Mitigation will offset any impacts to these important resources. Stormwater management and best management practices during construction will minimize impacts to the areas' water quality.

37. Many further elements of the Concept Development Plan may cause adverse effects on bald eagle, wood turtle habitat, the genetic corridor, and/or wetlands biotic communities. The Mount Vernon Group will comment upon these elements when NEPA documentation becomes available.

RESPONSE: Comment noted.

UNITED STATES DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICE, letter dated July 25, 1991.

38. Several proposed sites could adversely impact wetland areas, specifically proposals MCA 9, MCA 16, MCA 31, MCA 38, MCA 42, NAF 2, NAF 5, AFH 3, BRAC 3 (all alternatives) and BRAC 8 (Alternative 2). Because much of the state and federally listed rare, threatened, and endangered species' habitat on Fort Belvoir is located within the floodplain, tributary, and wetland systems, proper mitigation is imperative.

RESPONSE: The impacts of MCA, NAF, and AFH projects will be analyzed in future NEPA documents. BRAC 8 (Alternative 2) was rejected because of the potential impact to wetlands. BRAC 3 will be designed with the mitigation strategy of avoidance, then minimization, and then compensation.

39. Construction of several facilities, specifically BRAC 1, MCA 10, MCA 13, MCA 16, MCA 25, MCA 36, MCA 42, AFH 3, NAF 5, and NAF 7 could adversely constrict the corridor. The Service recognizes that the developers plan to construct culverts to promote safe passage of wildlife within the corridor; however, construction of the golf course (NAF 5) and the Headquarters Complex (BRAC 1) would almost sever the genetic corridor. As a direct result of these projects, the genetic corridor would be constricted and contaminants would be released into wetland areas. Therefore, the Service recommends that these projects be relocated to alternative sites outside of both the genetic corridor and wetland areas.

RESPONSE: The impacts of the MCA, AFH, and NAF projects on wetlands and the genetic corridor will be evaluated in a future NEPA document. Headquarters Complex (BRAC 1) will maintain a 250- to 300-foot vegetated buffer to the north of the site for the genetic corridor. Wetlands affected by BRAC 1 will be minimized during the design process and those wetlands will be replaced. BRAC 1 will also have a stormwater management system that will protect the genetic corridor and wetlands from potential impacts due to contaminants.

40. Proper stormwater management techniques are essential for preventing contaminated run-off from entering streams and wetland areas. Through the use of pervious pavement and retention ponds, sedimentation into streams can be minimized.

RESPONSE: Where appropriate, stormwater management will be a part of the design of each project. For example, BRAC 1 will include a retention pond to protect the environmental resources in that area.

41. The U.S. Fish and wildlife Service has no comment regarding the closing of Cameron Station and the increase of personnel at Fort McNair and Fort Myer.

RESPONSE: Comment noted.

42. Written formal consultation must be conducted with the Annapolis Field Office regarding the affect MCA 25, MCA 38S, and NAF 2 could potentially have on bald eagles.

RESPONSE: Formal consultation will be conducted for these projects.

43. RECOMMENDATION: Completion of wetland delineation for all sites.

RESPONSE: Wetland delineation has been completed for Ft. Belvoir. Figures 4-2 through 4-7 provide this information for those BRAC projects that have wetland present. Potential sites for the projects in the CDP were delineated and provided as figures 4-14 through 4-22.

44. RECOMMENDATION: Reduction of wetland impacts (i.e., by scaling down certain sites or movement to alternative locations where impacts will be further minimized).

RESPONSE: Efforts were made during the evaluation of the alternatives to avoid wetland impacts. The design of BRAC 1 and BRAC 3 will minimize the impacts where avoidance is not practicable. Impacts to wetlands will be mitigated.

45. RECOMMENDATION: Reduction of impacts on genetic corridor; most severely by proposals NAF 5 (golf course), BRAC 1 (Headquarters), and AFH 3 (1,500 housing units).

RESPONSE: Efforts were made to reduce impacts on the genetic corridor. Future NEPA documentation regarding NAF 5 and AFH 3 will evaluate the impact of these projects on the genetic corridor. BRAC 1 (Headquarters Complex) will provide a 250- to 300-foot buffer to reduce impacts from this project on the genetic corridor.

46. RECOMMENDATION: Formal written consultation on endangered species.

RESPONSE: Formal written consultation will be conducted regarding the siting of MCA 25, MCA 38S, and NAF 2.

47. RECOMMENDATION: Incorporation of proper stormwater management techniques.

RESPONSE: A stormwater management technique will be included in the project design.

FAIRFAX COUNTY PUBLIC SCHOOLS, letter dated July 15, 1991.

48. In the CDP, a statement showing a need to increase capacity and update the three post schools to current educational specifications should be included.

RESPONSE: The CDP will be incorporated into the future Master Plan. The Master Plan will provide the Army's plan to address the educational requirements for the post.

49. A project on North Post consisting of 1,500 new housing units (AFH 3) suggests a need for at least one new elementary school on post.

RESPONSE: See response to comment #48.

50. Table 4-8 should include a statement that current school facilities cannot house the expected additional students. Section 4.2.2.3.6 should include a statement concerning the need for more school facilities to accommodate the added students resulting from the 1,500 new dwelling units.

RESPONSE: See response to comment #48.

51. Section 4.5.3.6 should include a statement that the expectation of an additional 1,377 students will require at least one new elementary school, replacing the existing sentence "The high-density residential development at EPG could contribute about 1,377 school-age children over the 15- to 20-year building period, allowing time for Fairfax County to plan new schools if necessary."

RESPONSE: Section 4.5.3.6 has been revised to delete ". . . for Fairfax County to plan . . . ." School needs will be addressed in the site-specific NEPA analysis for EPG.

52. The U.S. Government's planning needs to take into account the Fort Belvoir development impacts on school infrastructure, off-post as well as on-post.

RESPONSE: Government planning considers off-post, as well as on-post, impacts. The analysis of base realignment and closure actions indicate no significant impact to school infrastructure. Impacts caused by non-BRAC actions (including the proposed 1,500 housing units) will be addressed in the revised Master Plan. Analysis of this change is not significant.

53. Section 4.5 (Cumulative Impacts) should have a statement reflecting the need for new schools because of residential development both at EPG and Fort Belvoir. It should be noted that Fairfax County is not responsible for providing school facilities on post. The sentence, "The proposed actions will require that Fairfax County plan new schools," should be modified accordingly.

RESPONSE: Section 4.6.3.6 (Cumulative Impacts, Community and Army Facilities) has been revised with the deletion of "that Fairfax County" and the addition of "The need

for additional school capacity will be addressed in the revised Master Plan and coordinated with Fairfax County" to indicate who would be required to plan new schools.

U.S. ENVIRONMENTAL PROTECTION AGENCY, letter dated July 23, 1991.

54. The EIS should provide air analysis data to ensure there are not adverse impacts to the air quality resulting from the additional 3,835 employees commuting to and from the Fort Belvoir installation.

RESPONSE: An analysis of the increased number of vehicles in the areas is presented in Section 4.6.1.2. A majority of the 3,835 additional employees already contribute to the air quality problems in the northern Virginia area. The redistribution of their commute will have a slight detrimental effect on the air quality at Fort Belvoir. This impact is not significant when compared to the impacts of the current number of vehicles in the area.

55. Figure 1-2 shows two Corporate Fitness Centers (NAF 6), yet there is no mention in the text that the two centers are planned.

RESPONSE: Figure 1-2 has been revised to show the correct location of the one planned center.

56. Page 3-83 (Section 3.2.5) states that Fort Belvoir stores hazardous waste in aboveground containers and in bulk underground storage tanks. The EIS should state the number, contents, and location of these containers.

RESPONSE: Section 3.2.5 has been revised to include this information.

57. The text should state the number and location of underground storage tanks at Fort Myer.

RESPONSE: Section 3.3.5 has been revised to include this information.

58. The text should explain the extent of soil contamination at Ft. Myer from ethylbenzene and gasoline-like hydrocarbons, supported with data, and should describe the remedial action plan(s).

RESPONSE: The extent of soil contamination by ethylbenzene-percloroethylene and gasoline-like hydrocarbons is not currently known, as stated in Section 4.3.5. The Army is currently conducting site investigations. The sampling data and remedial action plan(s) will be coordinated with the appropriate resource agencies and remediation will be accomplished before construction begins. Section 3.1.5 has been revised to include additional information regarding the remediation process under CERCLA.

59. The text should state what the artificial fill consisted of at Fort McNair.

RESPONSE: Section 3.4.1.2 has been modified to include this information.

60. Section 4.2.2.3.6 indicates that Table 4-10 provides "The facilities that are proposed to mitigate impacts . . ."; this should be Table 4-12.

RESPONSE: This reference has been changed to Table 4-12.

61. Figure 4-26 should identify MCAs 21 and 28, Backlick Road and Beulah Street, to show the relationship of these facilities to their surroundings.

RESPONSE: Figure 4-26 has been revised to include these facilities.

62. The text should state the approximate number of tanks expected at BRAC 9 (Exchange Branch) and AAFES 3 (Car-Care Facility).

RESPONSE: Section 4.2.1.5 and Table 4-7 have been revised to include the approximate number of tanks for BRAC 9. Section 2.6.5.3 has been revised to provide the approximate number of tanks planned at that site.

63. The text should visually illustrate the planned improvements in relationship to the corridor and wetlands.

RESPONSE: Figure 4-26 provides the relationship of both BRAC and CDP development and the genetic corridor. Figures 4-2 through 4-7 show the relationship of the BRAC projects to the wetlands. Figures 4-14 through 4-22 show the relationship of the CDP development to the wetlands. Wetland impacts were identified on a project-by-project basis to give better definition to the wetlands relationship.

64. A number of proposed projects, in particular AFH 3, have the potential to significantly affect the wildlife genetic corridor. It is suggested that compressed housing units such as townhouses, apartments, and/or duplexes be designed rather than single-family dwellings.

RESPONSE: The Army will evaluate compressed units as well as other locations for housing requirements in order to minimize the impacts on the wildlife genetic corridor.

65. The text does not specify how many acres the golf course (NAF 5) will encompass, nor does it state how it may affect the wildlife genetic corridor or wetlands. The possibility of reducing the size of this golf course should be considered to alleviate environmental impacts.

RESPONSE: The NEPA document for NAF 5 will evaluate the size requirements so that the impact to the wildlife genetic corridor and wetlands will be minimized.

VIRGINIA COUNCIL ON THE ENVIRONMENT, letter dated July 26, 1991.

66. We are pleased with the Army's commitments to Chesapeake Bay Preservation, "no net loss" of wetlands, remediation of contaminated areas, recycling, careful handling of pesticides, and the protection of threatened and endangered species.

RESPONSE: Comment noted.

67. BRAC is unlikely to affect farmland or require additional sewage and water facilities.

RESPONSE: Comment noted.

68. Fort Belvoir should correct the seven outstanding Notices of Violation issued in April 1990 before any additional building or renovation occurs.

RESPONSE: See response to comment #31. Fort Belvoir will follow its plan submitted and approved by EPA and submitted to Virginia.

69. The Army needs to undertake voluntary notifications pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III (Emergency Planning and Community Right-to-Know), and Department of Defense Guidelines.

RESPONSE: Fort Belvoir will comply with existing laws and DOD guidelines. However, Fort Belvoir has examined requirements for compliance with SARA Title III, and found that Fort Belvoir currently does not meet the threshold levels.

70. Recommend that the Army reduce solid waste at the source, re-use it, or recycle it to the maximum extent possible to meet Virginia's solid waste management goals of 10% recycled in 1991, 15% recycled in 1993, and 25% recycled in 1995.

RESPONSE: This recommendation is addressed in Section 3.2.3.6. Fort Belvoir has already exceeded 25%, and has a goal of 50% recycled by 1995.

71. Recommend that the Army minimize the generation of hazardous waste.

RESPONSE: The Army will continue to minimize the amount of hazardous waste generated by activities, in accordance with the Federal Facilities Compliance Agreement (December 31, 1990) and the Virginia Waste Minimization Program.

72. We appreciate the commitment to hazardous waste management in the document.

RESPONSE: Comment noted.

73. We appreciate the commitments to developing an integrated pest management program at Fort Belvoir and the implementation of best management practices

to minimize runoff into aquatic environments. We encourage the Army to make this same commitment for other projects that will result in pesticide usage.

RESPONSE: Fort Belvoir will make the same commitments for pesticide use and storage and for the implementation of best management practices for all of the proposed projects.

74. Recommend that Fort Belvoir consult with the Department of Agriculture and Consumer Services regarding pesticide storage.

RESPONSE: Fort Belvoir will continue to consult with the Virginia Department of Agriculture and Consumer Services about pesticide storage. Fort Belvoir currently requires that personnel handling pesticides hold Virginia certification.

75. We commend Fort Belvoir on their commitment to prepare an eagle management plan to minimize the effects of proposed CDP projects on the bald eagles in Gunston Cove.

RESPONSE: Comment noted.

76. Would like to know the criteria being considered for wood turtle habitat, the survey results, and protection strategies planned. Coordination should be effected with the Department of Conservation and Recreation.

RESPONSE: The criteria are being developed as part of the Water Resources Management Plan. Fort Belvoir will continue to coordinate with the Department of Conservation and Recreation on the status of, and protection strategies planned for, wood turtles at Fort Belvoir.

77. The Department of Conservation and Recreation has provided additional information for threatened and endangered species.

RESPONSE: Section 3.2.2.4 and Table 3-7, regarding threatened and endangered species, has been revised to include this information.

78. We appreciate the Army's commitment to work with our agencies in protecting state-listed rare, threatened, and endangered species. We also appreciate the Army treating candidate species as if they were listed species.

RESPONSE: Comment noted.

79. The Army is commended on its commitment to preserve the wildlife genetic corridor, however we suggest coordination with the Division of Natural Heritage regarding the width of the corridor.

RESPONSE: The Army is endeavoring to maintain a minimum corridor width of 250 to 300 feet. The Division of Natural Heritage will be consulted in the development of the wildlife genetic corridor component of the Natural Resources Management Plan.

80. We recommend that the Army allow public recreational use of as much of the shoreline at Fort Belvoir as possible.

RESPONSE: The Army will continue to provide the public access to the shoreline of Ft. Belvoir for recreational use where this is compatible with ongoing Army activities.

81. If the alternate site for BRAC 6 is used, we hope that the recreational fields can be replaced at some other location on the post.

RESPONSE: Comment noted.

82. We commend the Army on its decision to comply with the Chesapeake Bay Preservation Act. We strongly recommend that the Army comply with the performance standards required for RMA's.

RESPONSE: The Army will comply with these performance standards.

83. Limiting BRAC 3, North, to the segment between the Fairfax County Parkway and Gunston Road and a minor realignment of BRAC 3, South, would minimize stream impacts.

RESPONSE: Stream impacts will be minimized through the detailed design for BRAC 3, North and South.

84. Staff from the Virginia of Department of Waste Management will be visiting Cameron Station to assess the need for additional remediation of the contaminated areas at Cameron Station.

RESPONSE: The Army continues to coordinate the cleanup and reuse of Cameron Station with the appropriate agencies and the public.

85. Fort Belvoir should contact the Fairfax Joint Local Emergency Planning Committee to comply with the emergency planning and preparedness provisions of SARA, Title III. In addition, the Fort should discuss its solid waste management planning efforts with the Northern Virginia Planning District Commission and Fairfax County.

RESPONSE: Fort Belvoir participates in regular meetings of the Fairfax Joint Local Emergency Planning Committee, and has submitted to that board its Installation Contingency Plan and the Spill Prevention, Control, and Countermeasure Plan. Fort Belvoir will coordinate its solid waste management plan with the Northern Virginia

Planning District Commission and Fairfax County when the plan has been reviewed at the post for accuracy.

86. Further consultation with the Department of Waste Management is necessary in connection with Cameron Station, no additional coordination appears necessary in regard to activities at Fort Myer.

RESPONSE: See response to comment #84.

87. We recommend that the Army consult with the Department of Agriculture and Consumer Services' Office of Pesticide Management before completing any plans for pesticide storage.

RESPONSE: See response to comment #74.

88. We recommend that the Army contact the Department of Conservation and Recreation's Division of Natural Heritage to discuss strategies for the protection of endangered species.

RESPONSE: The Army's strategies for the protection of endangered species will be part of the NEPA analysis and documentation for the revised Master Plan and will be coordinated with federal, state, and local agencies and the public.

89. We recommend that the Army maintain its contacts with the Department of Historic Resources as it completes the archaeological survey work mentioned in the Draft EIS.

RESPONSE: Section 4.2.1.4.1 has been revised to indicate that the Army will continue to coordinate with the Department of Historic Resources.

VIRGINIA DEPARTMENT OF HEALTH, letter dated June 26, 1991.

90. The Comprehensive Base Realignment/Closure and Fort Belvoir Development does not adversely affect the programs administered by this agency.

RESPONSE: Comment noted.

VIRGINIA DEPARTMENT OF WASTE MANAGEMENT, letter dated June 24, 1991.

91. Fort Belvoir continues to have both solid waste management and hazardous waste management challenges to meet before any additional, substantial building or renovation takes place because of the proposed BRAC projects.

RESPONSE: See comments and responses #92 - #95 below.

92. Fort Belvoir still needs to come into full, environmental regulatory compliance with the applicable federal, state, and local requirements for solid and hazardous waste management.

RESPONSE: See responses to comments #31, #68, and #91.

93. Ft. Belvoir needs to follow DoD guidelines for voluntary SARA III notifications, emergency planning, and community right-to-know.

RESPONSE: Ft. Belvoir does follow these guidelines. See response to comment #69.

94. Coordinate emergency planning and preparedness and solid waste management planning with appropriate local agencies.

RESPONSE: Ft. Belvoir does this coordination already and will continue to do so.

95. Reduce and recycle wastes.

RESPONSE: This recommendation is addressed in Section 3.2.3.6; the Army will continue to minimize the amount of waste generated. See response to comment #70.

96. At Ft. Myer, hazardous wastes generated by activities will be managed in compliance with applicable regulations.

RESPONSE: Ft. Myer will continue to manage its hazardous wastes according to applicable regulations.

VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION, letter dated July 16, 1991.

97. Offer public access to the shoreline for recreational use.

RESPONSE: The Army will continue to provide the public access to the shoreline of Ft. Belvoir for recreational use where compatible with ongoing Army activities.

98. If the alternative for BRAC 6 is chosen, replace the recreational fields at some other location on post.

RESPONSE: Comment noted.

99. What criteria are being used for wood turtle habitat requirements?

RESPONSE: Ft. Belvoir will continue to coordinate with the Department of Conservation and Recreation on the status of, and protection strategies planned for, wood turtles at Ft. Belvoir.

100. Some species of "rare, threatened, and endangered animals" are not listed in Table 3-16. Some of the state ranks for the listed species were incorrect, and some of the species listed do not appear in our data base (these are migratory species that are not monitored by our department).

RESPONSE: Table 3-16 has been revised to incorporate the information provided by your department.

101. Some species listed in Table 3-16 are no longer monitored as "rare".

RESPONSE: See response for comment #100.

102. The department is especially interested in the development of protection strategies that will serve to minimize impacts on all rare species mentioned. Advise this department as alternative strategies are discussed.

RESPONSE: See response to comment #76 and #88.

VIRGINIA CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT, letter dated July 12, 1991.

103. We urge the Corps to minimize the impacts to RPAs and RPA buffer zones.

RESPONSE: The Army will comply with the Chesapeake Bay Preservation Act requirements for these areas.

104. BRAC 1, we agree that the preferred alternative has the least environmental impact.

RESPONSE: Comment noted.

105. BRAC 2, preferred alternative has no impact.

RESPONSE: Comment noted.

106. BRAC 3, North, construction of roads is permitted in RPAs, provided that they are built to VDOT standards and appropriate erosion and sediment control and stormwater management measures are taken. We would encourage, if feasible, Alternative 2 because it involves the least impact to RPAs.

RESPONSE: Final design of the alignment will minimize impacts.

107. BRAC 3, South, a realignment of the preferred alternative to reduce stream impacts is favored.

RESPONSE: See response to comment #106.

108. BRAC 4 through BRAC 7, no impact.

RESPONSE: Comment noted.

109. BRAC 8, preferred alternative has no impact.

RESPONSE: Comment noted.

110. For MCA 9, 13, 15, 21, 24, 28, 31, 35 & 42, every attempt should be made to avoid wetlands or incursions into the RPA buffer area (see Section 4.2.B of the Regulations).

RESPONSE: Wetland and RPA impacts were avoided during the design of MCA 9. Protection of wetlands and RPA buffer areas will be addressed in site-specific NEPA analysis for the remainder of these projects.

111. MCA 16, see comments on BRAC 3.

RESPONSE: Comment noted. See response to comment #110.

112. MCA 38, any non-water-dependent facilities should be constructed outside the RPA, including the buffer zone where practicable.

RESPONSE: Comment noted. See response to comment #110.

113. AFH 3, comment on MCA 9, et al, are appropriate.

RESPONSE: See response to comment #110.

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, letter dated July 12, 1991.

114. In addition to commitments to develop an integrated pest management program for the proposed golf course (NAF 5) and to implement best management practices (BMPs), we encourage the Army to make the same commitment for other projects.

RESPONSE: Fort Belvoir will make the same commitments for pesticide use and storage and for the implementation of BMPs for all of the proposed projects. See response to comment #73.

115. Check with the Office of Pesticide Management to determine the status of regulations prior to completing plans for storage of pesticides.

RESPONSE: The Fort Belvoir Directorate of Housing and Engineering will consult with the Department of Agriculture and Consumer Services regarding pesticide storage. See response to comment #74.

116. We appreciate the Army's efforts to protect species and its commitment to treat candidate species as if they were listed species.

RESPONSE: Comment noted.

117. Little agricultural land is affected; we have no comment on possible effects on agricultural lands.

RESPONSE: Comment noted.

COUNTY OF FAIRFAX, OFFICE OF COMPREHENSIVE PLANNING, letter dated July 29, 1991.

118. Under the heading "Heritage Resources," there are two recommendations that are pertinent to the Draft EIS. The first recommendation states: "The remains of the Belvoir site, which is located in the southern region of Fort Belvoir near the Potomac River, continue to reflect an important element of local heritage and should be protected".

RESPONSE: Comment noted. See Section 3.2.4.

119. The second recommendation states that "Pohick Church, Mount Air, and Woodlawn Historic Districts abut Fort Belvoir." Protection of these historic resources should be considered in any redevelopment of the Fort Belvoir property.

RESPONSE: Comment noted. See Section 3.2.4.

120. The Park and Recreation recommendations, sector LP4, states that the Accotink Bay shoreline should be protected "by developing the former float bridge training area as the Tompkins Basin NCR Recreation Area." It also states that the Fort Belvoir trail system should be developed "in concert with the Fairfax County Trail System."

RESPONSE: Fort Belvoir is currently connecting into the Fairfax County trail system.

121. Any development of the EPG to the south of Sector S3 should be accomplished so that existing residential neighborhoods are adequately protected from visual, noise, and any other adverse impacts of new development.

RESPONSE: The EPG Development Initiative is being addressed in separate site-specific NEPA analysis and documentation.

122. The impacts of BRAC could be reduced by phasing new development. BRAC 3 roadways should be completed before occupancy of new buildings and the operation of new facilities.

RESPONSE: The Army is phasing new development at Ft. Belvoir; however, Public Law 100-526 limits phasing of BRAC development by requiring relocations by September 30, 1995. BRAC 3 roadways will support the relocated activities.

123. The Army should cluster its employee-intensive facilities in a more central portion of the Fort Belvoir property.

RESPONSE: Concentrating employee-intensive facilities is an integral part of planning at Fort Belvoir. For example, Headquarters Complex (preferred alternative) clusters personnel relocating from Cameron Station.

124 The Army should provide buffering and screening to adjacent off-post development and historic districts. The Army should continue to protect on-post historic sites, structures, and heritage resources, as well as on-post visual resources.

RESPONSE: As required by the National Historic Preservation Act and Army Regulation AR 420-40, the Army will consider the effects of its undertakings on properties eligible for listing on the National Register of Historic Places. Accordingly, Alternative 2 was not preferred for BRAC 1.

125. The Army should build sufficient housing on post for military personnel.

RESPONSE: The Army family housing policy will continue to be to rely on a combination of on-post and off-post capabilities to meet requirements.

126. Additional information is needed on MCA 42.

RESPONSE: Separate site-specific NEPA analysis and documentation provide additional information on this project.

127. Cumulative impacts of development actions at Fort Belvoir and EPG lacks detail. The facilities and services needed as a result of the EPG development are not identified.

RESPONSE: This EIS provides the cumulative effects in summary fashion for development actions at Fort Belvoir and EPG in order to place BRAC projects in proper context. Separate site-specific NEPA analysis and documentation for EPG and Ft. Belvoir are being prepared to address EPG issues and CDP development in detail.

128. The proposed EPG development will have significant impacts on the surrounding area. A task force has studied this issue for over two years. This

study effort will continue; the Army's on-going participation and cooperation is appreciated.

RESPONSE: The Army will continue to work with the local task force to address EPG issues.

129. The analytical approach does not identify actual transportation deficiencies that will exist upon development. This approach would theoretically result in the identification of improvements solely attributable to the development of the Army projects.

RESPONSE: The regional traffic study identifies transportation deficiencies that will exist upon Army development, if planned and necessary highway improvements (without Army involvement) are in place. The study was designed to identify deficiencies attributable to Army development. The Army considers the study sufficient to provide transportation impact information for Army projects.

130. It is unrealistic to assume preexisting deficiencies have been addressed. Therefore, the Army development will aggravate transportation performance more than indicated by the analysis.

RESPONSE: The Army's development will aggravate performance of some highway facilities near Fort Belvoir if civil highway authorities do not fulfill their public highway improvement responsibility for normal traffic (without Army development).

131. The Fairfax County Parkway is not fully funded and will not be available for use in this period.

RESPONSE: The portion of the Fairfax County Parkway near Fort Belvoir has been planned for more than a decade to meet the needs of the region, but is not a specific requirement of the BRAC project.

132. Unconstructed planned improvements will mask capacity deficiencies caused by Army developments.

RESPONSE: See response to comment #130.

133. Conventional development would either provide transportation improvements or defer construction of development until assumed road improvements are in place.

RESPONSE: All Fort Belvoir BRAC actions are to be in place by September 1995, as required by P.L. 100-526, so there is no option to defer portions of these actions. The Army is willing to participate in funding its fair share of public highway improvements near BRAC sites and is in the process of negotiating that fair share with VDOT and Fairfax County.

134. The impacts of the proposed Army developments will be more severe in each of the time periods than reported in the study.

RESPONSE: See response to comment #130.

135. Some of the traffic impacts of BRAC 5 and 6 are not adequately addressed.

RESPONSE: Improvements necessary to the roads providing direct access to the sites will be accommodated in the individual designs, coordinated with civilian highway authorities, and constructed as part of the project, as required.

136. The EIS defers identification of public highway improvements to be determined jointly by VDOT, the County, and the Army. Does this conform with the intent and purpose of an EIS.

RESPONSE: The Army considers the traffic study is sufficient to identify traffic impacts of Army development for NEPA requirements. Ongoing negotiations with VDOT and the County make it impossible to forecast these in this EIS, especially for the BRAC projects under P.L. 100-526.

137. Appropriate rights-of-way and easements should be obtained for development at Fort Belvoir in proximity to the Fairfax County Parkway, Route 1, and Woodlawn Road.

RESPONSE: Fort Belvoir will continue to consider the right-of-way and easement needs of the civilian highway authorities for planned improvements in consonance with Army requirements.

138. Use of Neuman Street for access to the EPG site is prohibited.

RESPONSE: The site-specific NEPA analysis and documentation for EPG will evaluate alternatives for Neuman Street access to EPG.

139. The genetic corridor is a critical link between Mason Neck and Huntley Meadows and is significantly constricted near Davison Airfield and in the North Post area.

RESPONSE: Comment noted.

140. The EIS falls short in its discussion of the current function and future status of the genetic corridor; several proposed activities will constrict or perhaps even sever the corridor in the North Post area.

RESPONSE: Fort Belvoir is committed to preserving the corridor and will continue to consider the cumulative effect of projects on the corridor in site-specific NEPA analysis and documentation.

141. How has the corridor been affected by the disturbances at the BRAC 1 site, by Davison Airfield, the existing golf course, and existing roads (Backlick and Beulah)? How will the corridor be affected by the Fairfax County Parkway? How is the corridor considered within the Fort Belvoir Natural Resources Management Plan and within the parks located within the corridor?

RESPONSE: Fort Belvoir activity effects on the genetic corridor will be evaluated in the Natural Resources Management Plan. BRAC 1 will maintain a 250- to 300-foot vegetative buffer to minimize impacts to the corridor. Future projects will have site-specific NEPA analysis and documentation to address cumulative effects on the corridor.

142. The EIS does not adequately address the relationship between the cumulative impacts of all of the construction projects and wildlife management goals. The EIS needs a discussion on the relationship between area-sensitive species (barred owl, Cooper's hawk, pileated woodpecker) and the Natural Resources Management Plan. The EIS should also address the relationship between the projects and the wildlife management efforts of Huntley Meadows and Mason Neck NWR.

RESPONSE: Section 4.2.2.2.1.3 identifies potential impacts related to area-sensitive species through habitat fragmentation. Future, site-specific NEPA analysis and documentation will be provided to evaluate habitat impacts. The wildlife management goals will be included in the revised Natural Resources Management Plan.

143. Which functions of the corridor will be preserved by maintaining it? The width of the corridor varies between sections.

RESPONSE: All functions of the corridor are anticipated to be preserved. The post will continue to evaluate impacts to the corridor in site-specific NEPA analysis and documentation. The EIS has been revised to show a consistent minimum corridor width of 250-300 feet.

144. What is the distribution of cover types within the corridor and what will be the post-development distribution? How will changes in the distribution of cover types affect the species using the corridor?

RESPONSE: Cover types within the corridor will be provided as part of the corridor management plan component of the Natural Resources Management Plan. There is no significant impact to the corridor from BRAC development.

145. What edge effects can be expected to occur within the corridor and how far into the corridor will they be felt? Will there be adverse effects on plant communities with subsequent adverse effects on wildlife communities?

RESPONSE: BRAC 1 and 3 may increase the edge effect of the genetic corridor. The design of these projects will minimize this impact. The site-specific NEPA analysis and documentation will address these impacts.

146. Please provide general information about the size of the box culverts planned.

RESPONSE: The culverts are planned to be about six-feet high to provide access to wildlife. The width will vary according to stream width and width of associated bank area.

147. Provide more information on the monitoring program to assess the effectiveness of box culverts. Provide information on what other mitigative efforts will be undertaken if the box culverts are determined to be inadequate.

RESPONSE: The post has an ongoing program to monitor wildlife movement, diversity, and density in the corridor area. These efforts will identify inadequacies of the mitigation plan, and the post will undertake efforts to offset these shortcomings.

148. The genetic corridor limits on Figure 4-5 should be clarified. Is this line measured from the limits of clearing and grubbing? Will there be efforts undertaken to protect areas north of the RPA minimum as shown on the map?

RESPONSE: The 250- to 300-foot buffer is measured from the limits of clearing. The genetic corridor limits will be clarified in site-specific design and NEPA analysis. Land north of the RPA is not affected by any of the BRAC projects.

149. Figure 4-14 does not identify the post-development corridor boundary of NAF 5 as stated on page 4-84.

RESPONSE: Figure 4-14 legend has been revised to show this boundary.

150. Clarify "where practicable" as used on page 4-22.

RESPONSE: "Where practicable"" means where possible, considering environmental, engineering, and site requirements.

151. Provide a map showing the distribution of habitat types across Fort Belvoir.

RESPONSE: Figure 3-3 and Table 3-11 show habitat types at Fort Belvoir.

152. The Army is commended for mapping RPAs and committing to complying with the Chesapeake Bay Preservation Act.

RESPONSE: Comment noted.

153. It is assumed that the Army will provide more detailed information about project designs in the project-specific NEPA documentation to be prepared.

RESPONSE: Comment noted.

154. The Army should be aware that an exception for encroachment from the County may be required for MCA 9.

RESPONSE: The project siting has been corrected. It is not within an RPA.

155. Provide the locations for regional stormwater facilities if they have been sited.

RESPONSE: Stormwater facilities will be designed as needed. Sites have not yet been selected.

156. Provide information on the types of wetlands that will be lost and the mitigation proposed for BRAC 3.

RESPONSE: Section 4.2.1.2.2 has been revised to include this information.

157. The wetland lines shown in figures 4-5, 4-14, and 4-15 are inconsistent.

RESPONSE: Figures 4-5, 4-14, and 4-15 have been revised accordingly.

158. The DEIS does not provide a discussion of air quality impacts resulting from the increase in traffic around the post.

RESPONSE: See the response to comment #54 and Section 4.6.1.2.

159. Some of the BRAC and CDP projects are located in the southwestern portion of the post. The EIS needs a discussion on access roads and the effects of the projects on the environment.

RESPONSE: No BRAC projects are located in the southwest part of the post. CDP projects will be addressed in site-specific NEPA analysis and documentation that will provide discussion on access roads and the effects on the environment.

160. Several of the road improvements (on post) included in the traffic plan attached to the DEIS were not included in the DEIS. No information was provided on the status of these proposed improvements.

RESPONSE: Site-specific NEPA analysis and documentation for CDP projects will include the status of proposed road improvements. Road improvements included in the DEIS were those related to BRAC actions.

161. The EIS should include all of the improvement projects listed in the attachment. Also, are these road projects being pursued by Fort Belvoir?

RESPONSE: See response to comment #160.

162. Fort Belvoir is to be commended on the high quality of its heritage resource survey.

RESPONSE: Comment noted.

163. The Northern Neck Grant information in the CDP is inaccurate, please coordinate with the Heritage Resources office to obtain correct information.

RESPONSE: Coordination with the Heritage Resources Office will be undertaken during revision of the Master Plan.

164. There is no Fairfax Historic District as described in the CDP. In addition, the Pohick Church Historic District needs to be addressed.

RESPONSE: Corrected information will be included in the revised Master Plan.

165. Sections 6.1.2, 6.2.4, and 6.3 should reference Section 106 requirements.

RESPONSE: Section 106 requirements will be fully complied with in the revised Master Plan.

166. The EIS needs to state that, if warranted, Phase II and Phase III cultural resource surveys will be completed for all building sites.

RESPONSE: Phase I surveys will be completed before proposed BRAC actions. The potential effect on all historic properties will be assessed in accordance with the Army Programmatic Agreement of February 1990.

167. Identify possible locations for a new landfill or incinerator if they will be required at Fort Belvoir.

RESPONSE: Section 3.2.3.6 provides information on Fort Belvoir's plans for solid waste management.

168. The preferred alternative for BRAC 1 will result in less disturbance to the wildlife genetic corridor than Alternative 2.

RESPONSE: Comment noted.

169. It is suggested that land disturbance on BRAC 1 be limited to areas south of Kingman Road.

RESPONSE: Comment noted.

170. Is a combination of Alternatives 1 and 3 possible to minimize the size of the facility at Alternative 1?

RESPONSE: See response to comment #123.

171. Correct Table 4-7 to reflect that there are some wetlands on the preferred alternative site for BRAC 1.

RESPONSE: Table 4-7 has been revised to reflect .4 acres of non-tidal wetlands on the site.

172. The preferred site for BRAC 2 appears to be the best site for this project.

RESPONSE: Comment noted.

173. If the preferred alternative for BRAC 2 is pursued, will the pasture area be relocated?

RESPONSE: The pasture will not be replaced under BRAC action; Fort Belvoir is considering a replacement under NAF 3.

174. The County will eventually need information on stormwater management for BRAC 2.

RESPONSE: Site work for BRAC 2 will address stormwater management.

175. Alternative 2 for BRAC 3 is preferable from an environmental standpoint. The Office of Transportation should be consulted regarding the need for Alternative 1 from a transportation standpoint.

RESPONSE: Traffic requirements are discussed in the traffic study. Discussions of traffic solutions are ongoing.

176. Section 4.2.1.2.3 indicates that Alternative 2 BRAC 3 "would not provide the degree of access required" to BRAC 1. What is the level of access required and will any other alternatives provide this access? If some BRAC 1 activities are provided within BRAC 1, Alternative 3, might the transportation stress on the North Post be reduced and allow BRAC 3 to be scaled back?

RESPONSE: Access requirements will be designed into the BRAC projects. The regional traffic study indicated the need for BRAC 3, North (preferred alternative). This provides the needed level of access, as documented in the traffic study. If BRAC 1 activities were dispersed, additional road capacity would be required to service the South Post area.

177. It is recommended that BRAC 3 follow the alignment of Kingman Road and that the area north of Kingman be maintained in a natural condition. Any change to this alignment should be discussed as to the benefits over the existing alignment.

RESPONSE: The site-specific NEPA analysis and documentation for BRAC 3 will address Kingman and other alignments and address benefits for changes to the Kingman Road alignment.

178. The NEPA document for BRAC 3 should address potential impacts and survey for wood turtles under alternate alignments and alternative alignments should be considered within the context of the wildlife corridor.

RESPONSE: Impacts, various alignments, wood turtle surveys, and the wildlife corridor will be addressed in the follow-on NEPA document for the BRAC 3 project.

179. Figure 4-26 does not provide any of the BRAC 3 alignments provided in the text.

RESPONSE: Figure 4-26 has been corrected to show the BRAC 3 alignment.

180. The terminus for BRAC 3, Alternative 2, is unclear. Figure 2-8 shows it ending at Keene Road; page 2-15 indicates that it will end at the planned extension of Gunston Road; page 9-5 of the CDP implies that the Gunston Road extension will follow the current alignment of Keene Road. Figure 2-27 shows the extension of Gunston Road on a different alignment. Where will Gunston Road be, and how far east does BRAC 3, Alternative 2, extend?

RESPONSE: Figure 2-27 shows the correct location of the Gunston Road extension. As shown on the revised Figure 2-8, BRAC 3, Alternative 2, terminates east of Keene Road.

181. Information is needed for the box culverts. How big will they be and what species will be able to use them. Can it be anticipated that some species will not cross through these culverts?

RESPONSE: See the response to comment #146 regarding box culverts. See the response to comment #147 regarding monitoring of success.

182. Other alternatives for the BRAC 3 should be provided, including the costs and benefits of the "no-action" alternative for BRAC 3, North. Are there other ways of moving Route 1 traffic into the BRAC 1 area?

RESPONSE: See response to comment #176.

183. Page 94 of the *Regional Traffic Impact Analysis* recommends Kingman Road be widened to four lanes all the way to Woodlawn Road. Is this project anticipated to be needed? If so it should be addressed either as a BRAC or CDP project in the EIS. If not, the traffic analysis should be corrected.

RESPONSE: The addition of 1,500 housing units (AFH 3) would require this four-lane road to Woodlawn Road. The additional transportation improvement will be part of the AFH 3 project analysis. See Section 4.2.2.3.7.

184. It is unclear if Alternative 2 for BRAC 8 is realistic.

RESPONSE: BRAC 8 would take precedence over CDP conceptual projects, if required.

185. With reference to Alternative 2, land disturbance should not occur within 100 feet of streams.

RESPONSE: Comment noted, this is an RPA requirement.

186. In the discussion of the Army Materials Technology Laboratory closure there needs to be a better discussion of hazardous materials and procedures for disposal.

RESPONSE: Site-specific NEPA analysis and document for this project will discuss hazardous materials and procedures. See sections 4.2.1.1.2, 4.2.1.1.5, and 4.2.1.5, which discuss hazardous materials.

187. Clarify the status of radioactive materials.

RESPONSE: See the response to comment #186.

188. Consult with the State Water Control Board and the County Fire and Rescue Department to ensure proper installation of storage tanks associated with BRAC 9.

RESPONSE: The Army will coordinate with these agencies.

189. AFH 3 may have significant adverse impacts on the wildlife corridor.

190. It is recommended that alternative sites be considered for part of AFH 3.

191. We support the extensive use of clustering and open space preservation.

192. The proposed AFH 3 area should be surveyed for rare, threatened, and endangered plant species.

193. MCA 9 may be infeasible due to the location of Accotink Creek and the Resource Protection Area; a wetland delineation is needed.

194. The relationship between the runway extensions and the genetic corridor should be addressed. Will there be direct and indirect impacts?

195. MCA 13 is not discussed in Section 4.2.2.2.1.1 and is not shown in Figure 4-13, but impacts are noted in Table 4-8.

196. It is recommended that MCA 13 development be concentrated in disturbed areas, clustered, and concentrated south of BRAC 3.

197. The boundaries for MCA 15 are not the same on Figure 2-26 and Figure 4-19.

198. The NEPA documentation for MCA 15 should address the location and condition of the RPA in this area.

199. MCA 16 location is unclear. Figure 2-8 shows it following Keene Road (labeled Gunston Road), and page 9-5 of the CDP implies this alignment, but Figure 2-27 shows a different alignment.

200. Provide information about the box culverts for wildlife movement.

201. The boundaries for MCA 21/28 are not the same in Figures 2-26 and 4-19.

202. NEPA documentation for MCA 21/28 should address restoration of the RPA associated with Mason Run.

203. In developing MCA 24, avoid steams, wetlands, floodplains, and steep slopes.

204. For MCA 25, provide information about the nature of any road improvements and their impacts.

205. For MCA 31, road improvements near Accotink Creek and associated wetlands should be sensitive to these resources.

206. For MCA 35, part of this site may be within a RPA; although redevelopment of this site would be allowed.

207. For MCA 38S, part of this site may be in an RPA.

208. MCA 42 is in the middle of the genetic corridor; consider alternative locations or a less sensitive site.

209. For NAF 2, comments previously provided for a proposed recreation area at Tompkins Basin should be addressed in future NEPA documentation.

210. Tompkins Basin area concerns include floodplains, EQC policy, Bay Preservation, and dredging.

211. NAF 3 and NAF 7 require more information about the scope of these projects.

212. The golf course expansion (NAF 5) may have significant adverse impact on the wildlife corridor and may result in severing the corridor.

213. NEPA analysis of NAF 5 should carefully consider the no action alternative.

RESPONSE: Comments #189-213 refer to CDP projects that are conceptual and for which site-specific NEPA analysis and documentation will be prepared. They were used to provide a cumulative context for analysis of BRAC actions.

214. Comments regarding a draft EIS for the EPG development were submitted by the county in December 1990.

RESPONSE: Comments on the preliminary draft EIS for the EPG development will be addressed in future site-specific NEPA analysis and documentation.

FAIRFAX COUNTY TRANSPORTATION PLANNING DIVISION, Memorandum dated July 24, 1991

215. This Division has major concerns regarding the 1995 baseline network as identified in both the EIS and on pages 65-71 of the Traffic Impact Analysis. The analysis assumes that many improvements will be completed by 1995.

RESPONSE: The improvements contained in the analysis are those contained in the *VDOT Six Year Improvement Program, FY 1989-90 through 1994-95* and the *Northern Virginia Subregional Plan*. See response to comment #130.

216. Several improvements suggested by the Army regarding site access may require further environmental study, e.g., Neuman Street extension.

RESPONSE: Proponents for these highway improvements would be responsible for providing site-specific environmental studies.

217. An EA should take into consideration impacts associated with increases in traffic volume on Neuman Street (resulting from EPG development).

RESPONSE: Separate site-specific NEPA analysis and documentation for the EPG development will address this issue.

218. The completion date for the Fairfax County Parkway/Franconia-Springfield Parkway has not been estimated but will definitely not be 1995.

RESPONSE: Comment noted. See response to comment #130.

219. The ultimate cross-section of the Fairfax County Parkway will provide for six lanes, however, the recently completed Comprehensive Plan has identified one segment to include HOV lanes.

RESPONSE: Comment noted.

220. The Fairfax County Parkway, Rolling Road to Route 1, is currently not funded for construction, therefore, a completion date of 1995 is unrealistic.

RESPONSE: See response to comment #130.

221. Kingstowne Boulevard: Open to traffic; constructed with private contributions only.

222. Backlick Road: From Calamo Street to the Fairfax County Parkway is near completion.

223. Rolling Road: Unfunded for construction in the Six-Year Plan.

224. Beulah Street: State funded; bid advertisement for July 1994.

225. South Van Dorn Street: Private funding; portion of roadway extending south to Telegraph Road has been delayed due to wetlands encroachment. Construction could be delayed (or denied).

226. Lockheed Boulevard: Deleted from program.

227. Van Dorn Metro Station: Open for revenue service.

228. Commuter Rail: A station is being considered in the Lorton area.

229. Transportation Centre: Funding by UMTA, state, and county; completion in 1995.

230. Figure 4 in the Regional Traffic Impact Analysis incorrectly shows Fullerton Road connected with Rolling Road and should show the completed segments of the Franconia-Springfield Parkway including the interim Bonniemill Drive intersection.

RESPONSE: For comments #221-230, these changes will be considered in future transportation analyses. They have no impact on BRAC actions.

231. Figure 8 in the Regional Traffic Impact Analysis provide low traffic figures for both the Franconia-Springfield Parkway and Backlick Road. Recent counts taken on the Parkway indicate an ADT of 21,000 in 1991.

232. Figure 11 in the Regional Traffic Impact Analysis provide lower than what is currently experienced during peak hour volumes on Franconia-Springfield Parkway between Rolling Road and Backlick Road. The 1991 peak hour directional counts are 1,413 in the AM peak hour eastbound and 1,739 in the PM peak hour westbound direction. The Regional analysis shows volumes of 700 and 400 for existing conditions.

233. Figure 14 in the Regional Traffic Impact Analysis indicate levels-of-service at Rolling/Franconia-Springfield Parkway, Rolling/Hooes, Franconia-Springfield/Backlick, and Rolling/Alban that are not as bad as field observations indicate. Table 1 also presents this information.

234. Figure 26 in the Regional Traffic Impact Analysis should show the Alban Road/Backlick Road underpass at the Newington interchange. The access to the Franconia-Springfield Parkway is provided by an at grade intersection with Bonniemill Lane and not Neuman Street as shown. The Bonniemill connection will be deleted when the ultimate Neuman Street interchange is constructed. These errors are also on Figures 26, 31, 35, 40, 43, 46, 49, and 52.

RESPONSE: For comments #231-234, a separate site-specific NEPA document will be based on current data.

235. Page 71 of the Regional Traffic Impact Analysis indicates alternative proposals for a "Z" alignment of the Fairfax County Parkway from Kingman Highway to Route 1. It should be noted that the current alignment as designed was approved by the Federal Highway Administration in 1985.

RESPONSE: Comment noted.

236. Page 83 of the Regional Traffic Impact Analysis should delete the Telegraph Road-Lockheed Boulevard intersection as it has been deleted from the County's roadway network. As the report states, additional improvements to adjacent roadways may be warranted.

RESPONSE: Comment noted.

237. Because Route 1 and Lorton Road currently have traffic lights, are dual lefts still required on Armistead Road?

RESPONSE: Improvements to this intersection are not required because of Army development.

238. Reference is made to several improvements to the Parkway/Kingman intersection that are not part of VDOT design plans.

RESPONSE: The Army will work with VDOT to ensure proper designs are incorporated.

239. Fairfax County Parkway and Backlick Road widening in the vicinity of EPG will not be completed in the time frame indicated.

RESPONSE: Separate site-specific NEPA analysis and documentation will be developed for EPG.

240. Improvements assumed in the year 2000 may not be constructed until after that year.

RESPONSE: See response to comment #130.

241. The magnitude of development at EPG makes it difficult to believe no additional improvements will be needed beyond those programmed.

RESPONSE: See response to comment #239

242. Intersection and interchange improvements are not described in detail. Some additional improvements are suggested.

RESPONSE: See response to comment #239.

243. The Comprehensive Plan has been modified to show four rather than six lanes on Telegraph Road.

RESPONSE: See response to comment #130.

244. Supporting background data should be submitted to Fairfax County.

RESPONSE: The Army will provide, as appropriate

245. Reference is made to amending VDOT plans for the intersection at Parkway and Kingman.

RESPONSE: See response to comment #238.

246. Specific improvements are not identified at page 4-124.

RESPONSE: See response to comment #239.

247. Several projects may introduce legal or socioeconomic issues that will require further discussions.

RESPONSE: See response to comment #239.

COUNCIL OF GOVERNMENTS, letter dated July 23, 1991

248. Extensive transportation impact assessments are required for this area to ensure that the I-95 corridor does not become severely congested in the future.

RESPONSE: The Army conducted a regional traffic impact analysis. The analysis demonstrated that I-95 was not affected significantly by actions covered by this EIS.

MR. JOHN S. GOTTSCHALK, AUDUBON NATURALIST SOCIETY OF THE CENTRAL ATLANTIC STATES, letter dated July 25, 1991

249. The Army, through the Corps of Engineers, and the management hierarchy at Fort Belvoir have demonstrated great interest and concern for improving environmental conditions, especially those involving wildlife, on lands at Fort Belvoir. The result has been that Fort Belvoir has come to be recognized as one of the primary wildlife conservation areas in northern Virginia.

RESPONSE: Comment noted.

250. It would appear that there is no official recognition of the connection between lands specifically set aside for "wildlife" and those other areas not currently used for offices, warehouses, and residences. It seems clear that the additional offices, homes, and facilities proposed will inevitably have far-reaching negative effects on the biota of the Fort Belvoir area.

RESPONSE: Installation planning documents recognize that land outside wildlife refuge areas continue to provide natural habitat. Various documents recommend conservation of natural habitat to protect steep slopes and floodplains, to separate land uses, to protect housing areas from noise intrusions, and to protect identified archeological sites, etc.

251. The immediate impact of adding 4,170 personnel at Fort Belvoir can best be seen in such obvious areas as increased traffic. Putting this number of additional people and their dependents in northern Virginia can only result in over-whelming not just roads and other facilities, which can be enlarged, but at the expense of open space and wildlife habitat, increased pollution, loads and toxic spills, and all the side- and after effects of urbanization.

RESPONSE: The majority of personnel relocating to Fort Belvoir are already residents in the region working at other installations. Chapter 4 addresses these impacts.

252. We urge that every effort be made to expand the boundaries of the genetic corridor, rather than limit them by intrusive development.

RESPONSE: See response to comment #141.

253. The EIS does not tell what the lengthening of the airfield for fixed wing aircraft signifies in terms of increased aircraft usage.

RESPONSE: An environmental assessment was prepared for this action and no significant impact was found. The extension is designed to eliminate a safety waiver, and not to increase air traffic.

254. We will reserve comments on the development of Tompkin's Basin until a draft EIS on that area is available.

RESPONSE: Comment noted.

MR. WENDELL SWAN, SENSIBLE WASHINGTON AREA TRANSPORTATION COALITION, letter dated July 29, 1991.

255. Your draft EIS does not show that your plan for development complies with the Clean Air Act of 1990.

RESPONSE: Section 4.6.1.2 indicates that Army development will not have a significant impact on air quality.

256. Extension of public transit should be studied as a way to limit new vehicle trips.

RESPONSE: The existing public transit system was used in the transportation study. Section 4.6.3.7 provides cumulative impacts to transportation.

257. The EIS seems to expect that solutions in this area are the responsibility of local authorities.

RESPONSE: See response to comment #133.

258. We suggest you consider development and construction of light rail transit.

RESPONSE: Comment noted.

WDCR561/039.51

FRIENDS OF JONES POINT, letter dated July 27, 1991

259. The summary of the scoping meetings identifies traffic as a major public concern, and considerable discussion is devoted to this in the DEIS. Why then is no letter or statement of coordination with the VA Dept. of Transportation contained in Appendix A. We would appreciate knowing their views about the projections and remedies.

RESPONSE: The transportation study was closely coordinated with the Virginia Department of Transportation and was based on their future traffic forecasts and transportation systems. The DEIS was coordinated with them (see Chapter 7) but they did not provide any comments.

260. What will be the impact on traffic across the Woodrow Wilson Bridge of these developments.

RESPONSE: The transportation system, according to the VDOT Capital Beltway Study, Phase II, will have the Wilson Bridge to a 14-lane cross-section in the year 2000. The VDOT Northern Virginia Subregional Plan and the Fairfax County Transportation Plan indicate that the Wilson Bridge will also have an HOV lane in each direction by the year 2010. These improvements are required by the anticipated growth in traffic without any Base Realignment and Closure development. The Base Realignment and Closure development will not affect these requirements.

261. As noted on page 25 of the Traffic Impact Analysis, Capital Beltway traffic crossing the bridge could continue towards Fort Belvoir, or divert to either the George Washington Memorial Parkway or Route 1. What mix is projected for these three approaches to Fort Belvoir.

RESPONSE: The mix of Fort Belvoir traffic leaving the bridge and traveling down the Parkway or Route 1 instead of continuing down the Capital Beltway depends on the time of day and traffic condition on Capital Beltway. Most (80%) Ft Belvoir traffic continues down Capital Beltway with perhaps 10% using the Parkway and 10% using Route 1, on the average. This mix of Ft Belvoir traffic will not change significantly after the Base Realignment and Closure actions have been completed.

262. Why are no recommended improvements to the Woodrow Wilson Bridge included in Table 0 (p.5) of the Traffic Impact Analysis.

RESPONSE: these improvements are discussed in the EIS (Chapter 5, p.97 and Chapter 6, p.119) but are not displayed because bridges are not described in this table.

263. The information of establishing a rail connection from Fort Belvoir to Metro stations discussed in the CDP should be added to the Chapters 3 and 4 of the DEIS. There should also be an indication of how the public might influence schedules both for decision and implementation of this alternative.

RESPONSE: The Virginia Department of Transportation and the Fairfax County Transportation planners are responsible for developing plans for public highway improvements, including the rail connections within their

jurisdiction. The public can address these projects with these agencies Sections 3.2.3.7.1.6 and 3.2.3.7.1.7 discuss public transportation at Fort Belvoir.

264. A discussion of the specific effects of the 1990 amendments to the Clean Air Act are lacking on air quality compliance along the heavily trafficked routes around Fort Belvoir.

RESPONSE: See response to comment #54.

265. The impact discussions in Chapter 4 seem abbreviated and the citations of no impact or minor impact in Table S-4 seem unsubstantiated. There need to be more positive acceptance of mitigation measures such as those proposed on pages 4-22 and 23.

RESPONSE: The impact discussion in Chapter 4 (p.4-1 through 4-140 identifies impacts resulting from the proposed development. The use of areas already impacted by development or training activities and the inclusion of mitigation as part of the project has minimized impacts as summarized in Table S-4.

266. The emphasis on "genetic corridor" seem unclear. Have you considered alternate conservation measures?

RESPONSE: The genetic corridor is a limited natural resource that exists in the project area. The emphasis is based on the potential impacts that could occur without considering the function of this corridor during the planning for these projects. Alternative conservation measures considered, in addition to the protection of the Wildlife Genetic Corridor, include the minimization of wetland impacts, endangered species habitat impacts, and loss of natural resource features at Fort Belvoir.

267. The discussion of the importance of the wildlife corridor seems unbalanced against discussion of the impacts of increased road traffic, and potential development along Route 1 and increased air traffic at Davison Airfield.

RESPONSE: Some Base Realignment and Closure development projects were located along the wildlife corridor requiring detailed discussions of potential impacts. Potential development along Route 1 and increased air traffic at Davison Airfield are not part of the proposed actions and did not require detailed discussions.

268. The continued and increased use of Davison Airfield would seem to be a negative impact on the bald eagle, ovenbird and barred owl.

RESPONSE: The use of Davison Airfield is not affected by Base Realignment and Closure actions. The impact of the continued and future uses of the airfield will be evaluated in the revised Master Plan which will include NEPA analyses.

269. Page 2-62 of the DEIS states that a separate document is being prepared for Tompkin's Basin. Pages 3-10 and 4-4 of the CDP states that EPG

is also being treated as a separate document. To provide for consideration of cumulative environmental impacts could not the impacts of those projects be combined into the EIS.

RESPONSE: Cumulative environmental impacts are in Section 4.6 and include impacts from all known Army and area developments planned. Since the decision regarding the Tompkin's Basin and EPG development (and other development that is not Base Realignment and Closure actions) are not final, the concept is presented in as detailed fashion as possible to give the best future condition possible for cumulative analyses in this EIS.

270. Perhaps this DEIS should be supplemented or reissued to put all these actions into a complete perspective and provide a truly comprehensive review.

RESPONSE: Section 4.6 provides the best projection possible of the future conditions with all known development presented as it is currently planned. The decision for each of the future actions will evaluate the cumulative impacts as well as the details of that individual project.

FRIENDS OF HUNTLEY MEADOW, letter dated July 28, 1991

271. We are concerned that while the DEIS acknowledges the importance of the genetic corridor, it concludes that the corridor must be sacrificed, or narrowed so much as to be non-functional, to allow for the expansion of development. Every effort must be made to expand the corridor.

RESPONSE: The EIS does not conclude that the genetic corridor should be sacrificed or narrowed. The cumulative discussion for this corridor is based on the "worst case" that all projects planned along the corridor will be constructed. The projects required by Base Realignment and Closure actions will not significantly impact the corridor. A 250 - 300 ft buffer is maintained by Headquarters Complex to minimize impacts.

U.S. DEPARTMENT OF THE INTERIOR, letter dated August 2, 1991

272. Section 4.6 of the DEIS attempts to address cumulative impacts but lacks specificity and completeness.

RESPONSE: Section 4.6 is complete and as specific as possible considering the amount of information that is available regarding future projects and how they will cumulatively affect the Base Realignment and Closure projects.

273. Figure 4-26 does not include BRAC 1 or MCA 13 though the narrative identifiers those activities as significantly affecting the corridor.

RESPONSE: Figure 4-26 does not show the locations of BRAC 1 and MCA 13 because they are adjacent and not in the corridor. Section 4.6.2.1.1 has been revised to clarify this.

274. The cumulative impact discussion should include a habitat "balance sheet" that assumes a worst-case scenario and shows how the acreages of habitats would change following implementation of the CDP.

RESPONSE: The development concepts in the CDP do not show footprints, as the

projects have not been designed. Footprints are needed in order to determine acreage impacts. This information will be provided in the revised Master Plan.

275. We support maintaining the property which surrounds Cameron lake for passive recreation.

RESPONSE: Your comment will be considered during the scoping of the follow-on NEPA analysis and documentation to be prepared for the disposal of Cameron Station.

276. Since much of the rare, threatened and endangered species' habitats on Fort Belvoir are located within the floodplain, tributary, and wetland systems of the Dogue, Accotink and Pohick Creek watersheds, proper mitigation is imperative.

RESPONSE: See response to comment #38.

277. The cumulative discussion should provide a summary table which provides a worst-case scenario of wetlands that would be affected by the CDP activities. Where unavoidable impacts occur, there should be details on how compensatory wetlands would be constructed and wetland habitats would be converted to wetland.

RESPONSE: The discussion of wetland impacts is the worst-case scenario. Wetland mitigation is discussed in Chapter 4.

278. We recommend that the genetic corridor not be constricted in any additional manner.

RESPONSE: See response to comment #271.

279. The proposed mitigation for BRAC 1 is described as a 250-300 foot vegetated buffer to maintain the corridor. However the results of the field study described on page 3-46 recommend a minimum width of 250 yards (750 feet) to maintain the corridor function. This discrepancy should be addressed in the FEIS.

RESPONSE: The 250-300 foot vegetated buffer is needed between a project and the corridor to minimize impacts of development on the buffer. A continuous strip of vegetation 250 yards long is needed to be called a genetic corridor.

280. We recommend that BRAC 1, NAF 5, and AFH 3 be redesigned or located to alternate sites outside the genetic corridor to reduce or eliminate adverse impacts.

RESPONSE: BRAC 1 is outside of the genetic corridor. See response to comment #39.

281. The FEIS should provide details on the success standard that would be used to determine proper functioning. It appears that some combination of passage use and reduced road mortality would be necessary to measure effectiveness.

RESPONSE: The Fort Belvoir DEH office will be updating their Resource Management Plan to include a mitigation plan for the genetic corridor, which will include methods for determining success rates.

282. Operation of the proposed golf course, and other facilities, would require the use of pesticides which could adversely affect fish and wildlife resources. The FEIS should include a commitment to implement an integrated pest management program to reduce or eliminate the need for chemical control of pests.

RESPONSE: See response to comment #73.

283. The increase of personnel at Fort Belvoir will increase the amount of traffic within Fort Belvoir as well as need for additional roadways and parking areas. The FEIS should commit to the maximum use of previous pavement and retention ponds, so that sedimentation into streams can be minimized. In addition, innovative techniques such as vegetation filter strips and wetland construction can be employed.

RESPONSE: See response to comment #40.

284. Written formal consultation pursuant to section 7 of the Endangered Species Act must be consulted with the USFWS, Annapolis Field office. Until this is complete, we cannot prepare final comments on proposed activities MCA 25, MCA 38S, and NAF 2.

RESPONSE: See response to comment #42.

285. The FEIS should contain more specific information on how the land uses would change and include estimated acreages of habitat that would be converted to different uses.

RESPONSE: Tables S-4 and S-5, as well as Sections 3.2.3.1, 4.2.2.3, 4.6.3.1 summarize land use changes for the preferred locations of Base Realignment and Closure projects. The Exchange Branch (Fort Belvoir, BRAC 9) will have a minor impact changing land use from troop catonment to a community facility. The Commissary (Fort Myer) will have a land use change from open space to a community facility. No areas designated as wildlife habitat will be impacted by BRAC projects. Table 4-8 provides land use information regarding CDP projects.

COMMONWEALTH of VIRGINIA

IN COOPERATION WITH THE
STATE DEPARTMENT OF HEALTH
FAX NO 278-8157
TDD 591-6435

Fairfax County Health Department
DIVISION OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL SERVICES SECTION
10777 Main Street, Suite 102B
Fairfax, Virginia 22030

PHONE
246-2201

May 14, 1991

Mr. Keith Harris, CENAB-PL-ES
Baltimore District Corps of Engineers
P. O. Box 1715
Baltimore, MD 21203-1715

RE: Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (EIS)

Dear Mr. Harris,

This section has recently had the opportunity to review the referenced document. The document did not directly address any work in Fairfax County that would concern this department.

However, this section would be interested if construction, demolition, or reconstruction activities proposed in the document encounter well water supplies (e.g. those presently not used and not properly abandoned) or abandoned septic tanks that have not been properly abandoned. The document does addressed certain facilities that are planned in the future; and, although it does not address what would be the planned service connections, this section is aware that an individual sewage disposal system and well water supply will be required (e.g. the stable) to serve the facility. Please be advised that the required permits for installation of the well water supply and individual sewage disposal system to serve the stable area have been issued. This section would want to be advised of others needing required permits for abandonment of well water supplies or installation of well water supplies and/or individual sewage disposal systems.

Please feel free to contact this office if you desire further clairification.

Very truly yours,

Dennis A. Hill, R.E.
Program Manager

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VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

WILLIAM A. PRUITT
Commissioner
ROBERT D. CRAFT
Chief, Administration and Finance
ROBERT W. GRABB
Chief, Habitat Management
ROBERT J. MARKLAND
Chief, Law Enforcement
JACK G. TRAVELSTEAD
Chief, Fisheries Management

COMMONWEALTH of VIRGINIA

Marine Resources Commission

P. O. Box 756
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Newport News, Virginia 23607-0756

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Virginia Beach, Virginia
PETER W. ROWE
Chesapeake, Virginia
JANE C. WEBB
Newport News, Virginia

June 13, 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore District Corps of Engineers
P. O. Box 1715
Baltimore, Maryland 21203-1715

Dear Mr. Harris,

We are in receipt of the Comprehensive Base Realignment/Closure and Fort Belvoir Developmental Draft Environmental Impact Statement (EIS) and associated materials sent on June 6, 1991, by your office. After a brief review, we would like to make the following comments:

2 Any proposed encroachment over, under, or in the State-owned subaqueous bottom would require prior completion of a Joint Permit Application, and subsequent approval by all applicable local, state and federal agencies. This would include any construction or fill activities in adjacent perennial steams and/or creeks at the project site.

By copy of this letter, we are advising the other state and local permitting agencies of our preliminary comments on this proposed project.

Sincerely,

Jay M. Woodward
Environmental Engineer

CC: Virginia Water Control Board
Virginia Department of Health (BWE, BSS)
Virginia Department of Game and Inland Fisheries
Virginia Department of Conservation and Recreation
Virginia Department of Historic Resources
Fairfax County Wetlands Board

000041

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Management Division
Habitat Conservation Branch
Oxford Laboratory
Oxford Maryland 21654

July 8, 1991

Colonel Frank R. Finch, P.E.
District Engineer, Baltimore District
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Dear Colonel Finch,

We have reviewed the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (EIS) and have the following comments.

3 1. The draft EIS should contain a map showing the location, by type, of all the wetlands in the area.

2. Section 3.2.2.3 AQUATIC BIOTA on page 3-51 merely mentions in passing that herring and shad are among the biota. Shad, river herring and alewives are anadromous fish whose populations are at
4 all time lows along the atlantic coast. The presence of these fish requires that extra precautions be taken to avoid siltation and other water quality problems. We will recommend that no instream work be conducted during their spawning season which runs from March 15 to June 30.

3. Section 3.3.2.3 AQUATIC BIOTA on page 3-90. The small size
5 of this unnamed tributary does not preclude the possibility that it could be used as a spawning stream for anadromous fish. It should be surveyed between March 15 and June 1 to determine their presence and use of the stream.

4. Section 3.4.2.1.2 WILDLIFE mentions the recent appearance of important anadromous fish. This would indicate the use of a
6 separate section on AQUATIC BIOTA containing language similar to that suggested in our comment #2.

7 5. Section 4.2.1.2.3 AQUATIC BIOTA. This section should contain language similar to that suggested in our comment #2.

8 6. Table 4-7. Wherever impacts are shown for Aquatic Biota, the table should show that they will be reduced by the suggested time of year restriction, 3/15 - 6/30.

9 7. Table 4-8. Wherever impacts are shown for Aquatic Biota the table should indicate that they will be reduced by the suggested time of year restriction, 3/15 - 6/30.

10 8. Section 4.2.2.2.3 AQUATIC BIOTA should contain language similar to that suggested in our comment #2.

11 9. Section 4.6.2.3 AQUATIC BIOTA should contain language similar to that suggested in our comment #2.

Thank you for the opportunity to comment on these documents. If you have any questions you may contact Robert Rubelmann at (301) 226-5771.

Sincerely,

for Timothy E. Goodger
Asst. Branch Chief

cc:
EPA - Reg. III
FWS - White Marsh
VCOE
VDGIF
VIMS
VMRC

ANTON S. GARDNER
COUNTY MANAGER

ARLINGTON COUNTY, VIRGINIA

OFFICE OF THE COUNTY MANAGER

#1 COURTHOUSE PLAZA
SUITE 302
2100 CLARENDON BOULEVARD
ARLINGTON, VIRGINIA 22201
(703) 358-3120

July 8, 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore District Corps of Engineers
P. O. Box 1715
Baltimore, Maryland 21203-1715

Dear Mr. Harris:

Thank you for the opportunity to review the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement. Although this document focuses on Fort Belvoir, several new facilities are being proposed for Fort Myer as part of the realignment. County staff has been working closely with General Streeter and his staff from Fort Myer concerning the new facilities. Attached is a copy of our comments sent to General Streeter concerning the proposals. Staff reviewed the Draft Environmental Impact Statement and provides the following comments for your consideration:

12 • More recent demographic information on population, housing trends, employment, and annual per capita income is available than is provided in tables numbered 3-28, 3-29, 3-30, and 3-31. Enclosed are County publications with the most recent information available. Please note that the County has its own population estimates which are different than the Metropolitan Washington Council of Governments. If you need assistance with the demographic information, please contact Margaret Simkovsky, Data Analysis and Research Team, Planning Division at (703) 358-3525.

13 • Description of the Existing Environment, Section 3.3.3.6, provides 1986 data on electrical usage, water demand, and wastewater flow for Fort Myer. More recent data may provide a better evaluation of existing usage.

14 • Consequences of Proposed Action, Section 4.3.3.1, states that proposed facilities are consistent with existing land use patterns on Fort Myer. Information in Tables S-7 and 4-15 seem to conflict with this statement. These tables state for the proposed commissary, shoppette, and post exchange that land use will have a minor impact because the projects will change land use from open space to community facilities.

J00017

I appreciate the opportunity to review and comment on the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement.

Sincerely,

Anton S. Gardner
County Manager

ANTON S. GARDNER
COUNTY MANAGER

ARLINGTON COUNTY, VIRGINIA

OFFICE OF THE COUNTY MANAGER
#1 COURTHOUSE PLAZA
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2100 CLARENDON BOULEVARD
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(703) 358-3120

June 20, 1991

Major General William F. Streeter
Commanding General, United States Army
Military District of Washington
Attn: ANC & SE
Fort Lesley J. McNair
Washington, D.C. 20319-5000

Dear General Streeter:

Following the May 2nd luncheon which you so generously hosted, I asked the County staff to prepare some general comments on issues that may affect the proposed projects at Fort Myer. I hope that you will find the items listed below helpful as you consider future plans for your facilities. Once again, I want to say how much we appreciated your hospitality and the opportunity to establish positive relationships with our counterparts. I am sure that this foundation will provide the basis for continuing mutually beneficial cooperation.

- Fort Myer officials should be aware of the plan by Virginia Department of Transportation to close the median break on Route 110 (Jefferson Davis Highway) at Marshall Drive to correct an accident problem. This will prohibit northbound traffic on Route 110 from being able to turn left at Marshall Drive to reach Fort Myer. Eastbound traffic on Marshall Drive will also be precluded from turning left onto northbound Route 110.

- Fort Myer officials should examine ways to avoid traffic queues onto Washington Boulevard at the 2nd Street (Hatfield) gate, as discussed briefly at the luncheon meeting.

- The County requests that the Arlington Cemetery and Fort Myer entrances and roadways be kept accessible for use by commuting bicyclists. Arlington is very supportive of the use of bicycle commuting as a way to reduce congestion and air pollution. Many central Arlington commuter bicyclists prefer a route through the base and cemetery because it offers a more direct and safer alternative to the roadways (Washington Boulevard, Arlington Boulevard and Columbia

Pike), which travel around the base and cemetery. The County recognizes that during times of heightened national security concern access to the base may need to be restricted, and at other times routine I.D. and package checks may be necessary.

- Arlington County provides sanitary sewer service for all the facilities on the post. New construction requiring sanitary sewer service will be subject to standard sanitary sewer hook-up fees. Credit will be given for any facilities that are torn down.

- As indicated at the luncheon meeting, stormwater management will be provided for the proposed commissary facility, which will be located in the area currently occupied by recreation fields. The commissary and 355-space parking lot will add significant impervious area and create additional stormwater runoff. The Department of Public Works will review the stormwater management facility design and calculations, and provide other assistance as needed.

- Arlington County is moving towards the adoption of a Chesapeake Bay Preservation Ordinance, which may require development to improve the quality of stormwater runoff by the use of Best Management Practices before it is discharged. This ordinance, mandated by the State, may be adopted before construction begins on any of the projects proposed for Fort Myer. In this regard you will be receiving very shortly an invitation to participate in the development of this stormwater quality and land use ordinance.

I appreciated the opportunity to meet with you and your staff. It was very beneficial to hear your vision for Fort Myer and discuss our concerns about future projects. I look forward to continued coordination between the County and your staff.

Sincerely,

/Anton S Gardner

Anton S. Gardner
County Manager

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NATIONAL CAPITAL PLANNING COMMISSION

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Honorable Ronald V. Dellums

Mayor, District of Columbia
Honorable Sharon Pratt Dixon

Chairman, Council of the District of Columbia
Honorable John Wilson

EXECUTIVE DIRECTOR
Reginald W. Griffith

IN REPLY REFER TO:
NCPC File Nos. MP20, MP32, MP108, and MP126

JUL 26 1991

Colonel Frank Finch
District Engineer
Baltimore District
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Attention: CENAB-PL, Keith Harris

Dear Colonel Finch:

The Commission reviewed the Comprehensive Base Realignment and Closure (BRAC) and the Fort Belvoir Development Draft Environmental Impact Statement (DEIS) at its July 25, 1991 meeting and approved comments for your consideration in preparing the final document. We appreciate the opportunity to review the Concept Development Plan (CDP) for Fort Belvoir and the Draft Final Report of the Fort Belvoir Regional Traffic Impact Analysis Assessment of Horizon Year in conjunction with the DEIS. As agreed in prior discussions, we are including our informal comments on the specific site projects in our response to the DEIS.

The DEIS provides useful information that should assist in the planning and review of proposals for the affected posts. The Commission commends the Department of the Army for its comprehensive approach to the evaluation of environmental impacts associated with base realignment in the National Capital Region. Recognition of the need to preserve the Wildlife Genetic Corridor and sensitivity to historic preservation and cultural resources impacts are particularly noteworthy contributions of the DEIS. 15

For ease of reference, we have separated most of our comments by installation, followed by general comments on specific aspects of the DEIS.

Fort Belvoir

The proposed increases in employment at Fort Belvoir will exceed the levels targeted for the year 2000 in the Federal Employment element of the Comprehensive Plan for the National Capital. In 16

addition, the planned uses for the fort, including the Engineer Proving Grounds, reflect a change from the predominant training and testing functions currently shown for the site in the Comprehensive Plan. Therefore, a modification to the Comprehensive Plan will be required.

A revised Master Plan will also be needed for the fort, including justification for the projected employment increase. The current master plan, approved by the Commission on May 5, 1983, contemplated a level of 12,000 military and civilian employees. The existing employment is approximately 14,000, and the planned BRAC realignments and CDP actions (not including the Engineer Proving Grounds) may increase that number by 5,400 persons.

17

The many new projects shown in the CDP that are not reflected in the 1983 master plan should be incorporated in the revised plan. The submission should include an analysis of the cumulative effects of changes at Fort Belvoir, the Humphreys Engineer Center, and the Engineer Proving Ground. Although the CDP addresses cumulative effects of changes at Fort Belvoir, long-term impacts of CDP proposals and development of the Engineer Proving Ground cannot be evaluated without more detailed comprehensive land use information.

18

The Revised Master Plan should include existing site conditions and surrounding features, functional arrangement of uses, circulation patterns and major access points, general building forms and parking, and landscaping. It should also include a staging plan for future development, as well as architectural guidelines providing information on how the many new buildings will relate to the overall character of their surroundings. The Commission recognizes that guidelines for the fort were prepared in the late 1980's but notes that new urban design considerations must be addressed as the installation's basic function changes from training to administration.

19

The Comprehensive Plan parking standard of one space for each 1.5 employees should also be incorporated in the master plan update. Structured parking or a combination of structured and surface parking should be considered for the Headquarters Complex in order to provide more open space and landscaping.

20

Fort Myer

Fort Myer's historic purpose as a ceremonial and service support installation should continue to be considered in the planning for any new development, particularly in the immediate vicinity of

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existing historic landmarks or districts. The fort's strategic role in the Monumental Core's design framework should guide development decisions, and the well integrated urban design and historic aspects of the fort should be maintained. Large-scale facilities that do not reinforce the role and function of the post should be accommodated at Fort Belvoir.

Since the Commissary and Logistics Complex are large facilities, the Commission encourages the Army to continue to explore ways of reducing their size. Their designs should reinforce the quiet, subdued character of the historic post.

22 The established trees and shrubbery in the area of the planned Logistics Complex near the Arlington National Cemetery wall serve to buffer and screen activities at Fort Myer from those in the cemetery and, therefore, should be preserved. Regrading of the Complex site should be minimized. The Warehouse/ Administration Building should be designed to be compatible with the architecture of the historic district. Since it will be visible from the surrounding high ground, attention should be given to the treatment of the expansive roof area and the abutting parking lots.

23 Special Streets and Special Places should be designated in the master plan for the fort, in accordance with criteria established in the Comprehensive Plan for the National Capital. These special streets and places can enhance the design and historic character and quality of the post.

General Comments and Recommendations

24 The DEIS should provide a discussion of the aesthetic impacts and implications of the many new buildings proposed for Fort Belvoir and Fort McNair. More information on the intended character and quality of individual BRAC proposals would be useful. As noted, the Commission commends the Army for its sensitivity to historic resources as reflected in the DEIS. Particularly important is the

25 Army's recognized responsibility under Section 110 of the National Historic Preservation Act to identify buildings and archaeological resources that would qualify for inclusion in the National Register of Historic Places.

26 Certain additional environmental information will be helpful for the Final EIS evaluation. All floodplains and wetlands should be clearly delineated. These features, as well as natural shorelines, should not be disturbed by building construction. Because of Fort

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Belvoir's proximity to the Potomac River, a discussion of
27 conformance with Chesapeake Bay Preservation Act criteria is warranted, particularly as it pertains to Resource Management Areas and Resource Protection Areas. Information about steep slopes at
28 Cameron Station, Fort Myer, and Fort McNair should be provided. Any reliance of the surrounding population on groundwater for drinking
29 purposes should be addressed in the EIS. A noise quality section would be useful for examining impacts on human and animal life.

30 The Final EIS should include an explanation of the options to be considered if the monitoring of mitigation structures for wildlife movement is ineffective. It should also include information on proper mitigation methods for the protection of bald eagles nesting at Fort Belvoir, developed in coordination with the Department of the Interior. Information on the schedule for correction of the
31 remaining parts of the April 1990 Notice of Violation pertaining to hazardous materials at Fort Belvoir should also be included.

The Commission commends the proposed traffic study for the Fort Myer area as outlined in the DEIS. Transportation Management Programs (TMP) that emphasize reductions in transportation demand should be provided for all Military District of Washington posts, particularly
32 Forts Myer and Belvoir, which will see an influx of new personnel. Investigation of the use of commuter rail service is encouraged for the Fort Belvoir TMP.

We appreciate your consideration of the Commission's recommendations. I am enclosing the Executive Director's Recommendation prepared for the Commission's review of the DEIS, which provides detailed rationale for the recommendations. We look forward to reviewing revised master plans for the affected posts and the individual BRAC projects. We also look forward to the opportunity to review the DEIS for the Engineer Proving Ground, which we understand will be available later this year. Please let us know if we can be of assistance during the completion of the Final BRAC EIS and associated planning work.

Sincerely,

Reginald W. Griffith (for)
Executive Director

Enclosure

000054

bc: Robert E. Brosnan, Planning Director
Arlington County
James P Zook, Planning Director
Fairfax County
David Colby, Acting Director, Office of Planning

bcc: Central files - MP20, MP32, MP108, and MP126
Reading Files
REGresham
JMancias
GHFOberlander
LFeldman
RNAllen
REGresham:MKFoushee:dm:7-26-91

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NATIONAL CAPITAL PLANNING COMMISSION
801 PENNSYLVANIA AVENUE, N.W., SUITE 301
WASHINGTON, D.C. 20576

NCPC File Nos. MP20, MP32, MP108, and MP126

COMPREHENSIVE BASE REALIGNMENT/CLOSURE AND FORT BELVOIR DEVELOPMENT DRAFT ENVIRONMENTAL IMPACT STATEMENT (Addressing Fort Belvoir, Fort Myer, Fort McNair, and Cameron Station)

Executive Director's Recommendation

July 18, 1991

The Executive Director recommends that the Commission authorize transmittal of the attached letter to the Department of the Army on the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (addressing Fort Belvoir, Fort Myer, Fort McNair, and Cameron Station).

* * *

BACKGROUND AND STAFF EVALUATION

Description of Proposal

Pursuant to the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Public Law 100-526), the Closure Commission recommended realignments and closures of several military installations to the Secretary of Defense in 1988. Included in its recommendations were the closing of Cameron Station in Alexandria, Virginia, and the realignment of its personnel to Fort Belvoir, Fairfax County, Virginia; Fort Myer, Arlington County, Virginia; and Fort McNair, Washington, D.C. In addition, the Commission recommended the closure of the Army Material Technology Laboratory (AMTL) in Watertown, Massachusetts, and the relocation of the corrosion prevention and control research activities to Fort Belvoir.

The Commission also recommended the partial closure of Fort Meade and Fort Holabird in Maryland. The Criminal Investigation Command (CIDC) and the Crime Records Center (CRC) from these installations will be consolidated at Fort Belvoir along with additional CIDC and ISC support personnel currently located in leased space. The Commission also recommended the realignment of the Information Systems Command (ISC) activities currently located at Fort Belvoir, to Fort Devens, Massachusetts.

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The DEIS primarily focuses on the closure of Cameron Station and realignment impacts on Forts Belvoir, Myer, and McNair. (See Map 1 for project area.) Although the numbers of personnel might fluctuate, the projected relocations are: 3,641 personnel from Cameron Station to Fort Belvoir, 192 to Fort Myer, and two to Fort McNair: 178 from AMTL to Fort Belvoir; 131 from Forts Meade and Holabird to Fort Belvoir; 220 from leased space in northern Virginia to Fort Belvoir and 106 to Fort Devens; 320 Information Systems Command personnel from Fort Belvoir to Fort Devens. (See Table 1 for Summary.)

A secondary focus of the DEIS is to evaluate the impacts of the proposed Concept Development Plan (CDP) of Fort Belvoir. The CDP is included in this document to provide a basis for evaluating the cumulative effects of the base realignment and closure projects at Fort Belvoir. This DEIS, however, is not the decision document for the CDP.

Renovation of existing facilities and construction of new facilities will occur at Forts Belvoir and Myer. Construction projects at Fort Belvoir include: Headquarters Complex, Industrial Park, BRAC (Base Realignment and Closure) Roads, Post Exchange, Commissary, Administration Facility, Material Research Facility, Exchange Branch, and the modification of Buildings 1466 and 1455 for Base Closure. Fort Myer construction projects include: PX Expansion, Shoppette, Commissary, and Logistics Complex. (See Table 2 for actions proposed in BRAC and CDP, Map 2 for Fort Belvoir BRAC and CDP sites, and Map 3 for Fort Myer BRAC sites.)

The following is a description of the No Action and the three alternatives studied.

No Action

The No-Action Alternative is possible under P.L. 100-526 only if there are absolute environmental constraints, previously unknown, discovered during the preparation of the EIS. At this time, no such constraints are known.

Realignment

Sites have been identified at Fort Belvoir, Fort McNair, and Fort Myer for accommodating the relocation of activities from Cameron Station and other BRAC actions. Various topical site studies, the BRAC EIS, and the Fort Belvoir CDP will be used in the identification of future development.

Reuse Alternatives

Options still exist for the ultimate reuse of the land on which Cameron Station stands. Federal and state agencies will be given priority over private entities for use of the land. The City of Alexandria has rezoned Cameron Station from I-1, Industrial, to Coordinated Development District, requiring private development to conform to the City's regulations.

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Base Realignment and Closure

In accordance with the provisions of Section 204(c) of P.L. 100-526, which specify that alternative installations to those selected shall not be considered, the only options being considered by the Army concerning realignment and closure are the specific sites where realignment functions will be located at the receiving installation. No alternative options exist to closing or realigning Army functions at the affected installations.

Previous Commission Action

The Commission approved the revised Master Plan for Fort Belvoir on May 5, 1983, including a master plan employment level of 12,000 military and civilian employees.

In a letter dated August 23, 1989, Commission staff, without any action taken by the Commision, forwarded comments to GSA about three master plans: Fort Belvoir master plan, Engineer Proving Ground (EPG) master plan, and Franconia Storage Depot master plan. Commission concerns regarded long-term development of Fort Belvoir. The Commission noted the need for a revised Master Plan for Fort Belvoir because of proposed employment increases and a master plan or its equivalent for the EPG.

Conformance with Comprehensive Plan

There are several Comprehensive Plan concerns relating to the proposals contained in the DEIS. The proposed net increase of 5,356 employees for Fort Belvoir addressed in this document will increase the installation's employment to approximately 20,000. Fort Belvoir presently has about 14,000 military and civilian employees. The proposed redevelopment of the EPG and GSA's Franconia Storage Depot--to be addressed in separate DEIS documents--will result in additional increases in employment in the Fort Belvoir area. The DEIS for Fort Belvoir addresses increases well beyond the employment ceiling targeted for the year 2000 in the Federal Employment element of the Comprehensive Plan, a level from 11,000 to 11,300. A Comprehensive Plan Modification will be required to accommodate the planned employment increase. The ultimate number of employees planned for the Fort Belvoir area can be determined only after the DEIS documents for the Engineer Proving Ground and the Franconia Storage Depot are completed.

The Federal Facilities element contains Federal facility goals, location criteria and Federal planning and transportation policies. It also contains diagrams indicating the location of Federal lands in the National Capital Region and the predominate use of each such site. These elements will need to be modified as a result of the proposed closing of Cameron Station. The facility would be deleted as a Federally-owned site unless some, or all, of the site is retained for some other Federal use.

The element may also need to be modified to permit any anticipated changes for the EPG and GSA's Franconia site. These modifications would be made by the Commission at the same time as, or prior to, the adoption of any of the master plans or revised master plans for affected installations. The DEIS contains

necessary economic impact information for Cameron Station, Fort Belvoir, Fort Myer and Fort McNair. Similar information should be provided in the DEIS documents being prepared for the EPG site and GSA's Franconia site.

The proposed Headquarters Complex for Fort Belvoir will contain 4,033 employees with 2,736 employee parking spaces to be provided. The Comprehensive Parking Standard for the area is one employee parking space per 1.5 employees, which would permit 2,689 such spaces or 47 fewer employee parking spaces than is being proposed. In view of the major increase in the number of employees being proposed and the sizable number of new buildings to be constructed, a comprehensive Transportation Management Program should be provided, emphasizing public transit, car and vanpooling and related measures to reduce the use of the private automobile.

The DEIS addresses potential impact from proposed development on floodplains, wetlands, wildlife refugees, the Potomac shoreline, and historic properties and Historic Districts. The following policies contained in the Environment element apply to the protection of floodplains, wetlands, and wildlife refuges:

> Locating a new building in a Floodplain should be discouraged. Sensitive facilities and activities, such as a Federal building which stores permanent records, should be prohibited from locating in the Floodplain.
>
> If construction in a Floodplain is necessary, (1) the site should be returned as close as possible to its natural contours; (2) Floodplain fill should be minimized; (3) grading requirements should be minimized; and (4) free natural drainage should be preserved.
>
> Wetlands supporting a habitat of endangered species should not be developed or modified. Land uses adjacent to Wetlands should be compatible with the preservation of the natural resources supported by the Wetlands.
>
> When development in a Wetland is deemed to be the only practicable alternative, development should be restricted to minimal recreational and agricultural activities, or other similar uses, and should utilize the best engineering practices available to minimize adverse impacts.
>
> Intensive land development should not be located adjacent to a wildlife habitat, and adjacent land uses should be compatible with habitat environment.
>
> Developments normally associated with significant noise impacts (e.g., highways and airports) should not be located near wildlife habitat areas.

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Applicable policies contained in the Parks, Open Space and Natural Features element relating to the protection of the Potomac shoreline are as follows:

> All lands within 150 to 200 feet of the water's edge along the Potomac and Anacostia Rivers should be managed in a manner that will encourage the enjoyment and recreational use of water resources, while protecting the scenic values of the waterways.
>
> Natural shoreline areas in the National Capital Open Space System should be retained in their natural condition or be appropriately landscaped for a distance of 150 to 200 feet from the water's edge, if possible. Large paved parking areas and other non-water related development should be discouraged within this area.

As some of the new development proposed will affect historic properties and Historic Districts, the following policies contained in the Preservation and Historic Features element are applicable:

> When possible, deteriorated Historic Landmarks or building that contribute to Historic Districts should be repaired rather than demolished.
>
> Historic buildings, whose significance is embodied in their sites and settings as well as in the buildings themselves, should be moved only when there is no feasible alternative for preservation. If an historic building must be moved, its new setting should complement its historic orientation, and previous sense of place and integrity. If the relocated building is established on a new site that itself possesses historic significance, its presence should not adversely affect the significance of the new location.
>
> The distinguishing original quality of character of Historic Properties should be protected. The removal or alteration of any historically valuable material or distinctive architectural features should be avoided when possible and kept to a minimum when required for continued use. The design of additions should be compatible with the height, scale, materials, color, texture, and character of the Historic Property.
>
> New construction on Historic Landmarks or in Historic Districts should be compatible with the historical architectural character and cultural heritage of the landmark or district. In design, height, proportion, mass, configuration, building materials, texture, color and location, new construction should complement these valuable features of the landmark or district, particularly features in the immediate vicinity to which the new construction will be visually related.

In view of the major development proposed at Fort Belvoir, the following objectives from the Federal Facilities element are also applicable: "promoting the expression of an urban design framework for the National Capital in all Federal Facility plans;" and "assuring that Federal Facilities make a positive contribution to their environment;".

Urban Design/Aesthetics

The DEIS does not cover existing visual qualities and the extent or nature of changes in visual character caused by the BRAC actions. The transformation of Fort Belvoir from a training post to predominately office use particularly requires new urban design considerations because of the large physical area affected as well as the number, functional mixture and scale of BRAC actions. Fort Myer has strategic roles in the Monumental Core's design framework, notably the topographic rim and gateway aspects, plus needs for on-site enhancement and cohesiveness that should be integrated with historic preservation concerns.

Cameron Station's potential enhancement and urban design contribution to the local and the National Capital scenes should be a prime concern. The relocation of certain industrial type activities from Cameron Station to other posts may result in adverse visual impacts at those other locations, which should be assessed.

Historic Preservation

The DEIS has identified Fort Belvoir, Fort McNair and Fort Myer as the principal sites for accommodating the relocation of activities from Cameron Station and other BRAC actions. The Army has determined that the proposed base realignment/closure and Fort Belvoir Development are subject to the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). A Programmatic Agreement among the Army, the National Conference of State Historic Preservation Officers (SHPO) and the Advisory Council on Historic Preservation (ACHP) describes the process the Army will use to satisfy its obligations under Section 106 of the NHPA. The Army will complete Section 106 and 110 responsibilities under NHPA before initiation or construction activities or disposal of lands. Pursuant to the terms of the Programmatic Agreement, the Army will execute a Memorandum of Agreement (MOA) stipulating what actions will be carried out to avoid or mitigate adverse effects of disposal on archaeologic and historic resources.

Cameron Station is not in a designated historic district, nor are the buildings contained within designated historic landmarks. Nevertheless, in accordance with the MOA the Army will provide a study that examines the history of Cameron Station as a military installation; conduct Phase I archaeologic surveys; map identified significant historic and prehistoric archaeological sites; identify key structures and, based on its historical significance, determine which structures should be considered for long-term preservation.

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The northern portion of Fort Myer is a designated historic district listed on the National Register of Historic Places (National Register), and Quarters 1 is a designated National Historic Landmark. Fort Myer is located adjacent to historic Arlington National Cemetery and Arlington House, which is a designated landmark listed on the National Register. There are, however, no known archeological resources on Fort Myer. As with Cameron Station, the Army will also carry out a similar program aimed at surveying, documenting and preserving identified historic architectural and significant archaeological resources.

The potential impacts of the proposed development, resulting from BRAC, to the historic qualities of Fort Belvoir are significant. The Army recently conducted an extensive survey of Fort Belvoir and identified 229 cultural resource sites, all of which have been registered with the Virginia Department of Historic Resources and Fairfax County Heritage Resources. Several of the sites are listed or are eligible for listing on the National Register. The Fort Belvoir Historic District is located on the South Post. The South Post also includes the Fairfax Historic Area and the Woodlawn Historic District, located adjacent to the southeastern boundary of Fort Belvoir.

The Army has adopted an installation design guide for Fort Belvoir, which includes architectural details for construction projects in the historic area. Further, the DEIS indicates that any development in or contiguous to the historic area must maintain compatibility with the style of the buildings, most of which were constructed between 1928 and 1935 and are representative of the Colonial and Georgian Revival style. Nevertheless, none of the proposed BRAC actions are located within Fort Belvoir's Historic District. The preferred alternative for the Exchange Branch is a location near the Woodlawn Friends Meeting House and Cemetery site. The Woodlawn House and Cemetery site are part of the Woodlawn Plantation and is within the Woodlawn Historic District. The DEIS indicates the Woodlawn Plantation will not be adversely affected by any related development impacts. Building 1465 is the only structure of determined historic significance that the DEIS has identified to be affected by the Administration Facility. Building 1465, originally designed as a barracks, is eligible for listing on the National Register by virtue of its age and will undergo substantial renovation. Renovation should follow the guidelines outlined in the "Secretary of Interior's Standards for Rehabilitation".

The DEIS also indicates that none of the BRAC projects will affect a known cultural resource site at Fort Belvoir. All sites under consideration for development at Fort Belvoir have not, however, been surveyed. The Army has indicated its plans to survey and identify all sites before final siting and design. Moreover, in consultation with the Virginia SHPO it will conduct Phase II and Phase III archaeological investigations, if required.

The Army has conducted an archaeological resources survey of the EPG. The findings of the survey revealed no significant archaeological resources exist at EPG. It plans, however, to conduct a standing structures survey prior to any proposed demolition.

Fort McNair meets the criteria of the National Register as a Historic District. The DEIS indicates the Army's willingness to maintain the historic character of the post through architectural compatibility of future construction. The proposed action at Fort McNair will, however, not affect related historic resources at Fort McNair. The proposed action involves the transfer of two persons and does not require new construction or alterations to any existing structures. Subsequently, the Army has determined that this action does not require a review under the provisions of Section 106 of the NHPA.

Environmental Impact

a. Topography

None of the proposed BRAC actions at Fort Belvoir or Fort Myer is anticipated to create serious negative impacts on topographic features. Some of the sites contain existing buildings or paved surfaces. A few of the project sites at Fort Belvoir contain slopes that are greater than 15%, but these slopes are being avoided for development.

A range of elevation is given for Fort Myer, but the slope percentages are not indicated. These figures should be provided. Cameron Station and Fort McNair are relatively flat, and topography is not a development constraint.

b. Hydrology

Fort Belvoir geology contains good sources of groundwater. Most of the groundwater is soft to moderately hard. Site-specific groundwater investigations have not been completed for the alternative sites for the BRAC actions to date. However, preliminary research indicates none of the alternatives appear to have been sited in areas that may have significant geologic or groundwater constraints.

Groundwater in the Cameron Station vicinity is generally poor and is not used as drinking water source. Proposed revisions to the FEMA maps will show that 97% of Cameron Station is within the 100-year floodplain of Cameron Run. Cameron Lake is a palustrine, open water wetland, and Holmes and Backlick Runs are riverine lower perennial wetlands. Future use of the site must prevent contamination of waters, which has previously occurred.

It unclear from the DEIS how much of areas near the other installations rely upon groundwater for drinking water, although the document does indicate that most areas do not rely on groundwater. Impacts, such as possible contamination and impervious surfaces restricting infiltration, will likely be minimal.

A high water table is a common building constraint throughout Fort Belvoir. Buildings should be floodproofed in order to prevent water damage. Extensive amounts of fill material will likely be required to support building foundations in areas with high water tables.

c. Hazardous Wastes

At Cameron Station some buildings may contain asbestos. An asbestos survey plan is being prepared. Recommendations from the study will suggest imperative actions to correct this problem. There are 21 underground storage tanks and possibly as many as four abandoned tanks. Abandoned tanks will be removed and the soils in the excavated pit examined. Soils will be examined for several types of contaminants such as PCB, dredge-spoil disposal, and pesticides.

Fort Belvoir generates, treats and stores hazardous wastes. Hazardous materials range from laboratory reagent chemicals to solvents and paints. An annual hazardous waste inspection in 1990 resulted in a Notice of Violation (NOV) for 35 deficiencies. Nearly three-quarters of the violations involved administrative deficiencies. All but seven violations have been corrected.

No notices of violation have been issued for Fort Myer. The preferred site alternative for the shoppette includes a former dry-cleaning plant where some perchloroethylene contamination has occurred. A Phase II environmental subsurface site investigation will be performed to determine the extent of the contamination and to develop medical action plans.

An Environmental Baseline Study verified contamination at 17 of 40 sites sampled at the EPG. Petroleum hydrocarbons were the primary contaminants. Asbestos was found in 11 buildings. Construction of any project will begin only after the EPG site is clear of any identified hazardous sites.

Compared to the other installations, Fort McNair has a small number of hazardous materials. Solvents, lubricants, and fuels are the most common materials generated. PCB transformers are being removed in accordance with applicable regulations. Violations pertaining to the lack of training, improper handling and storage of hazardous materials, and storage of hazardous materials for more than 90 days are being addressed in accordance with a compliance agreement signed on March 30, 1990.

d. Flora and Fauna

Deciduous upland vegetation are prevalent throughout most of undeveloped portion of the Fort Belvoir site. Any clearing activities must consider impacts of trees providing canopy that keeps water temperatures cool enough for aquatic life to thrive and providing slope protection.

Fort Belvoir contains two wildlife refuges, Accotink Bay Wildlife Refuge and Jackson Miles Abbott Wetland Wildlife Refuge. Most of the BRAC projects are proposed in areas that provide little habitat for wildlife. Fort Belvoir has been identified as a critical link in the genetic or "green" corridor that connects Huntley Meadows Park to Mason Neck National Wildlife Refuge. The connected genetic corridor is needed to provide an adequate amount of habitat for fauna requiring large range areas. All mitigation structures, such as culverts and underpasses, will be monitored for two years to ensure that they encourage free passage of wildlife.

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A survey of Fort Belvoir confirmed the presence of a nesting pair of bald eagles, a federal- and state-listed endangered species. The pygmy shrew, a federal candidate species, is also found on the site.

Forts Myer and McNair and Cameron Station lack native vegetation; therefore, they contain limited wildlife. No endangered species have been seen at these sites.

e. Air Quality

No violations of air quality standards were recorded in Alexandria, which include Cameron Station, during 1989. However, the entire National Capital Region (NCR) is designated as a nonattainment area for carbon monoxide and ozone because of other local exceedences. Air emissions from Cameron Station come from power boilers of the central heating unit, the on-post incinerator, and from vehicular sources.

Fort Belvoir is considered a significant regional air pollution source because total emissions from the installation are greater than 100 tons per year. Past and current air pollution reduction methods include closing of small, inefficient boilers that were used in pre-World War II temporary buildings; encouraging reductions in vehicle use and use of newer vehicles with better air quality controls; promoting carpools; and restricting land clearing in training areas to minimize airborne particulates.

Little or no effect on air quality is expected with development at Fort Myer and Fort McNair.

f. Noise Quality

The DEIS does not evaluate noise impacts as specifically as other impacts are evaluated. However, review of the proposed uses indicates that the potential for excessive noises is low except during periods of construction.

g. Transportation

The most significant impact that BRAC will have on the region is traffic at Cameron Station. The Edsall Road and Van Dorn Street; Eisenhower Avenue and Van Dorn Street; and South Pickett Street and Van Dorn Street intersections operate at Level-Of-Service (LOS) F during morning and evening peak hours. (See Table 3.) Public transportation to the installation is limited, especially during off-peak hours.

A detailed transportation analysis was conducted for Fort Belvoir. The Fort Belvoir area includes a freeway (Interstate 95), a major arterial (Route 1), and several minor arterials. Typically, northbound traffic constitutes the peak morning rush hour. Many intersections operate at an unacceptable LOS of E or F, particularly during the peak evening rush hour Fort Belvoir. (See Table 3.) Traffic conditions are better at the EPG where most intersections operate at LOS D or better.

Several road improvements will be necessary in order to achieve an acceptable LOS D or better throughout the areas of Fort Belvoir and Cameron Station. Even without realignment of personnel to Fort Belvoir, several road improvements will be necessary to achieve LOS D by 1995 (See Table 4) in the Fort Belvoir and Cameron Station vicinities. These improvements, as well as others are examined in the Draft Final Report of the Fort Belvoir Regional Traffic Impact Analysis Assessment of Horizon Year. Traffic improvements are critical if acceptable LOS is expected on local roads in the years 2000 and 2010. Although the DEIS cites specific needs for road improvements and notes that the responsibility for such improvements belong to public highway authorities, it is unclear which improvements, if any, are part of the Virginia Department of Transportation's Northern Virginia Subregional Plan, Fairfax County's Comprehensive Plan, or Alexandria's Comprehensive Plan.

Bus service to Fort Belvoir and the EPG is limited. Most routes lead to or near the Pentagon. Bus service south and west of Fort Belvoir is non-existent. Many current and future employees will, however, commute from those directions.

The Army plans to conduct a traffic study of the Fort Myer area. No signalized intersections exist on Fort Myer. Traffic control is limited to stop signs. Military police are used when additional temporary volume requires additional control. The majority of the military population employed at Fort Myer is housed on post, which greatly reduces daily traffic volumes. The civilian employee population is on "flextime" to further minimize traffic during regional peak periods.

While the Draft Final Report and the DEIS adequately cover traffic conditions and necessary road improvements, neither document discusses parking needs or conditions. There is also little discussion about public transportation in the Fort Myer area and truck traffic at any of the installations.

Federal Interest Evaluation

Federal properties and interests that will be affected by the proposed base realignments and closures include Cameron Station, Fort Belvoir, Fort Myer, Fort McNair, the proposed Franconia Depot Storage site (proposed major Federal office site), and Arlington National Cemetery. Environment and transportation impacts will be most important at Fort Belvoir, while transportation impacts will be most significant at Cameron Station. Uses at Fort Myer must not negatively affect Arlington National Cemetery.

As the DEIS notes, Fort Myer is one of the oldest active military posts in the U.S. Its principal mission, to provide ceremonial and service support to the Army, Arlington National Cemetery and the White House and other executive agencies, is critical to the functioning of Arlington National Cemetery and other government entities. Fort Myer's mission should not be jeopardized in the accommodation of the needs of the BRAC program, however genuine. Therefore, as it develops individual project plans for new activities at Fort Myer, the Army should ensure that the proposals contribute to the integrity of the post so that it continues to serve its primary historic purpose.

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The design, size, mass, and materials of any new structures at Fort Myer should be compatible with the historic architectural character of the existing post, particularly in instances where new construction is planned in the immediate vicinity of historic landmarks and districts. Furthermore, the development program for these new buildings should be limited to services and facilities which are primarily related to enhancing the service and ceremonial support role of Fort Myer. Large scale MDW-wide serving facilities should be avoided and, if needed, accommodated at Fort Belvoir.

Of the four BRAC facilities proposed at Fort Myer, the Commissary and Logistics Complex raise the most concerns. Both of these are relatively large facilities that may detract from the quiet subdued character of the historic post. The Army should continue to explore ways of reducing the size and extent of these facilities. Programs which lead to increasing their size or extent should be shifted to Fort Belvoir.

In general the designs of both the Commissary and the Logistics Complex should seek to preserve as much of the existing open quality of the installation as possible. Paved surfaces should be limited, and existing treed areas should be maintained. The established trees and shrubbery in the area of the planned Logistics Complex near the Arlington National Cemetery wall serve to buffer and screen activities at Fort Myer from those in the cemetery and, therefore, should be preserved. Additionally, attempts should be made to site the Complex in a manner which minimizes regrading of the site. The Warehouse/Administration Building proposed for the "Hollow" near the historic stables should be designed to be compatible with the architecture of the historic district. Since the complex will be visible from the surrounding high ground, attention should be given to the treatment of the expansive roof area and the abutting parking lots.

The site of the Commissary is an open recreation area, and the Army should explore ways of minimizing the extent of new paved area. Structured or shared parking could be one way of retaining some of the site's open space quality. This would also be consistent with the Planning Commission's January 1986 recommendation on the Revised Master Plan for Fort Myer concerning the provision of more structured parking at the facility.

The current master plan for Fort Belvoir was approved by the Commission on May 5, 1983. It included an employment level of 12,000 military and civilian employees. The existing employment level at Fort Belvoir is approximately 14,000, and the planned BRAC realignments and CDP actions (not including EPG) may increase employment by 5,400 persons.

As the Commission has noted previously, the Master Plan for Fort Belvoir requires updating. A number of proposals or pending projects are inconsistent with the 1983 Commission-approved plan and need to be evaluated in an update. Furthermore, a cumulative analysis of the planned changes at Fort Belvoir, the Humphreys Engineering Center (HEC), and EPG is needed as a basis of Commission action on a revised plan. While the CDP portion of the DEIS makes an effort at addressing the cumulative impacts of changes at Fort Belvoir, the absence of more detailed comprehensive master plan type land use information on the CDP proposals

and EPG prevents a thorough understanding of the long-term implications for Fort Belvoir and the surrounding area.

Plans provided for the Industrial Park give a good indication of trees to be removed and trees to be retained, as well as the amount of clearing necessary. However, there is no indication of material colors to evaluate how the facades relate to the overall character of the area. The buildings within the proposed Industrial Park appear to be well related to each other, based upon material selections.

A very large amount of land is devoted to surface parking at the Headquarters Complex. The Army should consider structured parking or a combination of structured and surface parking so that more open space and landscaping can be provided on the site. Either the recreation activities should be consolidated or the tennis area should be clustered away from the ball field. The possibility of commuter rail service for the site should be examined.

Recommendations

Based upon its review and evaluation, the staff recommends that the Commission transmit several recommendations to the Department of the Army. After realignment of personnel from Cameron Station to Fort Belvoir, the proposed number of employees at Fort Belvoir will exceed the number previously approved by the National Capital Planning Commission. *Therefore*, a revised master plan will need to be submitted. The Revised Master Plan should include a cumulative analysis of the planned changes at Fort Belvoir, the Humphreys Engineering Center (HEC), and the EPG. Although the CDP addresses cumulative impacts of changes at Fort Belvoir, long-term impacts of CDP proposals and the EPG can not be evaluated without comprehensive master plan information. The Revised Master Plan should illustrate site conditions and surrounding features, functional arrangement of uses, circulation patterns and major access points, general building forms and parking, and landscaping. The program should identify planned activities, future post population and employment levels, including military and civilian personnel, students, and residents. It should also include a staging plan for future development.

Employee parking provisions should conform to the Comprehensive Plan Parking Standard ratio of one employee parking space per 1.5 employees. Natural features such as floodplains, wetlands, and natural shorelines should not be disturbed.

The DEIS lacks discussions on the aesthetic impacts and implications of the building proposals. The extent and nature of changes in visual character caused by the BRAC actions are not indicated. Analysis of the cumulative changes in appearance is needed. Urban design considerations for Fort Belvoir could recognize that the installation's function is changing from training ground to office development.

In order to clearly determine the extent of impacts on floodplains and wetlands, these areas should be clearly delineated. It is unclear if Resource Management Areas and Resource Protection areas will be affected by projects at Forts Belvoir and Myer. More distinct information about steep slopes at Cameron Station and

Forts Myer and McNair should be given. Information about surrounding communities that rely upon groundwater for drinking water sources is needed. A noise quality section is needed to examine impacts on human and animal life.

There should be an explanation of alternative measures if the monitoring of mitigation structures for wildlife movement proves ineffective. Bald eagles require large undisturbed areas to maintain their habitats. The Department of the Army should contact the Department of the Interior about guidelines for undisturbed buffers around bald eagle nests. The Final EIS should indicate when Fort Belvoir anticipates correction of the remaining parts of the Notice of Violation pertaining to hazardous materials.

Staff commends and encourages the proposed traffic study for the Fort Myer area. A Transportation Management Program that emphasizes reduction in transportation demand should be provided. A focus of the DEIS and a TMP should be the avoidance of commuter traffic congestion in residential areas. The Comprehensive Plan's parking standard of one employee parking space per 1.5 employees should be followed in addressing the installation's employee parking needs. Possible commuter rail service should be addressed in the TMP.

Development at Fort Myer should reflect the installation's primary historic purpose through designs, sizes, massings, and materials that are compatible with the historic architectural character of the existing post. Large scale facilities that do not reinforce the service and ceremonial support role of Fort Myer should be accommodated at Fort Belvoir. The Army should continue to explore ways of reducing the size and extent of the proposed Commissary and Logistics Complex projects. Green spaces should be preserved as much as possible, especially in areas where trees and shrubbery serve as buffers between Fort Myer and the Arlington National Cemetery. Structured or shared parking could help retain some of the site's open space quality. The Warehouse/Administration Building should be designed to be compatible with the architecture of the historic district.

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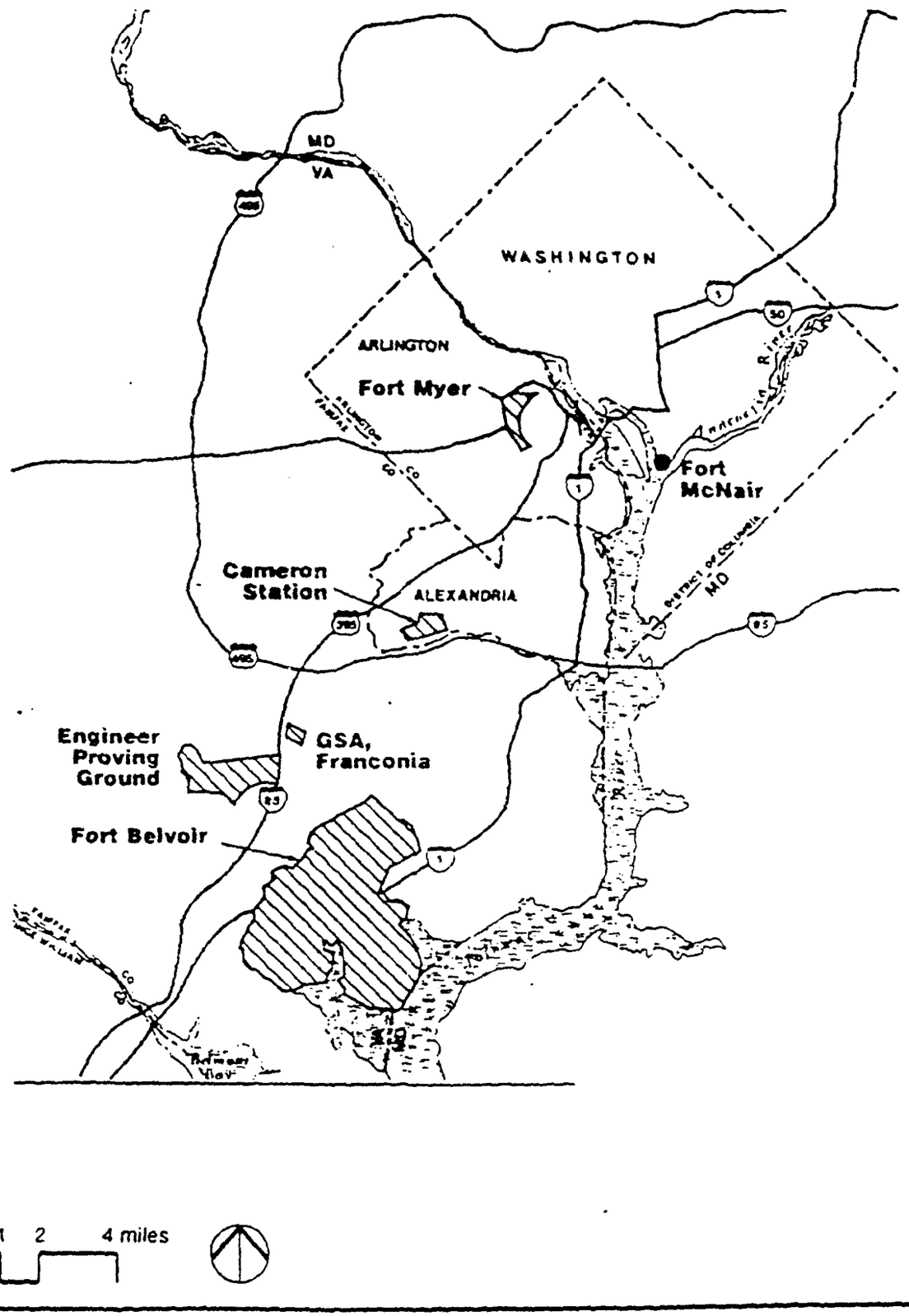


Figure 1-1
Project Area

Table S-1
Summary of Personnel Realignments*

From Originating Installation	To Receiving Installation			
	Fort Belvoir	Fort Myer	Fort McNair	Fort Devens
Cameron Station	3,641	192	2	0
Fort Belvoir	—	—	—	320
AMTL	178	—	—	—
Fort Meade and Fort Holabird	131	—	—	—
Leased Space	220	—	—	106

*All numbers for personnel in this table are subject to fluctuations and are therefore approximate.

Key to Figure 1-2
LOCATIONS OF FORT BELVOIR BRAC AND DEVELOPMENT PLAN SITES

Base Realignment and Closure (BRAC) Actions

1. Headquarters Complex
2. Industrial Park
3. BRAC Roads
4. Commissary Warehouse Addition*
5. Post Exchange
6. Commissary
7. Administration Facility (1465)
8. Material Research Facility
9. Exchange Branch
10. Modify Buildings 1466 and 1445 for Base Closure

Concept Development Plan Actions

Military Construction Activity (MCA)**

1. Child Development and Religious Education Centers
2. Electronics Supply and Maintenance Facility
3. D.C. Army National Guard Armory
4. D.C. Army National Guard Aircraft Parking Apron
5. Convert Buildings 206 and 208 to Classrooms
6. Veterinary Clinic
7. Operations Building Renovation, Engineer School Backfill
8. Telephone Switch Upgrade, Post-wide
9. Fixed-Wing Runway Extension
10. Old Guard Horse Stables
11. Main Sewer Line Upgrade, Post-wide
12. North Post Fire Station
13. Headquarters, Air Force Intelligence Agency
14. Physical Fitness Center
15. Virginia Army National Guard Armory/Headquarters (29th Light Infantry Division)
16. Gunston Road Extension
17. D.C. Army National Guard Hangar Addition
18. Seabee Operational Storage Facility
19. Renovate Heat Plant
20. Renovate Building 361 for ADP
21. D.C. Army National Guard Academy
22. Electrical Upgrade, Post-wide, Phase I
23. Lateral Sewer Line Repair, Post-wide
24. Relocate EPG Test/Storage Facilities
25. Ammunition Storage Facility
26. Information Systems Facility
27. CIDC Field Operations Building
28. D.C. Army National Guard Cantonment Area
29. Main Post Library
30. (There is no MCA 30)
31. Loop Road
32. Community Center/Welcome Center
33. Facility Engineer Maintenance Shop
34. Warehouses
35. Tactical Energy Systems Lab
36. Conforming Storage Building (DRMO)
37. Military Police Station
38. Reserve Center/OMA (80th Div)
39. Consolidated Maintenance Shop (DOL)
40. Electro-Optics Laboratory
41. Fatigue Test Facility
42. Potential 500-person Administrative Facility, HEC

Non-Appropriated Funds (NAF)

1. Youth Center
2. Tompkins Basin Armed Forces Recreation Area
3. Horse Stables
4. Benyaard Pool Addition
5. Golf Course
6. Corporate Fitness Center
7. Child Development Center
8. Temporary Lodging Facility

Army and Air Force Exchange Services (AAFES)

1. Fast Food Facility (Burger King™)
2. Fast Food Facility (Chicken)
3. Car Care Facility

Army Family Housing (AFH)

1. Lewis Heights Renewal, Phase 1
2. Lewis Heights Renewal, Phase 2
3. 1,500 NCO Housing Units (New)
4. Dogue Creek Village Whole-House Renewal
5. George Washington Village Whole-House Renewal
6. River Village Whole-House Renewal
7. Belvoir Village Whole-House Renewal
8. Gerber Village Whole-House Renewal
9. Visiting Officers' Quarters Renovation
10. Jadwin Loop Whole-House Renewal
11. Colyer Village Whole-House Renewal
12. Rossell Loop Whole-House Renewal
13. Woodlawn Village Whole-House Renewal
14. Fairfax Village Whole-House Renewal

*Authorization and funding for this project has been withdrawn. It is included for informational purposes because it was part of the original scope.
**MCA in this context is not a funding appropriation.

WDCR504/05651

WOC30830.RQ/174.82 01/02/01

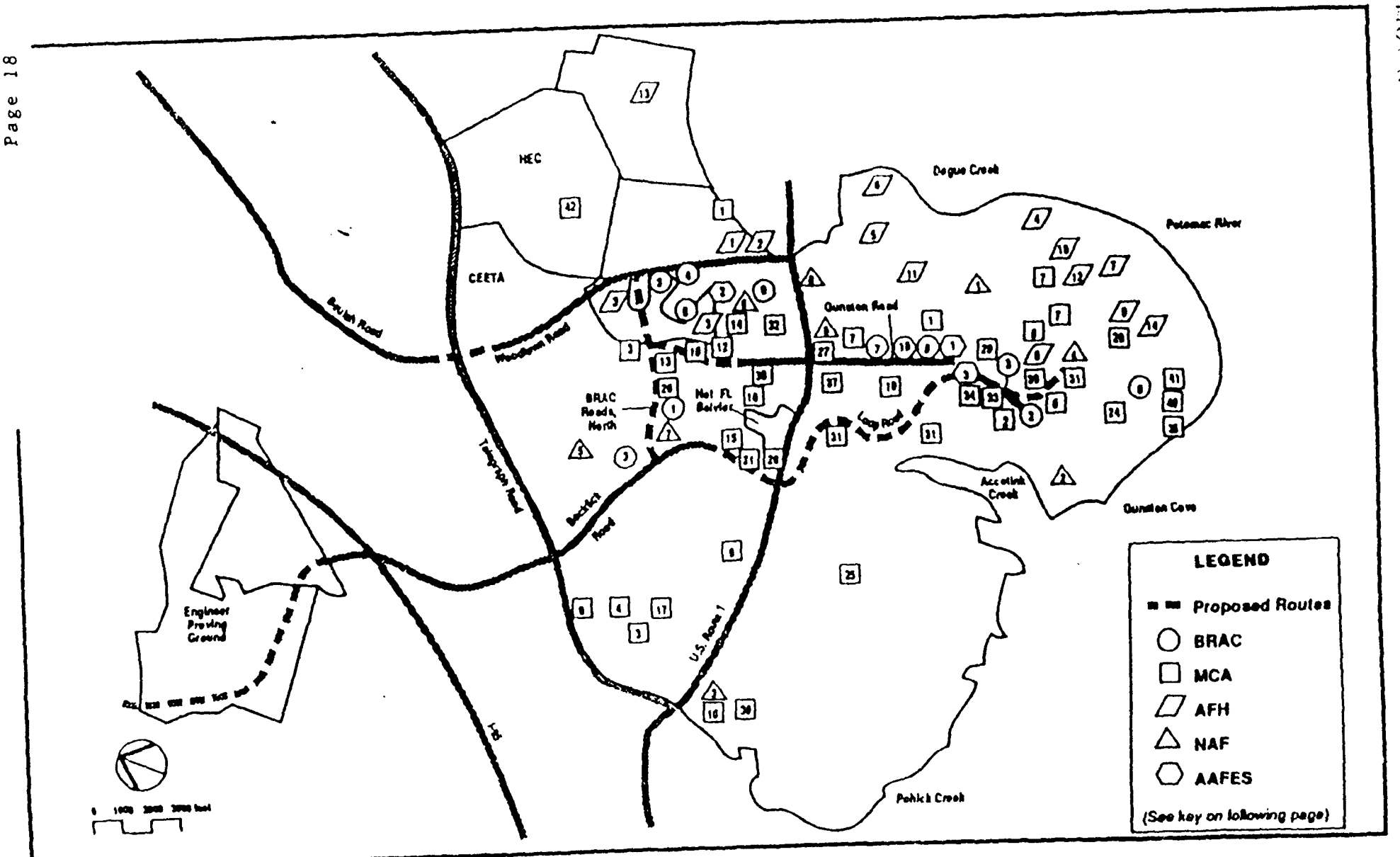


Figure 1-2
Locations of Fort Belvoir BRAC and Concept Development Plan Sites

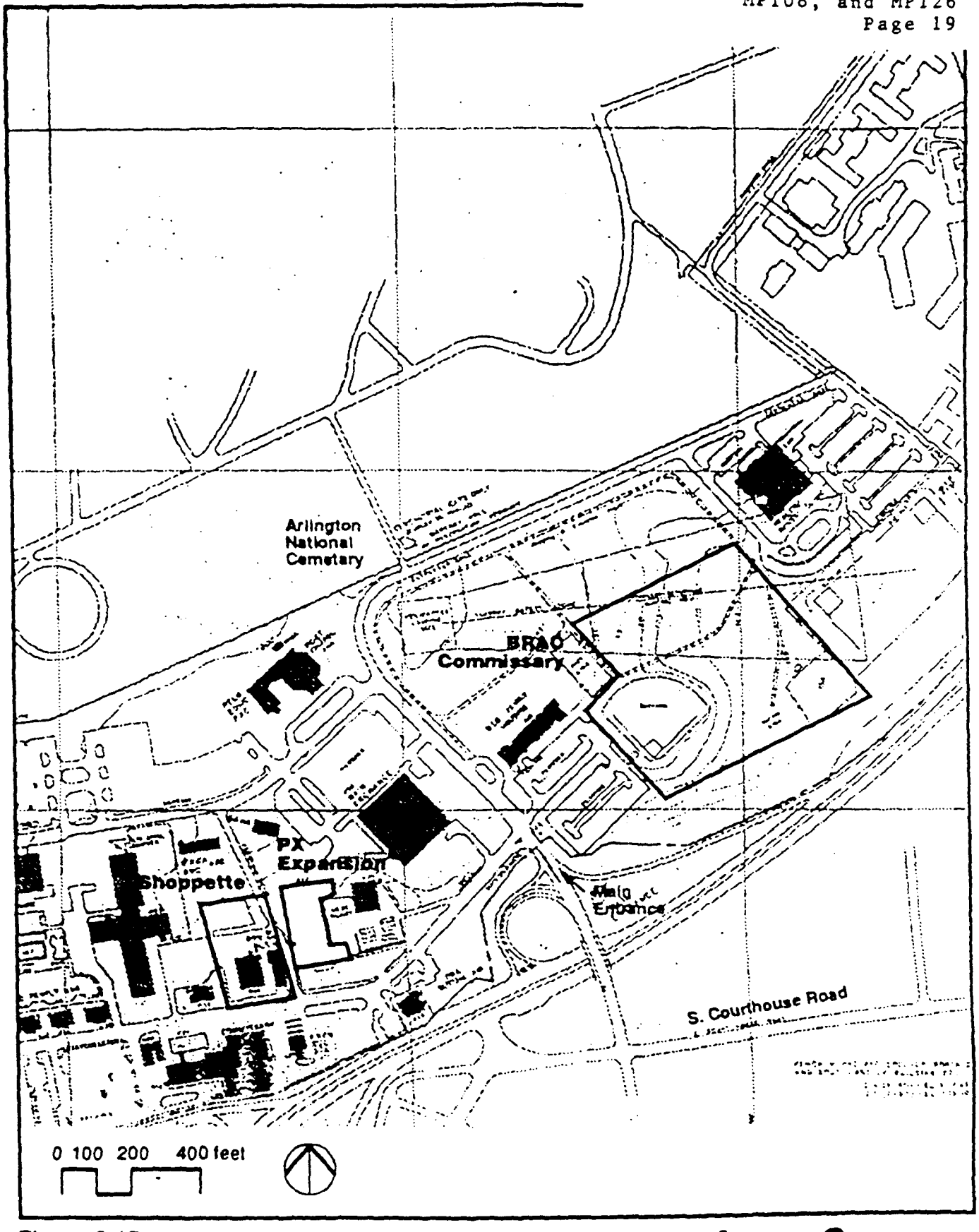


Figure 2-15
Fort Myer BRACs-
Commissary, PX Expansion,
and Shoppette—
Preferred Alternatives

Table 3-22
CURRENT LEVEL-OF-SERVICE AT SIGNALIZED INTERSECTIONS

Road 1	Road 2	Existing LOS*	
		am	pm
Study Area: Fort Belvoir			
Armistead Road	Richmond Highway	E	C
Backlick Road	Telegraph Road	D	E
Backlick Road	Richmond Highway	C	F
Belvoir Road	Richmond Highway	B	B
Beulah Street	Telegraph Road	F	F
Mt. Vernon Road	Richmond Highway	E	F
Newington Road	Telegraph Road	C	F
Pohick Road (off post)	Richmond Highway	E	F
Richmond Highway	Woodlawn Road	B	D
Richmond Highway	Telegraph Road	D	F
Study Area: Engineer Proving Grounds			
Alban Road	Backlick Road	D	D
Alban Road	Boudinot Road	C	B
Alban Road	Rolling Road	A	B
Backlick Road	I-95	C	D
Backlick Road	Fullerton Road	C	B
Backlick Road	Newington Road	F	E
Backlick Road	Hooes Road	D**	C**
Hooes Road	Rolling Road	D	D
Old Hooes Road	Rolling Road	A	A
Study Area: Cameron Station			
Duke Street	Jordan Street	C	C
Duke Street	N. Pickett Street	B	B

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Table 3-22
CURRENT LEVEL-OF-SERVICE AT SIGNALIZED INTERSECTIONS

Road 1	Road 2	Existing LOS*	
		am	pm
Duke Street	S. Pickett Street	C	C
Cameron Station (Cont'd.)			
Edsall Road	Van Dorn Street	D	F
Edsall Road	S. Pickett Street	C	C
Eisenhower Avenue	Van Dorn Street	F	E
S. Pickett Street	Van Dorn Street	C	E
Other Regional Intersections			
Commerce Street	Franconia Road	D	E
Duke Street	Quaker Lane	B	B
Fort Hunt Road	Richmond Highway	E	D
Franconia Road	Van Dorn Street	F	F
Lockheed Boulevard	Richmond Highway	B	B

*Level-of-Service
**Under construction

WDCR504/014.51

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Table 3-25 BASELINE INTERSECTION IMPROVEMENTS NECESSARY BY 1995 WITHOUT FORT BELVOIR DEVELOPMENT*
Fort Belvoir Study Area
1. Richmond Highway and Armistead Road
2. Richmond Highway and Pohick Road
3. Richmond Highway and Telegraph Road
4. Richmond Highway and Woodlawn Road
5. Richmond Highway and Mount Vernon Memorial Highway/Old Mill Road
6. Telegraph Road and Newington Road
7. Telegraph Road and Beulah Street
Cameron Station Study Area
1. Van Dorn Street and Edsall Road
2. Van Dorn Street and S. Pickett Street
3. Van Dorn Street and Eisenhower Avenue
4. Duke Street and S. Pickett Street
*Other improvements are planned and programmed by VDOT. Source: JHK, 1990.

Mount Vernon Sierra Club

July 22, 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore District
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Dear Mr. Harris:

In response to the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (DEIS), the Mount Vernon Group of the Virginia Chapter of the Sierra Club wishes to raise certain concerns. Our concerns relate to the apparent lack of consideration given to mass transit and carpooling as means to mitigate increased traffic levels, potential adverse environmental impacts of the Preferred Alternative and Alternative 1 for project BRAC 1, and potential adverse environmental impacts of project BRAC 3 North.

The major concern expressed in public comments relating to the relocation of personnel to Fort Belvoir is the increase in traffic volume. The DEIS discusses a mitigation plan which involves construction of improvements to existing roadways and construction of BRAC roads. However, in summarizing the existing bus service to Fort Belvoir, the DEIS concludes that "... service is very limited in terms of both headways and coverage." In
33 addition, the Pentagon is the only major trip generator with a practical link to Fort Belvoir by bus service. In our judgment, expansion of bus service, which would place more emphasis on moving people as opposed to moving cars, should be investigated as an alternative to roadway construction. Expanded bus service should include links to Metrorail, improved coverage of other areas of northern Virginia and express-bus service.

The DEIS mentions on page 4-20 that carpooling is actively encouraged at Fort Belvoir and could help to reduce the number of new commuter vehicles. Carpooling deserves further investigation as a transportation alternative. The DEIS does not adequately
34 outline the current status of carpooling at Fort Belvoir, nor does it examine the impact of added incentives, such as opening parking lots only to personnel who participate in carpools, on transportation patterns.

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35 The proposed BRAC projects with the most potential adverse environmental impacts are the Preferred Alternatives for BRAC 1 and BRAC 3. BRAC 1, the Headquarters Complex, would affect surface water quality, increase development near two RPAs and increase pressures upon a constricted area of the Fort Belvoir genetic corridor. This genetic corridor could face additional pressures from a number of elements in the Concept Development Plan and, according to the map on page 3-45, is already traversed by Route 1. Alternative 2 for BRAC 1 raises similar environmental concerns but would have an even greater level of impact. Alternative 3 makes use of existing structures, thereby eliminating the effects on surface water quality, the RPAs and the genetic corridor. We promote the adoption of Alternative 3 for BRAC 1 and encourage the Army to consider studying methods for minimizing the effects of scattering headquarters activities at various locations on the South Post. In addition, we encourage the Army to study methods for redistributing the activities assigned to the buildings proposed for use as part of Alternative 3.

36 BRAC 3 North, the road providing access to BRAC 1, would also affect the constricted area in the genetic corridor, wetlands associated with stream crossings and surface water quality. Construction of the road would necessitate filling of 1.5 acres of nontidal wetlands. In addition, the Preferred Alternative would require construction of roads into wood turtle habitat. Construction of BRAC 3 North would not be necessary, and its adverse environmental effects would be eliminated, if Alternative 3 for BRAC 1 were adopted. We encourage the adoption of Alternative 3 for BRAC 1 as a means to eliminate the adverse environmental impacts of BRAC 3 North.

37 Many further elements of the Concept Development Plan, including various MCA, AFH and NAF projects, may cause adverse effects on bald eagle and wood turtle habitat, the genetic corridor running through Fort Belvoir and wetlands biotic communities. The Mount Vernon Group will comment upon these elements when NEPA documentation becomes available.

Thank you for your consideration of our comments.

Sincerely,

Dean F. Amel

Dean F. Amel, Conservation Chair
Mount Vernon Group - Sierra Club
838 N. Frederick St.
Arlington, VA 22205-1109
H: 703-243-2095; W: 202-452-2911

United States Department of the Interior

FISH AND WILDLIFE SERVICE
DIVISION OF ECOLOGICAL SERVICES
1825 VIRGINIA STREET
ANNAPOLIS, MARYLAND 21401

July 25, 1991

In Reply Refer To:
FWS/ES
ER 91/577

Memorandum

To: Regional Director, National Capital Region
National Park Service, Washington, DC

From: Supervisor, Annapolis Field Office, Annapolis, Maryland

Subject: Comments on DEIS for comprehensive base realignment/closure and Fort Belvoir development (ER 91/577)

The U. S. Fish and Wildlife Service (FWS) has reviewed the Draft Environmental Impact Statement (DEIS) for the comprehensive base realignment/closure and Fort Belvoir development, dated June 1991. This project proposes to close Cameron Station and relocate personnel to Fort Belvoir, Fort Myer, and Fort McNair, with most personnel transferring to Fort Belvoir, Virginia. The increase in personnel at Fort Belvoir requires the construction of 77 additional facilities and structures, including offices, warehouses, housing, and roadways. This letter constitutes the comments of the U. S. Fish and Wildlife Service (Service) on the DEIS and is submitted in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Fish and Wildlife Coordination Act

The construction of additional facilities at Fort Belvoir could potentially impact wetland areas. Preliminary wetland delineations and analysis of U. S. Fish and Wildlife Service National Wetland Inventory maps indicate that approximately one-quarter of the undeveloped acreage on the post is likely to be wetlands. However, since wetland delineations have not been completed for all proposed sites, the Service withholds comments on those sites until delineations are completed.

38

We are supportive of the planners' attempt to follow the national policy of no net loss of wetlands, however, several proposed sites could adversely impact wetland areas; specifically proposals MCA9, MCA16, MCA31, MCA38, MCA42, NAF2, NAF5, AFH3, BRAC3 (all alternatives) and BRAC8 (alternative 2). Since much of the State and Federally-listed rare, threatened, and endangered species' habitat on Fort Belvoir is located within the floodplain, tributary, and wetland systems of the Dogue, Accotink, and Pohick Creek watersheds, proper mitigation is imperative. Mitigation is defined as: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for

the impact by replacing or providing substitute resources or environments." The Service considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Therefore, the Service recommends that the planners first consider alternatives which would decrease wetland impacts. Several non-preferred alternatives, for example, may be suitable replacements for preferred alternatives that would require wetland filling. In addition, scaling down or movement of certain proposed sites could significantly decrease wetland impacts.

As stated in the DEIS, Fort Belvoir has been identified as a critical link in the genetic or "green" corridor that connects Huntley Meadows Park to Mason Neck National Wildlife Refuge. The Service agrees that the corridor is an important connection between the two refuges and recommends that the genetic corridor not be constricted in any additional manner. Construction of several facilities, specifically BRAC1, MCA10, MCA13, MCA16, MCA25, MCA36, MCA42, AFH3, NAF5 and NAF7 could adversely constrict the corridor. The Service recognizes that the developers plan to construct culverts to promote safe passage of wildlife within the corridor, however, construction of the golf course (NAF5) and the headquarters complex (BRAC1) would almost sever the genetic corridor. Aside from constricting the genetic corridor, the proposed golf course (NAF5 would result in increases of pesticides and herbicides into the environment and nearby wetlands. According to the DEIS, AFH3 (1,500 housing units) would be expected to have the greatest effect on the genetic corridor since development of the site would virtually eliminate all of the remaining unfenced wooded corridor. 39

As a direct result of these projects, the genetic corridor would be constricted and contaminants would be released into wetland areas. Therefor , the Service recommends that these projects be relocated to alternate sites o tside of both the genetic corridor and wetland areas.

The increase of personnel at Fort Belvoir will increase the amount of traffic within Fort Belvoir as well as the need for additional roadways and parking areas. Proper stormwater management techniques are essential for preventing contaminated run-off from entering streams and wetland areas. Through the use of pervious pavement and retention ponds, sedimentation into streams can be minimized. In addition, innovative techniques can be employed, which could prevent decreases in water quality and at the same time, increase habitat and wildlife diversity and quality. 40

The Service has some concerns over the proposed Tompkins Marina (NAF2), which could impact wetland areas and bald eagles, and which also requires channelizing of Gunston Cove. Coordination with the Annapolis Field Office regarding the proposed marina is currently being done in a separate analysis. Therefore, this report will not address the Service's concerns for this site.

The U. S. Fish and Wildlife Service has no comment regarding the closing of Cameron Station and the increase of personnel at Fort McNair and Fort Myer. 41

Endangered Species Act

Since it has been determined that the project will affect bald eagles, separate written formal consultation must be conducted with the U. S. Fish and Wildlife Service, Annapolis Field Office. Until the consultation is complete, the Service withholds comments on sites MCA25, MCA38S and NAF2, which could potentially impact endangered species. 42

Recommendations

At this time, the Service recommends the following criteria be incorporated into the project:

43 • Completion of wetland delineations for all sites.

• Reduction of wetland impacts (*i.e.*, by scaling down of certain sites or movement to alternative locations where impacts will be further minimized).

44

• Proper mitigation for impacts to wetland areas.

45 • Reduction of impacts on genetic corridor; most severely by proposals MAF5 (golf course), BRAC1 (headquarters) and AFH3 (1,500 housing units).

46 • Formal written consultation on endangered species.

47 • Incorporation of proper stormwater management techniques.

If you have any questions regarding these comments, you may contact Mike Klebasko of my staff at 301-269-5448.

John P. Wolflin

J00082

FAIRFAX COUNTY
PUBLIC SCHOOLS

Department of Facilities Services
10700 Page Avenue
Fairfax, Virginia 22030

July 15, 1991

Keith Harris
Baltimore District, Corps of Engineers
ATTN: CENAB-PS-ES (K. Harris)
P.O. Box 1715
Baltimore, MD 21203-1715

Dear Mr. Harris,

Fairfax County Public Schools (FCPS) has reviewed the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (DEIS) and the Fort Belvoir Base Realignment and Closure/Concept Development Plan (CDP). The following comments on educational needs relative to both the DEIS and the Fort Belvoir CDP plans:

1. In the CDP, a statement showing a need to increase capacity and update the three Post schools (Barden, Cheney and Markham) to current educational specifications should be included. In the 40 years since the construction of these schools, educational standards and specifications have changed significantly and the subject schools have not been renewed to bring them to those standards. Additionally, these schools are not able to house all the elementary school-age children currently residing on post. Any additional resident children will exacerbate overcrowding.

48

2. The CDP includes an Army Family Housing development (AFH 3), a project on North Post consisting of 1,500 new housing units. This project, still in the early design phase, includes townhouses, apartments and duplexes. The EIS shows an expected increase of about 4,500 residents on Post, including about 900 children under 12 years old, suggesting a need for at least one new elementary school on post.

49

- Table 4-8 (page 4-72), Community & Army Facilities, should include a statement that current school facilities cannot house the expected additional students. Section 4.2.2.3.6 (Community and Army Facilities) pages 4-99 and 4-101, should include a statement concerning the need for more school facilities to accommodate the added students resulting from the 1,500 new dwelling units.

50

3. Regarding proposed development of the Engineering Proving Grounds (EPG), Section 4.5.3.6 (Community and Army Facilities) should include a statement on page 4-123 that the additional 1,377 expected students will require at least one new elementary school, replacing the existing sentence:

51

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The high-density residential development at EPG could contribute about 1,377 school-age children over the 15- to 20-year building period, allowing adequate time for Fairfax County to plan new schools if necessary.

52 The U.S. Government's planning needs to take into account the Fort Belvoir development impacts on school infrastructure, off-post as well as on-post.

4. Section 4.5 (Cumulative Impacts) should have a statement reflecting the need for new schools because of residential development both on the EPG and Fort Belvoir. It should also be noted that Fairfax County is not responsible for providing school facilities on Post. The sentence,
53 "The proposed actions will require that Fairfax County plan new schools," should be modified accordingly.

Sincerely,

Alton C. Hlavin
Assistant Superintendent

cc: School Board
Robert R. Spillane
Jay D. Jacobs
Leadership Team

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Mr. Keith Harris
CENAB-PL-ES
Baltimore District
Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

JUL 23 1991

Re: Comprehensive Base Realignment/Closure and Fort Belvoir Development

Dear Mr. Harris:

In accordance with the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA has reviewed the Draft Environmental Impact Statement (DEIS) for the above referenced project.

It is stated that the referenced DEIS is not the decision document for the Concept Development Plan (CDP) projects for Fort Belvoir and that "cumulative environmental analyses and documentation for these projects will be included in the Master Plan and its associated EIS." However, the DEIS discusses these projects to a considerable degree, therefore our comments address the potential effects of the proposed CDP.

Based on the following comments (excluding those for the proposed CDP), we have rated this project EC-2 (see enclosed explanation of ratings).

54 o The FEIS should provide air analyses data to ensure there are no adverse impacts to the air quality resulting from the additional 3835 employees commuting to and from the Fort Belvoir installation.

55 o Figure 1-2 shows two Corporate Fitness Centers (NAF 6) yet there is no mention in the text that two centers are planned. This discrepancy needs to be clarified.

56 o Page 3-83 states that Fort Belvoir stores hazardous waste in aboveground containers and in bulk underground storage tanks. The FEIS should state the number, contents, and location of these containers.

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57 o Page 3-100 states that Fort Myer has underground storage tanks. The text should state the number and location of these tanks. Also, soil samples taken contained ethylbenzene and gasoline-like hydrocarbons. The text should explain the extent of
58 this contamination supported with data and describe the remedial action plan(s).

59 o Page 3-101 states that "The geology of the area consists of alluvium and artificial fill." The text specifies alluvium, but not artificial fill. The text should also state what artifical fill consists of.

60 o Page 4-101 states that "The facilities that are proposed to mitigate impacts to both Army facilities and comparable community facilities are listed in Table 4-10." Table 4-10 represents characteristics of sediment samples collected in Gunston Cove. It appears that reference is intended for Table 4-12.

61 o Page 4-129 states that "Construction of AFH 3 and MCAs 15, 21, and 28 could cause additional constrictions (Figure 4-26), limiting movements of wildlife south of Backlick Road and Beulah Street." Figure 4-26 does not identify MCAs 21 and 28, Backlick Road, or Beulah Street. The placement of these sites on a map would provide a better representation of these facilities in relationship to their surroundings.

62 o It is stated that BRAC 9 (Exchange Branch) and AAFES 3 (Car-Care Facility) will have underground storage tanks for gasoline. The text should state the approximate number of tanks expected at each facility.

63 o The cumulative impacts of all BRAC activities will significantly impact traffic and transportation. We are concerned with impacts to the Wildlife Genetic Corridor and wetlands as a result of the planned improvements. Although mitigative measures are planned, the text should visually illustrate the planned improvements in relationship to the Corridor and wetlands.

64 o A number of proposed projects at Ft. Belvoir have the potential to significantly affect the Wildlife Genetic Corridor. It is suggested that all possible means to minimize the impact to the corridor be sought. In particular, AFH 3 (1500 new army family housing units) is expected to have the greatest impact. It is suggested that compressed housing units such as townhouses, apartments, and/or duplexes be designed rather than single family dwellings.

5 o NAF 5 (Golf Course) is expected to impact the Wildlife Genetic Corridor as well as wetlands. The text does not specify how many acres the golf course will encompass, nor does it state how many acres of wetlands will be impacted. The possibility of reducing the size of this golf course should be considered to alleviate environmental impacts.

Thank you for the opportunity to review and comment on this project. If you have any questions on these comments, please call Karen DelGrosso at 215-597-0765.

Sincerely,

Thomas A. Slenkamp

Thomas A. Slenkamp, Acting Chief
Environmental Planning
and Assessment Section

Enclosure

000087

SUMMARY OF RATING DEFINITIONS
AND FOLLOW-UP ACTION*

Environmental Impact of the Action

LO--Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alterna tive or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably avail able to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Figure 4-1

0500083

COMMONWEALTH of VIRGINIA

KEITH J. BUTTLEMAN
ADMINISTRATOR

Council on the Environment

202 NORTH NINTH STREET
SUITE 900
RICHMOND 23219
804-786-4500
TDD 804-371-7804

July 26, 1991

Baltimore District
U.S. Army Corps of Engineers
Attn: Mr. Keith Harris, CENAB-PL-ES
P.O. Box 1715
Baltimore, Maryland 21203

Dear Mr. Harris:

The Commonwealth of Virginia has completed its review of the Draft Environmental Impact Statement for the Comprehensive Base Realignment/Closure and Fort Belvoir Development (hereinafter the BRAC undertaking). The Council on the Environment is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate officials on behalf of the Commonwealth. The following agencies joined in this review:

Department of Agriculture and Consumer Services
Department of Conservation and Recreation
Department of Health
Department of Waste Management
Chesapeake Bay Local Assistance Department
Fairfax County.

In addition, the following agencies, planning district commission, and localities were invited to comment:

Department of Game and Inland Fisheries
Marine Resources Commission
Department of Air Pollution Control
Department of Historic Resources
State Water Control Board
Department of Economic Development
Northern Virginia Planning District Commission
City of Alexandria.

Environmental Impacts and Mitigation

66 We are impressed with the Army's commitments to Chesapeake Bay preservation, to "no net loss" of wetland habitat (page S-23), to remediation of contaminated areas and recycling of wastes, to careful handling of pesticides, and to protection of

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endangered and threatened animal species. Overall, the Army has responded well to our scoping comments of August 28, 1989 (following page A-6) and to other environmental requirements and circumstances.

The discussion which follows will address the issues which received attention in our review. This discussion focuses on some of the individual projects contemplated within the BRAC undertaking at Fort Belvoir, and on contamination issues including the other military installations covered in this Draft EIS as well as Fort Belvoir. Beginning on page 5, we will will address "Regulatory and Coordination Needs."

67 The BRAC undertaking is unlikely to affect farmland. It is also unlikely to require additional water and sewerage facilities.

A. Contamination and waste management.

The Draft EIS describes the management of hazardous wastes at Fort Belvoir and the Army's interaction with the Department of Waste Management concerning permitting and inspection of permitted activities (pages 3-83 and 3-84). This description accords with our understanding of the situation. According to the Department, seven violations of Virginia regulations governing the management of hazardous waste remain to be
68 corrected pursuant to a Notice of Violation issued in November 1990. The corrective actions required should be undertaken and completed, as approved, before any additional building or renovation takes place at Fort Belvoir.

With respect to Fort Belvoir, the Army needs to undertake
69 voluntary notifications pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III (Emergency Planning and Community Right-to-Know) and to Department of Defense guidelines.

We recommend that in all development activities and operations which follow, the Army reduce solid waste at the source, re-use it, or recycle it to the maximum extent possible
70 in light of Virginia's waste management goals. These include increasing emphasis on recycling of solid wastes so that 10% are recycled this year, 15% are recycled in two years, and 25% are recycled in 1995.

We also recommend that the generation of hazardous wastes be minimized. The idea is to reduce, in volume and toxicity, the
71 waste that any activity generates. The term "waste" includes discharges to surface and ground waters and emissions to air as well as solids and liquids destined for treatment, storage, or

disposal. A variety of techniques, ranging from operating practices to technology and material changes, may be employed. A description of the Virginia waste minimization program is enclosed for reference.

72 We appreciate the commitments to responsible hazardous materials management indicated in the discussion and the chart on page 4-109.

Additional information on hazardous waste management and coordination is given in "Regulatory and Coordination Needs," below.

B. Pesticides.

We also appreciate the commitments stated in the Draft EIS to develop an integrated pest management program for the proposed golf course (NAF 5) and to implement Best Management Practices
73 for the control of runoff and its impacts on aquatic resources (pages S-22, S-23). To the extent pesticides are to be used in connection with any other projects that are part of this development, we encourage the Army to make the same commitment in those cases.

We note that pesticide storage may be included as part of the BRAC undertaking. The Virginia Pesticide Control Board may promulgate regulations before various BRAC projects are
74 completed. Thus we recommend that Fort Belvoir consult with the Department of Agriculture and Consumer Services, staff to the Board, before completing any plans for pesticide storage. (See "Regulatory and Coordination Needs," below.)

C. Rare, threatened, and endangered species protection.

The Draft EIS indicates that boat traffic from the Reserve Center (MCA 38) and the Tompkins Basin Recreation Area (NAF 2)
75 might affect three nesting pairs of bald eagles (an endangered species, **haliaeetus leucocephalus**, on the federal list), and that a management plan will be developed to minimize the effects of boat traffic on these birds. We commend this effort.

We are interested in the surveys to be conducted for the wood turtles (**Clemmys insculpta**), a candidate for state listing as a threatened species (G5/S2/NF/RT, according to the enclosed
76 code of species rarity ranks and legal status). We would be interested in knowing the criteria being considered for the wood turtle's critical habitat requirements. We are also interested in the development of protection strategies for all the endangered species found on the Fort. Coordination should be

effected, in these regards, with the Department of Conservation and Recreation. (See "Regulatory and Coordination Needs," below.)

77 The Department of Conservation and Recreation has provided information intended to augment and correct, as appropriate, endangered or rare species listings in the Draft EIS. Please include this information in the Final EIS for the BRAC undertaking.

78 The Department of Agriculture and Consumer Services has responsibility for protection of endangered or threatened species of plants and insects in the Commonwealth. In fulfilling this duty, the Department works with the Department of Conservation and Recreation. At this time, no species of threatened or endangered plants or insects are known to exist at Fort Belvoir. Again, we appreciate the Army's efforts to work with our agencies in protecting these species and, in particular, its commitment to treat candidate species as if they were listed (page 3-56). We also appreciate the commitment regarding additional surveys.

79 On the matter of wildlife protection in general, the Army deserves commendation for its concern about wildlife safety and the genetic corridor (pages 4-22, 4-129). Care should be taken to provide sufficient buffers to ensure the protection and the diversity of the populations at Mason Neck National Wildlife Refuge and Huntley Meadows Park (page 4-129); 250-foot buffers may not suffice. We recommend consultation with appropriate entities (see "Regulatory and Coordination Needs," below) in determining appropriate wildlife corridors.

D. Recreation and public access.

80 We recommend that the Army allow public recreational use of as much of the shorelines of the Fort as possible, i.e., those along Accotink Bay, Gunston Cove, and Dogue Creek as well as the Potomac River shoreline. Recreational uses could consist of hiking (for which trails would be appropriate), viewing of wildlife or Potomac River scenery, and fishing from riverbanks. These activities would seem to be consistent with goals and objectives for future operations of the Fort (as described on pages 3-3 through 3-6 of the Concept Development Plan accompanying the Draft EIS).

81 The Draft EIS indicates that an alternative site for the commissary (BRAC 6) involves the conversion of a baseball and softball field. We hope that the preferred site for this project can be used; but if it cannot, then we hope that a replacement ball field will be included in the plan for development of the Fort.

E. Chesapeake Bay watershed protection. We were pleased to see that the Draft EIS portrayed Chesapeake Bay Resource Protection Areas (RPAs) in its maps showing environmental constraints (Figures 4-14 through 4-22). We were also gratified to see the commitments to comply with Chesapeake Bay regulations and with the rules governing erosion and sediment control. We strongly recommend that appropriate protection be given to Resource Management Areas (RMAs) as well as RPAs; Resource Management Areas lie landward of Resource Protection Areas, and land uses therein are subject to performance standards (including erosion control) as opposed to outright restrictions as in RPAs.

82

In connection with pursuit of Chesapeake Bay and tributary protection, the Chesapeake Bay Local Assistance Department has provided a number of specific comments relative to particular projects contemplated within the BRAC undertaking (see attached comments). Of particular note in these comments is that the road contemplated in the north area (BRAC 3, North) will have less impact to Resource Protection Areas if it is limited to the section between Fairfax County Parkway and Gunston Road (Alternative 2, Figure 2-8). Similarly, a realignment of the preferred alternative for the road in the south area (BRAC 3, South) would help to reduce stream impacts.

83

Cameron Station remediation. A separate matter addressed in the Draft EIS, and by the Department of Waste Management in this review, is the nature and extent of contamination at Cameron Station, which is to be closed down as part of the military base consolidation of which BRAC is a component. A number of conditions at Cameron Station warrant further action; these include buildings containing asbestos, underground storage tanks, sewer lines where chemical wastes were disposed, pesticide and PCB contamination, and other items (pages 3-15 through 3-19). Staff of the Department of Waste Management is visiting the site this month to assist in determination of necessary future actions.

84

Regulatory and Coordination Needs

1. Contamination and waste management.

Fort Belvoir should contact the Fairfax Joint Local Emergency Planning Committee to comply with the emergency planning and preparedness provisions of SARA, Title III. In addition, the Fort should discuss its solid waste management planning efforts with the Northern Virginia Planning District Commission and Fairfax County.

85

As indicated above, further consultation with the Department

of Waste Management is necessary in connection with Cameron Station. No additional coordination appears necessary in regard to activities at Fort Myer. 86

The Department may also be contacted regarding the waste minimization program (telephone (804) 371-8716).

2. Pesticides.

Virginia's Pesticide Control Board may promulgate regulations governing pesticide storage between now and the time the pesticide storage for the golf course (NAF 5) and other storage facilities are built. Thus, as we stated above, we recommend that the Army consult with the Department of Agriculture and Consumer Services' Office of Pesticide Management (telephone (804) 371-6558) before completing any plans for pesticide storage. 87

3. Species protection.

We recommend that the Army contact the Department of Conservation and Recreation's Division of Natural Heritage (Larry Smith, telephone (804) 786-6205) to discuss strategies for the protection of endangered species. This consultation should be expanded to include the Department of Game and Inland Fisheries and Fairfax County's Office of Comprehensive Planning insofar as it concerns protection of wildlife habitat and migration (see "Environmental Impacts and Mitigation," part C, above). 88

4. Historic and archaeological resources.

We recommend that the Army maintain its contacts with the Department of Historic Resources (telephone (804) 786-3143) as it completes the archaeological survey work mentioned in the Draft EIS (pages 4-40 and 4-41). 89

Conclusion

The Department of Waste Management has provided information on waste minimization, solid waste reduction, and community right-to-know requirements (SARA, Title III), which we are mailing to you under separate cover.

We look forward to reviewing the Final EIS for the BRAC undertaking. Thank you for the opportunity to comment.

Sincerely,

Keith J. Buttleman

Enclosures

cc: The Honorable Elizabeth H. Haskell
Sarah D. Pugh, DACS
Cathy L. Harris, DWM
John R. Davy, DCR
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Bruce J. Larson, DHR
G. Mark Gibb, Northern Va. PDC
Susan E. Brown, New England Division, Corps

Received by:
Council on the Environment

JUN 27 1991

COMMONWEALTH of VIRGINIA

C. M. G. BUTTERY, M.D., M.P.H.
STATE HEALTH COMMISSIONER

Department of Health
P. O. BOX 2448
RICHMOND, VA 23218

June 26, 1991

MEMORANDUM

TO: Charles H. Ellis, III
Environmental Programs Planner
Council on the Environment

FROM: Robert B. Stroube, M.D., M.P.H.
Deputy Commissioner for Community Health Services

SUBJECT: Comprehensive Base Realignment/Closure
and Fort Belvoir Development

90 The subject project does not adversely impact the programs administered by this agency.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF WASTE MANAGEMENT
11th Floor, Monroe Building
101 N. 14th Street
Richmond, VA 23219
(804) 225-2667
TDD (804) 371-8737

June 24, 1991

TO: Charles H. Ellis, III, Environmental Program Planner
Virginia Council on the Environment

THROUGH: Harry E. Gregori, Jr., AICP, Director
Office of Policy and Planning

FROM: Cathy L. Harris, Ph.D., Environmental Program Manager
SARA Title III/Waste Minimization

SUBJECT: Draft Environmental Impact Statement (EIS) for the proposed comprehensive Base Realignment and Closure (BRAC) involving Fort Belvoir, Virginia

This issue already was reviewed, once, by the agency in the July 26, 1989 review of scoping notices by the U.S. Army Corps of Engineers, "Base Realignment/Closure and Fort Belvoir Development (Federal Project #753)," and "Army Material Command Relocation to Fort Belvoir (Federal Project #754)."

This specific document addresses the environmental effects resulting from the closure of Cameron Station, in Alexandria, Virginia, and associated realignments to Fort Belvoir, in Fairfax County, Virginia, and Fort Meyer, Arlington County, Virginia.

The original review indicated that a Departmental RCRA inspector familiar with the activities at Fort Belvoir (including Cameron Station) would review any resulting EIS document; this document will also be reviewed by appropriate CERCLA/Superfund staff familiar with DOD operations.

According to this document:

(1) **"Studies have been initiated to define the extent of any environmental contamination at Cameron Station. These studies will help in adequately assessing the health and environmental risks associated with closure; in determining the necessity for remedial action; and in developing and evaluating the remedial alternatives**

necessary to prepare the property for release. Remediation, if determined to be necessary, would be coordinated and conducted in compliance with federal, state, and local standards and regulations to remove any health and environmental threats." (Page S-4, Draft EIS).

(2) (SUMMARY OF EFFECTS OF CLOSURE ON CAMERON STATION) "Contamination assessments are being conducted. Remediation will be completed as necessary." (Page S-6, Draft EIS).

(3) (SUMMARY OF CUMULATIVE EFFECTS OF PROPOSED BRAC ACTIONS AT FORT BELVOIR) "No (Hazardous Materials) impacts are expected because the minimal amounts of hazardous wastes that are generated or stored at BRACs 1, 2, and 8 (Headquarters Complex, BRAC 1; Industrial Park, BRAC 2; Material Research Facility, BRAC 8) and the asbestos encountered in the completion of BRACs 7 and 10 (BRAC 7, Administration Facility; BRAC 10, Modify Buildings 1466 and 1445 for Base Closure) will be handled according to regulations. BRAC 9 (Exchange Branch) will have underground storage tanks (for fuels)." (Page S-16, Draft EIS).

(4) (COMPLIANCE WITH ENVIRONMENTAL QUALITY PROTECTION STATUTES AND OTHER ENVIRONMENTAL REVIEW REQUIREMENTS FOR BASE CLOSURE ACTIONS, MDW). Cameron Station's Closure, all of the Fort Belvoir BRACs, and Fort Meyer BRACs are said to be in compliance with RCRA. (Page S-18, Draft EIS).

(5) (SUMMARY OF EFFECTS OF PROPOSED BRAC ACTIONS AT FORT MEYER) "Minor impacts because (of the presence of) multiple solvents, fuels, battery acids, greases, and oils--- which will be handled in accordance with all applicable county, state, and federal regulations." (Page S-21, Draft EIS).

Cameron Station

Section 2.8 of the Draft Environmental Impact Statement discusses disposal and alternative future uses of Cameron Station, and reiterates the fact that any on-site contamination from wastes will be remediated in accordance with all applicable federal, state, and local regulations.

Section 3.1.5 of the Draft EIS discusses hazardous materials at Cameron Station. According to the Preliminary Assessment for

Cameron Station, a number of environmentally significant operations were identified, including:

* Electrical transformers containing PCBs that were awaiting removal or retrofitting;

* Underground storage tanks;

* Hazardous materials storage;

* Incinerator emissions;

* Asbestos in several buildings;

* Leaky drums; and,

* Fuel spills.

As a result, the remedial investigation/feasibility study (RI/FS) for Cameron Station was developed, following U.S. EPA's guidance on the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or "Superfund", and the subsequent Superfund Amendments and Reauthorization Act (SARA). This RI/FS is said to be conducted in accordance with the October, 1988, EPA Interim Final Guidance (including SARA and National Contingency Plan updates), and incorporates the applicable requirements of the National Environmental Policy Act of 1969 (NEPA), and AR 200-1 and 200-2.

The subsequent field investigation (FI) began in August, 1990. According to the Draft EIS, "The field investigation involves the investigation and evaluation of the areas identified in the RI/FS through field sampling, laboratory analysis, and subsequent evaluation in accordance with CERCLA/SARA and Virginia requirements. The RI/FS is carried out using required and approved sampling procedures and analytical parameters. Fieldwork includes a soil-gas survey; investigations of surface and subsurface soils, geophysical and hydrogeological conditions, PCBs; and an asbestos survey and assessment."

Consequently, a number of environmental concerns are being addressed by this RI/FS:

o **Buildings containing asbestos material that must be removed and properly disposed of in an approved facility.**

o **Underground Storage Tanks (USTs), requiring removal or testing for leaks, including those that contained or contain petroleum product, and/or other substances.**

- **Sanitary and Storm Sewer Lines through which small quantities of liquid chemical wastes (solvents, corrosive materials used in film processing, washwater from battery recharge areas, paints, inks, motor oil, etc.) were disposed of, by washing them down, with water.**
- **Road oiling and fly-ash disposal.**
- **Spills around four PCB-contaminated transformers.**
- **Contamination from burning pits and dredge-spoil disposal.**
- **Evaluation of the possible contamination from past solid waste landfilling operations, including necessary testing and remediation.**
- **Contamination from past pesticide applications.**
- **Search for a transformer (containing PCBs) which may be buried on site.**

This document was reviewed by the Federal Facilities Group (Department of Defense facilities undergoing Superfund remediation) of the Division of Special Programs in the Virginia Department of Waste Management.

This review states that the issue of subsequent land use of Cameron Station has been "the major area of concern since the contamination assessment at this installation has been made," but affirmed that this issue already has been addressed by: (1) the final Preliminary Assessment (PA) and also by the Remedial Investigation/Feasibility Study (RI/FS), reported in April, 1990; and, (2) based on the comments for the Draft Work Plan of the remedial investigation, submitted to Jeffery Theikler (CETHA-BC-A), by Glenn Metzler, May, 1990.

The DOD/Federal Facilities Group of the Department also affirmed that these reports (PA and RI/FS) represent the initial phases to determine the extent of existing environmental contamination, and, most importantly, this Departmental group also will be reviewing the next phase of the site assessment, the Remedial Design/Remedial Action (RD/RA) activities, once a Record of Decision (ROD) is made for the site remediation. The DOD/Federal Facilities Group of the Department, through this review, will "ensure that the remediation is coordinated with, and conducted in compliance with federal, state and local standards and regulations."

The DOD Federal Facilities Group of the Division of Special Programs (Superfund) will schedule a site visit to Cameron Station in July, 1991.

Fort Belvoir

According to this Draft Environmental Impact Statement (EIS), the facility has operated under a Resource Conservation and Recovery Act (RCRA) Part A Interim Status hazardous waste management Permit since November, 1980; this permit (according to the Draft EIS) allows for storage of hazardous waste, aboveground, typically in 55-gallon drums, and in bulk, underground storage tanks, as well as the thermal treatment of waste. Subsequent to the Commonwealth of Virginia assuming Final Authority for RCRA in the State, the Draft EIS states that Fort Belvoir has applied for two RCRA Part B Permits, and one Subpart X Permit, in order to continue their storage and treatment operations.

The February, 1990, Virginia Department of Waste Management RCRA inspection of Fort Belvoir, resulted in a Notice of Violation (NOV), in April, 1990. This NOV identified 35 violations, seven of which remain outstanding, and have required a correction plan, submitted to the Department in June, 1990; these remaining, outstanding violations have been serious ones, requiring on-going Departmental evaluation, review, and follow-up, by the RCRA/Hazardous Waste Management group.

91 Fort Belvoir continues to have both solid waste management and hazardous waste management challenges to meet, at present, before any additional, substantial building and/or renovation takes place, as a result of the proposed Base Realignment and Closure.

These challenges, according to staff reviewing this document, include:

92 1.) **Fort Belvoir still needs to come into full, environmental regulatory compliance with the applicable federal, state, and local requirements for solid and hazardous waste management (e.g., 1990 NOVs outstanding);**

93 (69) 2.) **Fort Belvoir needs to follow U.S. Department of Defense guidelines for appropriate, voluntary notifications under SARA Title III, the Emergency Planning and Community Right-to-Know Act of 1986, as, for example, have such facilities as the Radford Army Ammunition Plant, in Radford, Virginia, and Tinker Air Force Base, Oklahoma;**

94 (85)

3.) **Fort Belvoir needs to coordinate two important activities with local government(s) and regional planners---particularly if this facility expands, as proposed under BRAC; these activities are: (a) Emergency Planning and Preparedness (SARA Title III) with the Fairfax Joint Local Emergency Planning Committee (LEPC); and, (b) Solid Waste Management Planning with the Northern Virginia Planning District Commission/the County of Fairfax, Virginia, concerning participation in their Plan to reduce the generation of solid waste through recycling by 10% 1991, 15% in 1993, and 25% in 1995; and,**

95 (70,71)

4.) **The generation of solid wastes by Fort Belvoir should be reduced, and the solid wastes reused or recycled, to the maximum extent possible; likewise, all hazardous waste generation should be minimized, and pollution prevention activities, programs, and procedures, instituted.**

Fort Meyer

According to this Draft Environmental Impact Statement, the kinds of hazardous wastes generated by the activities at this facility will be properly managed in compliance with applicable federal, state, and local regulations. (No other existing problems with solid or hazardous waste management or hazardous materials management were noted in the document for this facility.)

96 (86)

Attachments

THE VIRGINIA WASTE MINIMIZATION PROGRAM

History. Soon after its creation in 1986, the Virginia Department of Waste Management, a regulatory agency with responsibility for administering Virginia's solid and hazardous waste management program and the Citizen-Right-To-Know program, became interested in the potential of waste minimization. In 1987, spurred by a report prepared by an association of public interest groups and industry, the Waste Management Board recommended the establishment of a waste minimization program. This action was supported by the Department's Strategic Resources Committee, which included representatives of industry, public interest groups, local government, and academia. At the request of former Governor Gerald L. Baliles, the 1988 Virginia General Assembly appropriated $150,000 to fund the establishment of a waste minimization program for the 1989-1990 biennium.

Legislative Authority. The Virginia Waste Minimization Program is a voluntary program. Enabling legislation was unnecessary as the authority to establish the program fell within the broad powers of the Board of Waste Management.

Although presently there is no hazardous waste reduction legislation, legislation guaranteeing solid waste reduction in the Commonwealth of Virginia was passed in March 1989 and went into effect July 1, 1989. The provisions of House Bill 1743 require each local government to prepare a solid waste management plan and to prepare a plan to meet the recycling rates of 10% by 1991, 15% by 1993, and 20% by 1995.

Program Funding. The Waste Minimization Program is supported by a $150,000 General Funds appropriation and received $60,000 from the EPA RCRA program in 1989. Beginning July 1, 1990, almost $300,000 became available under the EPA Pollution Prevention Grants to States program to operate a multi-media, interagency pollution prevention team. This project was developed and put in operation in 1990. The program has also received EPA funding related to achieving the waste minimization objective stated in the 1989 Capacity Assurance Program.

Program Objective. The objective of the Virginia Waste Minimization Program is to assist Virginia waste producers to reduce in volume and toxicity the waste they generate. Waste is interpreted broadly to include discharges to surface and ground waters, emissions to air, and solid and hazardous waste destined for treatment, storage, and disposal. Program clients include Virginia industries, local and state governments, institutions, laboratories and other generators. The multi-media aspect of the program will be enhanced by a $300,000 grant from the U.S. Environmental Protection Agency which will allow the creation of pollution prevention positions at the Department of Air Pollution Control and State Water Control Board.

Program Strategy. An evaluation of Virginia's waste producers and their needs indicates that strategies and techniques to reduce waste streams are available but not well distributed. Therefore, the principal function of the program is to gather, consolidate, and disseminate existing materials to waste producers.

Organization. The decision to locate the program in the Department of Waste Management was based on the expertise and data available in the Department. Concern over the influence of the Department's regulatory staff on the waste minimization program has been handled by 1) placement of the program under the Office of Policy and Planning, a non-regulatory branch of the Department; 2) an informal agreement between the Director of the Waste Minimization Program and the Director of Technical Services (administrator of the RCRA and solid waste management programs) establishing a "wall" between the programs; and 3) a formal policy of not reporting regulatory infractions seen on-site unless there exists an imminent hazard to public (or worker) health, safety or the environment.

The Director of the Waste Minimization Program reports directly to the Office of Policy and Planning who reports directly to the Executive Director of the Department of Waste Management.

Program Elements. At the hub of the Waste Minimization program is an information clearinghouse of hardcopy publications, journals, and other printed materials on waste minimization. Program staff also have access to electronic databases, allowing timely response to client requests. Timely response is also enhanced through communications with other, more established waste minimization programs.

The program offers clients customized research. Clients have direct access to a chemical engineer and two researchers for advice on waste minimization and source reduction. The engineer is also available for on-site waste audits of processes and waste streams.

A consultant's file is maintained in hardcopy and in a dBase file. Consultants with waste minimization experience are invited to complete a brief survey form and submit materials for the file. The information entered into a dBase file can be printed out on request and is supplied at workshops.

Waste Minimization Program staff are responsible for identifying and proposing solutions to regulatory interpretations or actions which unnecessarily impede waste minimization efforts. These recommendations are always consistent with the protection of public health, safety and the environment.

Finally, program staff work with trade associations and other organizations to design workshops tailored to the membership's needs. Papers on targeted industries are being developed. These papers characterize waste streams and discuss waste minimization opportunities.

Program Staffing. The program is staffed by two full-time employees--a program administrator and a chemical engineer. The chemical engineer is responsible for coordinating research, responding to requests for information, and conducting workshops on waste minimization practices.

In addition to the full-time employees, two part-time employees and an intern are employed,

all of whom are funded out of the Department's discretionary funds or by the hazardous waste management program. These employees are engaged in research and information dissemination. Two additional technical staff will be hired with the EPA pollution prevention funding.

Advisory Committee. The program is assisted by an 18-member advisory committee with representatives of public interest groups, industry, local governments, academia, and trade associations. Among the members are representatives of IBM, Allied-Signal, Reynolds Metals, the Virginia Manufacturers Association, the League of Women Voters and the Chesapeake Bay Foundation.

Projects. In addition to workshop plans and audits, papers on the printing industry, blast grit and the paper and pulp industry are being prepared. The program is working with the University of Virginia to evaluate engineering curricula changes, and waste minimization in hospitals and laboratories. Several projects involve the Center for Innovative Technology including recycling combustion byproducts.

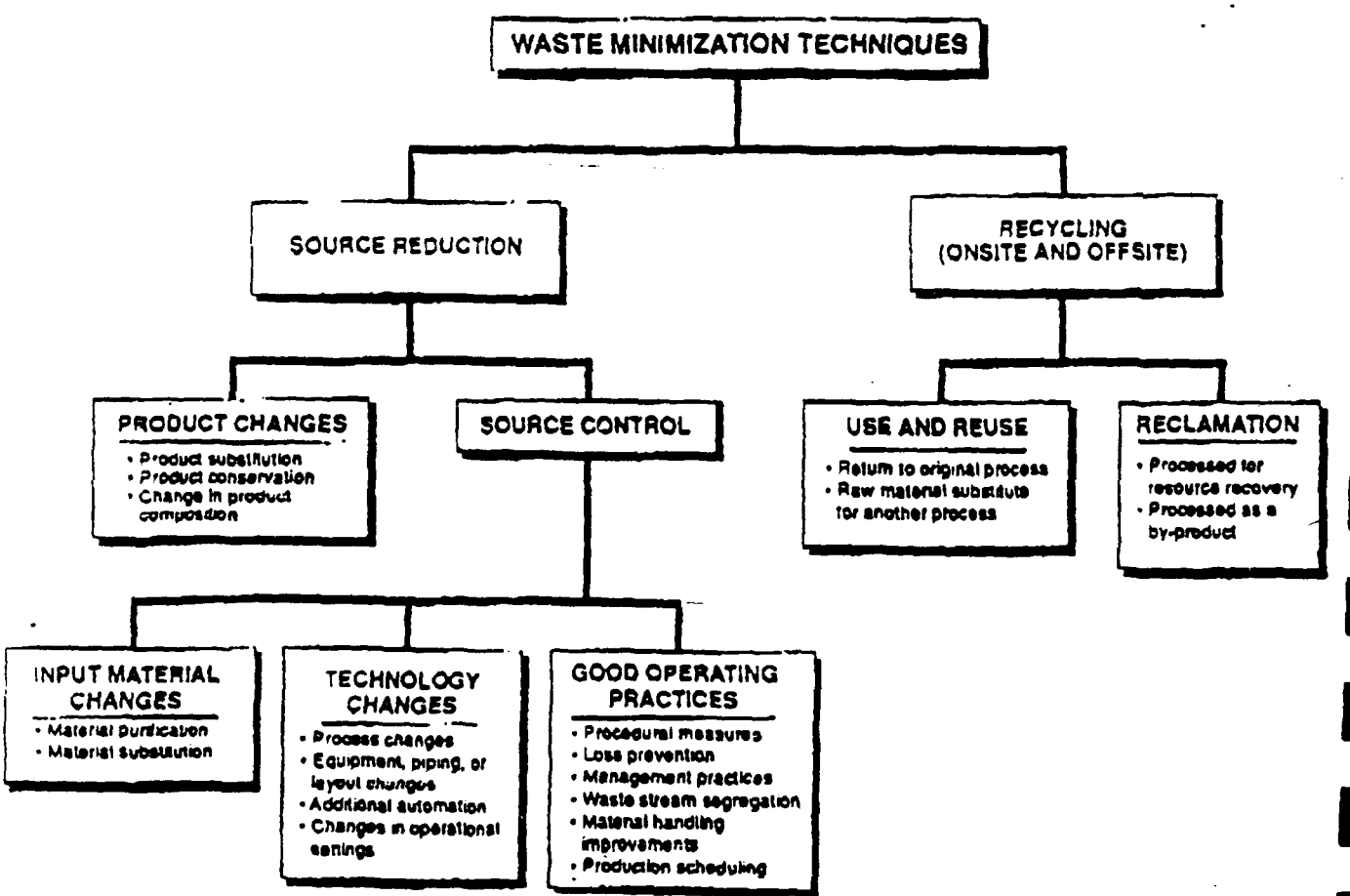
An example of a program outreach activity was a workshop conducted for a ship repair association. Program staff worked with an association committee to develop a two-day agenda covering managerial and technical aspects of waste minimization. Sessions addressed waste audits; solid waste recycling opportunities; measures to deal with freon, used oil and waste tires; and three case studies (blast grit, solvents, and office paper recycling). The program hosts teleconferences broadcast from the University of Tennessee.

In July 1990, a two-year program involving three Virginia regulatory agencies--the Department of Waste Management, Department of Air Pollution Control, and the State Water Control Board--was initiated. Under the program, pollution prevention champions will be placed in each agency. The objective of the project is to develop pollution prevention programs in each agency and to foster cooperation and communication between the programs. The pollution prevention team will be responsible for developing workshops, preparing reports, performing on-site audits, developing agency pollution prevention policies and many other tasks.

For more information on the Virginia Waste Minimization Program contact:

Sharon Kenneally-Baxter
Virginia Waste Minimization Program
11th Floor, Monroe Building
101 North 14th Street
Richmond, VA 23219
(804) 371-8716

Waste Minimization Techniques



Source: USEPA

Figure 1

000100

B. C. LEYNES, JR.
Director

ADMINISTRATION
NATURAL AREAS CONSERVATION
PLANNING AND RECREATION SERVICES
SOIL AND WATER CONSERVATION
STATE PARKS

Received by:
Council on the Environment

JUL 16 1991

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 302

TDD (804) 786-2121 Richmond, Virginia 23219 (804) 786-6124 FAX: (804) 786-6141

M E M O R A N D U M

DATE: July 15, 1991

TO: Charlie H. Ellis
Virginia Marine Resources Commission

FROM: John R. Davy, Jr.
Planning Bureau Manager

SUBJECT: Comprehensive Base Realignment/Closure and Fort Belvoir Development
Draft Environmental Impact Statement

The Virginia Department of Conservation and Recreation has reviewed the subject project and offers the following comments.

PUBLIC ACCESS

Virginia has over 5000 miles of tidal shoreline, less than 1% of which is available for public use. It is suggested that the U.S. Army consider addressing uses of the waterfront which exists within the post. According to the document, there are over 14 miles of shoreline on Accotink Bay, Gunston Cove, Dogue Creek, and the Potomac River.

Consideration should be given in the Master Plan update for making as much of the shoreline as is feasible available for passive forms of outdoor recreation. This could include hiking trails or observation points for viewing wildlife or the panoramas along the Potomac River. There might also be many places suitable for bank fishing. Any small area which may offer the opportunity for public access should be explored. These activities would seem to be consistent with a number of goals and objectives for future base operations. 97 (60)

We note that on pp. 9-18, an alternate proposal involves the conversion of a baseball/softball field to accomodate the commissary. If this site is used, we hope that the master plan will be revised to indicate a location and projected timetable for replacing this popular outdoor recreation facility. 98 (81)

000107

NATURAL HERITAGE RESOURCES

Our Biological and Conservation Datasystem contains records for the following natural heritage resources on the grounds of Fort Belvoir:

Podilymbus podiceps (Pied-billed grebe, G5/S3/NF/NS)
Nyctanassa violaceus (Yellow-crowned night-heron, G5/S1/NF/RT)
Ixobrychus exilis (Least bittern, G5/S2/NF/NS)
Gallinula chloropus (Common moorhen, G5/S1/NF/NS)
Certhia americana (Brown creeper, G5/S3/NF/NS)
Rallus elegans (King rail, G4Q/S2/NF/NS)
Haliaeetus leucocephalus (Bald Eagle, G3/S2S3/LE/LE)
Clemmys insculpta (Wood Turtle, G5/S2/NF/RT)

An explanation of species rarity ranks and legal status abbreviations is enclosed for your reference.

99 (76) The Draft Environmental Impact Statement (DEIS) notes, on pp. S-23 and S-24, the occurences of the bald eagle and wood turtle. Our zoologists are particularly interested in the surveys to be conducted to determine the "critical habitat requirements of the turtles on the site." Specifically, we would like to know the criteria being considered for the wood turtle's critical habitat requirements.

100 Of the other species listed above, only the least bittern and common moorhen are contained in the DEIS list of "Rare, Threatened, and Endangered Animal Species Confirmed at Fort Belvoir" (p. S-57, Table 3-16). The additional species listed above should also be included in this table. Please also note the corrected state ranks for the following species listed in Table 3-16:

Haliaeetus leucocephalis	S2S3
Carpodacus purpureus	S1
Gallinula chloropus	S1
Rallus elegans	S2

Several species are included in Table 3-16 but do not occur in our database. This discrepancy can be attributed primarily to the fact that while Table 3-16 lists all rare bird species recorded to occur on Fort Belvoir property, we monitor only those species which breed and remain permanently in this vicinity. Migratory occurences are omitted.

Based on new information, some species listed in Table 3-16 are more common than previously assumed. Therefore, these species are no longer actively monitored as rare. These species include:

101 **Sorex hoyi winnemanna**
Butorideas striatus
Sterna forsteri
Riparia riparia
Melanerpes erythrocephalus
Blarina carolinensis

102 The Department is especially interested in the development of protection strategies which will serve to minimize impacts on all rare species mentioned. Please contact Larry Smith, our Division of Natural Heritage's Natural Area Program Manager, at 804-786-6205 and advise him as alternative strategies are discussed.

Thank you for the opportunity to comment on this project.

JRD:mre

Enclosure

cc: Larry Smith
Derral Jones
Karen Mayne, USFWS
William Neal, VDGIF
Katie Pague
Rebecca Wajda, VDGIF

000103

Definition of Abbreviations Used on Natural Heritage Resource Lists
of the
Virginia Department of Conservation and Recreation

Natural Heritage Ranks

The following ranks are used by the Virginia Department of Conservation and Recreation to set protection priorities for natural heritage resources. Natural Heritage Resources, or "NHR's," are rare plant and animal species, rare and exemplary natural communities, and significant geologic features. The primary criterion for ranking NHR's is the number of populations or occurrences, i.e. the number of known distinct localities. Also of great importance is the number of individuals in existence at each locality or, if a highly mobile organism (e.g., sea turtles, many birds, and butterflies), the total number of individuals. Other considerations may include the quality of the occurrences, the number of protected occurrences, and threats. However, the emphasis remains on the number of populations or occurrences such that ranks will be an index of known biological rarity.

S1 Extremely rare; usually 5 or fewer populations or occurrences in the state; or may be a few remaining individuals; often especially vulnerable to extirpation.

S2 Very rare; usually between 5 and 20 populations or occurrences; or with many individuals in fewer occurrences; often susceptible to becoming extirpated.

S3 Rare to uncommon; usually between 20 and 100 populations or occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large- scale disturbances.

S4 Common; usually >100 populations or occurrences, but may be fewer with many large populations; may be restricted to only a portion of the state; usually not susceptible to immediate threats.

S5 Very common; demonstrably secure under present conditions.

SA Accidental in the state.

SH Historically known from the state, but not verified for an extended period, usually >15 years; this rank is used primarily when inventory has been attempted recently.

SN Regularly occurring migrants; transients; seasonal, nonbreeding residents. Usually no specific site can be identified with its range in the state. (Note that congregation and staging areas are monitored separately).

SU Status uncertain, often because of low search effort or cryptic nature of the element.

SX Apparently extirpated from the state.

Global ranks are similar, but refer to a species' rarity throughout its total range. Global ranks are denoted with a "G" followed by a character. Note that GA and GN are not used and GX means apparently extinct. A "Q" in a rank indicates that a taxonomic question concerning that species exists. Ranks for subspecies are denoted with a "T". The global and state ranks combined (e.g. G2/S1) give an instant grasp of a species' known rarity.

These ranks should not be interpreted as legal designations.

Federal Legal Status

The Virginia Natural Heritage Program uses the standard abbreviations for Federal endangerment developed by the U.S. Fish and Wildlife Service, Division of Endangered Species and Habitat Conservation.

LE - Listed Endangered
LT - Listed Threatened
PE - Proposed Endangered
PT - Proposed Threatened
C1 - Candidate, category 1
C2 - Candidate, category 2
3A - Former candidate - presumed extinct
3B - Former candidate - not a valid species under current taxonomic understanding
3C - Former candidate - common or well protected
NF - no federal legal status

State Legal Status

The Virginia Natural Heritage Program uses similar abbreviations for State endangerment.

LE - Listed Endangered
LT - Listed Threatened
C - Candidate
PE - Proposed Endangered
PT - Proposed Threatened
NS - no state legal status

The following status recommendations reflect the findings of the 1989 Virginia Endangered Species Symposium. THESE ARE NOT LEGAL DESIGNATIONS, NOR HAVE THE SPECIES YET BEEN FORMALLY PROPOSED.

RE - Recommended Endangered
RT - Recommended Threatened
RSC - Recommended Special Concern

For information on the laws pertaining to threatened or endangered species, contact:

U.S. Fish and Wildlife Service for all FEDERALLY listed species
Department of Agriculture and Consumer Services Plant Protection Bureau for STATE listed plants and insects
Department of Game and Inland Fisheries for all other STATE listed animals

5/91

Received by:
Council on the Environment

JUL 12 1991

COMMONWEALTH of VIRGINIA

CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT

R. Keith Bull
Executive Director

805 East Broad Street, Suite 701
Richmond, Virginia 23219

(804) 225-3440
1-800-243-7229 Voice/TDD

July 12,1991

TO: Charles H. Ellis, III, Environmental Programs Planner
Council on the Environment

FROM: E. Duke Whedbee, Environmental Scientist
Chesapeake Bay Local Assistance Department

RE: Comprehensive Base Realignment/Closure and Fort Belvoir Development. Federal Project No. 91-042F

Thank you for the opportunity to review this project. The Chesapeake Bay Local Assistance Department was pleased to see the U.S. Army Corps of Engineers using estimated RPA Buffer Zones in those maps involving Environmental Constraints. In addition, we were gratified to read that the Corps intended to voluntarily comply with the CPBA Regulations in response to the Federal Governments signing of the Chesapeake Bay Agreement of 1987 and the 1990 Cooperative Agreement between the Department of Defense and the U.S. Environmental Protection Agency (You will find specific comments attached to this memorandum).

We suggest that the Corps contact the pertinent local governments and examine their Chesapeake Bay Preservation Area mapping to determine the precise location of the RPA Buffer Zones that may be impacted by this project. In addition, the Corps should consider Resource Management Areas which are found on the landward edge of the RPA. Development is not restricted but RMAs do require compliance with erosion and sediment controls and stormwater management criteria. The performance Criteria can be found in Part Four, §4.2 of the Chesapeake Bay Preservation Area Designation and Management Regulations. Local ordinances will reflect these criteria and local governments will assist the Corps in determining the extent of impact on Preservation Areas. We urge the Corps to minimize the impact to RPAs and RPA Buffer Zones, where possible, since allowable development is limited to water-dependent facilities or areas of redevelopment.(§4.3 of the Regulations)

103
(82,83)

We would like to express once again our appreciation for the Corps' pledge of voluntary compliance with the Chesapeake Bay Preservation Act. If I can be of any further assistance, call me at (804) 371-6222.

c: C.Scott Crafton
Darryl M. Glover

000111

SPECIFIC COMMENTS
PROJECT 91-042F

104 BRAC 1 - We agree that the preferred alternative has the least environmental impact.

105 BRAC 2 - Preferred alternative has no impact.

106 BRAC 3 , North - Construction of roads is permitted in RPAs, provided that they are built to VDOT standards and appropriate erosion and sediment control ons and stormwater management measures are taken. We would encourage, if feasible, Alternative 2 since it involves the least impact to Preservation Areas.

107 BRAC 3, South - A realignment of the Preferred Alternative to reduce stream impacts is favored.

108 BRAC 4-7 - No impact.

109 BRAC 8 - Preferred Alternative has no impact.

110 MCA 9,13,15,21,24,28,31,35&42[b] - Every attempt should be made to avoid wetlands or incursions into the RPA Buffer Area(See §4.2.B of the Regulations)

111 MCA 16 - See Comments on BRAC 3.

112 MCA 38 - Any non-water dependent facilities should be constructed outside the RPA, including the Buffer Zone where practicable.

113 AFH 3 - Comments on MCA 9, et al, are appropriate.

Received by:
Council on the Environment

JUL 15 1991

CLINTON V. TURNER
COMMISSIONER

MARK D. TUBBS
DIRECTOR

COMMONWEALTH of VIRGINIA

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
Policy Analysis and Development
P. O. Box 1163, Richmond, Virginia 23209

July 12, 1991

Mr. Charles H. Ellis, III
Council on the Environment
Ninth Street Office Building, Suite 900
Richmond, Virginia 23219

RE: Comprehensive Base Realignment/Closure and Fort Belvoir Development

Dear Charlie:

My staff has reviewed the draft environmental impact statement (EIS) for the captioned project, and based on that review, this agency has the following comments on the EIS.

114 (73) This agency appreciates the commitments stated in the EIS to develop an integrated pest management program for the proposed golf course (NAF 5) and to implement best management practices (BMPs) to control associated runoff and soil erosion in order to minimize the adverse effects from increased pesticide (which term includes herbicides) use on aquatic resources. (See pages S-22 and S-23 of the EIS.) We would note that an integrated pest management program is also likely to minimize adverse effects on air quality from pesticide use. If pesticides are to be used in connection with any of the other projects that are part of the base realignment and closure (BRAC) plan, we would encourage the proponent to make the same commitments to integrated pest management and BMPs in the other projects.

115 (74) The chart on page 4-109 of the EIS indicates that pesticide storage may be included as a part of the BRAC projects. The proponent should be aware that Virginia's Pesticide Control Board may promulgate regulations governing pesticide storage prior to the completion of the various BRAC projects, so the proponent may wish to check with the Office of Pesticide Management within this agency to determine the status of any such regulations prior to completing any plans for such storage.

This agency is charged with the protection of certain species of plants and insects listed by the Commonwealth of Virginia as threatened and endangered and works with the Virginia Natural Heritage Program to fulfill this duty. A review of this agency's records confirms that, as of the date hereof, no specimens of any such species are known to exist at Fort Belvoir, Fort Myer or Cameron Station. This agency appreciates the proponent's efforts to work with the Virginia Natural Heritage Program to protect any endangered, threatened and rare plant or insect species that may be found at any of the above-named

locations, as well as the commitment in the EIS to perform additional on-site surveys. We also appreciate the commitment in the EIS to treat candidate species as if they were listed species. (See page 3-56 of the EIS.) We trust that the proponent will inform us of the results of those additional surveys.

116 (78)

Since little agricultural land is involved in any of the various BRAC projects and the area is urbanized, we have no comment regarding possible effects of any of the BRAC projects on agricultural lands.

117 (67)

I appreciate the opportunity to comment on the EIS.

Sincerely,

Mark

Mark D. Tubbs

cc: Dr. Marvin Lawson
Mr. Michael Likins
Ms. Katie Pague, Virginia Department of Conservation and Recreation



COMMONWEALTH OF VIRGINIA

COUNTY OF FAIRFAX

Office of Comprehensive Planning
4050 Legato Road, Suite 800
Fairfax, Virginia 22033

July 29, 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore District Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

REFERENCE: Fairfax County Agency Comments on Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement

Dear Mr. Harris:

This letter and the attachments review Comprehensive Plan and land use, transportation, environmental and heritage resource issues related to the projected Comprehensive Base Realignment/Closure and Fort Belvoir Development actions, as described in the Draft Environmental Impact Statement (EIS). New development at Fort Belvoir and development resulting from Base Realignment and Closure (BRAC) activities will impact the County. Additionally, any public/private development at the Fort Belvoir Engineer Proving Grounds will also impact the County. Accordingly, these impacts warrant recognition and detailed analysis by the Army as part of a comprehensive environmental impact statement for future Fort Belvoir development.

Comprehensive Plan/Land Use Issues

Area IV Plan Citations

The Fairfax County Area IV Plan, as adopted by the Board of Supervisors on July 1, 1991, recommends that Fort Belvoir develop as a Large Institutional Land Area. Fort Belvoir is located in the Lower Potomac Planning District of Area IV. The following section provides citations from the Comprehensive Plan that were used as guidance for evaluating impacts of base realignment and closure actions and Fort Belvoir development, as described in the Draft EIS.

The land use recommendations for the Fort Belvoir Community Planning Sector (LP4) Plan recommend that "development or redevelopment plans should be supported only if they are consistent with the County goals and the Comprehensive Plan." The Area Plan further states that "consideration should be given to the construction of on-post housing to meet the needs of military families in southern Fairfax County. On-post housing for military families reduces the competition for affordable housing in the County. The on-post homes should be well-designed and buffered, and not located near the frontage of Route 1." Additionally, "the Fairfax County Board of Supervisors approved in principle the use of a 15-acre site on Fort Belvoir near Cheney Elementary School for the purpose of building a new elementary school."

Under the heading "Heritage Resources," there are two recommendations that are pertinent to the Draft EIS. The first recommendation states: "The remains of the Belvoir site, which is
118 located in the southern region of Fort Belvoir near the Potomac River, continue to reflect an important element of local heritage and should be protected." The second relevant recommendation states that "Pohick Church, Mount Air and Woodlawn Historic Districts abut
119 Fort Belvoir. Protection of these historic resources should be considered in any redevelopment of the Fort Belvoir property."

Under the Park and Recreation Recommendations, Sector LP4, the Plan states that the Accotink Bay shoreline should be protected "by developing the former float bridge training area as the
120 Tompkins Basin National Capitol Region Recreation Area." The Plan also states that the Fort Belvoir trail system should be developed "in concert with the Fairfax County Trail System."

In the Area IV Plan, within the Springfield Planning District, Country Club (S3) Community Planning Sector, the Plan states that plans for developing or redeveloping the Engineer Proving Grounds "should be supported only if they are consistent with the County Goals and
121 Comprehensive Plan. Any development of the Engineer Proving Grounds to the south of the sector [S3] should be accomplished such that existing residential neighborhoods are adequately protected from visual, noise, and any other adverse impacts of new development."

General EIS Comments Related to Comprehensive Plan

The impacts produced by development resulting from the Army's base realignment and closure (BRAC) actions at Fort Belvoir could be reduced by a process of phasing new development and subsequent transfer of employees to Fort Belvoir from locations outside of Fort Belvoir. This
122 course of action would assist the off-post community and its transportation network in absorbing the new population growth and travel patterns generated by BRAC-related development. In addition, BRAC 3 roadways should be completed prior to occupancy of new buildings and operation of new facilities.

To reduce the off-post impacts, the Army should cluster its employee-intensive facilities in a more central portion of the Fort Belvoir property. Clustering of employee-intensive uses, along
123 with sensitive design and massing of individual buildings, will help produce new facilities that are more mass-transit serviceable and less likely to encroach on the surrounding off-post community.

The Army should provide extensive and effective buffering and screening to adjacent off-post development and historic districts. For instance, the site listed as Alternative 2 for the BRAC 1
124 facility (the headquarters complex) is not a suitable location because of its proximity to the Mount Air Historic District and its low-density character. Furthermore, the Army should continue to protect on-post historic sites and structures and heritage resources as well as on-post visual resources and off-post viewsheds.

The Army is encouraged to build housing in sufficient quantity on-post for military personnel
125 stationed at Fort Belvoir and surrounding bases to meet projected demand for such housing. This will help provide adequate affordable housing and provide housing close to the employment centers and thereby reduce traffic impacts on the local roadways.

126 Additional information is needed to evaluate the impacts of developing a 500-person administrative facility (project MCA 42) at the Humphreys Engineer Center (HEC). A facility of this size will generate a substantial amount of off-post impact which the Army and Fairfax County need to address.

Engineer Proving Grounds Related to Comprehensive Plan

127 As a comprehensive analysis of the cumulative impacts of development actions at both Fort Belvoir and the Engineer Proving Grounds (EPG), the Draft EIS is cursory and lacks detail. The land use analysis of the proposed development at the EPG does not evaluate the functional relationships between EPG and the Main Post of Fort Belvoir, and between EPG development and other federal facilities along the I-95/395 corridor. Furthermore, the EIS analysis does not identify the demands that EPG development will generate for facilities and services from other parts of Fort Belvoir.

128 The EIS minimizes the land use/socio-economic/community facilities impacts on the surrounding community. The proposed level of development for housing and private commercial uses is not compatible with the density and character of existing residential communities surrounding EPG, nor with what is planned for these communities. Further, the addition of a high-density development at the EPG will greatly increase the demand for Fairfax County-funded public facilities, such as schools, parks, libraries, and sewage treatment and solid waste disposal. Because the proposed development will have significant impacts on the surrounding area and on Fairfax County, a task force with representatives from the Army, Fairfax County officials, staff and citizens has been studying this issue for over two years. This study effort will continue and the Army's on-going participation and cooperation is anticipated.

Transportation Issues

Analytical Approach - Transportation

129 The overall analytical approach does not identify the actual transportation deficiencies that will exist upon development of the various phases of the project, and in fact, most likely underestimates the magnitude and scope of transportation problems associated with the proposed development. Instead, it identifies "deficiencies" for each of the development phases without the Army projects, then identifies incremental deficiencies associated with each development phase, based on the assumption that these baseline deficiencies have previously been rectified. In a totally abstract sense, this approach would theoretically result in the identification of improvements which are solely attributable to development of the army project(s).

130 However, it is unrealistic to assume that pre-existing deficiencies have been addressed. In reality, the Army developments will aggravate transportation performance more than indicated by the analysis, since most of the "baseline" improvements will not have been made prior to Army development.

131 A good example of this erroneous analytical design is the assumption that the Fairfax County Parkway (FCP) will be completed by 1995 between Route 7 and Route 1. This project is not fully funded and will not be available for traffic in this period.

This assumption results in two erroneous types of conclusions. First, because the traffic forecasting model assumes the improvement to be in place, highway capacity is assumed which will not actually exist. This unrealistic capacity will mask capacity deficiencies caused by Army developments on these assumed improvements. With respect to the FCP, for example, the substantial traffic volumes generated by BRAC 1 (over 1100 peak hour trips) on this facility will be forced to use Backlick Road. This facility is already overloaded as indicated by both the intersection and cordon analyses.

132

A second erroneous result of establishing unrealistic baseline conditions is that these new facilities will divert traffic in the model away from other facilities which will be impacted by the development in reality. Thus, if the new facilities are not in place, the actual impacts attributable to the development will be greater than shown by the analysis.

133

In a conventional development application, the problems associated with unrealistic baseline assumptions would be addressed through the proffer system. Developers would be requested to either provide the assumed improvements themselves, or alternatively to phase development of the project so as to conform with the infrastructure assumptions. Generally this would result in a commitment to defer construction of the development until the assumed road improvements were in place.

Because of these problems associated with the analytical approach, a rigorous review of the material reported in the Traffic Impact Analysis does not appear to be warranted. In fact, the impacts of the proposed Army developments will be more severe in each of the time periods than reported by the Study.

134

Absence of Site-Specific Analyses

Several proposed actions, most importantly BRAC 5 (Post Exchange) and BRAC 6 (Commissary) may be expected to create significant localized traffic. Neither of these specific facilities is independently evaluated in the EIS. The treatment of these two facilities in particular is totally inadequate; at a minimum, additional turning lanes will be necessary along Woodlawn Road (BRAC 5) and Gunston Road (BRAC 6) to mitigate the impacts of these two major facilities. Other proposed BRAC, MCA, and other projects should be similarly examined.

135

Mitigation

The EIS defers identification of highway improvements necessitated by the proposed Army developments, indicating that these will be determined jointly by VDOT, the County, and the Army. It is not clear whether this lack of specificity conforms with the intent and purpose of an EIS. Certainly, by failing to commit to specific mitigation actions, the traffic and transportation impacts associated with the development as proposed are extremely negative.

136

Potential Conflicts with Highway Projects

Several specific facilities are proposed to be located in close proximity to planned road improvements. These include MCA 15, 21, and 28 in the vicinity of the Fairfax County Parkway and Route 1 and AFH 3, BRAC 4, and AFH 1 and 2 near Woodlawn Road. Care should be taken to ensure that appropriate rights-of-way and easements are provided for these road improvements in the siting of these facilities.

137

Use of Neuman Street for Access to EPG

138 The proposed use of Neuman Street for access to the EPG site is explicitly prohibited by the Fairfax County Plan, adopted July 1, 1991.

Additional Transportation Issues

Additional general and specific concerns related to transportation are outlined in the attached memorandum from Dennis A. Randolph to Robert L. Moore, dated July 24. 1991.

Environmental Issues

Wildlife Genetic Corridor

Of particular concern from an environmental perspective is the current function and quality of the genetic corridor and the cumulative impacts that the BRAC and non-BRAC projects will have on this corridor. The DEIS describes Fort Belvoir as a "critical link" in a genetic corridor between undisturbed areas to the south (Mason Neck) and to the north (Huntley Meadows). As noted in Figure 3-4 of the DEIS, the corridor is significantly constricted near Davison Airfield and in the North Post area. 139

Ft. Belvoir is to be commended for its recognition of the Mason Neck-Huntley Meadows corridor as a valuable natural resource that is not duplicated elsewhere within Fairfax County. The presence of this corridor on the property of Fort Belvoir attests to the sensitivity and foresight of the Fort's planning efforts. The DEIS appears to fall short, however, in its discussion of the current function and future status of the corridor. In addition, the DEIS indicates that several proposed activities will further constrict, or perhaps even sever, the corridor in the North Post area. 140

Regarding the current function of the corridor, discussion is needed on the nature and impact of the existing constrictions and disturbances. How have the functions of the corridor been affected by the disturbances in the area proposed for BRAC 1? How has the existing golf course on the North Post affected the corridor? How has Davison Airfield affected the corridor? What impacts have the numerous roads on the North Post (including Backlick and Beulah Roads) had? What impacts can be anticipated from the Fairfax County Parkway? In addition, discussion is needed on how the corridor is considered within Fort Belvoir's Natural Resources Management Plan and within management plans of parks located within the genetic corridor. 141

With respect to the future status of the corridor, the DEIS does not clearly address the relationship between the cumulative impacts of various BRAC and non-BRAC projects and habitat management goals. It is noted that the construction of several of the proposed projects could lead to the severing of the corridor and the loss of several species from the post (barred owl, ovenbird, pileated woodpecker, great horned owl, and Cooper's hawk). There is no discussion, however, of the relationship between the loss of these species and the Natural Resource Management Plan, or of what it would take to maintain adequate habitats for these species (i.e. reduction in scale, relocation, or elimination of projects). Similarly, the DEIS does not address the relationship between the proposed projects (and resulting corridor constrictions) and the habitat management goals of nearby parks. A question should be raised about whether the impacts to the corridor will have been adequately mitigated if the results conflict with habitat management goals in the area. 142

The DEIS suggests that impacts to the genetic corridor will be mitigated through the provision of box culverts and bridges and the maintenance of a minimum 250-foot wide corridor. The DEIS does not establish that these measures will be sufficient to preserve the existing functions

of the corridor. First, it is unclear from the document which functions of the corridor will be preserved through these measures and which functions will be lost. Is it anticipated that all of the corridor's functions will be preserved? Conflicting recommendations for corridor widths provided on page 3-46 (250 feet, 330 feet, and 250 yards) seem to indicate that some species that are currently dependent on the corridor may be adversely affected, even if the 250-foot wide corridor is maintained. Second, no information is provided about the cover type and canopy needs of species that are dependent on the corridor and how this relates to the corridor constrictions and mitigation measures. What is the distribution of cover types within the corridor, and what will be the anticipated distribution of cover types after the development of the BRAC and CDP projects? How will the changes in cover type and canopy coverage affect species that are currently dependent on the corridor? Third, the DEIS does not address the impacts that a narrowing of the corridor will have on the vegetative communities within the remaining corridor. What edge effects can be anticipated, and how far into the corridor might these effects be felt? Of particular concern are possible changes in the nature of plant communities within the corridor resulting from microclimate changes, invasion of outside species, and possible hydrologic changes. Will there be adverse impacts to plant communities? Will these impacts, in turn, affect wildlife?

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145

The DEIS raises other, more specific issues about the wildlife corridor:

146 • While it is recognized that detailed design of box culverts will occur during the design of the road projects, it would be desirable to have general information about the anticipated size of the box culverts that will be provided.

147 • It is noted on page 3-46 and page 4-129 that a two-year monitoring program will be undertaken to assess the effectiveness of bridges and box culverts. More information should be provided on how this monitoring will occur, how the effectiveness of the mitigation measures will be determined, and what measures can be taken in the event that it is determined that these structures are not functioning as intended.

148 • The "genetic corridor requirement" as shown in Figure 4-5 should be clarified. Is this line measured from the anticipated limits of clearing and grading associated with BRAC3? Will there be efforts undertaken to preserve any of the areas north of this line (or north of the "RPA minimum" lines as shown on this map)?

149 • On page 4-84, it is stated that "Figure 4-14 shows the post-development corridor boundary at NAF 5." Figure 4-14 does not identify the corridor boundary.

150 • On page 4-22, it is stated that " . . . a 250- to 300-foot buffer will also be maintained on the north side of BRAC roads where practicable." The phrase "where practicable" should be clarified.

Vegetative Cover Types

Table 3-11 describes the various habitat types found within each of Fort Belvoir's training and management areas. Unfortunately, no map is provided that clearly displays the distribution of cover types on the Fort. It is difficult to assess the impacts of the proposed activities on ecological resources because of the lack of good information about the distribution of cover types. It is recommended that a cover type map be provided and that this map illustrate the locations of the proposed projects.

151

Chesapeake Bay Preservation Areas

The identification of Resource Protection Areas (RPAs) provided within the EIS appears to have been a conservative, "worst case" one. Given that the EIS was being prepared as the County was in the process of developing its Chesapeake Bay Preservation Ordinance and that there may have been confusion about the ultimate definition of Resource Protection Areas, the Army is to be commended for pursuing such a cautious approach. The Army should be aware that the Board of Supervisors endorsed the Ordinance on May 20, 1991 and that the Ordinance is currently undergoing a review by the Chesapeake Bay Local Assistance Board. A copy of the Ordinance is attached. Resource Protection Areas as defined within the Ordinance will not be as extensive as the RPAs described within the EIS. Staff from the Environmental Branch of the Fairfax County Office of Comprehensive Planning are available to assist the Army with questions about the Ordinance and how it may apply to Fort Belvoir.

52

It is assumed that the Army will provide more detailed information about project designs (and how projects will be designed to avoid RPAs) within the NEPA analysis for each individual project. With the exception of the proposed site for the northern extension of the runway at Davison Airfield (MCA 9) and the road projects, each site should contain enough area outside of RPAs such that projects can be designed to avoid RPAs. The Army should be aware that development on the northern site proposed for MCA 9 may not be possible without encroachments into an RPA, and that the Ordinance would not provide for the proposed project unless an exception from the County is obtained. The Ordinance does provide for road crossings of Resource Protection Areas, but it is suggested that the Army design these crossings to minimize impacts to RPAs.

53

54

Stormwater Management

Pages S-19 and 4-88 mention that the Army will pursue a regional stormwater management program for Fort Belvoir. If general locations for regional stormwater facilities have been determined, information about these locations and their potential impacts on wetlands should be provided.

55

Wetlands

The DEIS indicates that the BRAC projects will result in the loss of approximately 2.8 acres of wetlands, most of these being associated with the northern BRAC 3 road. The DEIS also indicates that these wetlands will be replaced. Information should be provided about the types of wetlands that will be lost and location(s) of mitigation sites.

56

The wetlands delineation shown in Figure 4-5 differs from delineations shown in Figures 4-14 and 4-15. These discrepancies should be clarified.

57

Air Quality

The DEIS notes that there will be additional traffic impacts resulting from the BRAC and CDP projects but does not provide anything more than a general qualitative assessment of potential impacts of traffic increases on air quality. No estimates of additional emissions of hydrocarbons and oxides of nitrogen are provided, and no analysis of potential carbon monoxide hot spots is evident. Tables 4-4 and 4-5 indicate that, even if 1995 baseline transportation projects are constructed, the BRAC actions will have the potential to significantly increase traffic congestion (and pollutant emissions) in the area.

58

Access to Remote Projects

159 Some of the BRAC and CDP projects are in remote areas in the southwestern quarter of the base. Information is needed about access roads that may need to be constructed or improved in this area (and perhaps other infrastructure improvements) and the effects of these actions on the environment (e.g. impacts on the wildlife genetic corridor).

Additional Road Projects

Several road improvements are suggested or noted in documents provided as appendices or attachments to the DEIS but are not mentioned within the DEIS. It is noted on page 120 of the Traffic Impact Analysis, for example, that Woodlawn Road will need to be widened to four 160 lanes. This widening is not addressed within the DEIS. Other examples of potential road improvements that are not addressed include the extension of 23rd Street south of Gunston Road (page 9-3 of the CDP), improvements to Mulligan Road (page 2-6 of the CDP and page 19 of Appendix B), and an extension of the BRAC 3 North road (page 2-6 of the CDP and page 19 of Appendix B). No information is provided on the status of these improvements with respect to the BRAC and CDP projects or of the impacts that may be associated with these projects. The DEIS should at least make note of these possible road projects and discuss the status of these 161 projects with respect to the CDP. Ideally, the DEIS would incorporate these projects (assuming that they will eventually be pursued) in its analysis of cumulative impacts. Of particular concern are impacts that road improvement projects within the North Post area may have on the wildlife corridor. Are these road projects ultimately going to be pursued? Would a scaling back of proposed BRAC and CDP activities on the North Post reduce the need for these projects?

Heritage Resources

The Heritage Resources office has reviewed the DEIS and CDP and has provided the following comments:

162 • In general, the environmental office at Ft. Belvoir is to be commended for ensuring that heritage resources have been identified and evaluated in a comprehensive manner. The high quality of the recent heritage resource survey of the base attests to the Fort's dedication and concern.

163 • Page 4-1 of the CDP and elsewhere: The Northern Neck Grant information provided within the CDP is oversimplified and inaccurate. It is recommended that this information be corrected. The Heritage Resources office (703/237-4881) can be contacted for further information.

164 • Page 6-1 of the CDP and elsewhere: The CDP refers to "the Woodlawn and Fairfax Historic Districts." This reference should be changed to remove the implication that Woodlawn is not a historic district within Fairfax County. Further, there is no area known as the "Fairfax Historic District". In addition, the Pohick Church Historic District needs to be addressed specifically, as it is adjacent to (and partially within) Fort Belvoir.

165 • In sections 6.1.2, 6.3, and 6.2.4 of the CDP, some reference should be made regarding Section 106 requirements.

166 • Within the Draft EIS, several statements are made implying that impacts to heritage resources will be "minimal" or "minimized" through the completion of a phase I survey. A phase I survey is not a guarantee of minimal impact because a phase I survey serves only to identify resources and constraints. This survey may demonstrate that the proposed activity will have a very serious impact on heritage resources. Reference needs to be made to phase II significance evaluation and, if necessary, phase III data recovery or resource preservation.

Waste Management

167 Page 3-62 of the DEIS notes that a new landfill or incinerator may be needed on the Fort. While the DEIS identifies a preference for joining a regional solid waste disposal system, it is not clear what actions will be pursued in the event that this preference is not realized. More information should be provided about facilities that may be needed on the Fort. In particular, information about possible locations for these facilities should be provided.

Project-Specific Comments

BRAC 1

168 • With respect to the wildlife corridor, the preferred alternative is a more appropriate location than Alternative 2, in that the preferred site has already been largely disturbed. Development of Alternative 2 would likely result in a significant constriction of the corridor.

169 • It is recommended that land disturbance associated with development be confined to areas south of the existing alignment of Kingman Road, and that areas north of Kingman Road be kept in a natural condition or be restored to a natural condition (for purposes of corridor maximization and wetland protection).

170 • The benefits and drawbacks of Alternative 3 do not appear to have been fully explored, nor has the option of pursuing a combination of Alternatives 1 and 3 Would a combination of Alternatives 1 and 3 be possible, thereby allowing for more preservation/restoration in the northern portion of the preferred site?

171 • Table 4-7 on page 4-44 is incorrect in that it states that there are no wetlands on the preferred site. It is noted elsewhere that some wetlands losses are anticipated for the preferred alternative.

BRAC 2

172 • The preferred alternative appears to be a more appropriate location than Alternative 2, in that the preferred site has already been largely disturbed.

173 • If the preferred alternative is pursued, what will happen to the pasture area it is displacing? Will it be moved to the area adjacent to MCA 10?

174 • Figure 4-12 does not display any stormwater management facilities. While it is recognized that the location of stormwater management facilities may be beyond the scope of this EIS, information will eventually be needed about how stormwater runoff will be managed.

BRAC 3

175 • Of the two alternatives presented, Alternative 2 is preferable from an environmental standpoint. The Office of Transportation should be consulted regarding the need for Alternative 1 from a transportation standpoint.

176 • On page 4-25, it is argued that Alternative 2 "would not provide the degree of access required" for BRAC 1. What is the level of access that will be required? Are there any alternatives to providing it via BRAC 3 north? If some BRAC 1 activities are provided within the BRAC 1, Alternative 3 area, might this reduce the transportation stress on the north post, thereby allowing for a scaled-back BRAC 3?

177 • The alignment of BRAC 3 north is proposed for an area north of the current alignment of Kingman Road east of Beulah Street. It is recommended that the alignment follow that of the existing Kingman Road in this area and that the area north of Kingman Road be maintained in, or be restored to, a natural condition. If this alignment is not pursued, there should be some discussion as to the benefits of the new alignment over the existing alignment.

178 • The DEIS notes that the BRAC 3 alignment will be surveyed to determine if potential impacts on wood turtle habitat will require the pursuit of an alternate alignment. This issue should be addressed within the NEPA documentation for the BRAC 3 projects, and alternative alignments should be considered within the context of the wildlife corridor.

179 • The location of BRAC 3 as shown in Fig. 4-26 is not the same as that described by either of the BRAC 3 alternatives in the text.

180 • The terminus of Alternative 2 is unclear. Figure 2-8 shows it ending at Keene Road (labeled as Gunston Road), page 2-15 indicates that it will end at the planned extension of Gunston Road, and page 9-5 of the CDP implies that the extension of Gunston Road will follow the current alignment of Keene Road. Figure 2-27, however, shows the extension of Gunston Road following a completely different alignment. Where will Gunston Road be, and how far east does BRAC 3, Alternative 2 extend?

181 • Information is needed about the box culverts that will be provided. How big will they be? What species will be able to (and likely to) utilize these culverts? Can it be anticipated that some species will not cross through these culverts?

182 • Given that this is an EIS, other alternatives should be discussed. What are the costs and benefits of a "no action" alternative for BRAC 3 north? Are there other ways of moving Route 1 traffic into the BRAC 1 area?

183 • Page 94 of the Traffic Impact Analysis document recommends that Kingman Road be widened to four lanes all the way to Woodlawn Road. Is this project anticipated to be needed? If so, it should be addressed either as a BRAC or CDP project in the EIS. If not, it is recommended that the Traffic Impact Analysis document be corrected.

BRAC 8

184 • In light of the proposed location of MCA 24, it is unclear if Alternative 2 for BRAC 8 is a realistic alternative.

185 • If Alternative 2 is selected, the condition that land disturbance not occur below an elevation of 125 feet should be supported. To comply with requirements of the County's Chesapeake Bay Preservation Ordinance, land disturbance should not occur within 100 feet of the streams bordering the site.

186 • Within the DEIS for the "Army Materials Technology Laboratory Closure," there needs to be a better discussion of the nature of hazardous materials to be used and of the use, transfer, and disposal procedures associated with these materials.

187 • The EIS for the Army Materials Technology Laboratory Closure needs to clarify the status of the use of radioactive materials. The DEIS indicates that "research involving depleted uranium, californium and beryllium is expected to be terminated," (page 4-35), but also discusses the possibility of depleted uranium being found in the wastewater effluent of the facility (page 4-39).

Other BRAC projects

188 • There are no significant environmental issues associated with other proposed BRAC projects. The Army should consult with the State Water Control Board and with the County's Fire and Rescue Department, however, to ensure that underground petroleum storage tanks associated with BRAC 9 are installed properly.

AFH 3

189 • It appears from the DEIS that this project may have significant adverse impacts on the wildlife corridor.

190 • While it is recognized that the DEIS is meant to address the BRAC projects and only addresses other CDF projects to provide a cumulative perspective, it is recommended that alternative sites eventually be considered for at least part of this project. For example, there should be some consideration of the area west of AFH 11 and east of MCA 7c.

191 • We should support a statement made on page 4-87 calling for clustering. Extensive clustering and open space preservation should be pursued if this site is developed.

192 • On page 4-98, it is noted that there may be rare, threatened, and/or endangered plant species in the area proposed for AFH 3, and that these species would not have been identifiable during the March, 1990 surveys. It is recommended that this area be surveyed later in the year and that results of this survey be incorporated into subsequent NEPA documentation for the AFH 3 site (if this site is pursued).

MCA 9

193 • The feasibility of the northern runway extension is questionable in light of the distribution of hydric soils and the proximity of this area to Accotink Creek. Much, if not all, of this site will be located within a Resource Protection Area. A wetland delineation is needed to determine whether or not the proposed site is feasible.

194 • According to Figure 3-4, the wildlife genetic corridor is *significantly constrained* at Davison Airfield. Within NEPA documentation for this project, the relationship between the runway extensions and the corridor should be addressed. Will there be any direct impacts on the corridor? Will there be indirect effects (i.e. increased noise impacts)?

MCA 13

195 • The extent of land disturbance associated with this project is unclear. This project is not discussed within Section 4.2.2.2.1.1 and is not displayed in Figure 4-13, but possible impacts on the corridor are noted within Table 4-8.

196 • To maximize protection of the wildlife corridor, it is recommended that development be concentrated within disturbed areas to the extent possible. If development on the site can be clustered, it should be concentrated south of BRAC 3.

MCA 15

197 • The boundaries of this project should be clarified. The boundaries shown in Figure 2-26 are not the same as those shown in Figure 4-19.

198 • The Resource Protection Area associated with Mason Run is noted in Figure 4-19. Based on an analysis of County air photos, it appears that this area is in need of restoration. The NEPA documents for this project should address the location and condition of the RPA in this area.

MCA 16

199 • The precise location of this project is unclear. Figure 2-8 shows it following the existing alignment of Keene Road (labeled as Gunston Road), and page 9-5 of the CDP implies this alignment, but Figure 2-27 shows the extension of Gunston Road following a completely different alignment.

200 • Table 4-8 notes that this project "will cut off" the wildlife genetic corridor but that box culverts will be provided to facilitate wildlife movement. Information about these culverts should be provided (see comments for BRAC 3).

MCA 21/28

201 • The boundaries of this project should be clarified. The boundaries shown in Figure 2-26 are not the same as those shown in Figure 4-19.

202 • The Resource Protection Area associated with Mason Run is noted in Figure 4-19. Based on an analysis of County air photos, it appears that at least a portion of this area is in need of restoration. The NEPA documents for this project should address the location and condition of the RPA in this area.

MCA 24

203 • If this site is developed, streams, wetlands, floodplains, and steep slopes should be avoided. As noted in the comments for BRAC 8, the condition that land disturbance not occur below an elevation of 125 feet should be supported. To comply with requirements of the County's Chesapeake Bay Preservation Ordinance, land disturbance should not occur within 100 feet of the streams on the site.

MCA 25

204 • Information should be provided about the nature of any road improvements that will be needed for this facility and the impacts that these improvements will have.

MCA 31

205 • Figure 28 of the Traffic Impact Analysis displays several interchange alternatives for the loop road/Fairfax County Parkway at Route 1. Given the proximity of Accotink Creek and associated wetlands to this interchange, the alternative that is selected should be sensitive to environmental resources and constraints. It is suggested that this issue be discussed within the Traffic Impact Analysis and/or the NEPA documentation for this project.

MCA 35

206 • Depending on the location of the Potomac River floodplain, part or all of the site may be located within a Resource Protection Area. Redevelopment (as it is defined in the Chesapeake Bay Preservation Ordinance) will, however, likely be considered an allowable activity within RPAs.

MCA 38S

207 • Depending on the location of the Potomac River floodplain, part or all of the site may be located within a Resource Protection Area. Redevelopment (as it is defined in the Chesapeake Bay Preservation Ordinance) will, however, likely be considered an allowable activity within RPAs, as will water dependent development.

MCA 42

208 • The proposed location of the facility is in the middle of the wildlife genetic corridor. It is recommended that the NEPA analysis for this project carefully consider alternate locations and that, if possible, a less sensitive site be selected.

NAF 2

209 • In October, 1990, Fairfax County submitted detailed comments regarding a recommendation for a Finding of No Significant Impact for a proposed recreation area at Tompkins Basin. The County's comments should be addressed in future NEPA analyses of the Tompkins Basin area.

210 • Of particular concern within the Tompkins Basin project are compliance with the County's Floodplain Ordinance, EQC policy, and Chesapeake Bay Preservation Ordinance as well as possible impacts associated with dredging in tidal waters.

NAF 3 and NAF 7

211 • General information about the scope of these projects (size, amount of clearing) is needed.

NAF 5

212 • The expansion of the golf course may have a significant adverse impact on the wildlife corridor. Along with other proposed projects (and AFH 3 in particular), this project may result in the severing of the corridor.

213 • Because of potential impacts on the wildlife genetic corridor, nontidal wetlands, wildlife habitat, and steep slopes, NEPA analysis of this project should carefully consider the no action alternative.

Engineer Proving Grounds

214 • Comments regarding a draft EIS for the Engineer Proving Grounds development were submitted by the County in December, 1990.

Thank you for the opportunity to comment on the draft Environmental Impact Statement. If you have any questions, please call Lynda Stanley, Director of the Planning Division, at 246-1263.

Sincerely,

for James P. Zook

James P. Zook
Director

cc: Carl Sell, Chairman, Fort Belvoir GSA Task Force
Anthony H. Griffin, Deputy County Executive for Planning and Development
Shiva K. Pant, Director, Office of Transportation
Robert L. Moore, Chief, Transportation Planning Division, OT
Lynda L. Stanley, Director, Planning Division, OCP
Bruce G. Douglas, Chief, Environmental and Heritage Resources Branch, OCP
Michael P. Hines, Planner, Planning Division, OCP
Maurice Foushee, National Capital Planning Commission

FAIRFAX COUNTY, VIRGINIA

MEMEMORANDUM

TO: Robert L. Moore, Chief July 24, 1991
Transportation Planning Division

FROM: Dennis A. Randolph, Chief
Highway Operations Division

FILE: C/HWY2278

SUBJECT: Environmental Impact Statement: Comprehensive Base Realignment/Closure and Fort Belvoir Development Traffic Impact Analysis

This Division has completed its review of the above-referenced documents. Our comments are noted below. In order to avoid confusion, comments relative to the Environmental Impact Statement are prefixed with EIS and those pertaining to the Traffic Impact Analysis are prefixed TIA. The majority of our comments pertain to the Traffic Impact Analysis report.

* General)

215 This Division has major concerns regarding the 1995 baseline network as identified in both the EIS and on pages 65-71 of the accompaning Traffic Impact Analysis. The analysis assumes that many improvements will be completed by 1995, thus presenting an inaccurate representation of traffic conditions and consequently identifying fewer needed improvements to the network by Fort Belvoir.

216 Several improvements suggested by the Army regarding site access may require further environmental study. A case in point is the proposed Neuman Street extension. As proposed under the year 2000 improvement scenario, an environmental assessment should take into consideration impacts associated with increases in traffic

217 volumes (created by the commercial and residential development within the EPG) on the existing single family residences on Neuman Street.

* (TIA) Pages 66, 70 and 71 Baseline Network Improvements

Fairfax County Parkway/Franconia-Springfield Parkway

218 A. The completion date has not been estimated but will definitely not be by 1995.

219 B. The ultimate cross-section will provide for six lanes, however, the recently completed Comprehensive Plan has identified one segment to include HOV lanes.

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220 C. The Fairfax County Parkway, Rolling Road to Route 1 is currently not funded for construction, therefore a completion date of 1995 is unrealistic.

Kingstowne Boulevard

221 A. Open to traffic.
B. Constructed with private contributions only.

Backlick Road

222 A. Backlick Road from Calamo Street to the Fairfax County Parkway is near completion.

Rolling Road

223 A. Unfunded for construction in the 6-Year Plan.

Beulah Street

224 A. State funded.
B. Bid Advertisement for 7/94.

South Van Dorn Street

225 A. Private funding.
B. Portion of roadway extending south to Telegraph Road has been delayed due to wetlands encroachment. Construction could be delayed (or denied).

Lockheed Boulevard

226 A. Deleted from program.

Van Dorn metro Station

227 A. Open for revenue service.

Commuter Rail

228 A. A station is being considered in the Lorton area.

Transportation Centre

229 A. Funding by UMTA, State and County.
B. Completion in 1995.

230 * (TIA) Page 21 Figure 4 - Fullerton Road does not connect with Rolling Road. Figure 4 should be corrected. In addition, the completed segments of the Franconia-Springfield Parkway should be shown including the interim Bonniemill Drive intersection.

231 * (TIA) Page 27 Figure 8 - Traffic figures for both the Franconia-Sprignfield Parkway and Backlick Road (north of Fullerton Road appear low). Recent counts taken on this segment of Parkway (open to traffic) indicate an ADT of 21,000 in 1991.

232 * (TIA) Page 30 Figure 11 - The current peak hour volumes on the segment of the Franconia-Springfield Parkway between Rolling Road and Backlick Road are lower than what is currently experienced. 1991 peak hour directional counts are 1,413 in the AM peak hour eastbound and 1,739 in the PM peak hour westbound direction. The TIA shows respective volumes of 700 and 400 for existing conditions.

233 * (TIA) Page 38 Figure 14 - Field observations indicate that levels-of-service at several intersections identified on this figure may actually be worse than shown. These inlcude: Rolling/Franconia-Springfield Parkway, Rolling/Hooes, Franconia-Springfield/Backlick, and Rolling/Alban. This information is also shown on Table 1, Page 34.

234 * (TIA) Page 69 Figure 26 - The Alban Road/Backlick Road underpass should be shown at the Newington interchange. Additionally, the access to the Franconia-Springfield Parkway is provided (in the interim) by an at-grade intersection with Bonniemill Lane and not Neuman Street as shown. When the ultimate Neuman Street interchange is constructed, the Bonniemill connection will be deleted. These errors occur on Figures 26, 31, 35, 40, 43, 46, 49, and 52.

235 * (TIA) Page 71 - The narrative references alternative proposals for a "Z" alignment of the Fairfax County Parkway from Kingman Highway to Route 1. It should be noted that the current alignment as designed was approved by the Federal Highway Admnimistration (as part of the corridor alignment and environmental study phase) in 1985.

236 * (TIA) Page 83 Telegraph Road Intersections - Lockheed Boulevard has been deleted from the County's roadway network and therefore should be deleted from the traffic analysis network. As the report states, additional improvements to adjacent roadways may be warrented.

237 * (TIA) Page 83 Richmond Highway/Lorton Road - The analysis references the need for dual left turn lanes on Armistead Road approaching Route 1 and suggests a signal warrants study be completed at the adjacent intersection of Route 1 and Lorton Road. Since this intersection is currently signalized, are the dual lefts on Armistead still required?

238 * (TIA) Page 94 Fairfax County Parkway to Kingman Road - Reference is made to several improvements to the Parkway/Kingman intersection. These modifications have neither been incorporated into the VDOT Design Plans nor will the design be modified under the current contract. Please explain the meaning of, "they are identified here as amendments to VDOT's Preliminary Design Plans for the intersection."

239 * (TIA) Page 96 - The Fairfax County Parkway will not be completed by 1995 as stated. Furthermore, widening of Backlick Road may not be completed with in the referenced time frame.

240 * (TIA) Page 97 Planned/Programmed Transportation System - The programmed improvements assumed in the year 2000 base network are currently not included in any Capital program and may infact not be constructed until after the year 2000.

241 * (TIA) Page 107 EPG Study Area - With the additional of 4.1 million square feet of commercial space and 2,275 dwelling units, it is difficult to believe the statement, "no improvements in addition to those already planned or programmed by public agencies are needed in the EPG Subregion for the year 2000."

242 * (TIA) Page 114 Figure 49 - Improvements to intersections and interchanges are identified on Figure 49 but are not described in detail. It is suggested that the additional third southbound lane be added to Backlick Road between the I-95 flyover and Fullerton Road in the year 2000 improvements scenario.

243 * (TIA) Page 123 Telegraph Road - The Comprehensive Plan was modified showing only four lanes on Telegraph Road, not six as referenced in this paragraph.

244 * (EIS) Pages 4-34, 4-35, 4-36 - All supporting technical background data should be submitted to Fairfax County. This includes all level of service data, volume/capacity ratios, highway capacity analyses and other applicable data.

245 * (EIS) Page 4-39 - In the fifth paragraph, reference is again made to amending VDOT plans at the intersection of the Parkway and Kingman Road (see comment; TIA, Page 94).

246 * (EIS) Page 4-124 - Reference is again made to ramp and intersection improvements but specific improvements are not identified.

247 * (EIS) Page 4-125 - Within the list of "likely" required transportation improvements, several projects introduce legal and/or socieconomic issues which will require further discussion, (i.e. upgrading Neuman Street, direct access from the I-95 flyover).

Should you have any questions or concerns, please do not hesitate to contact either me or Charlie Strunk.

DAR/CWS:kdr

CHAPTER 118.

Chesapeake Bay Preservation Ordinance.

ARTICLE 1.

General Provisions and Definitions.

Section 118-1-1. Title.

This Chapter shall hereafter be known, cited, and referred to as the "Chesapeake Bay Preservation Ordinance" of Fairfax County.

Section 118-1-2. Authority.

This ordinance is enacted pursuant to the authority and mandates of the Chesapeake Bay Preservation Act, Sections 10.1-2100, et seq., of the Code of Virginia.

Section 118-1-3. Enactment.

This Chapter shall be effective on _____. [DATE TO BE ESTABLISHED FOLLOWING PUBLIC HEARING BEFORE THE BOARD OF SUPERVISORS, TO BE HELD FOLLOWING RECEIPT OF COMMENTS FROM THE CHESAPEAKE BAY LOCAL ASSISTANCE BOARD.]

Section 118-1-4. Findings.

(a) The Chesapeake Bay is one of the most productive estuaries in the world, providing substantial economic and social benefits to the people of the Commonwealth of Virginia. Healthy state and local economies are integrally related to and dependent upon the health of the Chesapeake Bay, therefore the general welfare of the people of Fairfax County and the Commonwealth depends on the health of the Bay.

(b) The Chesapeake Bay waters have been degraded significantly by many sources of pollution, including nonpoint source pollution from land uses and development. While nonpoint source pollution from an individual property may not be substantial, cumulative negative impacts of pollution from developed and developing properties, as well as from agricultural lands, have been significant. Existing high quality waters are worthy of protection from degradation to guard against further pollution, and the quality of other state waters should be improved. Certain lands that are proximate to shorelines and streams have intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant

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degradation of the quality of state waters and the Chesapeake Bay. Other lands have severe development constraints from erosion and soil limitations. With proper management, they offer significant ecological benefits by providing water quality maintenance and pollution control, as well as flood and erosion control. These lands, designated by the Board of Supervisors of Fairfax County as Chesapeake Bay Preservation Areas ("CBPAs"), need to be protected and managed to prevent destruction and damage in order to protect the quality of water in the Bay and other state waters, and consequently the quality of life in Fairfax County and the Commonwealth of Virginia.

(c) The entirety of Fairfax County drains into the Potomac River and ultimately the Chesapeake Bay. Any use or development within the County can, therefore, impact the water quality of the Bay.

(d) While certain lands have intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation of the quality of state waters, it is recognized that some activities, including the provision of infrastructure, may need to be located in these areas. It is also recognized that certain exceptions to requirements regarding these lands may be appropriate.

(e) The mandates of the Act constitute a material change in circumstances substantially affecting the public health, safety and welfare and necessitating an appropriate legislative response by the Board of Supervisors.

Section 118-1-5. Purpose and Intent.

The purpose and intent of this Chapter is to encourage and promote: (1) the protection of existing high quality state waters; (2) the restoration of all other state waters to a condition or quality that will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them; (3) the safeguarding of the clean waters of the Commonwealth from pollution; (4) the prevention of any increase in pollution; (5) the reduction of existing pollution; and (6) water resource conservation in order to provide for the health, safety and welfare of the present and future citizens of Fairfax County and the Commonwealth of Virginia.

Section 118-1-6. Definitions.

For the purposes of this Chapter:

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(a) "Agricultural land" means:

(1) Any area of land of five (5) acres or more upon which crops are produced or raised, except trees that are produced for timber;

(2) Any tract of land used as a nursery on which plants are raised or kept for transplanting, for use as stock for budding or grafting, or for sale, regardless of the area of the tract; and

(3) Any tract of land on which kennels, horses, poultry, or livestock are maintained regardless of the area of the tract.

(b) "Applicant" means a person who has submitted a plan of development to the Department of Environmental Management or an exception request to the Director.

(c) "Average land cover conditions" means the average percent of impervious area within the County, as set forth in the Fairfax County Public Facilities Manual.

(d) "Best Management Practice" or "BMP" means a practice, or combination of practices, that is determined by the Director to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

(e) "Buffer area" means an area of natural or established vegetation managed to protect other components of a Resource Protection Area and state waters from significant degradation due to land disturbances.

(f) "Chesapeake Bay Preservation Area" or "CBPA" means any land designated by the County pursuant to Part III of the Chesapeake Bay Preservation Area Designation and Management Regulations and Section 10.1-2107 of the Code of Virginia. A Chesapeake Bay Preservation Area shall consist of a Resource Protection Area and a Resource Management Area.

(g) "County Executive" means the County Executive of Fairfax County or his designee.

(h) "Development" means the construction or substantial alteration of residential, commercial, industrial, institutional, recreational, transportation, or utility uses, facilities or structures which results in a net increase in impervious area within an RPA and/or a net increase of greater than 20% in impervious area within an RMA.

(i) "Director" means the Director of the Department of Environmental Management.

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(j) "Floodplain" means those land areas in and adjacent to streams and watercourses subject to continuous or periodic inundation from flood events with a one (1) percent chance of occurrence in any given year (i.e., the 100-year flood frequency event) and having a drainage area greater than seventy (70) acres.

(k) "Highly erodible soils" means soils (excluding vegetation) with an erodibility index (EI) from sheet and rill erosion equal to or greater than eight. The erodibility index for any soil is defined as the product of the formula RKLS/T, as defined by the "Food Security Act (F.S.A.) Manual" of August, 1988 in the "Field Office Technical Guide" of the U.S. Department of Agriculture Soil Conservation Service, where K is the soil susceptibility to water erosion in the surface layer; R is the rainfall and runoff; LS is the combined effects of slope length and steepness; and T is the soil loss tolerance.

(l) "Highly permeable soils" means soils with a given potential to transmit water through the soil profile. Highly permeable soils are identified as any soil having a permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches (permeability groups "rapid" and "very rapid") as found in the "National Soils Handbook" of July, 1983 in the "Field Office Technical Guide" of the U.S. Department of Agriculture Soil Conservation Service.

(m) "Impervious area" or "impervious surface" means a surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, and concrete, asphalt, or compacted gravel surfaces. "Impervious area" or "impervious surface" does not include the water surface area of a swimming pool.

(n) "Land disturbing activity" means any land change which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the Commonwealth, including, but not limited to, clearing, grading, excavating, permanent flooding associated with the impoundment of water, and filling of land.

(o) "Lot" means a parcel of land that is designated at the time of application for a special permit, a special exception, a site plan, a building permit, residential/non-residential use permit, or other plan of development, as a tract of land which is to be used, developed or built upon as a unit under single ownership. A parcel of land shall be deemed to be a lot in accordance with this definition, regardless of whether or not the boundaries thereof coincide with the boundaries of lots or parcels as shown on any map of record or other plans of development.

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(p) "Nonpoint source pollution" means pollution consisting of constituents such as sediment, nutrients, and organic and toxic substances from diffuse sources, such as runoff from agriculture and urban land development and uses.

(q) "Nontidal wetlands" means those wetlands other than tidal wetlands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the U.S. Environmental Protection Agency pursuant to Sec. 404 of the Federal Clean Water Act, in 33 CFR 328.3b, dated November 13, 1986.

(r) "Noxious weeds" means Johnson grass, kudzu, poison ivy, ragweed, poison oak, poison sumac, and multiflora rose.

(s) "Passive recreation" means recreational activities that are commonly unorganized and non-competitive, including, but not limited to, picnicking, bird watching, kite flying, bicycling, and walking. Site amenities for such activities include, but are not limited to, picnic tables, photo stands, open play areas where substantial clearing is not required, rest rooms, tot lots, boardwalks, paved paths, pathways, benches, and pedestrian bridges and appurtenant structures.

(t) "Plans of development" means plans, including but not limited to, development plans, conceptual development plans, final development plans, generalized development plans, special exception plats, special permit plats, variance plats, site plan waivers and exceptions, preliminary site plans, site plans, preliminary subdivision plats, final subdivision plats, subdivision waivers and exceptions, conservation plans, construction plans, rough grading plans, grading plans, and plans associated with wetlands permits.

(u) "Public roads" means roads that satisfy construction, siting and water quality standards applicable to roads constructed by the Virginia Department of Transportation.

(v) "Redevelopment" means the substantial alteration, rehabilitation, or rebuilding of a property for residential, commercial, industrial, or other purposes where there is no net increase in impervious area by the proposed redevelopment within an RPA and no more than a net increase of 20% in impervious area by the proposed redevelopment within an RMA.

(w) "Resource Management Area" or "RMA" means that component of the Chesapeake Bay Preservation Area comprised of lands that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area.

(x) "Resource Protection Area" or "RPA" means that component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline or water's edge that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation of the quality of state waters. In their natural condition, these lands provide for the removal, reduction, or assimilation of sediments, nutrients, and potentially harmful or toxic substances from runoff entering the Bay and its tributaries, and minimize the adverse effects of human activities on state waters and aquatic resources.

(y) "Silvicultural activity" means any forest management activity, including logging, log transport, and forest roads.

(z) "Substantial alteration" means expansion or modification of a structure or development which would result in disturbance of any land within a Resource Protection Area or land exceeding an area of 2,500 square feet within a Resource Management Area.

(aa) "Tidal shores" or "shore" means land contiguous to a tidal body of water between the mean low water level and the mean high water level.

(bb) "Tidal wetlands" means vegetated and nonvegetated wetlands as defined in Chapter 116, Wetlands Zoning Ordinance, of the Fairfax County Code.

(cc) "Tributary stream" means any perennial stream that is so depicted on the most recent U.S. Geological Survey 7 1/2 minute topographic quadrangle map (scale 1:24,000).

(dd) "Use" means any purpose for which a structure or a tract of land may be designed, arranged, intended, maintained, or occupied; also, any activity, occupation, business or operation carried on, or intended to be carried on, in or on a structure or on a tract of land.

(ee) "Watercourse" means a stream with incised channel (bed and banks) over which waters are conveyed.

(ff) "Water-dependent development" or "Water-dependent facility" means the development of land or a facility that cannot exist outside of a Resource Protection Area and must be located within a Resource Protection Area, either in whole or in part, by reason of the intrinsic nature of its operation. These facilities include, but are not limited to (i) ports; (ii) the intake and outfall structures of power plants, water

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treatment plants, sewage treatment plants, and storm sewers; (iii) marinas and other boat docking structures; (iv) beaches and other public water-oriented recreation areas; and (v) fisheries or other marine resources facilities.

(gg) "Wetlands" means tidal and nontidal wetlands.

Section 118-1-7. Areas of Applicability.

This Chapter and all regulations adopted hereunder shall apply to all land located within the unincorporated areas of Fairfax County.

(a) The County is divided into Resource Protection Areas ("RPAs") and Resource Management Areas ("RMAs") that are subject to the criteria and requirements of this Chapter. RPAs are protected from most development because, left intact, they function to improve and protect water quality. RMAs, which include all areas outside of RPAs, are regulated to protect RPAs and water resources from degradation resulting from development and land disturbing activity.

(b) RPAs shall include any land characterized by one or more of the following features:

(1) A tidal wetland;
(2) A tidal shore;
(3) A tributary stream;
(4) That portion of a watercourse with a drainage area of seventy (70) acres or more;
(5) A nontidal wetland connected by surface flow and contiguous to a tidal wetland or tributary stream;
(6) A buffer area as follows:
(i) Any land within a floodplain;
(ii) Any nontidal wetland that is continuously connected to a watercourse with a drainage area of seventy (70) acres or more and is not otherwise included within Section 118-1-7(b)(5);
(iii) Any land within 100 feet of a feature listed in Sections 118-1-7(b)(1)-(5); and
(iv) Any land with a slope greater than or equal to fifteen (15) percent where such slope begins within fifty (50) feet of a floodplain.

(c) RMAs shall include any area not designated as an RPA.

Section 118-1-8. Administration.

The Director shall be responsible for the administration of this Chapter, except for Section 118-3-2(h) which shall be administered by the Director of Health Services.

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Section 118-1-9. Chesapeake Bay Preservation Area Boundaries.

(a) There shall be a map of Chesapeake Bay Preservation Areas adopted by the Board of Supervisors.

(b) It is the burden of the applicant to show the appropriate RPA and RMA boundaries, applying the criteria in Section 118-1-7, on all plans of development submitted for review to the Director. Where RPA and RMA boundaries on the adopted map differ from boundaries as determined from the text of this Chapter, the text shall govern. Such boundary locations shown on plans of development can be approved, modified or disapproved by the Director. The Director may make minor modifications to RPA boundaries on plans of development where such boundaries are irregular, as long as there is no net decrease of land in the RPA.

(c) Any landowner or agent of the landowner may request the Director to determine the locations of RPA boundaries or may submit certification from a professional engineer, land surveyor or landscape architect certified or licensed to practice in the Commonwealth of Virginia for review and approval by the Director.

Section 118-1-10. Severability.

If any of the Articles, Sections, Paragraphs, sentences, clauses, or phrases of this Chapter shall be declared unconstitutional or invalid by a valid judgment or decree of a court of competent jurisdiction, such unconstitutionality or invalidity shall not affect the validity of the Chapter in its entirety or any of the remaining Articles, Sections, Paragraphs, sentences, clauses, and phrases.

Section 118-1-11. Conflicts

Whenever any provision of this Chapter imposes a greater requirement or a higher standard than is required in any State or Federal statute or other County ordinance or regulation, the provision of this Chapter shall govern. Whenever any provision of any State or Federal statute or other County ordinance or regulation imposes a greater requirement or a higher standard than is required by this Chapter, the provision of such State or Federal statute or other County ordinance or regulation shall govern.

ARTICLE 2.

Allowed Uses, Development and Redevelopment.

Section 118-2-1. Allowed Uses, Development and Redevelopment in Resource Protection Areas.

The following uses, development and redevelopment may be allowed within an RPA if otherwise permitted by the Zoning Ordinance and other law:

(a) Water-dependent development, subject to compliance with the performance criteria of Article 3 of this Chapter;

(b) Redevelopment, subject to compliance with the performance criteria of Article 3 of this Chapter; and

(c) Uses, development or redevelopment exempted under Article 5 of this Chapter or for which an exception allowing such use or development or redevelopment in an RPA is approved pursuant to Article 6 of this Chapter.

Section 118-2-2 Allowed Uses, Development and Redevelopment in Resource Management Areas.

Uses, development and redevelopment, otherwise permitted by the Zoning Ordinance and other law, shall be allowed in RMAs provided that the use, development or redevelopment is in compliance with the performance criteria set forth in this Chapter.

Section 118-2-3. Exceptions.

Exceptions to these requirements may be allowed as set forth in Article 6 of this Chapter.

ARTICLE 3.

Land Use and Development Performance Criteria.

Section 118-3-1. Purpose and Intent.

The purpose of this Article is to achieve the goals of the Chesapeake Bay Preservation Act and Section 118-1-5 through the establishment of criteria to implement the following objectives: prevent a net increase in nonpoint source pollution from new development based on average land cover conditions, achieve a 10% reduction in nonpoint source pollution from redevelopment, and achieve a 40% reduction in nonpoint source pollution from agricultural and silvicultural uses.

Section 118-3-2. General Performance Criteria for Resource Management Areas and Resource Protection Areas.

Unless waived or modified by other provisions of this Chapter, it shall be demonstrated to the satisfaction of the Director that any use, development, or redevelopment of land in Chesapeake Bay Preservation Areas meets the following performance criteria:

(a) No more land shall be disturbed than is necessary to provide for the allowed use, development, or redevelopment.

(b) Indigenous vegetation shall be preserved to the maximum extent possible consistent with the use, development, or redevelopment allowed.

(c) Where the best management practices utilized require regular or periodic maintenance in order to continue their functions, such maintenance shall be ensured through a maintenance agreement with the owner or through some other mechanism or agreement which ensures that this objective is met by the responsible party, public or private.

(d) Land development shall minimize impervious cover consistent with the use, development, or redevelopment allowed.

(e) Any land disturbing activity that exceeds an area of 2,500 square feet shall comply with the requirements of Chapter 104 of the Fairfax County Code. The construction of single family dwellings, septic tanks and drainfields shall not be exempt from this requirement.

(f) For any development or redevelopment, stormwater runoff shall be controlled by the use of best management practices (BMPs) as follows:

(1) For development, the projected total phosphorus runoff pollution load for the proposed development shall be reduced by no less than forty (40) percent compared to phosphorus loads projected for the development without BMPs.

(2) For development covered by the Water Supply Protection Overlay District, the phosphorus removal requirements for the overlay district shall apply.

(3) For redevelopment of any property not currently served by one or more BMPs, the total phosphorus runoff pollution load from the property shall be reduced by at least ten (10) percent from the phosphorus runoff pollution load prior to redevelopment.

(4) For redevelopment of any property that is currently and adequately served by one or more BMPs, the projected phosphorus runoff pollution load after redevelopment shall not exceed the existing phosphorus runoff pollution load.

(5) Best management practices (BMPs) shall be reviewed, modified, waived and/or approved by the Director in accordance with Article 6 of the Public Facilities Manual.

(6) The following options shall be considered to comply with paragraph (f) of this Section:

(i) Incorporation on the site of BMPs that achieve the required control as set forth in paragraphs (1) through (5) above;

(ii) Compliance with a locally adopted regional stormwater management program incorporating pro-rata share payments pursuant to the authority provided in Section 15.1-466(j) of the Code of Virginia or other contribution that results in achievement of equivalent water quality protection; or

(iii) Restoring a minimum of twenty (20) percent of the site to vegetated open space, which may include landscaped areas, for a redevelopment site that is completely impervious as currently developed.

(7) The requirements of paragraph (f) of this Section may be waived or modified for a property if the Director determines that the provision of BMPs is not practical or desirable due to constraints imposed by the dimensions or location of the property.

(g) The Director shall require certification on all plans of development that all wetlands permits required by law will be obtained prior to commencement of land disturbing activities. No land disturbing activity requiring wetlands permits shall commence until all such permits have been obtained by the applicant.

(h) All on-site sewage disposal systems requiring a Virginia Pollutant Discharge Elimination System (VPDES) permit shall be subject to the restrictions imposed by the State Water Control Board. All on-site sewage disposal systems not requiring a VPDES permit shall be administered by the Director of Health Services and shall comply with the following provisions:

(1) Each disposal system shall be pumped out at least once every five years.

(2) For new development or redevelopment, each disposal system shall be provided with a reserve sewage disposal site with a capacity at least equal to that of the primary sewage disposal site.

(i) Compliance with Chapter 68 of the Fairfax County Code shall be deemed to constitute compliance with this requirement. This requirement shall not apply to any parcel of land for which a site plan or preliminary subdivision plat was filed on or before May 21, 1973, and approved by November 20, 1976 if the Director of Health Services determines the parcel to have insufficient capacity to accommodate a reserve sewage disposal site except as may be required in the Commonwealth of Virginia Sewage Handling and Disposal Regulations.

(ii) Building shall be prohibited on the area of all such sewage disposal sites, including the reserve sewage disposal site, until the structure is connected to a public sewer or an on-site sewage treatment system which operates under a permit issued by the State Water Control Board.

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(i) A soil and water quality conservation plan shall be implemented on agricultural land. The plan implemented shall:

(1) Be based upon the Field Office Technical Guide of the U.S. Department of Agriculture Soil Conservation Service and accomplish water quality protection consistent with this Chapter; and

(2) Be approved by the Northern Virginia Soil and Water Conservation District in accordance with the following schedule:

(i) For those lands subject to this requirement on the date of adoption of this Chapter, plan approval shall be obtained by January 1, 1995.

(ii) For those lands that become subject to this requirement after the date of adoption of this Chapter, plan approval shall be obtained by January 1, 1995 or within ninety (90) days of the date of establishment of the subject use, whichever date is later.

Section 118-3-3. Additional Performance Criteria for Resource Protection Areas.

The criteria in this Section shall apply specifically within RPAs and supplement the general performance criteria in Section 118-3-2.

(a) A Water Quality Impact Assessment shall be required for any proposed development or redevelopment within an RPA that is not exempt pursuant to Article 5 of this Chapter or for which an exception waiving this criteria is not approved pursuant to Article 6 of this Chapter.

(b) Allowable Development: Development is allowed within RPAs if it is water-dependent. New or expanded water-dependent activities shall comply with the following:

(1) Such activities shall not conflict with the Comprehensive Plan;

(2) Such activities shall comply with the performance criteria set forth in this Article;

(3) Any non-water dependent component shall be located outside of the RPA; and

(4) Access shall be provided with the minimum disturbance necessary, and where possible, a single point of access shall be provided.

(c) Redevelopment is allowed within RPAs and shall conform to the criteria set forth in this Chapter.

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(d) Buffer area requirements: To minimize the adverse effects of human activities on the other components of the RPA, state waters, and aquatic life, a buffer area that is effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff shall be retained, if present, and established where it does not exist.

In order to maintain the functional value of the buffer area, indigenous vegetation may be removed from a buffer area only to provide for reasonable sight lines, access paths, general woodlot management, habitat management and other uses authorized by this Chapter, subject to the following:

(1) Trees may be pruned or removed as necessary to provide for sight lines and vistas, provided that where removed, they shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff.

(2) Any path shall be constructed and surfaced so as to effectively control erosion.

(3) Noxious weeds and dead, diseased, or dying trees or shrubbery may be removed at the discretion of the landowner, and silvicultural thinning may be conducted based upon the recommendation of a professional forester, arborist, or County extension agent.

(4) For shoreline erosion control projects, trees and woody vegetation may be removed, necessary control techniques employed, and appropriate vegetation established to protect or stabilize the shoreline in accordance with the best available technical advice and applicable permit conditions or requirements.

(e) On agricultural lands, the buffer area shall be managed to prevent concentrated flows of surface water from breaching the buffer area. The buffer area shall be managed, only if recommended by the Northern Virginia Soil and Water Conservation District, to prevent noxious weeds from invading the buffer area.

ARTICLE 4.

Water Quality Impact Assessments.

Section 118-4-1. Purpose and Intent.

The purpose of the Water Quality Impact Assessment (WQIA) is to ensure protection of Resource Protection Areas consistent with the goals, objectives, and requirements of this Chapter through (1) the identification of the impacts of proposed development or redevelopment on water quality on lands within RPAs; (2) the assurance that, where development or redevelopment does take place within RPAs, it will be located on those portions of a site and in a manner that will be least

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disruptive to the natural functions of RPAs; and (3) the requirement of mitigation measures which will address water quality protection.

Section 118-4-2. Applicability.

A Water Quality Impact Assessment shall be required for any development or redevelopment within an RPA. A Water Quality Impact Assessment shall also be required for development or redevelopment within an RMA if the Director determines that such an assessment is necessary because of the unique characteristics of the site or because the intensity of the proposed development may cause significant impacts on the adjacent RPA.

When the Director requires a Water Quality Impact Assessment for development or redevelopment entirely within an RMA, a Major Water Quality Impact Assessment shall be submitted in accordance with Section 118-4-4, as applicable, and shall be evaluated in accordance with Section 118-4-6, as applicable.

Section 118-4-3. Minor Water Quality Impact Assessment.

A Minor Water Quality Impact Assessment (WQIA) shall be required for development or redevelopment which does not exceed 10,000 square feet of land disturbance and which does not create more than 5,000 square feet of impervious surface within an RPA. Unless otherwise modified by the Director, the Minor WQIA shall:

(a) Display the boundaries of the RPA;

(b) Display and describe the location and nature of the proposed encroachment into the RPA, including any clearing, grading, impervious surfaces, structures, utilities, and sewage disposal systems;

(c) Provide justification for the proposed encroachment into the RPA;

(d) Describe the extent and nature of any proposed disturbance or disruption of wetlands;

(e) Display and discuss the type and location of proposed best management practices to mitigate the proposed RPA encroachment; and

(f) Demonstrate that the proposed activity will comply with all applicable performance criteria of this Chapter.

Section 118-4-4. Major Water Quality Impact Assessment.

A Major Water Quality Impact Assessment (WQIA) shall be required for development or redevelopment which exceeds 10,000 square feet of land disturbance or which creates more than

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5,000 square feet of impervious surface within an RPA. Unless otherwise modified by the Director, the Major WQIA shall:

(a) Provide all of the information required for a Minor Water Quality Impact Assessment;

(b) Provide a hydrologic element that:

(1) Displays the existing topography, soils, and surface water hydrology of the site and adjacent lands;
(2) Describes the impacts of the proposed development or redevelopment on topography, soils, and surface water hydrology on the site and adjacent lands;
(3) Describes the extent and nature of any proposed disturbance or disruption of wetlands, including any modification of drainage to wetlands, and provides justification for such actions;
(4) Calculates the increase in percent of impervious surface on the site and on that portion of the site located within an RPA;
(5) Describes the type(s) of surfacing materials to be used; and
(6) Describes any proposed mitigation measures for potential hydrologic impacts.

(c) Provide a landscape element that:

(1) Identifies and displays the extent, character and location of all vegetative communities that are within the RPA, are along the contiguous boundaries of the RPA, or within areas proposed for mitigation areas. The extent, character, and location of a vegetative community shall include a description of the sizes, species and locations of the herbaceous and woody plants, shrubs and trees that comprise each community and their approximate percentage of occurrence.
(2) Describes the impacts the development or redevelopment will have on the existing vegetation, including a clear display of trees to be removed;
(3) Calculates the percent of the entire site and the percent of that portion of the site within an RPA that will be cleared; and
(4) Describes proposed measures for mitigation of adverse impacts to existing vegetation.

(d) Provide a wastewater element, where applicable, that:

(1) Describes and displays the size and locations of anticipated drainfield or wastewater irrigation areas;
(2) Provides justification for sewer line locations in RPAs, where applicable, and describes construction techniques and standards;

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(3) Discusses any proposed on-site collection and treatment systems, their treatment levels, and impacts on receiving watercourses; and

(4) Describes any proposed mitigative measures for impacts of wastewater systems.

(e) Provide a description of existing characteristics and conditions of the RPA area;

(f) Provide information about any previous uses of or activities on the property that involve toxic materials and/or its use as a dump site; and

(g) Provide any other information deemed by the Director to be necessary to evaluate potential water quality impacts of the proposed activity, including but not limited to:

(1) Geology;

(2) Source location and description of proposed fill material;

(3) Location of dredge material and location of dumping areas for such material;

(4) Location of and impacts on shellfish beds, submerged aquatic vegetation, and fish spawning areas; and

(5) Anticipated duration and phasing schedule of the construction project.

Section 118-4-5. Submission and Review Requirements for Water Quality Impact Assessments.

(a) A minimum of four (4) copies of the Water Quality Impact Assessment shall be submitted to the Director for review in conjunction with the submission of a plan of development. The Director may, at his discretion, require additional copies of the Water Quality Impact Assessment to be submitted.

(b) For Major Water Quality Impact Assessments, all information required shall be certified as complete and accurate by a professional engineer, land surveyor or landscape architect certified or licensed to practice in the Commonwealth of Virginia.

Section 118-4-6. Evaluation Procedures for Water Quality Impact Assessments.

(a) Upon the completed review of a Minor Water Quality Impact Assessment and proposed mitigation measures, the Director shall determine if the proposed development or redevelopment is consistent with the provisions of this Chapter and shall make his decision based upon the following considerations:

(1) Whether the encroachment into the RPA is the minimum necessary for the proposed activity;

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(2) Whether the amount of impervious surface within the RPA is the minimum required to achieve the proposed activity;

(3) Whether the disturbance of and impact on the RPA are minimized;

(4) Whether all of the applicable performance criteria are met; and

(5) The overall disruption to the RPA and the effect of the disruption on water quality.

(b) Upon the completed review of a Major Water Quality Impact Assessment and proposed mitigation measures, the Director shall determine if the proposed development or redevelopment is consistent with the provisions of this Chapter and shall make his decision based upon the following considerations:

(1) Whether the encroachment into the RPA is the minimum necessary for the proposed activity;

(2) Whether the amount of impervious surface within the RPA is the minimum required to achieve the proposed activity;

(3) Whether the disturbance of and impact on the RPA are minimized;

(4) Whether all of the applicable performance criteria are met;

(5) Whether the development minimizes the disruption of the hydrology on the site;

(6) Whether the development minimizes the degradation of aquatic life;

(7) Whether the development minimizes the destruction of plant materials on site;

(8) Whether the proposed erosion and sediment control activities are adequate to achieve the reductions in runoff and minimize off-site sedimentation;

(9) Whether the proposed revegetation of disturbed areas provides optimum erosion and sediment control benefits; and

(10) The overall disruption to the RPA and the effect of the disruption on water quality.

ARTICLE 5.

Administrative Waivers and Exemptions.

Section 118-5-1. Waivers for Existing Structures and Uses.

(a) Any structure or non-agricultural use that was legally established in accordance with the provisions of the Fairfax County Code and was in existence on the effective date of this Chapter, or a structure or non-agricultural use which was established in accordance with the grandfather provisions, if any, for this Chapter, that does not comply with the provisions

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of this Chapter may continue and be maintained, but may not be enlarged or expanded, unless such enlargement or expansion is approved pursuant to Article 6 of this Chapter and otherwise complies with applicable provisions of the Fairfax County Code.

(b) Nothing in this Chapter shall affect the reconstruction of structures destroyed or damaged by any casualty, if such reconstruction is otherwise permitted by law and so long as the structure is reconstructed in the same location and creates no more impervious area than existed with the prior structure. Upon application for a Building Permit to replace such structures, the provisions of this Chapter shall be waived.

Section 118-5-2. Public Utilities, Railroads, and Facilities Exemptions.

The following activities shall be exempt from the provisions of this Chapter to the extent that they are allowed by the Zoning Ordinance and are not prohibited by any other ordinance or law:

(a) The construction, installation, operation and maintenance of electric, gas, and telephone transmission lines, railroads, and public roads and their appurtenant structures in accordance with the Erosion and Sediment Control Law (Section 10.1-560 et seq. of the Code of Virginia).

(b) The construction, installation, and maintenance of water lines, storm or sanitary sewer lines including pumping stations, local gas lines, and appurtenant structures subject to the following, as determined by the Director:

(1) To the degree possible, the location of such utilities and facilities shall be outside RPAs;
(2) No more land shall be disturbed than is necessary to provide for the desired utility installation;
(3) All such construction, installation, and maintenance of such utilities and facilities shall be in compliance with all applicable state and federal permits and designed and conducted in a manner that protects water quality; and
(4) Any land disturbance exceeding an area of 2,500 square feet shall comply with Chapter 104 of the Fairfax County Code.

Section 118-5-3. Additional Exemptions.

The following activities shall also be exempt from the provisions of this Chapter to the extent that they are allowed by the Zoning Ordinance and are not prohibited by any other ordinance or law:

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(a) Within Resource Protection Areas: Water wells, site amenities for passive recreation, historic preservation activities, and archaeological activities, provided that:

(1) Any land disturbance exceeding an area of 2,500 square feet shall comply with Chapter 104 of the Fairfax County Code;

(2) Any required state or federal permits shall have been issued;

(3) To the degree possible, the location of such activities shall be outside RPAs;

(4) No more land shall be disturbed than is necessary to provide for the desired activity;

(5) All such activities shall be in compliance with all applicable state and federal permits, and shall be conducted in a manner that protects water quality; and

(6) A written request for an exemption shall be filed with and approved by the Director. Such request should be filed along with any plans of development submitted for review.

(b) Within Resource Management Areas: Any land disturbing activity of 2,500 square feet or less in size.

(c) Silvicultural activities, provided that such operations adhere to water quality protection procedures prescribed by the Department of Forestry in its "Best Management Practices Handbook for Forestry Operations" as determined by the Virginia Department of Forestry.

ARTICLE 6.

Exceptions.

Section 118-6-1. Granting of Exceptions.

Exceptions to the criteria and requirements of this Chapter may be granted as set forth in this Article with appropriate conditions necessary to preserve the purposes and intent of this Chapter. All exception requests shall be in writing and submitted to the Director. The Director shall, within 15 days of receipt of a complete application for an exception pursuant to Sections 118-6-3, 118-6-7, or 118-6-9, within 30 days of receipt of a complete application for an exception pursuant to Sections 118-6-4 or 118-6-8, and within 45 days of receipt of a complete application for an exception pursuant to Section 118-6-2 or 118-6-5, approve, deny, or approve with conditions any exception request that is not forwarded to the Board of Supervisors for review. The time limits set forth in Section 15.1-475 of the Code of Virginia shall be tolled during the pendency of an exception request. Approval of an exception shall constitute approval for the normal and routine maintenance of the facilities which are developed.

Section 118-6-2. Exceptions for Loss of Access or Loss of All Buildable Area in a Resource Protection Area.

(a) Where the application of the RPA criteria will result in the effective loss of all buildable area on a lot or parcel established in accordance with the provisions of the Fairfax County Code prior to the effective date of this Chapter, or a lot created in accordance with the grandfather provisions, if any, that are applicable to this Chapter, and if the proposed development does not exceed 10,000 square feet of land disturbance, exclusive of land disturbance necessary for the installation of a soil absorption field associated with an individual sewage disposal facility and land disturbance necessary to provide access to the lot or parcel pursuant to Section 118-6-2(b), and does not create more than 5,000 square feet of impervious surface within an RPA, exclusive of impervious surface necessary to provide access to the lot or parcel pursuant to Section 118-6-2(b), an exception request to waive or modify the RPA performance criteria and other requirements of this Chapter may be approved by the Director, subject to the following:

(1) The lot or parcel must meet the minimum lot area specified for the zoning district in which located or meet the requirements of Section 2-405 of Chapter 112, the Zoning Ordinance, and any other applicable ordinances and laws;

(2) Any exception shall be the minimum necessary to afford relief to achieve a reasonable buildable area for a principal structure and necessary utilities; and

(3) Where possible, an area equal to the area encroaching into the RPA buffer shall be established elsewhere on the lot or parcel in a way to maximize water quality protection.

(b) Where the application of the RPA criteria will result in the loss of all possible access to a lot or parcel established in accordance with the provisions of the Fairfax County Code prior to the effective date of this Chapter, or a lot created in accordance with the grandfather provisions, if any, that are applicable to this Chapter, an exception request to waive or modify the RPA performance criteria and other requirements of this Chapter may be approved by the Director, subject to the following:

(1) Any exception shall be the minimum necessary to afford relief to provide access to the lot or parcel, and

(2) Where possible, an area equal to the area encroaching into the RPA buffer shall be established elsewhere on the lot or parcel in a way to maximize water quality protection.

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Section 118-6-3. Exceptions for Water Quality Improvement Facilities or Measures.

The following facilities and activities contribute to the improvement of water quality: the construction, installation and maintenance of stream bank stabilization measures, sewage treatment plants, and stormwater management ponds and BMP facilities designed in accordance with the Public Facilities Manual. An exception permitting such a facility or activity and waiving the criteria and requirements of this Chapter may be approved by the Director subject to the evaluation of a Minor Water Quality Impact Assessment as set forth in Article 4 of this Chapter.

Section 118-6-4. Exceptions to Modify the Buffer Area Width for Agricultural Lands.

(a) On agricultural lands, the width of the buffer area may be modified by the Director as follows:

(1) A reduction to a minimum width of 50 feet from tributary streams and wetlands when the adjacent land is implementing a federal, state, or locally-funded agricultural best management practices program, provided that the combination of the reduced buffer area and the best management practices achieve water quality protection, pollutant removal, and water resource conservation of at least the equivalent of an RPA with boundaries 100 feet from tributary streams and wetlands.

(2) A reduction to a minimum width of 25 feet from tributary streams and wetlands when a soil and water quality conservation plan, as approved by the Northern Virginia Soil and Water Conservation District, has been implemented on the adjacent land, provided that, in the opinion of the Northern Virginia Soil and Water Conservation District Board, the portion of the plan being implemented for the Chesapeake Bay Preservation Area achieves water quality protection at least the equivalent of that provided by an RPA with boundaries 100 feet from tributary streams and wetlands. Such a plan shall be based upon the Field Office Technical Guide of the U.S. Department of Agriculture Soil Conservation Service and accomplish water quality protection consistent with this Chapter.

(b) The buffer area requirements do not apply to agricultural drainage ditches if the adjacent agricultural land has in place best management practices in accordance with a conservation plan approved by the Northern Virginia Soil and Water Conservation District.

Section 118-6-5. Minor and Major Resource Protection Area Exceptions.

(a) The performance criteria set forth in Sections 118-3-3(b), (c), and (d) regarding development within RPAs may be waived or modified upon the approval of a Resource Protection Area Exception Request (RPAE Request). A Minor RPAE Request shall be required if the proposed development in the RPA does not exceed either 5,000 square feet of impervious surface or 10,000 square feet of land disturbance. A Major RPAE Request shall be required if the proposed development in an RPA exceeds either 5,000 square feet of impervious surface or 10,000 square feet of land disturbance.

(b) Submission Requirements for RPAE Requests:

(1) Four (4) copies of an application form provided by the Director and completed and signed by the applicant.

(2) Four (4) copies of a Minor Water Quality Impact Assessment for a Minor RPA Exception, or a Major Water Quality Impact Assessment for a Major RPA Exception.

(3) Four (4) copies, as determined by the Director, of a plat which meets the submission requirements of Zoning Ordinance Section 9-011, paragraph 2.

(4) Photographs of the property showing existing structures, terrain and vegetation.

(5) Four (4) copies of a map identifying classification of soil types, at a scale of one inch equals five hundred feet (1" = 500'), covering an area at least 500 feet beyond the perimeter of the proposed development.

(6) A statement of justification which addresses how the proposed development complies with the factors set forth in Sections 118-6-6(a) through (e).

(7) For a Minor RPA Exception, the Director, upon written request with justification, may modify or waive the submission requirements, if it is determined by the Director that the requirement is clearly not necessary for the review of the application.

(c) Review Procedures for Minor RPAE Requests:

(1) The Director shall review a properly submitted and completed RPAE request for compliance with the factors set forth in Sections 118-6-6(a) through (e).

(2) If the Director determines that the factors set forth in Sections 118-6-6(a) through (e) have been adequately addressed, he may approve the RPAE request.

(3) If the Director determines that the factors set forth in Sections 118-6-6(a) through (e) have not been adequately addressed, the Director may disapprove or approve the RPAE request subject to conditions necessary to ensure compliance with the provisions and goals of this Chapter.

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(4) The Director may, at his discretion, determine that the request should be reviewed by the Board of Supervisors in accordance with the provisions of Section 118-6-5(d).

(d) Review Procedures for Major RPAE Requests:

(1) Upon receipt of a properly submitted and completed application for a Major RPAE Request, or if the Director requests the Board of Supervisors to review a Minor RPAE Request pursuant to Section 118-6-5(c)(4), the Director shall transmit a copy of the exception request application and any other materials submitted by the applicant, along with a recommendation on whether to approve, disapprove, or approve with conditions the exception request and the basis for his recommendation, to the Clerk to the Board of Supervisors and to the Planning Commission, which may also send a recommendation regarding the exception request to the Board.

(2) The Clerk shall schedule a date for the Board to review the request, and the applicant, the Director, the member of the Board of Supervisors in whose district the subject property is located and the Planning Commission shall be notified of the scheduled date. RPAE requests shall in general be considered by the Board of Supervisors in the order which they are filed with the Director.

(3) The Board shall publish in the Weekly Agenda the date of the Board of Supervisors' meeting at which the exception request will be reviewed. Such publication shall be provided in the issue of the Weekly Agenda that contains the schedule for that particular meeting of the Board of Supervisors. The Board shall make copies of the application and of the Director's recommendation available to the public upon request.

(4) The Board shall consider the factors within Sections 118-6-6(a) through (f) and such other matters as it may deem necessary and appropriate to ensure that water quality will not be detrimentally affected by the proposed activity.

(5) Following the review of the RPAE request application, the Board shall approve or deny the request application. The Board, in approving such a request, may impose such conditions and restrictions upon the proposed activity as it may deem necessary to ensure consistency with the provisions and goals of this Chapter.

Section 118-6-6. Factors for Consideration In Evaluating Exceptions Requests.

The following factors are to be considered by the Director and the Board of Supervisors in evaluating requests pursuant to Section 118-6-5:

(a) The nature and extent of the proposed development and its effect on the function of the RPA;

(b) The consistency of the proposed development with the water quality purposes and intents of this Chapter and of any applicable performance criteria;

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(c) Whether the intrusion into and impact on the RPA of the proposed development is the minimum necessary to afford relief to achieve the development or redevelopment;

(d) Whether no more land will be disturbed than necessary to achieve the proposed development;

(e) The distance between the proposed area to be disturbed and RPA components listed in Sections 118-1-7(b)(1) through (5); and

(f) Whether the water quality benefits resulting from the proposed facility or improvement exceed the associated water quality detriments.

Section 118-6-7. Exceptions to Waive Resource Management Area Performance Criteria.

The applicable RMA performance criteria or requirements may be waived by the Director for a plan of development provided that the owner of the property submits a written exception request and documentation which demonstrates, to the satisfaction of the Director, all of the following:

(a) The entire property is located outside of the Water Supply Protection Overlay District described in Chapter 112, the Zoning Ordinance;

(b) The entire property is located more than 100 feet from the boundaries of all RPAs; and

(c) The property does not contain one or more of the following in the area to be disturbed:

(1) Highly erodible soils, including steep slopes greater than 15%;
(2) Highly permeable soils; or
(3) Wetlands.

Section 118-6-8. Exceptions for Roads.

The Director may, upon written request, approve an exception waiving or modifying the performance criteria set forth in this Chapter to allow the construction or maintenance of a road not otherwise classified as a public road, if it is determined by the Director that:

(a) The construction of the road complies with all applicable performance criteria of this Chapter, and

(b) Construction of the road complies with all applicable standards of the Public Facilities Manual and the applicable state stormwater management regulations.

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Section 118-6-9. Minor Additions.

(a) The Director may waive any or all of the performance criteria and requirements of this Chapter for the construction of accessory structures and uses and additions to structures legally in existence as of the effective date of this Chapter which do not result in the creation of 1,000 square feet or more of additional impervious area within an RPA, or the creation of additional impervious area within an RPA that exceeds two (2) percent of the lot area, whichever amount is greater. The maximum additional impervious area shall be applied to each lot legally in existence as of the effective date of this Chapter and shall be a cumulative measure based on the amount of impervious area added to the particular lot after the effective date of this Chapter. Additions to impervious area shall be allowed to such lots until the maximum additional impervious area allowed is reached on the particular lot. The cumulative limit on the maximum additional impervious area measure shall continue indefinitely, regardless of ownership of the property.

(b) The Director may approve, deny, or approve with conditions individual exception requests upon a consideration of whether no more land will be disturbed than is necessary to provide for the proposed activity.

ARTICLE 7.

Appeals.

(a) An applicant aggrieved by any decision of the Director of Environmental Management or the Director of Health Services in the administration of this Chapter may, within fifteen (15) days of such decision, appeal the decision to the Board of Supervisors. Such appeal shall be filed with the Clerk to the Board of Supervisors and shall state with specificity the provisions of this Chapter which the applicant alleges to have been violated by the decision and the reasons therefor. A copy of the appeal shall also be delivered to the Director of the Department of Environmental Management within such fifteen (15) day period.

(b) The time limits set forth in Section 15.1-475 of Va. Code Ann. shall be tolled during the pendency of an application filed pursuant to Paragraph (a) above.

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metropolitan washington
COUNCIL OF GOVERNMENTS
777 North Capitol Street, N.E., Suite 300, Washington, D.C. 20002-4201
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July 23, 1991

Mr. Keith Harris,
CENAB-PL-ES
Baltimore District Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

SUBJECT: CENAB-PL (1165-2-26a)

Dear Mr. Harris:

Thank you for providing us an opportunity to review the Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (EIS).

Transportation facilities currently planned probably cannot accommodate a facility of this magnitude when combined with other proposals for the area. Extensive transportation impact assessments are required for this area to ensure that the I-95 corridor does not become severely congested in the future. We would like to review the traffic studies in conjunction with our long-range planning effort. I-95 is a very congested corridor and may be significantly worsened if mitigating measures are not taken.

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I hope that you find these comments useful and that you will continue to keep us informed as you proceed with the project. If you have any questions, please contact Ronald F. Kirby, Director of Transportation Planning at 202/962-3310.

Sincerely yours,

Ruth R. Crone
Executive Director

cc: Mr. Ron Wilson, National Capital Planning Commission

030159

JOHN S. GOTTSCHALK
4644 34TH STREET NORTH
ARLINGTON, VIRGINIA 22207
(703) 536-4028

July 25, 1991

Baltimore District, Corps of Engineers
ATTN: CENAB-PL-ES(K. Harris)
P. O. Box 1715
Baltimore, MD 21293-1715

Dear Sirs:

As chairman of the Conservation Committee of the Audubon Naturalist Society of the Central Atlantic States, I wish to record the following comments about the draft Environmental Impact Statement covering expansion of Fort Belvoir.

In general, the statement is comprehensive in the sense of its recogntion of environmental concerns in and near Fort Belvoir. These have been intensified in recent years by both positive and negative factors. On the positive side, the U. S. Army, through the Corps of Engineers, and the management hierarchy at Fort Belvoir, have demonstrated great interest and concern for improving environmental conditions, especially those involving wildlife, on lands at Fort Belvoir. The result has been that Fort Belvoir has come to be recognized as one of the primary wildlife conservation areas in northern Virginia.

On the negative side has been the extraordinary population growth and development in northern Virginia. Remaining wildlife habitat has become increasingly crucial to present and future wildlife conservation efforts. In effect, Fort Belvoir is more and more an environmental island in a sea of development. 249

We are dismayed by the effort on the part of the Army to load Fort Belvoir with additional responsibilities, with the consequence that except for those lands specifically identified with wildlife, the Fort Belvoir environment is about to be sacrificed to "development". It would appear that there is no official recognition of the connection between lands specifically set aside for "wildlife" and those other areas not currently used for offices, warehouses, and residences, etc. In fact, Fort Belvoir stands where it does environmentally because it contains a variety of habitats, of which the designated wildlife areas are the core, but not the totality of Fort Belvoir's environmental significance. 250

With this concept of Fort Belvoir, it seems clear that the additional offices, home and facilities proposed will inevitably have far reaching negative effects on the biota of the Fort Belvoir area. We do not believe these effects are adequately considered in the EIS.

While the immediate impact of adding 4170 additional personnel at Fort Belvoir can perhaps best be seen in such obvious areas as increased traffic, putting this number of additonal people and their dependents in northern Virginia can only result in over-whelming not just roads, and other facilities, which can be enlarged, but at the expense of open space 251

and wildlife habitat, increased pollution loads and toxic spills, and all the side- and after effects of urbanization.

Aside from these generalities, we are specifically concerned with the impact of the proposed development on and in the "Genetic Corridor" the characteristics and significance of which are discussed with admirable sophistication in the EIS. After making the case for the need to preserve and protect this Fort Belvoir wildlife pathway between major habitat segments — Huntley Meadows Park at one end and the Mason Neck complex at the other, the conclusion seems to be that part of the corridor must be sacrificed. The importance of a functional corridor cannot be over-estimated in this situation. We urge that every effort be made to expand the boundaries of the "Genetic Corridor", rather than limit them by intrusive development.

252

We note also that the existing airfield is to be lengthened for use by fixed-wing aircraft. The EIS does not tell what this expansion signifies in terms of increased aircraft usage. Are the lengthened runways intended to permit larger, faster, and more disturbing government aircraft? Is this airfield scheduled to become a regional subsidiary airport to relieve congestion at National Airport? If so, and in any event, what will the effect of the increase in runway size have on the bald eagles resident and migratory in the area?

253

We will reserve comments on the development of Tompkin's Basin until a draft environmental impact statement on that area is availbale.

254

We urge that these matters be reconsidered, and revised in the final plans for the Fort Belvoir expansion. In addition, we would like to see evidence of a strong effort to minimize intrusion in areas that are currently "open space", with even greater concentration of facilities in "altered" areas that already support development.

Thank you for the opportunity to provide these comments.

Sincerely yours,

John S. Gottschalk, Chairman
Conservation Committee
Audubon Naturalist Society
of the Central Atlantic States

cc: Neal Fitzpatrick, ANS
Elizabeth Hartwell, FOMN
Norma Hoffman, CASH

000101

SENSIBLE WASHINGTON AREA TRANSPORTATION COALITION
POST OFFICE BOX 59
MERRIFIELD, VIRGINIA 22116
(703) 280-1719

Mr. Keith Harris
Baltimore District, Corps of Engineers
P.O.Box 1715
Baltimore, MD. 21203-1717

July 29, 1991

Dear Mr. Harris,

The Sensible Washington Area Transportation Coalition is a group of civic and environmental organizations concerned about environmentally sensitive solutions to Northern Virginia's traffic congestion problems. We have reviewed the draft EIS for the Comprehensive Base Realignment/Closure and Fort Belvoir Development and found that it is not comprehensive and has some serious omissions.

255 First and foremost, we remind you that the Clean Air Act of 1990 requires a reduction in vehicles miles traveled and a reduction in carbon dioxide and ozone into the air. Your draft EIS does not show that your plan for development complies with either of these requirements. We expect that your development of Fort Belvoir and the EPG area will generate increased levels of traffic on local roads and you have confirmed this fact in your Traffic Impact Analysis. In fact we understand from JHK that even without your development, baseline projections in traffic will exceed the capacity of the roads in the areas discussed. Thus JHK spells out various scenarios with your projected development at full build-out and concludes by recommending that Route 1 be widened to 6 or 8 lanes, that I 95 be widened to possibly 10 lanes, Telegraph road widened to 6 lanes and "improvements" to a variety of feeder roads. All this to accommodate capacity.

The Traffic Impact Analysis quoted the Northern Virginia 2010 Transportation Plan several times, we offer this quote from the same Plan on page 1, from the objectives: #5, To identify alternative corridors, and/or alternative modes and strategies, in areas where the transportation demands indicate that four or more additional lanes or a total of six lanes or more are needed."

256 We noted that the National Capital Planning Commission on page 7 of their letter in Appendix A asked that " Extension of public transit should be studied as a way to limit new vehicle trips. Air quality impacts related to the increased traffic on local roads should be given careful review as well" We don't feel this has been covered in the draft EIS. There is a page on bus usage into the area, but no figures are given on the average ridership nor on the subsidized cost per passenger-mile of this service. The Draft does talk about increasing this service, but at what cost and what is the likelihood that patronage will increase if traffic is congested?

257 The draft EIS does not specify actual costs of the road "improvements" anticipated, although it does in one place specify the potential funding sources of particular projects. In fact the EIS seems to expect that solutions in this area of "improvements"

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are the responsibility of local jurisdictions or the state. Is this realistic given current fiscal limitations? Your taking responsibility to be part of the solution rather than part of the problem would increase your project's acceptability in the community and with your neighbors.

258 We suggest that you obtain the services of a transportation professional who has considerable expertise in development and construction of Light Rail transit and that you develop a concept plan for a light rail commuterline as a key component that perhaps utilizes the R, F & P right-of-way together with the line used to bring coal to the Fort as a possible means of moving people in and out of your proposed development. A light rail line down Route 1 into Alexandria developed together with local jurisdictions might also offer a way to reduce the impact of your project and help meet regional air quality goals. Additional Demand Management strategies should be outlined as well as provisions for car/van pool programs and parking preferences.

In summary, additional roadways, interchanges widening and improvements may be necessary but could be kept to a minimum and thus reduce costs both fiscally and environmentally. Such a model development which includes a light rail commuter line as a key component would be an inspiration to others that density and development is not all bad when planned carefully and innovatively with traffic reduction and air quality goals for the region in mind.

Sincerely,

Wendell Swan, President
Washington Area Transportaion Coalition

COMMENTS CONCERNING REUSE/CLEANUP OF CAMERON STATION

The following letters provide comments that are specifically related to the reuse of Cameron Station and can be categorized as follows.

1. Retain Cameron Lake for passive recreation and open space.

2. Transfer the property to the Navy for their use.

3. Follow-on NEPA analysis and documentation will address the cleanup, disposal, and reuse of Cameron Station.

United States Department of the Interior

NATIONAL PARK SERVICE

MID-ATLANTIC REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

IN REPLY REFER TO:
L32(MAR-PD)

JUL 10 1991

Memorandum

To: Regional Director, NCR

From: Regional Director, MAR

Subject: Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement (ER-91/0577)

We have reviewed the subject document as to the impacts of the planned closure of Cameron Station in Alexandria, Virginia and offer the following comments.

The latter 164 acre facility is estimated to now be over 80 percent covered by either buildings or pavement, surrounded by a local area comprised of industrial, commercial and residential development. In anticipation of the closure, the city has zoned the property for a mixed-use development consisting of residential and some commercial and industrial development.

Approximately 23.5 percent of the property which surrounds Cameron Lake in the southeastern corner is currently used for passive recreation and open space. Located within the Atlantic Flyway, this lake attracts a large and diverse assortment of birdlife. This office supports the obvious desirability of at least keeping this green oasis intact as it is now being enjoyed and used.

Another compelling reason for retaining this area in local public ownership for open space is that immediately across the confluence of Holmes Run and Backlick Run is a former 4.52 acre portion of Cameron Station which was conveyed to the city as surplus property subsequently named Tarleton Park. This park is served by a biketrail along Holmes Run and also by a footpath. Should the city obtain the Cameron Lake portion of the Station for park use, it seems appropriate that a footbridge should link this and Tarleton Park into a significant expanded city park.

For Joe R. Miller
James W. Coleman, Jr.

060185

23 July 1991

U.S. Army Engineers
Baltimore, Md.
Gentlemen and Ladies:

Recently there was an article in our local Alexandria newspaper about the Navy looking over four locations in Alexandria, for their expansion.

This is a time of national recession, cuts in military spending, reducing the force, early outs for service personnel, lay-offs throughout civilian organizations and a general uneasiness in the economy.

Wouldn't it make sense, therefore, to utilize Cameron Station? Here is a complex already owned by the government, and scheduled to close down. Why couldn't the Navy do their expansion on this military site? There is plenty of room to build a hi-rise building - if they need it - and no air traffic problems to contend with. It is in close proximity to the new Metro station, buses run frequently on streets surrounding the complex and parking would not be a problem for workers.

2

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I can't, in good conscience, understand how the Navy would be allowed financial backing for a new and undeveloped site, while Cameron Station is available. Even if they intended to start working on their new selected site, as soon as possible, there would still be building and moving delays. Over the next few years, they could start a gradual move into Cameron Station, as it is vacated by the Army and other services who are presently using this facility.

Is it possible that I may expect a reaction to my letter?

Sincerely,
Kathleen McGuth
6270 Chaucer Lane
Alexandria, Va. 22304

000107

FRIENDS OF JONES POINT

27 July 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore District, Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Dear Mr. Harris,

We are sending the following comments to you as requested by a memorandum dated 6 June 1991 from Col. Frank Finch. They concern the Draft Environmental Impact Statement (DEIS) titled Comprehensive Base Realignment/Closure and Fort Belvoir Development.

The Friends of Jones Point is a citizens group formed to support the visitors, and assist the City of Alexandria, in their use and administration of the Jones Point Park. Our interests extend to the natural resources, recreational use, and other amenities of the general area. Because of the immediate impacts of the Capital Beltway and other major transportation corridors to these resources, we have discussed the DEIS, and the developments it describes, at our last two monthly meetings. Our concerns are primarily on the growth, and attendant impacts, projected for Fort Belvoir, and not with changes at Fort Myer, Cameron Station, or Fort Meade, though they too may have related impacts. The Executive Board has also discussed these concerns and interests with the Friends of Dyke Marsh, Friends of Mason Neck, Friends of Huntley Meadows, Sensible Washington Area Transportation coalition, and the Natural Resources Defense Council. We would expect the comments which follow to be addressed in the Final EIS.

1. Transportation.

259 o The summary of the scoping meetings identifies traffic as the major public concern, and considerable discussion is devoted to this in the DEIS. Why then is no letter or statement of coordination with the Virginia Department of Transportation contained in Appendix A? We would appreciate knowing their views about the projections and remedies.

260 o What will be the impact on traffic across the Woodrow Wilson Bridge of these developments?

261 o As noted on page 25 of the Traffic Impact Analysis, and elsewhere, Capital Beltway traffic crossing the bridge could continue towards Fort Belvoir, or divert to either the George Washington Memorial Parkway or Route 1. What mix is projected for these three approaches to Fort Belvoir?

X

262 o Why are not recommended improvements to the Woodrow Wilson Bridge included on Table 0 (p.5) of the Traffic Impact Analysis?

263 o At page 4-36 of the Fort Belvoir Concept Development Plan (CDP), there is an interesting suggestion to establish a rail connection from Fort Belvoir to Metro stations (Van Dorn might be considered as well as Franconia-Springfield). Although the transmitting memorandum says this document is incorporated by reference, we feel it would add clarity to further discuss this in context with the transportation sections of either chapter 3 or 4 of the DEIS. There should also be an indication of how the public might influence schedules both for decision and implementation of this alternative.

264 o We found lacking a discussion of the specific affects of the 1990 amendments to the Clean Air Act (whose regulations we understand are to be implemented this November) on air quality compliance along the heavily trafficked routes around Fort Belvoir.

265 2. Biological Resources.

o The discussion in chapter 3 of the biological resources of the Fort Belvoir area is commendable. However, the impact discussions in chapter 4 seem abbreviated by comparison, and the citations of no impact and minor impact in the summary table (S-4) seem unsubstantiated. There needs to be more positive acceptance of mitigation measures such as those proposed on pages 4-22 and 23.

266 o The emphasis on a "genetic" corridor seems unclear. Wildlife corridors in the urban environment have been discussed at length in planning documents by the National Institute for Urban Wildlife of Columbia, Maryland. Their literature tries to balance both positive and negative features (such as increased predation or disease transmittal) in calling for careful study, and consideration of alternative conservation measures for expenditures. Have you considered alternatives?

267 o The discussion of the importance of the wildlife corridor between Huntley Meadows and Mason Neck seems unbalanced against discussion of the impacts of increased road traffic, and potential development, along Route 1, and increased air traffic into Davison Airfield. Are not these negative impacts on the corridor?

268 o The continued and increased use of Davison Airfield would seem to be a negative impact on an endangered species, the Bald Eagle, as well as on the ovenbird and barred owl which are invoked to explain the "genetic" corridor (pp.3-44 and 4-97).

3. Comprehensive Development

269 o At page 2-62 of the DEIS it is stated that a separate document is being prepared for the Tompkins Basin development. At pages 3-10 and 4-4 of the CDP it states that the Engineer Proving Grounds is being treated in a separate planning document. To provide for consideration of cumulative environmental impacts, could not the impacts of those projects be combined into the present draft EIS?

270 o Perhaps this DEIS should be supplemented or reissued to put all these actions into a complete perspective and provide a truly comprehensive review.

Isaacc Kershaw

~~Larry Robinson~~ - away

John Swearingen

Board Members

Friends of Jones Point
c/o Seaport Foundation
1000 South Lee Street
Alexandria, VA 22314

000179

Friends of Huntley Meadows Park

c/o Huntley Meadows Park, 3701 Lockheed Blvd., Alexandria, VA 22306

July 28, 1991

Baltimore District Corps of Engineers
Attn: CENAD-PL-ES (K. Harris)
P.O. Box 1715
Baltimore, MD 21293-1715

Dear Sirs:

I am writing on behalf of Friends of Huntley Meadows Park to comment on the draft environmental impact statement covering the expansion of Fort Belvoir. Since Fort Belvoir is nearly contiguous with Huntley Meadows Park, the impact of the proposed development is of special concern.

We recognize that Fort Belvoir has been active in protecting environmental habitat. In particular, it has been a leader in recognizing the critical importance of environmental quality corridors. A prime example of such a corridor is the Jackson Abbott wildlife refuge, which is a vital link between Huntley Meadows and the parks on Mason Neck.

We are especially concerned, therefore, that while the draft environmental impact statement acknowledges the importance of the "genetic corridor," it concludes that the corridor must be sacrificed, or narrowed so much as to be non-functional, to allow for the expansion of development.

371

The importance of the "genetic corridor" for the preservation of wildlife cannot be overstated. Every effort must be made to expand the corridor, rather than narrow its boundaries. Without the preservation of the corridor through Fort Belvoir, Huntley Meadows Park becomes truly an island in an urban setting, and its value as a wildlife preserve will greatly decline, as will the value of the Jackson Abbott refuge.

We urge Fort Belvoir not to abandon its role as an environmental leader. The impacts of development are irreversible. Any reduction in the size of the "genetic corridor" would lead not only to the decline of wildlife, but to the decline in quality of life in Northern Virginia.

Sincerely,

Susan Becker, President
Friends of Huntley Meadows Park

cc: Gary Roisum
Norma Hoffman

000171

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Affairs
Custom House, Room 217
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

TAKE PRIDE IN AMERICA

August 2, 1991

ER-91/577

Mr. Keith Harris
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore, Maryland 21203

Dear Mr. Harris:

This is the Department of the Interior's response to the request for comments on the Draft Environmental Impact Statement (EIS) for the Comprehensive Base Realignment/Closure and Fort Belvoir Development. The draft EIS mentions a large number of varied and sizable development actions that would have significant adverse impacts on the environment if appropriate mitigation is not included.

GENERAL COMMENTS

272 The evaluation of the base realignment and closure (BRAC) actions as part of the significant cumulative impacts of the Concept Development Plan (CDP) is difficult since the cumulative analysis for the CDP is not scheduled for completion until fiscal year 1992. Section 4.6 of the draft EIS attempts to address cumulative impacts but it lacks specificity and completeness. For example, the discussion on cumulative impacts to the genetic corridor mentions three projects that, if constructed, would have significant adverse impacts to the corridor. The only discussion of avoiding these impacts states that two of the projects, NAF 5 and MCA 13, may be 273 sited in different locations. Figure 4-26 does not include BRAC 1 or MCA 13 though the narrative identifies these activities as significantly affecting the corridor. The cumulative impact discussion should include a habitat "balance sheet" that assumes 274 a worst-case scenario and shows how the acreages of habitats would change following implementation of the CDP.

SPECIFIC COMMENTS

Recreation

275 Approximately 23.5 percent of the property which surrounds Cameron Lake on Cameron Station is currently used for passive recreation and open space. We support maintaining this area as it is now being enjoyed and used. Another reason for retaining this area in local public ownership for open space is that immediately across from the confluence of Holmes Run and Backlick Run is a former 4.52-acre portion of Cameron Station which was conveyed to the city as surplus property and subsequently named Tarleton Park. This park is served by a biketrail along Holmes Run and also by a footpath. Should the city obtain the Cameron Lake portion of the Station for park use, it seems appropriate that a footbridge should link this and Tarleton Park into a significant expanded city park.

Fish and Wildlife Resources

Wetlands

The construction of additional facilities at Fort Belvoir would impact numerous wetland areas. Preliminary wetland delineations and analysis of U.S. Fish and Wildlife National Wetland Inventory maps indicate that approximately one-quarter of the undeveloped acreage on the post is likely to be wetlands. However, since wetland delineations have not been completed for all proposed sites, it is not possible to accurately assess impacts on wetlands.

276 We are supportive of the planners' attempt to follow the national policy of no net loss of wetlands; however, several proposed sites could adversely impact wetland areas; specifically proposals MCA 9, MCA 16, MCA 31, MCA 38, MCA 42, NAF 2, NAF 5, AFH 3, BRAC 3 (all alternatives), and BRAC 8 (alternative 2). Since much of the State and Federally-listed rare, threatened, and endangered species' habitats on Fort Belvoir are located within the floodplain, tributary, and wetland systems of the Dogue, Accotink, and Pohick Creek watersheds, proper mitigation is imperative. Mitigation is defined as: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments." We consider these specific elements to represent the desirable sequence of steps in the mitigation planning process. Therefore, we recommend that the planners first consider alternatives which would decrease wetland impacts. Several alternatives, for example, may be suitable replacements for

preferred alternatives that would require wetland filling. In addition, scaling down or relocating of certain proposed sites could significantly decrease wetland impacts.

277 The cumulative impact discussion should provide a summary table which provides a worst-case acreage of wetlands that would be affected by the CDP activities. Where unavoidable impacts occur, there should be details on how compensatory wetlands would be constructed and which habitats would be converted to wetland.

Genetic Corridor

278 As stated in the draft EIS, Fort Belvoir has been identified as a critical link in the genetic or "green" corridor that connects Huntley Meadows Park to Mason Neck National Wildlife Refuge. We agree that the corridor is an important connection between the two areas and recommend that the genetic corridor not be constricted in any additional manner. Construction of several facilities, specifically BRAC 1, MCA 10, MCA 13, MCA 25, MCA 36, MCA 42, AFH 3, NAF 5, and NAF 7 could adversely constrict the corridor. We recognize that the developers plan to construct culverts to promote safe passage of wildlife within the corridor; however, construction of the golf course (NAF 5) and the headquarters complex (BRAC 1) would almost sever the genetic corridor. According to the draft EIS, AFH 3 (1,500 housing units) would be expected to have the greatest effect on the genetic corridor since development of the site would virtually eliminate all of the remaining unfenced wooded 279 corridor. The proposed mitigation for BRAC 1 is described as a 250-300-foot vegetated buffer to maintain the corridor. However, the results of the field studies described on page 3-46 recommend a minimum width of 250 yards (750 feet) to maintain corridor function. This discrepancy should be addressed in the final EIS.

280 We recommend that BRAC 1, NAF 5, and AFH 3 be redesigned or located to alternate sites outside the genetic corridor to reduce or eliminate adverse impacts.

Wildlife Passage Structures

281 The document states that passage structures would be monitored for two years to ensure proper function. The final EIS should provide details on the success standard that would be used to determine proper functioning. It appears that some combination of passage use and reduced road mortality data would be necessary to measure effectiveness.

Pest Management

282 Operation of the proposed golf course, and perhaps other proposed facilities, would require the use of pesticides which could adversely affect fish and wildlife resources. The final EIS should include a commitment to implement an integrated pest management

(IPM) program to reduce or eliminate the need for chemical control of pests.

Stormwater Management

283 The increase of personnel at Fort Belvoir will increase the amount of traffic within Fort Belvoir as well as the need for additional roadways and parking areas. Proper stormwater management techniques are essential for preventing contaminated run-off from entering streams and wetland areas. The final EIS should commit to the maximum use of pervious pavement and retention ponds, so that sedimentation into streams can be minimized. In addition, innovative techniques such as vegetation filter strips and wetland construction can be employed, which could prevent degradation of water quality and, at the same time, increase habitat and wildlife diversity and quality.

Marina Development

We have concerns over the proposed Tompkins Marina, which could impact wetland areas and bald eagles, and which also requires channelizing of Gunston Cove. Coordination with the Fish and Wildlife Service (FWS) Annapolis Field Office regarding the proposed marina is currently being done in a separate analysis. Therefore, these comments do not address the FWS concerns for this site.

Endangered Species

284 Since it has been determined that the CDP would affect bald eagles, written formal consultation pursuant to Section 7 of the Endangered Species Act must be conducted with the Field Supervisor, FWS, Annapolis Field Office, 1825 B Virginia Street, Annapolis, Maryland 21401. Until this consultation is complete, we cannot prepare final comments on proposed activities MCA 25, MCA 385, and NAF 2.

SUMMARY

285 The draft EIS contains some good general information about how the BRAC and CDP might affect environmental resources. We believe that the final EIS should contain more specific information on how the land uses would change and include estimated acreages of habitats that would be converted to different uses.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Don Henne

Don Henne
Acting Regional Environmental Officer

HOLMES RUN COMMITTEE
Bernard Brenman, Secretary
4600 Duke Street, Suite 1609
Alexandria, Virginia 22304

July 26, 1991

Mr. Keith Harris
CNAB - PL - ES
Baltimore District Corps of
Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

SUBJECT: Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (EIS)

The members of the Holmes Run Committee have studied, in detail, the subject EIS, with particular emphasis on Cameron Station which is an integral part of our neighborhood. This evaluation was done in conjunction with the recommendations of the Alexandria Task Force to Monitor the Closing of Cameron Station, the Alexandria City Council approved Cameron Station Reuse Plan and the letter from Department of the Army (office of the Assistant Secretary) dated July 12, 1991 (attached). Also attached is a copy of a letter from the Holmes Run Committee to State Senator Robert Calhown. We believe that early implementation of Alexandria's Cameron Station reuse plan is in the best interest of our city, Our community and the Army.

We support the EIS as presented, with two recommendations:

3 I. That the EIS incorporate the details of the Alexandria City Council reuse Plan and subsequent zoning of Cameron Station, in toto.

4 II. That additional information be incorporated in the EIS regarding the planned and potential use of the immediately surrounding areas such as the Trade Center, Southern Railroad property and others in the path of early development.

FOR THE HOLMES RUN COMMITTEE:

Bernard Brenman

Bernard Brenman
Secretary

2 encl: A/C

050176

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

REPLY TO ATTENTION OF

July 12, 1991

Ms. Redella S. Pepper
Mr. Kerry J. Donley
Co-Chairs
Cameron Station Task Force
c/o City of Alexandria

Dear Ms. Pepper and Mr. Donley:

This is in reply to your letter of May 3, 1991, concerning the disposition of Cameron Station. I am committed to the Army working cooperatively with the City of Alexandria. I trust the information in this letter will clarify the Army's intentions regarding the disposition of Cameron Station.

First, the Army will follow the city's approved reuse plan as part of the disposal process.

Second, the Army lacks authority to convey 50 acres of Cameron Station for public parks or recreation areas to the city with no conditions.

The Army is delegated certain authorities from the General Services Administration for disposal of surplus properties identified for closure under the provisions of the Base Closure and Realignment Act of 1988 (Public Law 100-526). This delegated authority is limited to those authorities enjoyed by the General Services Administration. The General Services Administration does not have the authority to make a conveyance of surplus property for public parks or recreation areas. That authority resides only with the Secretary of the Interior through the National Park Service.

The usual procedure for a public body to acquire surplus Federal land for public parks or recreation areas is for the public body to file an application with the National Park Service. The National Park Service evaluates the application and makes its recommendations for conveyance to the General Services Administration. The General Services Administration then makes its decision on the public benefit conveyance and assigns the property to the National Park Service which in turn actually makes the conveyance by quitclaim deed to the public body.

ENCLOSURE 1

000177

I would like to give the city assurance the Army will assign the 50 acres to the National Park Service. Unfortunately, I cannot do this until we proceed through the various steps in the disposal process as outlined in the reuse plan and receive recommendations from the National Park Service. I do commit the Army to working with the city in preparation of the application. I recommend the city, the Army, and the National Park Service meet soon to begin the application process.

I trust the foregoing information provides a full explanation of the Army's position and the process we must follow to make a portion of Cameron Station available to the city for public parks and recreation areas.

We are committed to working with the City of Alexandria and the task force to monitor the closing of Cameron Station to ensure the future uses of Cameron Station are compatible with the surrounding community. Questions relating to the disposal of the site should be directed to Mr. Gerald Boggs, Chief, Real Estate Division, U.S. Army Corps of Engineers, Baltimore District, (301) 962-3000. The Office of Economic Adjustment (OEA) will continue to assist your reuse planning and implementation efforts. Mr. Patrick O'Brien, (703) 697-3022, is your OEA point of contact.

Sincerely,

Susan Livingstone
Assistant Secretary of the Army
(Installions, Logistics & Environment)

BERNARD BRENMAN
4600 Duke Street, Suite 1609
Alexandria, Virginia 22304

July 10, 1991

Senator Robert Calhoun
3204 Circle Hill Road
Alexandria, Virginia 22305

Dear Senator Calhoun:

In consonance with our conversation on July 6, 1991, the following information regarding the re-use of Cameron Station is furnished:

The City Council appointed Task Force to monitor the closing of Cameron Station submitted its report to the City Council in August 1990. This report was based on City Council guidelines and when approved, with minor modification, became part of the approved Small Area Plan. It is interesting to note that representatives of the Army and the President's Advisory Council on Base Realignment participated in the Task Force deliberations.

Following is a chart comparing the Task Force recommendations and the City Council approved positions. The City Council's positions became the zoning directive and a part of the Small Area Plan.

I. Allotted Acreage	Task Force	Council
o Residential use	70	70
o Commercial (office & retail sales)	16	16
o Infrastructure	28	28
o Public open space/ recreation	50	50
	164	164

II. Uses within the Acreage	Task Force	Council
o Residential (town homes, condominiums, rental, garden type, mid-rise, limited high rise/ 70 acres	1,800 d/u*	1,910 d/u*

*dwelling units

ENCLOSURE 2

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II. Uses within the Acreage (cont'd)	Task Force	Council
o Commercial office & neighborhood retail sales (without an Eisenhower Avenue connector) (16 acres)	380,000 sq.ft.	380,000 sq. ft.
or		
o Commercial office & neighborhood retail sales (with an Eisenhower Avenue connector)	480,000 sq.ft.	480,000 sq.ft.

III. Height Limits by Right	Task Force	Council
o Along Duke Street	Maximum 45 ft.	Same
o Along First Street	Maximum 45 ft.	Same

Task Force	Council
o From a maximum of 45 feet at Duke Street, southward, rise to 55 feet at center of mass, to 77 feet along the railroad tracks.	Same
o From 45 feet, First Street, Westward, rise to 55 feet at boundary with the Trade Center.	Same
o Very limited 120 feet, with a special use permit along the railroad tracks on the south.	Same

IV. Other Major Recommendations

Task Force	Council
o The purchaser(s) or acquirer(s) of Cameron Station will remove the "choke" point on Backlick Run and will modify the Backlick Run in such a manner as to result in eliminating the 100-year flood plain problems at Cameron Station.	Same
o All areas, currently in use as open space and recreation will continue in use as public open space/recreation.	Same
o All of the area east of First Street will be used for public open space/recreation. The two ponds will remain in place.	Same
o The Holmes Run Greenway on the eastern boundary at Cameron Station will be continued to its confluence with the Backlick Run and will be developed into a greenway.	Same

IV. Other Major Recommendations (continued)

Task Force	Council
o The Backlick Run, along the Cameron Station southern boundary will be developed into a Backlick Run Greenway.	Same
o The Backlick Run, Holmes Run and Cameron Run will be included in the public open space/ recreation zone.	Same
o The existing Four Seasons Base Exchange building will be used as a Youth and Civic Center.	Change name to Municipal Center
o The City Staff should list their requirements for office space, then examine the Cameron Station Headquarters building for these uses. Civil engineers should follow with an examination of the building to ascertain its ability for these uses and, if so, develop the costs associated with the modifications and the cost effectiveness of these actions.	Same
o Prior to the September public hearing on Cameron Station, the City should complete the zoning of the Trade Center.	Same (Note: This was completed)
o The Cameron Station infrastructure and the Trade Center infrastructure should be compatible, joined and related.	Same
o Ten percent of the housing at Cameron Station will be "affordable housing."	Same
o Consideration should be given to group homes and to the homeless.	Same

At a later date, the Holmes Run Committee made a study of the potential uses for the Public Open Space/Recreation acreage and submitted the following recommendations to City Council on August 14, 1990. The Holmes Run POS/R working committee consisted of the following members.

Ben Brenman	Holmes Run Committee
Kenneth Foran	Park/Rec. Comm. PD III
Ann Haynes	Park/Rec. Comm. PD I,V. Chair
Vincent Magnini	Park/Rec. Comm.-Youth MBR.
Francis Newhouse	Park/Rec. Comm. PD III
Robyn Rorke	St. Agnes School-Youth Rep.
Kristen Steuerle	Park/Rec. Comm.-Youth MBR.

PREAMBLE: The Working Committee supports the Cameron Station Public Open Space Directives of City Council and the findings and recommendations of the Cameron Station Task Force.

Within the City Council and Cameron Station Task Force recommendations, for Public Open Space/Recreation, the following are added recommendations for specific uses, time phasing and comments:

USE	Time Phasing			
	SHORT	MID	LONGER	CONTINUOUS
O Night-light ball field	X			
o Night-light tennis courts	X			
o Add two tennis courts		X	X	
O Enclose tennis courts for day/night, all weather use			X	X
o Utilize Youth/Civic Center for:				
Roller skating	X			
Ice skating		X		
Game room	X			
Activity room	X			
Pool table	X			
Skee ball	X			
Snack bar	X			
o Provide benches/tables for Greenways (picnic areas)		X	X	X
o Construct hike/bike paths which connect active and passive facilities		X	X	
o Provide benches/tables along bike/hike paths		X	X	
o Provide tennis backboards	X			
o Provide one-on-one basketball facilities	X	X		
o Provide volley ball facility	X			
o Construct miniature golf course			X	
Night-light golf course			X	
o Construct a three-hole, par 3, 5 iron, golf chip course			X	
Light this course			X	

The Working Committee clearly understands that the maintenance of facilities and operation of 50 acres of Public Open Space and Recreation areas, particularly one which emphasizes recreation, is expensive; however, the committee believes that a phased plan is achievable. The recommended facilities represent a realistic need for both adults and youths. The recommended facilities do not compete with private enterprise.

The Working Committee also recognizes that most of the recommended facilities do not currently exist, and while some are needed now, they will all be needed in the future as Alexandria's population increases, particularly in the Cameron Station area.

The Working Committee, while recognizing that the lighting of facilities is desirable, recommends that lighting should be considered only in areas which will not adversely affect residential areas. Any noise generated should also be a major consideration in locating the various facilities, particularly night time activities.

The Working Committee believes that all sources of funding should be examined. Some of these are:

Public money (Budget)
Contributions (Golden Book)
Proffers from Developers
Neighborhood Fund Raising
User fees
Endowments

The Working Committee recognizes that the ponds, ducks and geese present a problem of game management. Periodically as bird population exceeds the area's capability, some fowl may be moved (as is currently being accomplished). Federal and State responsibilities and potential contributions must be examined for funding sources in this area.

Since scheduling of activities at Cameron Station will present major programming requirements, some area of the existing headquarters building should be considered for use by the department of recreation. The Working Committee foresees a possible need for an on-site element of the Department at Cameron Station.

Since scheduling and maintenance activities will present personnel requirements, the Department of Recreation should consider establishing a "Recreation West" Group in the "Headquarters" Building. This may ease the scheduling burden and provide more available space and parking at the Lee Center. Consideration could also be given to parking some maintenance equipment at Cameron Station.

The Working Committee recommends that priority be given to Alexandria residents and their guests for use of this facility. The Working Committee recognizes the need for additional law and order personnel on site.

The Working Committee requested that a Department of Recreation position should be prepared for presentation at the City Council Public Hearing on Cameron Station zoning on September 15, 1990. The Working Committee requested that the issue of the utilization of the 50 acres of Public Open Space/Recreation be discussed and voted on at the Park and Recreation Commission meeting on August 23, 1990, so that its position may be immediately passed to the Department so that the Department has reasonable time to examine the report and develop its position(s) in time for the September 15th Public Hearing.

The Holmes Run Committee recommendations were accepted as presented and passed to Staff for preparation of a cost analysis.

Bob, the zoning of Cameron Station has been enacted. I believe that the Task Force, City Council and the Holmes Run Committee all acted in remarkably close concert. The Army has completed most of the required EIS and our differences are not great. Our study considered the best use for Cameron Station with great emphasis placed on traffic, road net, population, transportation, height limitations based on the neighborhood and our people. The Army's consultant based their study on the "highest and best use" ... these terms are not always compatible.

Further, for your information, the connector which we refer to as Route #5 (shown on the attached map) runs from the intersection of Edsall and Pickett Streets, south through the western boundary of Cameron Station, across the rail tracks to Eisenhower Avenue, immediately east of the Pistol Range. This will glean traffic from our highly populated area to Eisenhower. This route provides easy access to Pickett, Edsall, Duke Street and Van Dorn Streets. It is the least expensive, takes 15% of existing traffic off Van Dorn and allows easier access to the Van Dorn Metro Station.

Bob, thank you for the opportunity for providing this information. The actions of City Council, as you know, are public actions available to anyone. I am ready to discuss these actions with anyone who wishes to participate.

In appreciation for your interest, and in loyalty,

Ben

Bernard Brenman

Enclosure: 1 A/S (Map)

Alexandria Redevelopment and Housing Authority

Commissioners
Shawn P. McLaughlin, Chairman
Eugene C. Cook
Arthur L. Nelson, Sr.
James W. Ciscc, Vice Chairman
Ronald Fitzsimmons
Stephen Newman
Leonard R. Calloway
Carey L. Meushaw
Ramona Younger

600 North Fairfax Street
Alexandria, Virginia 22314

Angus T. Olson, Executive Director
(703) 549-7115
FAX: (703) 549-8709
TDD: (703) 836-6425

July 25, 1991

Mr. Keith Harris
CENAB-PL-ES
Baltimore Corps of Engineers
P. O. Box 1715
Baltimore, Maryland 21203-1715

Dear Mr. Harris:

The Alexandria Redevelopment and Housing Authority has reviewed the draft Environmental Impact Statement as it relates to Cameron Station and the fax from R. Hardiman to H. Howard on July 15, 1991.

5 We endorse and support the contents and references to 1,910 dwelling units, of which 191 (10 percent) will be "affordable dwelling units." We recommend that this element of Alexandria's reuse plan be shown in the final document.

Sincerely,

ALEXANDRIA REDEVELOPMENT
AND HOUSING AUTHORITY

Shawn P. McLaughlin,
Chairman

SPMcL/w

CC: (fax to:)
Deputy Assistant Secretary of the Army (Installations & Housing)
703/614-7394
Attn: R. Hardiman

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COMMENTS CONCERNING TRAFFIC

The following letters provide comments that are specifically related to the traffic issues resulting from the BRAC and CDP projects and can be categorized as follows:

1. Concern for planned intersection at Telegraph Road and Beulah Street.

2. Coordination of roadway improvements with property owners.

3. Cooperation with Army regarding sewer line extensions.

A. J. DWOSKIN & ASSOCIATES, INC., letter dated July 25, 1991

2. Coordination of roadway improvements with property owners.

RESPONSE: The Virginia Department of Transportation is responsible for coordinating road improvements with property owners.

3. Cooperation with Army regarding sewer line extensions.

RESPONSE: The planned sewer upgrades are improvements of existing lines. No sewer extensions are planned for the vicinity of your property. (Your request for Ft. Belvoir cooperation has been forwarded to Ft. Belvoir.)

WDCR561/039.51

A.J. DWOSKIN & ASSOCIATES, INC. 3050 CHAIN BRIDGE ROAD SUITE 200 FAIRFAX, VIRGINIA 22030-2884 (703) 273-9320
TELEFAX (703) 273-7243

July 25, 1991

CERTIFIED RETURN RECEIPT REQUESTED

Baltimore District, Corp. of Engineers
ATTN: CENAB-PL-ES (K. Harris)
P. O. Box 1715
Baltimore, MD 21203-1715

RE: Comprehensive Base Realignment/Closure and Fort Belvoir Development Draft Environmental Impact Statement (EIS)

Dear Mr. Harris:

I, Albert J. Dwoskin, trustee, own a parcel of land, Fairfax County Real Estate Tax Map No. 100-1 ((1))10B, which lies immediately northeast of Fort Belvoir across Telegraph Road and just east of the planned realignment of Beulah Street at its future intersection with Telegraph Road. I am sending this letter as part of the EIS public review comment process and ask that you officially respond to my concerns about the need to improve the area roadway network and to my inquiries regarding sewer extensions and upgrades.

As my site abuts the planned realignment of the intersection of Beulah Street and Telegraph Road, I am particularly concerned about the need for improvements to these roads and the intersection. As identified in your EIS, anticipated traffic from the expansion of Fort Belvoir will adversely affect the roads and the intersection. Your EIS clearly identifies needed improvements to these roads and intersection. Specifically, your EIS recommends that Beulah Street be realigned and that turning movement approaches to the intersection of Telegraph Road be added to accommodate year 1995 baseline traffic. Your EIS also states that it is anticipated that some of the needed improvements to Beulah and Telegraph Road will be constructed by 1995 by the private sector and the state. Given the state of government funding for transportation improvements and the sluggish real estate market, I question whether anticipated improvements will be in place in 1995. In the event they are not in place or are only partially in place, will your project include the completion of the roadway improvements identified as necessary in your EIS? I believe it is critical that these improvements and others identified for years 200 and 2010 be in place when the impacts are anticipated. I believe a traffic light is also essential at this intersection.

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Secondly, your EIS states that the Army will coordinate with the Virginia Department of Transportation and local government in the determination of needed roadway facilities. I suggest that you also consider working with property owners adjoining the roadways, particularly those adjacent to the base for obvious reasons. We are anticipating that we will be doing some roadway improvements when we develop our shopping center site, I believe it would be in our mutual interest to coordinate our efforts.

Lastly, your EIS mentions planned sewer upgrades. As you may know, sewer availability is limited in the immediate vicinity of Telegraph Road and Beulah Street. I would appreciate your providing me a copy of any plans related to planned sewer line extensions in the vicinity of my site. I would also appreciate Fort Belvoir's cooperation in the event that a sewer connection from my property through the Fort is deemed an acceptable alternative for me to develop my property.

Thank you for your cooperation.

Please call if I can be of assistance.

Yours truly,

Albert J. Dwoskin

AJD/gc

cc: Col Robert Hardiman, USA-Ret.

SUMMARY OF COMMENTS RECEIVED AT THE PUBLIC HEARING 16 JULY 1991

1. Speaker: Converse M. West. Glad that the Army is going to comply with the Alexandria city zoning at Cameron Station.

RESPONSE: No response necessary.

2. Speaker: Ben Brenman. Task Force was not advised by their associates in a timely manner regarding the date for the public hearing or the Army response to the zoning issue (see item 1 above).

RESPONSE: Public notices were sent to the general public and agencies that have shown interest in the project on June 19, 1991, advising of the time and place for the public hearing. Additional news releases and advertising in local newspapers were used to increase the public's awareness of the availability of the DEIS and the date of the public hearing. The Army response to the zoning issue was signed July 12, 1991, by the Assistant Secretary of the Army (Installations, Logistics & Environment). There may not have been enough time for the Task Force to have received the response before the public hearing.

3. Alexandria will work with the Army to address all archaeology issues.

RESPONSE: The Army appreciates all the local cooperation.

4. Speaker: John Chapman Gauger. More information should be included in the EIS regarding when Fort Myer was built and the role that it played as a part of the "ring of forts."

RESPONSE: Fort Myer, originally called Fort Whipple, was built in 1863 to defend Washington, D.C., during the Civil War. Fort Myer (Whipple) was part of a series of forts that surrounded Washington, D.C., and were known as the "ring of forts." The location of this fort, on a high bluff and adjacent slope overlooking the Potomac River, was strategic for protection against enemy forces advancing up the river.

5. Does the City of Alexandria have the authority to issue zoning requirements?

RESPONSE: Yes, the City of Alexandria is the authority who determines the local zoning requirements.

6. Speaker: Frank Carry. More information should be given regarding the role that Telegraph Road would have if the Fairfax County Parkway is not constructed.

RESPONSE: The Army supports the State and County plan to increase the number of lanes on Telegraph Road. This improvement is not a requirement of the Army's proposed development. Without the completion of the Fairfax County Parkway south of Interstate 95 (Shirley Highway), the need to improve portions of Telegraph Road may become more important.

7. Speaker: Joe Furber. Information should be given in the EIS regarding the contractors that do more than $25,000 in business at Cameron Station now. They should be listed and the economic effect of the closure of Cameron Station should be addressed.

RESPONSE: The economic effect of the closure of Cameron Station was addressed by using an Economic Impact Forecast System (EIFS) model to evaluate both primary and secondary regional socioeconomic impacts (see Section 4.1.3). There will be no significant socioeconomic impacts associated with these actions. Army activities will be relocated within the region; therefore, all of the contractors who do more than $25,000 in business now will be retained. It would not be appropriate to disclose Army contractors in this public document.

WDCR561/039.51

UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

Comprehensive Base Realignment/Closure and Fort Belvoir Development

\- - -

Draft Environmental Impact Statement

Public Meeting

Tuesday, July 16, 1991

7 o'clock, p.m.

Auditorium

Edison High School

5801 Franconia Road

Springfield, Virginia

A T T E N D E E S

Frank Finch, Colonel

Robert Hardiman, Colonel

Gerald P. Williams, Colonel

Kristine Kingery

Larry Lower

Andy Carter

Gerry Bresse

Anita Allen

Public Speakers:

Bernard Brenman

Joseph Furber

Francis Corry

John Chapman Gauger

Converse West

- 0 -

Reporter: Dean A. Robinson

P R O C E E D I N G S

COL. FINCH: Good evening, ladies and gentlemen. It's 7 o'clock and I'd like to begin the public meeting.

I'm Colonel Frank Finch, the District Engineer for the Baltimore District of the Corps of Engineers.

I'd like to welcome you to this public meeting to discuss the environmental impact statement we've prepared for the Military District of Washington and to analyze the environmental impacts of the closure of Cameron Station and the associated realignments to Fort Belvoir, Fort Myer, and Fort McNair.

I'd like to thank Edison High School for the use of this facility and I would ask that there be no smoking, drinking, or eating in the auditorium.

At this point I'd like to recognize a few dignitaries who are here this evening.

First, Mr. Bob Hardiman from the Office of Assistant Secretary of the Army for Installations, Logistics, and the Environment.

Next, Colonel Gerald Williams, Acting Commander of Fort Belvoir and Acting Commander of Military District of Washington.

Some of the support personnel who are present tonight to assist with some of the technical questions:

Miss Kristine Kingery from the U.S. Army Toxic and

Hazardous Management Agency.

From the Baltimore District Corps of Engineers, Mr. Larry Lower on NEPA requirements, Mr. Andy Carter on the Concept Development Plan for Fort Belvoir, and Mr. Gerry Bresee from our Real Estate Office on Cameron Station.

And we have Anita Allen here from the firm of CHM-Hill, our EIS contractor.

I'd first like to talk about the process of base closure and realignment.

The Army is taking these actions because the Secretary of Defense's Commission on Base Realignment and Closure in their December '88 report recommended the closure of Cameron Station in Alexandria, Virginia and the Army Materials Technology Laboratory in Watertown, Massachusetts, and the realignment to Fort Belvoir, Virginia; Fort Myer, Virginia; Fort McNair, Washington, D.C.; and Fort Meade and Fort Holibird in Maryland.

The Commission's recommendations became law in 1988 with the requirements that activities begin not later than 20 September 1991 and be completed not later than 30 September 1995.

The execution of some of the decisions analyzed in this EIS are subject to change based upon the Defense Base Closure and Realignment Act of 1990.

Our purpose tonight is to listen to your comments

on the draft document. We welcome any information which will assist in assuring the final EIS is complete and it addresses all potential impacts that proposed action or actions may cause.

I would like to emphasize that we're not here to debate the merits of the closures or realignments, but rather here to gather your comments about our assessment of the impacts.

All comments presented here tonight and received during the public comment period will be addressed in the final EIS.

Everyone who wishes to speak or submit written comments will be afforded the opportunity to do so.

To preserve the right of all to express their views, I ask that there be no interruptions.

If you wish to raise any questions on an issue, you may address those questions to me for the record. Any questions raised will be fully addressed in the final EIS.

I'd like to remind you to sign the sheets at the front registration table if you've not already done so. Please indicate if you wish to speak tonight or if you wish to be put on the final EIS mailing list.

The record of this hearing will remain open until July 29. Written comments submitted to me tonight or by mail by July 29 will receive equal consideration.

You may note a stenographer up front. We are making a transcript of this hearing to assure a detailed review of your comments. A copy of this transcript will be made available at our Baltimore office for your review or you may make arrangements with the stenographer for a copy at your own expense.

When making a statement tonight, I ask you to come forward to the microphone, state your name and the interest you represent. If you're speaking as an individual, please say so.

The environmental impact statement for the proposed base realignment and closure actions and the associated realignments was prepared in accordance with the National Environmental Policy Act, as amended, and Army Regulation 200-2, Environmental Effects of Army Actions.

The project areas include Washington, D.C., Alexandria in Northern Virginia, and central Maryland.

The Secretary of Defense's Commission on Base Realignment and Closures in their December '88 report recommended, and Congress subsequently directed, the closure of Cameron Station in Alexandria, Virginia and the realignment of its personnel to Fort Belvoir, Fairfax County, Virginia; Fort Myer, Arlington County, Virginia; and Fort McNair, Washington, D.C.

In addition, the Commission recommended the

closure of the Army Materials Technology Laboratory in Watertown, Massachusetts and the relocation of its corrosion prevention and research activities to Fort Belvoir.

The Commission also recommended the partial closure of Fort Meade and Fort Holibird in Maryland. The Criminal Investigation Command, and the Crime Records Center from these installations will be consolidated at Fort Belvoir along with additional criminal investigation command and information systems command personnel currently located in leased space.

The Commission also recommended the realignment of the Information Systems Command activities currently located at Fort Belvoir to Fort Devens, Massachusetts.

The execution of some of these recommendations are subject to change based upon the 1991 Base Realignment and Closure Commission's recommendations.

Specifically the relocation of selected Information Systems Command elements from Fort Belvoir to Fort Ritchie or another location within the National Capital Region rather than Fort Devens.

Also being considered is the relocation of the Army Materials Technology Laboratory activities from Watertown, Massachusetts to Aberdeen Proving Ground, Maryland, rather than Fort Belvoir.

These proposals would be subject additional

environmental impact analyzes.

The Comprehensive Base Realignment Closure and Fort Belvoir Development EIS evaluates the base realignment and closure actions in a cumulative context, including the reuse of Cameron Station, the concept development plan for future Fort Belvoir development, and the Engineer Proving Ground Development Initiative.

Additional NEPA documents will be prepared to evaluate the environmental and socioeconomic impacts associated with those projects.

The closure of Cameron Station will result in the realignment of approximately 3,641 personnel to Fort Belvoir, 192 personnel to Fort Myer, and 2 personnel to Fort McNair.

The realignment of the Information Support Command to Fort Devens will relocate 320 personnel from Fort Belvoir and 106 personnel from leased space.

The closure of the Army Materials Technology Laboratory in Massachusetts will relocate 178 personnel to Fort Belvoir.

The partial closures of Fort Meade and Fort Holabird will relocate 131 personnel to Fort Belvoir.

Approximately 220 personnel currently in leased space in Falls Church, Virginia will relocate to Fort Belvoir.

The Fort Belvoir Concept Development Plan was developed as a way to plan for future growth at Fort Belvoir. The Concept Development Plan considers more than 60 projects through the Year 2000. These projects include office and administrative centers, child care, community and recreational facilities, test facilities and laboratories, new housing, and housing improvements, utility upgrades, and transportation improvements.

The Concept Development Plan is included in this EIS as a way of assessing the cumulative impacts associated with future growth at Fort Belvoir.

Potential sites for the Concept Development Plan projects have been identified by Fort Belvoir planners. Separate national environmental policy documents will be prepared for each project, as appropriate, as each project is developed.

The Concept Development Plan will also be incorporated into the Fort Belvoir Installation Master Plan which is scheduled for completion in 1993.

Approximately 820 acres at the Engineer Proving Ground is under study as a mixed use office-residential-hotel development. The Army is proposing to construct approximately 3 million square feet of administrative office space over 15 to 20 years for its use.

The remainder of the 820-acre parcel may be

developed for mixed use. The Army is currently working the zoning issue with the county through the Fairfax County Citizens Task Force.

A site specific EIS is being prepared for this action. However, information concerning Engineer Proving Ground is included in this EIS to show cumulative effects of the proposed base realignment and closure actions.

As the Washington, D.C. metropolitan area continues to grow during the next 20 years, there will be a need to improve and enhance the current transportation system in Northern Virginia.

The Virginia Department of Transportation, Fairfax County, the City of Alexandria, Metropolitan Washington Council of Governments, and the Washington Metropolitan Area Transit Authority have developed plans to address the anticipated needs.

Planned construction of the Fairfax County Parkway and the Franconia-Springfield Parkway, the extension of the Shirley Highway HOV express lanes, the planned extension of the Metro rail system to Franconia-Springfield, initiation of regional commuter rail service, and the widening of the Capital Beltway are actions planned to improve the region's transportation systems.

Traffic generated by the planned development at Fort Belvoir, Engineer Proving Ground, and Cameron Station

will affect area traffic conditions. However, the Army's developments account for only a part of the total development related transportation needs in Northern Virginia. For the most part the Army's developments accelerate the need for the traffic improvements that would be required regardless of all Army activity.

A regional transportation model was prepared to determine traffic volumes and potential changes to commuter patterns associated with the base realignment and closure actions and concept development plan projects.

This transportation model was used to predict future year traffic volumes for the Years 1995, 2000, and 2010.

The development scenarios used to determine the traffic impacts were the residential and commercial development of Cameron Station by the Year 2000, development on the main post at Fort Belvoir by 1995 resulting from base realignment and closure actions, the development described in the concept development plan on main post at Fort Belvoir by the Year 2000, and the mixed use development of Engineer Proving Ground through Year 2010.

The traffic volumes associated -- excuse me -- the traffic volumes anticipated by the proposed BRAC development or Base Closure Development are shown in yellow.

The volume anticipated due to regional growth near

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Fort Belvoir is shown in green.

These peak hour traffic volumes may require additional lanes for intersection improvements.

Other roadway improvements that may be required include the addition of left and right turn lanes, traffic signals or signal upgrades, and traffic lanes or participation in new highway projects.

These improvements will be determined jointly and funded as negotiated by the Department of the Army, the Virginia Department of Transportation, and Fairfax County.

Ten separate construction projects are planned at Fort Belvoir to accommodate realignment activities. The map indicates the BRAC projects with a circle around the project number.

I may mention, I'm using the term "BRAC" from time to time. That stand for "Base Realignment and Closure."

Roads that now exist are shown as solid lines and proposed roads shown as dashed lines.

The headquarters complex, BRAC 1, will provide approximately 790,000 square feet for offices, computer and automated data processing, and a storage and distribution warehouse.

The industrial park, BRAC 2, will house the personnel currently performing the industrial and warehouse operations at Cameron Station. The approximately 224,000

square foot facility will include warehouse and administrative space.

BRAC roads, BRAC 3, will provide a major access road to the headquarters complex on the north post and a separate access road for the industrial park on the south post.

The commissary/warehouse addition, BRAC 4, has been withdrawn from the BRAC program.

The post exchange, BRAC 5, will provide approximately 72,120 square feet of space and will include a main exchange warehouse.

The commissary, BRAC 6, will have a 100,000 square foot capacity.

Building 1465 will be renovated for use as an administrative facility, BRAC 7, by Criminal Investigation Command activities. Asbestos will be removed before the renovation and a 9,000 square foot addition will be constructed.

The Material Research Facility, BRAC 8, will include a materials laboratory and an administration and maintenance building. This facility is to include experimental and test areas, computer and data communication rooms, conference and analysis areas, office space, and building maintenance and storage areas.

The exchange branch, BRAC 9, will be approximately

5,500 square feet in size and have two gasoline dispensing islands.

Buildings 1466 and 1445, BRAC 10, will be renovated to provide space for Cameron Station personnel.

Funding for the post exchange, BRAC 5, and exchange branch, BRAC 9, will be provided by the Army and Air Force Exchange Services.

The Defense Commissary Agency will fund the commissary, BRAC 6.

Site specific decisions for all of the proposed construction projects will be supported by subsequent NEPA analysis.

Four separate construction projects are planned at Fort Myer to accommodate realignment activities. It is expected that when Cameron Station is closed some of the patrons will go to Fort Myer to do their shopping. However, the existing PX, shopette, and commissary at Fort Myer are not capable of handling the additional business.

The PX expansion would add approximately 10,000 square feet to the PX as well as additional parking area.

The shopette is planned to contain approximately 10,800 square feet of space.

The new commissary would be an 86,400 square foot facility.

The logistics complex would provide warehousing,

maintenance facilities, along with the associated administration and parking areas for the Military District of Washington, logistics, and other activities.

No additional base realignment and closure actions are planned at Fort Myer.

As I mentioned earlier, the Concept Development Plan proposes more than 60 projects at Fort Belvoir through the Year 2000.

Here is a summary of the impact resulting from base realignment and closure actions at Fort Belvoir.

Approximately 2.88 acres of nontitle wetlands will be lost by the construction of the headquarters complex and BRAC roads. These wetlands will be mitigated in keeping with the President's policy of no net loss of wetlands.

Chesapeake preservation areas have been mapped for all of the proposed BRAC sites and the Army will comply with the provisions of the Chesapeake Bay Preservation Ordinance adopted by the Fairfax County.

Best management practices, including storm water management, will reduce the amount of sedimentation during and after construction of the new projects.

BRAC roads could impact wild life movement along the wildlife genetic corridor. To mitigate this impact, oversized box culverts will be placed along the road to allow for the safe movements of wildlife between areas in

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the genetic corridor.

In addition to the box culverts, a 250- to 300-foot buffer of native vegetation will be maintained to the north and west of the headquarters complex to ensure that the genetic corridor is not encroached upon in this area.

All cultural resource surveys in accordance with Section 106 of the National Historic Preservation Act will be completed for each of the BRAC project sites prior to construction.

The BRAC roads, commissary, post exchange, and exchange branch projects will provide road improvements and additional services necessary to accommodate the population increase associated with these BRAC projects.

All federal, state, and local regulations will be complied with during the development of the BRAC projects and all required permits will be obtained.

In summary given the mitigation no significant impacts are expected to result from the proposed BRAC projects.

No significant impacts are expected to result from the BRAC activities at Fort Myer. Best management practices, including storm water management, will reduce the amount of sedimentation during and after construction of the new projects.

Cultural resource surveys and subsurface soil

investigations will be completed for each site prior to construction.

The realignment of two people at Fort McNair will not have any significant adverse impact on any resource.

Site specific National Environmental Policy Act documentation will be prepared for projects in the Fort Belvoir Concept Development Plan, the Engineer Proving Ground development initiative, and the Fort Belvoir comprehensive master plan.

An additional NEPA document will also be prepared for the clean-up and disposal of Cameron Station.

After Cameron Station is closed, the Army plans to "excess" the property. The Corps of Engineers, Baltimore District, real estate office is responsible for selling the property.

A formal screening process will first offer the property to Department of Defense agencies, followed by providers for housing the homeless, other federal agencies, state agencies, local agencies, and then finally private developers.

The U.S. Army Toxic and Hazardous Materials Agency, USATHMA, is currently conducting a remedial investigation feasibility study to identify any clean-up requirements. Any areas at Cameron Station requiring clean-up will be handled by the Baltimore District, Corps of

Engineers, prior to the disposal of the property.

The Department of Defense Office of Economic Adjustments assists the local community by forming a local reuse task force to provide input in determining the reuse of the excess property.

The Army has been working with the City of Alexandria and the public through the task force to monitor the closing of Cameron Station.

Options still exist for the ultimate reuse of land. Ultimately whatever is finally proposed for the reuse of the land must conform with the City of Alexandria's designated zoning for this site if it is transferred out of the federal sector.

The City of Alexandria has zoned the Cameron Station property for a mixed use development which is primarily residential development interspersed with some commercial and industrial development.

The effects for all of the BRAC actions discussed here tonight have been evaluated and the conclusion is that these actions can be implemented without any significant effects to human health or the environment.

Scoping for the preparation of this EIS began in June 1989. The draft EIS was distributed in June 1991. Tonight we conduct a public hearing regarding these actions.

The final EIS is scheduled for completion in

August and will be available for a 30-day public review period.

Following the 30-day review period, a record of decision will be prepared by the Army to state how the realignment and closures will be carried out considering the impacts, comments, and concerns provided during the public review process.

Oral and written comments can be submitted tonight and to our office before July 29. The comments will be addressed in the final EIS.

Comments should be sent to the address shown on the screen.

Ladies and gentlemen, this concludes my formal presentation. I'd like to thank you all for attending. And now I'm ready to receive your comments. I ask that anyone having lengthy comments, please try to summarize them verbally and, if possible, submit the entire statement for the record.

I also ask that you constrain your comments to the matters that we have discussed here tonight that are pertinent to the environment impact statement.

I'd first like to start off with any members of Congress or their representatives that may be present. Are there any such participants here tonight?

(No response.)

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Anyone from the governor's office present?

(No response.)

Any other elected state officials?

(No response.)

Any elected local officials?

(No response.)

Any federal agency representatives wishing to speak?

(No response.)

Any state agency representatives?

(No response.)

All right. I'll take the cards, please.

I'd first like to call Maureen Schriner, Aid to the Fairfax Board of Supervisors?

No statement, ma'am?

MS. SCHRINER: No.

COL. FINCH: Thank you.

I'd like to call Converse M. West speaking as an individual.

MR. WEST: Do you want me to speak from here?

COL. FINCH: Please come to the microphone.

MR. WEST: My name is Converse West. I'm a member of the Alexandria Task Force to monitor the closing of Cameron Station.

And I think if I heard the speaker correctly, my

main concern has been answered. Perusing the draft of the EIS I noticed that although the city had played the game the way they're supposed to and in fact have been complimented by forming a task force, doing all of the zoning work, getting the city council to approve it, a reuse plan, when the draft of the EIS came out, we ended up with a -- recommendations that went beyond and differed from what the reuse plan was that the task force had provided.

I now hear you saying that the Army is going to comply with the city's rezoning as to reuse. So, therefore, I don't have any big argument with the EIS if that's what's going to appear in there.

I want to thank you for your consideration and good luck.

COL. FINCH: Next I'd like to call Bernard Brenman speaking as an individual.

After Mr. Brenman, Mr. Edward Thorne.

MR. BRENMAN: Thank you very much.

For the record I'm Ben Brenman. I reside at 4600 Duke in Alexandria, Suite 1609, 22304.

I am a representative of the Alexandria Task Force for the reuse of Cameron Station. I'm a representative of the Holmes Run Committee, a committee of ten civic associations representing 10,000 family units abutting, adjacent to, or overlooking Cameron Station, and I'm

Chairman of the Alexandria Archeological Commission.

On the way here I built up a tremendous head of steam, not having been invited, and having no knowledge of the meeting until I read about it in the newspaper on Thursday, and second, that we had not received a response to the city council letter regarding the reuse of Cameron Station.

Well, thanks to Bob Hardiman with whom I've worked now or we've worked for almost three years, generally pleasant, sometimes difficult, and always careful.

My steam has been diffused.

First, I was handed a piece of paper, Bob, of the facts that went to the City of Alexandria dated the 15th of February -- of July at 1500 hours, stating they've accepted our rezoning program and for which we thank you.

And second, evidence that someone in the city was notified; it just didn't trickle down.

Thank you. Compliments and appreciation to Hardiman and the entire group with whom we've all worked and I recognize most of you now, worked so closely.

As Chairman of the Archeological Commission, I state that we're still prepared to work with you in specific detail on the archeological portion of the EIS. My entire staff of five people have been notified that their primary function is to be responsive to you on call, seven days a

week, regardless of time: 838-4399, Dr. Pamela Cressey, or my telephone number, 751-1982. You call, we haul, you all. You have our promise.

Thank you very, very much.

COL. FINCH: Thank you for your cooperation. I should have mentioned earlier the meeting tonight has been announced in a variety of media. At least 30 days ago all newspapers and literally thousands of individual addressees were sent the public notice for this meeting. But I appreciate your comments. Thank you.

Next Mr. Edward Thorne.

MR. THORNE: Pass.

COL. FINCH: No comments, sir? Okay. Thank you.

Next Mr. John Chapman Gagnell.

MR. GAUGER: Except for the name -- that's all right.

I'm John Chapman Gauger. I'm one of the associates of Old Town Yacht Basin. Mr. Brenman know, February, July, whatever it is. I think this is the 16th of July.

One of the things that's shrouded still in mystery is that Fort Myer was one of Mr. Lincoln's ring of forts. It was named Fort Whipple, if I'm correct. Do you know that to be fact? You don't know the history.

And this ring of forts was forged when Virginia

paper a colonel who gave all of his books to the Civil War Library. He says what really happened was the Union with Mr. Lincoln seceded from the Constitution.

The Constitution allowed the states to secede if they got tired of being in the country. They just said: "We're leaving" and left. But Mr. Lincoln would have none of that.

So he ringed the City of Washington with these forts. But I can't find any historian and I classify myself as Fred Tilt as a legal historian. He's just a historian; I'm a legal historian.

I can't find any support for the notion that Virginia authorized the building of that ring of forts in the Civil War days because the forts were intended to ward off the attacks from the Rebels. And yet here we have Fort Myer of dubious origins, originally Fort Whipple, one of Lincoln's ring of forts.

Did it ever get approved by Virginia at some later date and is that approval valid? I don't know. Because if not and if it's like the Pentagon, just a public building, then it violates one statute 14 as I must have said a million times at council meetings. It violates one stat 214.

All these things hinge together because you get down to zoning, present day zoning laws, which forbade the

down to zoning, present day zoning laws, which forbade the building of any public buildings anywhere but on the Maryland side of the river and yet they built the Pentagon, the Bureau of Personnel, the Marine Headquarters. Because who cares? If you don't like a particular law, ignore it, particularly if you're the government because who's going to take the government to court?

Well, we are for one. We're in the Supreme Court. In fact I am. They called -- first the Supreme called it "Gauger versus Alexandria," then they called it "Gauger versus the United States." So I called it "Gauger versus Alexandria and the United States." You know. Why be chicken. If you're taking them on, take them on full blast.

I'm a World War II veteran, sir: Guadalcanal, Rennell, places like that. I wasn't in hand-to-hand combat. I was in that lousy confused outfit and they were -- the Navy that tried to support those operations. And I did supervise on shore when the Marines came back to New Zealand from Tarawa and I didn't arrest any of them. They got rough and rambunctious but they had a right to.

So there's one mystery: Is Fort Myer legally approved by the State of Virginia at some later date?

Nobody can tell me. And I think somebody ought to look into that.

And if it's like the Pentagon which is a public

build it no lesser a personage, you called on these state senators, these federal senators, these local politicians, no less a personage than Pat McCarran, that esteemed senator, said that you couldn't build the Pentagon first off because it violated one stat 214. And what were they going to do about it?

They said: "But we're getting ready to fight a war with Hitler and Tojo. We can't worry about laws. We're going to build the thing."

And so they did. And they built all the other things and they followed suit.

But what's the reason now? We've just cleaned up the Saudi Arabians. What's the emergency now to do all these things other than that you want to build bigger palaces over here in the plainly illegal Virginia side of the river.

We're in the middle -- I have briefed the Supreme Court but whether they'll accept the case, of course, we'll wait and see. There's such a deadly silence that I think Ben Brenman and his crew are taking it seriously. There's such a deadly silence. The Haw-hawing and laughing has stopped when we got to the Supreme Court because we're hitting them with facts, not a lot of malarkey.

What you need to know is that Pat McCarran said they couldn't. The law is still on the books and you have

they couldn't. The law is still on the books and you have to obey all the laws of Congress. Not like the Attorney General said in 1945, "only those that are essential" because, he said, "Congress only acts on essential matters." It doesn't act on a lot of tomfoolery like you get down in city hall of Alexandria, a lot of tomfoolery.

So if we believe these things, we start looking to the law and saying we must not continue this flouting of the statutes at large and they are the governing statutes of this country, such as they be. But of course we go one step further and point out to you, as did the senior editor of the National Geographic in June 1987, that the Constitution of this country was illegally made. And he lost his $200,000 a year job and his 35-year friendship with Mr. Grosvenor, the head of the National Geographic, over that. Because we began telling the courts these things and it got serious. So he's what you call "terminated." They sent him to the terminator who told how much money he'll get for the rest of his life and to go off and find himself a better pasture.

COL. FINCH: Sir, two minutes, please.

MR. GAUGER: All right. I can do it in less than that.

But now the laughable thing, how many times I've told them, Alexandria is legally fictitious. They never

they were supposed to do.

1797 they put the plat of 1749 in the law book in the land record book in city hall or in the courthouse in Judge, what's his name, courthouse. He's my old buddy but I forget his name.

They didn't put anything in there until 1797 and then they put the first plat. They did it when they were making a third enlargement. They never did the plat at all of the third enlargement. The one of the second enlargement was put in some pigeon hole where it was found by the conservationist a few years ago and they introduced it into this court proceeding.

So, if the place is legally fictitious, I tell you sitting here and dealing with the local politicians in Alexandria on zoning matters is just laughable. They don't even legally exist. They're only there de facto.

And so you don't deal with them.

Miss Pennino of Fairfax County, she's beginning to get the picture. She said: "You mean this place is all going to become Fairfax County again like it used to be and that will all be part of our county?"

I said: "Yeah. I guess if they've got a better palace." But that's a pretty plush palace they've got out in Fairfax City. If their palace suits you better, then move down here. Otherwise close the place down like they do

in Cameron Station.

Thank you. But I hope you realize the futility of dealing with Alexandria and continuing to flout the federal statute at large of the country.

COL. FINCH: Okay. Thank you.

At this point I'd like to call for statements from the floor.

Yes, sir. Will you please come forward.

MR. CORRY: My name is Frank Corry. I speak as a private citizen. I'm a member of the Hayfield Community Association but I'm not speaking on behalf of that organization. I'm one of their officers.

I read the draft environmental impact study. A lot of work went into it and you hit almost every conceivable point.

One thing I noted in it was that not a great of attention has been paid to Telegraph Road. There was mention made of the Route 1 intersection and the Beulah Road intersections. Important points in your study.

Telegraph Road, though, is also an artery.

Now, I realize that the State of Virginia has plans that have been long pending for expansion of Telegraph Road to perhaps four lanes. I don't know where they stand.

However, Telegraph Road, which goes right past Hayfield, and hence my interest in it, is going to have a

big part in the traffic load for Fort Belvoir.

I would be interested to know what the Army, the Department of Defense's plans are for dealing with the State of Virginia on Telegraph Road. I know it's going to be a negotiating process but it would be interesting, if would be essential, I think, if you would addressed it in your final report.

Thank you.

COL. FINCH: Thank you very much.

I can tell you at this point because you have asked that question and because it's a known issue that will be specifically addressed in the final EIS.

Yes, sir. In the back. Will you please come forward.

MR. FURBER: My name is Joe Furber and I'm the Executive Director of the Southeast Fairfax Development Corporation at 7704 Richmond Highway, Suite 202, Alexandria 22306.

And we've addressed some of the concerns here in this statement. We have a larger concern and I think that is economic in its impact as well and because of that we'd like to have a listing of the major contractors at Cameron Station, the contractors of services of $25,000 a year or more in product or services at that so we can see what the transfer is going to mean and what the perhaps potential

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transfer is going to mean and what the perhaps potential economic impact may be to all of us around there as well as the environmental impact.

Thank you.

COL. FINCH: Thank you.

Other comments, please.

(No response.)

Do we have any questions from the floor?

MR. GAUGER: My one question, of course, remains unanswered. You cannot answer it.

When did Virginia ratify or approve the building of Fort Myer?

COL. FINCH: Okay. To the extent we can we'll try to address that. And we have your name on the record.

Ladies and gentlemen, are there any other questions or comments? If not, I'm prepared to adjourn the meeting.

(No response.)

Thank you very much for coming this evening.

(The meeting was adjourned at 7:45 p.m.)

* * * * * * *

REPORTER'S CERTIFICATE

CASE TITLE: PUBLIC MEETING

DOCKET NO.:

HEARING DATE: JULY 16, 1991

LOCATION: Springfield, VIRGINIA

I hereby certify that the proceedings and evidence are fully and accurately recorded in the attached transcript from the tapes and notes reported by me in the above case before the:

U.S. ARMY CORPS OF ENGINEERS

DATE: JULY 16, 1991

Dean A. Robinson

Official Reporter

Executive Court Reporters

8525 Colesville Road, Suite 9

Silver Spring, Maryland 20910

AGENCY SCOPING LETTERS

Scoping letters were received from the following agencies in response to agency coordination which was initiated by the Department of the Army in the summer of 1989.

WDCR510/017.51

COMMONWEALTH of VIRGINIA

Council on the Environment

KEITH J. BUTTLEMAN
ADMINISTRATOR

903 NINTH STREET OFFICE BUILDING
RICHMOND 23219
804 786-4500

October 17, 1989

Lt. Col. Carl B. Barnes, Jr.
Acting District Engineer
Baltimore District
U.S. Army Corps of Engineers
Attn: CENAB-PL-ES
P.O. Box 1715
Baltimore, Maryland 21203

Dear Colonel Barnes:

This agency has reviewed the EIS Scoping Notice for the Comprehensive Base Realignment/Closure and Fort Belvoir Development (Public Notice PL-E-89-16). The Council on the Environment is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth.

The activities proposed in this Public Notice, and their locations at Fort Belvoir and surrounding areas, raise environmental issues which are similar to those raised by the Corps's recent Public Notices PL-E-89-9 and PL-E-89-10, which we reviewed together with other agencies of the Commonwealth. We believe that our comments on those Notices, which were mailed on August 28, would be instructive to the Corps as it prepares the EIS contemplated in Public Notice PL-E-89-16. Accordingly, copies of our August 28 correspondence are attached for your information and use.

If you have questions regarding these comments, please feel free to call this office or any of the agencies cited in the enclosures.

Thank you for the opportunity to comment.

Sincerely,

Hannah Crew

(for Keith J. Buttleman)

Enclosures

cc: The Honorable John W. Daniel, II
Mr. Darryl M. Glover, CBLAD
Mr. C. E. Easlick, SWCB
Mr. John R. Davy, Jr., DCR
Mr. William W. Erskine, DAPC
Mr. Bruce J. Larson, DHR
Ms. Sarah D. Pugh, DACS
Mr. Harry E. Gregori, Jr., DWM
Mr. William E. Neal, DGIF
Dr. Robert B. Stroube, SDH
Mr. Robert H. Blackman, VDOT
Mr. David Coffman, DF
Mr. R. Mark Gibb, Northern Virginia PDC
Mr. James Zook, Fairfax County

KEITH J. BUTTLEMAN
ADMINISTRATOR

COMMONWEALTH of VIRGINIA

Council on the Environment

903 NINTH STREET OFFICE BUILDING
RICHMOND 23219
804-786-4500

August 28, 1989

Colonel Bernard E. Stalmann
Baltimore District Engineer
U.S. Army Corps of Engineers
Attn: CENAB-PL-ES
P.O. Box 1715
Baltimore, Maryland 21203

Dear Colonel Stalmann:

The Commonwealth of Virginia has completed its review of the EIS Scoping Notice for the relocation of AMC Headquarters to Fort Belvoir (Public Notice PL E-89-10, Army Materiel Command Headquarters at Fort Belvoir, Virginia, Environmental Impact Statement). The Council on the Environment 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 joined in this review:

Department of Agriculture and Consumer Services
Department of Health
Department of Air Pollution Control
Chesapeake Bay Local Assistance Department
Department of Historic Resources
Department of Forestry
State Water Control Board.

In addition, the following agencies, planning district commission, and locality were invited to comment:

Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Waste Management
Department of Transportation
Northern Virginia Planning District Commission
Fairfax County.

The comments which follow are organized according to basic components of a federal environmental impact statement. Distinctions between the three categories of actions proposed in the scoping notice are addressed as appropriate.

Purpose and Need

The relationship of the relocation of Army Materiel Command (AMC) headquarters to Fort Belvoir and the other realignments and development contemplated in your Public Notice PL-E-89-9 on base closure and realignment should be described in the EIS. In addition, the EIS should explain the inadequacies referred to in the scoping notice. Directives from higher Army commands or from Congress concerning the relocation should also be mentioned in this section if applicable.

Affected Environment

Discussion of the affected environment in the Draft EIS should cover the areas of Fort Belvoir where changes in land use attributable to the relocation of the AMC are proposed, and where effects of those changes might be experienced. This section should take account of areas that fit definitions, under Virginia's Chesapeake Bay Preservation Act (*Virginia Code* sections 10.1-2103 and 10.1-2107), of Chesapeake Bay Preservation Areas. We will be particularly interested in how the proposed activities would affect the following types of areas which are termed Resource Protection Areas: tidal wetlands; non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or perennial streams; tidal shores; any other lands at or near the shoreline which a local government determines to have intrinsic water quality value; and a 100-foot wide vegetated buffer area adjacent to and landward of any of these areas and along both sides of any tributary stream. The regulations developed pursuant to the Act contemplate that local governments will identify these areas and implement performance criteria for development therein. We are enclosing the criteria for your use in carrying out the realignment proposals mentioned in the scoping notice; as you know, the federal government is a partner with Virginia and other state governments in the 1987 Chesapeake Bay Agreement which gave rise, in Virginia, to the 1988 legislation authorizing the promulgation of these definitions and criteria.

Alternatives Including the Proposed Actions

The discussion of alternatives in the Draft EIS should, of course, include the "no-action" alternative. It should also include different scenarios intended to carry out the purpose of the AMC move, which is, we presume, to provide for adequate and economical headquarters. These scenarios might logically include office space in Washington, D.C. as well as at suburban sites such as Fort Belvoir. Among the factors influencing the formulation of alternatives should be environmental impact, energy use, transportation, and capital and operating costs as well as the need for space and the convenience of starting over at the North Post area of Fort Belvoir.

Environmental Consequences and Mitigation

We expect that the Draft EIS will, in light of the description of the affected environment therein, provide a rigorous analysis of the impacts of the alternatives and commit the Army not only to the requirements of the National Environmental Policy Act and Army Regulation 200-2 (which implements NEPA) but also to effective mitigation measures which include an environmentally preferable alternative and design factors intended to carry out the purposes of the Chesapeake Bay Agreement of 1987. Under that Agreement, federal and state governments have committed themselves to implementing development projects so as not to harm the water quality or living resources of the Chesapeake Bay or its tributaries. Some specific guidelines follow.

1. Impacts and Mitigation

In the area of water resource impacts, preparation of the Draft EIS should be guided by the attached Supplemental Guidelines provided by the State Water Control Board. Some items of particular interest should be noted. First, consideration of erosion and sediment controls should include stormwater runoff management (item 2); the measures developed to address runoff and erosion should meet the standards and General Criteria in the Virginia Erosion and Sediment Control Handbook. The Handbook, published by the Department of Conservation and Recreation's Division of Soil and Water Conservation (telephone (804) 786-2604), is applicable to projects of this scope pursuant to the Virginia Erosion and Sediment Control Law (*Va. Code* section 10.1-560 et seq.).

Because of the archaeological potential of the Fort Belvoir land area and the likely impacts of the project upon archaeological resources, a Phase I archaeological survey is required pursuant to the National Historic Preservation Act of 1966.

Fort Belvoir may also have standing structures that are eligible for listing on the National Register of Historic Places. Accordingly, we recommend that a survey for such structures be accomplished prior to the commencement of development activities.

There is considerable undeveloped land within the confines of Fort Belvoir and in its vicinity. The Draft EIS should analyze the effects of development on the wildlife inhabiting this land, specifying whether any wildlife species are endangered or threatened, and indicating what will be done to assure that such species are not put in jeopardy. The same guidance applies for endangered plant species.

If the use of pesticides is contemplated, the Draft EIS should so state; and it should commit the Army to formulate a pesticide usage plan designed to mitigate or eliminate threats to the environment and to worker safety from pesticide use.

The impacts of AMC relocation to Fort Belvoir should be considered and analyzed in light of the proposed realignment of functions to Fort Belvoir from other Army units and the developments that are contemplated in that framework (see Public Notice PL-E-89-9 and our comments thereon). The cumulative impacts of these two undertakings may necessitate reconsideration or modification of one or both of them.

2. Regulatory and Coordination Needs

The following state requirements are or may be applicable to this project. The Draft EIS should indicate an understanding of and commitment to follow the requirements which pertain to the project.

a. Archaeological survey (see above). The Phase I archaeological survey should be completed and the resulting survey report submitted to the Department of Historic Resources (221 Governor Street, Richmond, Virginia 23219) for review and approval before any land disturbance takes place. For guidance on archaeological surveys and contractors, please call the Department (telephone (804) 786-3143).

b. Standing structures survey (see above). For guidance on a standing structures survey, please contact the Department of Historic Resources (above).

c. Fugitive dust. The Department of Air Pollution Control, pursuant to Rule 5-1, requires that adequate measures be taken to control fugitive dust resulting from land clearing, excavation, and construction. These measures include wetting of disturbed earth, covering truckloads of materials and dirt, and washing down public roads used by construction equipment.

d. Open burning. Open burning of vegetative debris from land clearing is prohibited in the Fort Belvoir area. For questions relating to burning of other materials, please contact the Department of Air Pollution Control's regional office in Springfield (telephone (703) 644-0311).

e. New sources. The Department of Air Pollution Control requires permit application review for setting up and operating devices which may give rise to air pollution. These devices include boilers, incinerators, rock crushers, concrete batching plants, asphalt paving manufacturing plant, and processors. To acertain the requirements for permit applications, please contact the Springfield office of the Department (see above).

f. Erosion and sediment control. To ascertain requirements applicable to Fort Belvoir, or to obtain a copy (at cost) of the Virginia Erosion and Sediment Control Handbook, please contact the Division of Soil and Water Conservation (telephone (804-786-2604).

g. Best Management Practices. The Division (above) also provides BMP Handbooks prepared by the State Water Control Board for use in preventing contamination of waterways attributable to land development activities.

h. Draft EIS distribution. To assure distribution of the Draft EIS to state agencies, Fairfax County, and the Northern Virginia Planning Distribution, you may call us (telephone (804) 786-4500) before mailing copies to Virginia entities. We estimate that 18 copies will serve the needs of these entities.

i. Chesapeake Bay Preservation Areas. For additional advice concerning the areas that fit this definition, please contact the Chesapeake Bay Local Assistance Department (telephone (804) 225-3440).

Thank you for the opportunity to contribute to this scoping effort.

Sincerely,

Hannah Gray

(for Keith J. Buttleman)

Enclosures

cc: The Honorable John W. Daniel, II
Mr. Darryl M. Glover, CBLAD
Mr. C. E. Easlick, SWCB
Mr. John R. Davy, Jr., DCR
Mr. William W. Erskine, DAPC
Mr. Bruce J. Larson, DHR
Ms. Sarah D. Pugh, DACS
Mr. Harry E. Gregori, Jr., DWM
Mr. William E. Neal, DGIF
Dr. Robert B. Stroube, SDH
Mr. Robert H. Blackman, VDOT
Mr. David Coffman, DF
Mr. R. Mark Gibb, Northern Virginia PDC
Mr. James Zook, Fairfax County

COMMONWEALTH of VIRGINIA

CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT

701 Eighth Street Office Building
Richmond, Virginia 23219 (804) 225-3440

Jeter M. Watson
Executive Director

Environment

July 28, 1989

MEMORANDUM

To: Mr. Charlie Ellis/ Ms. Ellie Irons
Council on the Environment

From: Darryl M. Glover

Re: Scoping Notice - Army Material Command Relocation to Fort Belvoir - Army Corps of Engineers Project Number 754

We have reviewed the scoping notice for development of an environmental impact statement submitted to us on July 18, 1989 for the proposed relocation by the Army Material Command from Alexandria, Virginia to Fort Belvoir.

Both the 1987 Chesapeake Bay Agreement and the Coastal Zone Management Program have federal consistency provisions. As such our agency is interested in those aspects of the environmental impact statement which would address impacts to Chesapeake Bay Preservation Areas as defined by the criteria approved by the Chesapeake Bay Local Assistance Board on June 28, 1989.

Although subject to the remainder of the Administrative Process, the criteria may become effective on September 1, 1989. As defined the criteria require localities within Tidewater, Virginia (those localities on or east of the fall line), to designate two tiers of Chesapeake Bay Preservation Areas within twelve months of June 28. The most environmentally sensitive of these areas are termed Resource Protection Areas. If any exist, this agency would be particularly interested to know how activities might impact: tidal wetlands; nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary (perennial) streams; tidal shores; any other lands at or near the shoreline which a local government determines to have intrinsic water quality value; and a 100 foot wide vegetated buffer area located adjacent to and landward of the above noted

components of Resource Protection Areas as well as along both sides of any tributary stream. The buffer may be reduced to a 50 foot width for lots recorded prior to the effective date where the loss of a buildable area would otherwise result. Properly surfaced access paths and some other modifications are also allowed within the buffer area by the criteria. The criteria otherwise call for only water-dependent facilities and redevelopment of existing developed areas within most Resource Protection Areas. This is in order to preserve the water quality benefits which are intrinsic to these landforms due to biological or ecological functions which they perform.

Landward of Resource Protection Areas, the criteria require localities to designate a Resource Management Area along the entire boundary of the Resource Protection Area. What the Resource Management Area includes is left to local discretion but localities shall consider the following landforms for designation: the 100 year floodplain; highly erodible soils, including steep slopes, with a erodibility index from sheet and rill erosion greater than eight; highly permeable soils with water movement greater than six inches per hour within the first 72 inches; nontidal wetlands not included within Resource Protection Areas; and other such lands which a locality determines to have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area if improperly used or developed. There are no restrictions on the types of development within Resource Management Areas other than local zoning and existing applicable permits.

There are performance criteria to be implemented within Chesapeake Bay Preservation Areas. Stormwater management resulting in no-net increase in nonpoint source pollution for new development and erosion and sediment controls for disturbances larger than 2500 square feet are the principal concerns. A copy of the criteria are enclosed for transmittal to the Corps.

Thank you for the opportunity to comment on the development of the environmental impact statement. If you have any questions concerning these comments please call me at (SCATS) 371-7501 or (804) 371-7501.

Sincerely,

Darryl M. Glover

Darryl M. Glover
Environmental Engineer

DMG/dmg
ENCLOSURES:
cc: Mr. C. Scott Crafton

7-12-89

CHESAPEAKE BAY LOCAL ASSISTANCE BOARD

FINAL REGULATION: VR 173-02-00. Chesapeake Bay Preservation Area Designation and Management Regulations.

PART I.
INTRODUCTION

§ 1.1. Application.

The board is charged with the development of regulations which establish criteria that will provide for the protection of water quality, and that also will accommodate economic development. All counties, cities, and towns in Tidewater Virginia shall comply with these regulations. Other local governments not in Tidewater Virginia may use the criteria and conform their ordinances as provided in these regulations to protect the quality of state waters in accordance with Code § 10.1-2110.

§ 1.2. Authority for regulations.

These regulations are issued under the authority of §§ 10.1-2103 and 10.1-2107 of Chapter 21, Title 10.1 of the Code of Virginia (the Chesapeake Bay Preservation Act, hereinafter "the Act").

§ 1.3. Purpose of regulations.

These regulations establish the criteria that counties, cities, and towns (hereinafter "local governments") shall use to determine the extent of the Chesapeake Bay Preservation Areas within their jurisdictions. These regulations establish criteria for use by local governments in granting, denying, or modifying requests to rezone, subdivide, or to use and develop land in Chesapeake Bay Preservation Areas. These regulations identify the requirements for changes which local governments shall incorporate into their comprehensive plans, zoning ordinances, and subdivision ordinances to protect the quality of state waters pursuant to §§ 10.1-2109 and 10.1-2111 of the Act.

§ 1.4. Definitions.

The following words and terms used in these regulations have the following meanings, unless the context clearly indicates otherwise. In addition, some terms not defined herein are defined in § 10.1-2101 of the Act.

"Act" means the Chesapeake Bay Preservation Act found in Chapter 21 (§ 10.1-2100 et seq.) of Title 10.1 of the Code of Virginia.

"Board" means the Chesapeake Bay Local Assistance Board.

"Buffer area" means an area of natural or established vegetation managed to protect other components of a Resource Protection Area and state waters from significant degradation due to land disturbances.

"Chesapeake Bay Preservation Area" means any land designated by a local government pursuant to Part III of these regulations and § 10.1-2107 of the Act. A Chesapeake Bay Preservation Area shall consist of a Resource Protection Area and a Resource Management Area.

"Department" means the Chesapeake Bay Local Assistance Department.

"Development" means the construction, or substantial alteration of residential, commercial, industrial, institutional, recreational, transportation, or utility facilities or structures.

"Director" means the Executive Director of the Chesapeake Bay Local Assistance Department.

"Floodplain" means all lands that would be inundated by flood water as a result of a storm event of a 100-year return interval.

"Highly erodible soils" means soils (excluding vegetation) with an erodibility index (EI) from sheet and rill erosion equal to or greater than eight. The erodibility index for any soil is defined as the product of the formula RKLS/T, as defined by the "Food Security Act (F.S.A.) Manual" of August, 1988 in the "Field Office Technical Guide" of the U.S.D.A.-Soil Conservation Service, where K is the soil susceptibility to water erosion in the surface layer; R is the rainfall and runoff; LS is the combined effects of slope length and steepness; and T is the soil loss tolerance.

"Highly permeable soils" means soils with a given potential to transmit water through the soil profile. Highly permeable soils are identified as any soil having a permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches (permeability groups "rapid" and "very rapid") as found in the "National Soils Handbook" of July, 1983 in the "Field Office Technical Guide" of the U.S.D.A.-Soil Conservation Service.

"Impervious cover" means a surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to; roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

"Local governments" means counties, cities, and towns. These regulations apply to local governments in Tidewater Virginia, as defined in § 10.1-2101 of the Act, but the provisions of these regulations may be used by other local governments.

"Local program" means the measures by which a local government complies with the Act and regulations.

"Local program adoption date" means the date a local government meets the requirements of subsections A and B of § 2.2 of Part II.

"Nontidal wetlands" means those wetlands other than tidal wetlands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the U.S. Environmental Protection Agency pursuant to § 404 of the federal Clean Water Act, in 33 C.F.R. 328.3b, dated November 13, 1986, as amended.

"Plan of development" means any process for site plan review in local zoning and land development regulations designed to ensure compliance with § 10.1-2109 of the Act and these regulations, prior to issuance of a building permit.

"Redevelopment" means the process of developing land that is or has been previously developed.

"Resource Management Area" means that component of the Chesapeake Bay Preservation Area that is not classified as the Resource Protection Area.

"Resource Protection Area" means that component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation to the quality of state waters.

"Substantial alteration" means expansion or modification of a building or development which would result in a disturbance of land exceeding an area of 2,500 square feet in the Resource Management Area only.

"Tidal shore" or "shore" means land contiguous to a tidal body of water between the mean low water level and the mean high water level.

"Tidal wetlands" means vegetated and nonvegetated wetlands as defined in § 62.1-13.2 of the Code of Virginia.

"Tidewater Virginia" means those jurisdictions named in § 10.1-2101 of the Act.

"Tributary stream" means any perennial stream that is so depicted on the most recent U.S. Geological Survey 7-1/2 minute topographic quadrangle map (scale 1:24,000).

"Use" means an activity on the land other than development, including, but not limited to agriculture, horticulture, silviculture.

"Water-dependent facility" means a development of land that cannot exist outside of the Resource Protection Area and must be located on the shoreline by reason of the intrinsic nature of its operation. These facilities include, but are not limited to (i) ports; (ii) the intake and outfall structures of power plants, water treatment plants, sewage treatment plants, and storm sewers; (iii) marinas and other boat docking structures; (iv) beaches and other public water-oriented recreation areas, and (v) fisheries or other marine resources facilities.

PART II.
LOCAL GOVERNMENT PROGRAMS

§ 2.1. Local program development.

Local governments shall develop measures (hereinafter called "local programs") necessary to comply with the Act and regulations. Counties and towns are encouraged to cooperate in the development of their local programs. In conjunction with other state water quality programs, local programs shall encourage and promote: (i) protection of existing high quality state waters and restoration of all other state waters to a condition or quality that will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them; (ii) safeguarding the clean waters of the Commonwealth from pollution; (iii) prevention of any increase in pollution; (iv) reduction of existing pollution; and (v) promotion of water resource conservation in order to provide for the health, safety and welfare of the present and future citizens of the Commonwealth.

§ 2.2. Elements of program.

Local programs shall contain the elements listed below. Local governments shall adopt elements A and B concurrently and no later than 12 months after the adoption date of these regulations. Elements C through G should be in place within 24 months after the adoption date.

A. A map delineating Chesapeake Bay Preservation Areas.

B. Performance criteria applying in Chesapeake Bay Preservation Areas that achieve results at least equivalent to those provided by the criteria in Part IV.

C. A comprehensive plan or revision that incorporates the protection of Chesapeake Bay Preservation Areas and of the quality of state waters.

D. A zoning ordinance or revision that (i) incorporates measures to protect the quality of state waters in Chesapeake Bay Preservation Areas, and (ii) requires compliance with all criteria set forth in Part IV.

E. A subdivision ordinance or revision that (i) incorporates measures to protect the quality of state waters in Chesapeake Bay Preservation Areas, and (ii) assures that all subdivisions in Chesapeake Bay Preservation Areas comply with the criteria set forth in Part IV.

F. An erosion and sediment control ordinance or revision that requires compliance with the criteria in Part IV.

G. A plan of development process prior to the issuance of a building permit to assure that use and development of land in Chesapeake Bay Preservation Areas is accomplished in a manner that protects the quality of state waters.

PART III.
CHESAPEAKE BAY PRESERVATION AREA DESIGNATION CRITERIA

§ 3.1. Purpose.

The criteria in this part provide direction for local government designation of the ecological and geographic extent of Chesapeake Bay Preservation Areas. Chesapeake Bay Preservation Areas are divided into Resource Protection Areas and Resource Management Areas that are subject to the criteria in Part IV and the requirements in Part V. In addition, the criteria in this part provide guidance for local government identification of areas suitable for redevelopment that are subject to the redevelopment criteria in Part IV.

§ 3.2. Resource Protection Areas.

A. Resource Protection Areas shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform and are sensitive to impacts which may cause significant degradation to the quality of state waters.

B. As a minimum, the Resource Protection Area shall include:

1. Tidal wetlands;

2. Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams;

3. Tidal shores;

4. Such other lands under the provisions of subsection A of § 3.2 of this part necessary to protect the quality of state waters;

5. A vegetated buffer area located adjacent to and landward of the components listed in subsections 1 through 4 above, and along both sides of any tributary stream.

a. The purpose of the buffer area is to (i) provide for the removal or reduction of sediments, nutrients, and potentially harmful or toxic substances in runoff entering the Bay and its tributaries; and (ii) minimize the adverse effects of human activities on wetlands, shorelines, state waters, and aquatic resources.

b. The width of the buffer area shall be 100 feet. However, where the local government determines that the natural topography of the land within that 100 foot area is such that water drains away from the shore or other components of the Resource Protection Area, the buffer area shall consist only of the land that actually drains toward the shore or other components of the Resource Protection Area. In no case shall the buffer area have a width of less than 50 feet.

§ 3.3. Resource Management Areas.

A. Resource Management Areas shall include land types that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area.

B. A Resource Management Area shall be provided contiguous to the entire inland boundary of the Resource Protection Area. The

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following land categories shall be considered for inclusion in the Resource Management Area:

1. Floodplains;

2. Highly erodible soils, including steep slopes;

3. Highly permeable soils;

4. Nontidal wetlands not included in the Resource Protection Area;

5. Such other lands under the provisions of subsection A of § 3.3 of this part necessary to protect the quality of state waters.

C. Resource Management Areas shall encompass a land area large enough to provide significant water quality protection through the employment of the criteria in Part IV and the requirements in Parts II and V.

§ 3.4. Intensely Developed Areas.

At their option, local governments may designate Intensely Developed Areas as an overlay of Chesapeake Bay Preservation Areas within their jurisdictions. For the purposes of these regulations, Intensely Developed Areas shall serve as redevelopment areas in which development is concentrated while improving water quality. Areas so designated shall comply with the performance criteria for redevelopment in Part IV.

Local governments exercising this option shall examine the pattern of residential, commercial, industrial, and institutional development within Chesapeake Bay Preservation Areas. Areas of existing development and infill sites where little of the natural environment remains may be designated as Intensely Developed Areas provided at least one of the following conditions exist:

A. Development has severely altered the natural state of the area such that it has more than 50% impervious surface;

B. Public sewer and water is constructed and currently serves the area by the effective date. This condition does not include areas planned for public sewer and water;

C. Housing density is equal to or greater than 4 dwelling units per acre.

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PART IV.
LAND USE AND DEVELOPMENT PERFORMANCE CRITERIA

§ 4.1. Purpose.

The purpose of this part is to implement the goals of the Act and Part II by establishing criteria to reduce nonpoint source pollution loads entering the Bay, its tributaries and other state waters, to protect the functional integrity of the Resource Protection Area, and to conserve water resources.

A. These criteria, or measures that achieve at least equivalent results, become mandatory upon the local program adoption date. They are supplemental to the various planning and zoning concepts employed by local governments in granting, denying, or modifying requests to rezone, subdivide, or to use and develop land in Chesapeake Bay Preservation Areas.

B. Local governments may exercise discretion in determining site-specific boundaries of Chesapeake Bay Preservation Area components and in making determinations of the application of these regulations, based on more reliable or specific information gathered from actual field evaluations of the parcel, in accordance with plan of development requirements in Part V.

§ 4.2. General performance criteria.

It must be demonstrated to the satisfaction of local governments that any use, development, or redevelopment of land in Chesapeake Bay Preservation Areas meets the following performance criteria:

1. No more land shall be disturbed than is necessary to provide for the desired use or development.

2. Indigenous vegetation shall be preserved to the maximum extent possible consistent with the use and development allowed.

3. Where the best management practices utilized require regular or periodic maintenance in order to continue their functions, such maintenance shall be ensured by the local government through a maintenance agreement with the owner or developer or some other mechanism that achieves an equivalent objective.

4. All development exceeding 2,500 square feet of land disturbance shall be accomplished through a plan of development review process consistent with § 15.1-491(h) of the Code of Virginia.

5. Land development shall minimize impervious cover consistent with the use or development allowed.

6. Any land disturbing activity that exceeds an area of 2,500 square feet (including construction of all single family houses, septic tanks and drainfields, but otherwise as defined in § 10.1-560 of the Code of Virginia) shall comply with the requirements of the local erosion and sediment control ordinance.

7. Stormwater management criteria at least as stringent as the following apply:

a. For development, the post-development nonpoint source pollution runoff load shall not exceed the pre-development load based upon average land cover conditions.

b. Redevelopment of any site that did not have best management practices incorporated into its existing development shall achieve a 10% reduction of nonpoint source pollution in runoff compared to the existing runoff load from the site. Post-development runoff from any redevelopment site that did incorporate best management practices into its existing development shall not exceed the existing load of nonpoint source pollution in surface runoff. These criteria shall apply to redevelopment whether or not it is located within an Intensely Developed Area designated by the local government.

c. The following options may be used to comply with the stormwater management criteria of these regulations:

(1) Incorporation on the site of best management practices that achieve the required control;

(2) Compliance with a locally adopted regional stormwater management program incorporating pro-rata share payments pursuant to the authority provided in § 15.1-466(j) of the Code of Virginia that results in achievement of equivalent water quality protection;

(3) Compliance with a state or locally implemented program of stormwater discharge permits pursuant to § 402(p) of the federal Clean Water Act, as set forth in 40 C.F.R. Parts 122, 123, 124, and 504, dated December 7, 1988 as amended;

(4) For a redevelopment site that was completely impervious as originally developed, restoring a minimum 20% of the site to vegetated open space.

d. Any maintenance, alteration, use, or improvement to an existing structure not changing or affecting the quality of surface water discharge, as determined by the local government, may be exempted from the requirements of this subsection.

8. Land upon which agricultural activities are being conducted, including but not limited to crop production, pasture, and dairy and feedlot operations, shall have a soil and water conservation plan that accomplishes water quality protection approved by the local Soil and Water Conservation District by January 1, 1995.

a. The board will request the Department of Conservation and Recreation to evaluate the existing state and federal agricultural conservation programs for effectiveness in providing water quality protection. In the event that, by July 1, 1991, the Department of Conservation and Recreation finds that the implementation of the existing agricultural conservation programs is inadequate to protect water quality, the board will consider the promulgation of regulations to provide more effective protection of water quality from agricultural activities and may require implementation of best management practices on agricultural lands within Chesapeake Bay Preservation Areas.

9. Silvicultural activities in Chesapeake Bay Preservation Areas are exempt from these regulations provided that silvicultural operations adhere to water quality protection procedures prescribed by the Department of Forestry in its "Best Management Practices Handbook for Forestry Operations." The Department of Forestry will oversee and document installation of best management practices and will monitor in-stream impacts of forestry operations in Chesapeake Bay Preservation Areas. In the event that, by July 1, 1991, the Department of Forestry programs are unable to demonstrate equivalent protection of water quality, the Department of Forestry will revise its programs to assure consistency of results and may require implementation of best management practices.

10. Local governments shall require evidence of all wetlands permits required by law prior to authorizing grading or other on-site activities to begin.

§ 4.3. Performance criteria for Resource Protection Areas.

The following criteria shall apply specifically within Resource Protection Areas and supplement the general performance criteria in § 4.2 of this part.

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A. Allowable development.

A water quality impact assessment shall be required for any proposed development in accordance with Part V. Land development may be allowed only if it (i) is water dependent or, (ii) constitutes redevelopment.

1. A new or expanded water-dependent facility may be allowed provided that:

a. It does not conflict with the comprehensive plan;

b. It complies with the performance criteria set forth in this part;

c. Any non-water-dependent component is located outside of Resource Protection Areas;

d. Access will be provided with the minimum disturbance necessary. Where possible, a single point of access will be provided.

2. Redevelopment shall conform to applicable stormwater management and erosion and sediment control criteria in this part.

B. Buffer area requirements.

In order to satisfy the buffer area requirements, vegetation that is effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff shall be established where it does not exist. Otherwise, the following performance criteria shall apply:

1. In order to maintain the functional value of the buffer area, indigenous vegetation may be removed only to provide for reasonable sight lines, access paths, general woodlot management, and best management practices, as follows:

a. Trees may be pruned or removed as necessary to provide for sight lines and vistas, provided that where removed, they shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff;

b. Any path shall be constructed and surfaced so as to effectively control erosion;

c. Dead, diseased, or dying trees or shrubbery may be removed at the discretion of the landowner, and silvicultural thinning may be conducted based upon the recommendation of a professional forester or arborist;

d. The landward fifty feet of the buffer area may be used for the installation and continued maintenance of best management practices appropriate for the site;

e. On land where the local government has determined to designate a buffer area less than 100 feet wide due to the drainage pattern, as set forth in subdivision 5.b of subsection B of § 3.2 of Part III, provisions shall be made to ensure that surface runoff is filtered in a manner equivalent to that provided by the buffer area prior to entering state waters;

f. For shoreline erosion control projects, trees and woody vegetation may be removed, necessary control techniques employed, and appropriate vegetation established to protect or stabilize the shoreline in accordance with the best available technical advice and applicable permit conditions or requirements.

2. When the application of the buffer area would result in the loss of a buildable area on a lot or parcel recorded prior to the effective date of these regulations, modifications to the width of the buffer area may be allowed in accordance with the following criteria:

a. Modifications to the buffer area shall be the minimum necessary to achieve a reasonable buildable area for a principal structure and necessary utilities;

b. Where possible, an area equal to the area encroaching the buffer area shall be established elsewhere on the lot or parcel in a way to maximize water quality protection;

c. In no case shall the reduced portion of the buffer area be less than 50 feet in width.

3. Redevelopment within Intensely Developed Areas may be exempt from the requirements of this subsection. However, while the immediate establishment of the buffer area may be impractical, local governments shall give consideration to implementing measures that would establish the buffer in these areas over time.

4. In agricultural lands, the full 100 foot width of the buffer area shall be maintained where it presently exists and be established where it does not presently exist with either trees with a dense ground cover or other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff. The buffer area is not required for agricultural drainage ditches if the adjacent agricultural land has in place best management

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practices in accordance with a conservation plan approved by the local Soil and Water Conservation District.

a. The agricultural buffer area shall be managed to prevent concentrated flows of surface water from breaching the buffer area and noxious weeds (such as Johnson grass, kudzu, and multiflora rose) from invading the buffer area;

b. The agricultural buffer area may be reduced to a minimum width of 50 feet when the landowner has implemented on the adjacent cropland a program of best management practices that improve water quality in accordance with a conservation plan approved by the local Soil and Water Conservation District, provided that the portion of the conservation plan being implemented for the Resource Protection Area achieves water quality protection at least the equivalent of that provided by the buffer area.

§ 4.4. Local program development.

Local governments shall incorporate the criteria in this part, or provisions at least the equivalent thereof, into their comprehensive plans, zoning ordinances, subdivision ordinances, and such other police and zoning powers as may be appropriate, in accordance with §§ 10.1-2111 and 10.1-2108 of the Act and Part V of these regulations. The criteria may be employed in conjunction with other planning and zoning concepts to protect the quality of state waters.

§ 4.5. Administrative waivers and exemptions.

A. Nonconforming use and development waivers.

1. Local governments may permit the continued use, but not necessarily the expansion, of any structure in existence on the date of local program adoption. Local governments may establish an administrative review procedure to waive or modify the criteria of this part for structures on legal nonconforming lots or parcels provided that:

a. There will be no net increase in nonpoint source pollutant load;

b. Any development or land disturbance exceeding an area of 2,500 square feet complies with all erosion and sediment control requirements of this part.

2. It is not the intent of these regulations to prevent the reconstruction of pre-existing structures within Chesapeake Bay Preservation Areas from

occurring as a result of casualty loss unless otherwise restricted by local government ordinances.

B. Public utilities, railroads, and facilities exemptions.

1. Construction, installation, operation, and maintenance of electric, gas, and telephone transmission lines, railroads, and roadways and their appurtenant structures in accordance with the Erosion and Sediment Control Law (§10.1-560 et seq. of the Code of Virginia) or an erosion and sediment control plan approved by the Virginia Soil and Water Conservation Board will be deemed to constitute compliance with these regulations.

2. Construction, installation, and maintenance of water, sewer, and local gas lines shall be exempt from the criteria in this part provided that:

a. To the degree possible, the location of such utilities and facilities should be outside Resource Protection Areas;

b. No more land shall be disturbed than is necessary to provide for the desired utility installation;

c. All such construction, installation, and maintenance of such utilities and facilities shall be in compliance with all applicable state and federal permits and designed and conducted in a manner that protects water quality;

d. Any land disturbance exceeding an area of 2,500 square feet complies with all erosion and sediment control requirements of this part.

C. Exemptions in Resource Protection Areas.

The following land disturbances in Resource Protection Areas may be exempt from the criteria of this part provided that they comply with subdivisions 1 and 2 below of this subsection: (i) water wells; (ii) passive recreation facilities such as boardwalks, trails, and pathways; and (iii) historic preservation and archaeological activities.

1. Local governments shall establish administrative procedures to review such exemptions;

2. Any land disturbance exceeding an area of 2,500 square feet shall comply with the erosion and sediment control requirements of this part.

§ 4.6. Exceptions to the criteria.

Exceptions to the requirements of these regulations may be granted, provided that: (i) exceptions to the criteria shall be the minimum necessary to afford relief, and (ii) reasonable and appropriate conditions upon any exception granted shall be imposed as necessary so that the purpose and intent of the Act is preserved. Local governments shall design an appropriate process or processes for the administration of exceptions, in accordance with Part V.

PART V.
IMPLEMENTATION, ASSISTANCE, AND DETERMINATION OF CONSISTENCY

§ 5.1. Purpose.

The purpose of this part is to assist local governments in the timely preparation of local programs to implement the Act, and to establish guidelines for determining local program consistency with the Act.

§ 5.2. Local assistance manual.

A. The Department will prepare a manual to provide guidance to assist local governments in the preparation of local programs in order to implement the Act and these regulations. The manual will be updated periodically to reflect the most current planning and zoning techniques and effective best management practices. The manual will be made available to the public.

B. The manual will recommend a schedule for the completion of local program elements and their submission to the board for its information, to ensure timely achievement of the requirements of the Act and timely receipt of assistance. The board will consider compliance with the schedule in allocating financial and technical assistance. Those elements of the manual necessary to assist local governments in meeting the first year requirements will be completed by the effective date of these regulations.

C. The manual is for the purpose of guidance only and is not mandatory.

§ 5.3. Board to establish liaison.

The board will establish liaison with each local government to assist that local government in developing and implementing its local program, in obtaining technical and financial assistance, and in complying with the Act and regulations.

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§ 5.4. Planning District comments.

Local governments are encouraged to enlist the assistance and comments of regional planning district agencies early in the development of their local programs.

§ 5.5. Designation of Chesapeake Bay Preservation Areas.

A. The designation of Chesapeake Bay Preservation Areas as an element of the local program should:

1. Utilizing existing data and mapping resources, identify and describe tidal wetlands, nontidal wetlands, tidal shores, tributary streams, flood plains, highly erodible soils including steep slopes, highly permeable areas, and other sensitive environmental resources as necessary to comply with Part III.

2. Determine, based upon the identification and description, the extent of Chesapeake Bay Preservation Areas within the localjurisdiction.

3. Prepare an appropriate map or maps delineating Chesapeake Bay Preservation Areas.

4. Prepare amendments to local ordinances which incorporate the performance criteria of Part IV or the model ordinance prepared by the board.

B. Review by the board.

The board will review a proposed program within 60 days. If it is consistent with the Act, the board will schedule a conference with the local government to determine what additional technical and financial assistance may be needed and available to accomplish the proposed program. If not consistent, the board will notify the local government and recommend specific changes.

C. Adoption of first year program.

After being advised of program consistency, local governments shall hold a public hearing, delineate Chesapeake Bay Preservation Areas, on an appropriate map or maps, and adopt the performance criteria. Copies of the adopted program documents and subsequent changes thereto, shall be provided to the board.

§ 5.6. Preparation and submission of management program.

Local governments must adopt the full management program, including any revisions to comprehensive plans, zoning ordinances, subdivision ordinances, and other local authorities necessary to implement the Act, within 24 months of the adoption

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date of these regulations. Prior to adoption, local governments may submit any proposed revisions to the board for comments. Guidelines are provided below for local government use in preparing local programs and the board's use in determining local program consistency.

A. Comprehensive Plans.

Local governments shall review and revise their comprehensive plans, as necessary, for compliance with § 10.1-2109 of the Act. As a minimum, the comprehensive plan or plan component should consist of the following basic elements: (i) a summary of data collection and analysis; (ii) a policy discussion; (iii) a land use plan map; (iv) implementing measures, including specific objectives and a time frame for accomplishment.

1. Local governments should establish an information base from which to make policy choices about future land use and development that will protect the quality of state waters. This element of the plan should be based upon the following:

a. Information used to designate Chesapeake Bay Preservation Areas;

b. Other marine resources;

c. Shoreline erosion problems and location of erosion control structures;

d. Conflicts between existing and proposed land uses and water quality protection;

e. A map or map series, accurately representing the above information.

2. As part of the comprehensive plan, local governments should clearly indicate local policy on land use issues relative to water quality protection. Local governments should ensure consistency among the policies developed.

a. Local governments should discuss each component of Chesapeake Bay Preservation Areas in relation to the types of land uses considered appropriate and the reasons for including each type of land use.

b. As a minimum, local governments should prepare policy statements for inclusion in the plan on the following issues:

(1) Physical constraints to development, including soil limitations, with an explicit discussion of soil suitability for septic tank use;

(2) Protection of potable water supply, including groundwater resources;

(3) Relationship of land use to commercial and recreational fisheries;

(4) Appropriate density for docks and piers;

(5) Public and private access to waterfront areas and effect on water quality;

(6) Existing pollution sources;

(7) Potential water quality improvement through the redevelopment of intensely developed areas.

c. For each of the policy issues listed above, the plan should contain a discussion of the scope and importance of the issue, alternative policies considered, the policy adopted by the local government for that issue, and a description of how the local policy will be implemented.

d. Within the policy discussion, local governments should address consistency between the plan and all adopted land use, public services, land use value taxation ordinances and policies, and capital improvement plans and budgets.

B. Zoning Ordinances.

Local governments shall review and revise their zoning ordinances, as necessary, to comply with § 10.1-2109 of the Act. The ordinances should:

1. Make provisions for the protection of the quality of state waters;

2. Incorporate either explicitly or by direct reference, the performance criteria in Part IV;

3. Be consistent with the comprehensive plan within Chesapeake Bay Preservation Areas.

C. Plan of development review.

Local governments shall make provisions as necessary to ensure that any development of land within Chesapeake Bay Preservation Areas must be accomplished through a plan of development procedure pursuant to § 15.1-491(h) of the Code of Virginia to ensure compliance with the Act and regulations. Any exemptions from those review requirements shall be established and administered in a manner that ensures compliance with these regulations.

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D. Subdivision ordinances.

Local governments shall review and revise their subdivision ordinances, as necessary, to comply with § 10.1-2109 of the Act. The ordinances should:

1. Include language to ensure the integrity of Chesapeake Bay Preservation Areas;

2. Incorporate, either explicitly or by direct reference, the performance criteria of Part IV.

E. Water quality impact assessment.

A water quality impact assessment shall be required for any proposed development within the Resource Protection Area consistent with Part IV and for any other development in Chesapeake Bay Preservation Areas that may warrant such assessment because of the unique characteristics of the site or intensity of the proposed use or development.

1. The purpose of the water quality impact assessment is to identify the impacts of proposed development on water quality and lands in Resource Protection Areas and to determine specific measures for mitigation of those impacts. The specific content and procedures for the water quality impact assessment shall be established by local governments. Local governments should notify the board of all development requiring such assessment. Upon request, the board will provide review and comment on any water quality impact assessment within 90 days, in accordance with advisory state review requirements of § 10.1-2112 of the Act.

2. The assessment shall be of sufficient specificity to demonstrate compliance with the criteria of the local program.

F. Review by the board.

The board will review any proposed management program within 90 days. If it is consistent with the Act, the board will schedule a conference with the local government to determine what additional technical and financial assistance may be needed and available to accomplish the long term aspects of the local program. If the program or any part thereof is not consistent, the board will notify the local government in writing stating the reasons for a determination of inconsistency and recommending specific changes. Copies of the adopted program documents and subsequent changes thereto, shall be provided to the board.

§ 5.7. Certification of local program.

Upon request, the board will certify that a local program complies with the Act and regulations.

PART VI.
ENFORCEMENT

§ 6.1. Applicability.

The Act requires that the board ensure that local governments comply with the Act and regulations and that their comprehensive plans, zoning ordinances, and subdivision ordinances are in accordance with the Act. To satisfy these requirements, the board has adopted these regulations and will monitor each local government's compliance with the Act and regulations.

§ 6.2. Administrative proceedings.

§ 10.1-2103.8 of the Act provides that the board shall ensure that local government comprehensive plans, subdivision ordinances, and zoning ordinances are in accordance with the provisions of the Act, and that it shall determine such compliance in accordance with the provisions of the Administrative Process Act. When the board determines to decide such compliance, it will give the subject local government at least 15 days notice of its right to appear before the board at a time and place specified for the presentation of factual data, argument, and proof as provided by § 9-6.14:11. The board will provide a copy of its decision to the local government. If any deficiencies are found, the board will establish a schedule for the local government to come into compliance.

§ 6.3. Legal proceedings.

§ 10.1-2103.10 of the Act provides that the board shall take administrative and legal actions to ensure compliance by local governments with the provisions of the Act. Before taking legal action against a local government to ensure compliance, the board shall, unless it finds extraordinary circumstances, give the local government at least 15 days notice of the time and place at which it will decide whether or not to take legal action. If it finds extraordinary circumstances, the board may proceed directly to request the Attorney General to enforce compliance with the Act and regulations. Administrative actions will be taken pursuant to § 6.2.

DCS-721-89

WALLACE E. REED, CHAIRMAN
CHARLOTTESVILLE

TIMOTHY E. BARROW
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WALLACE N DAV
EXECUTIVE DIRECTC

August 16, 1989

Mr. Charles H. Ellis, III
Senior Environmental Programs Analyst
Council on the Environment
903 Ninth Street Office Building
Richmond, VA 23219

Dear Mr. Ellis:

This is in response to your July 17 request to provide comments on Federal Project No. 754: Army Material Command Relocation to Fort Belvoir. New buildings, parking areas, roadways, utilities, and security berms are proposed.

This agency enforces the Regulations for the Control and Abatement of Air Pollution. Compliance with these regulations is designed to provide minimum air quality impacts. Specific rules which may apply to the air pollution impacts from your project are as follows:

Rule 5-1 regulates the minimization of fugitive dust from land clearing, excavation and construction and requires that adequate measures be taken to control fugitive dust. This means, as a minimum, the wetting down of earth disturbed in excavation and filling, and preventing the transport of fugitive dust from the construction site by covering loads in transit and washing down public roads used intensively by construction equipment.

Rule 4-40 prohibits the on-site open burning of vegetative debris from land clearing in this area.

Section 120-08-01 requires a permit from this agency to set up and operate a potentially pollution causing device such as a boiler, incinerator, process, rock crusher, concrete batching plant, or asphalt paving manufacturing plant, and requires that such units meet stringent mechanical standards for air pollution control.

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Local assistance in meeting the air pollution control requirements is available from the regional office of this agency indicated below.

Sincerely,

William W. Erskine, P. E.
Senior Air Pollution Control Engineer

WWE/dh

cc: Director, Division of Computer Services
Director, Region VII
Springfield Towers--Suite 502
6320 Augusta Drive
Springfield, VA 22150

000251

S. MASON CARBAUGH
COMMISSIONER

MARK D. TUBB
DIRECTOR

COMMONWEALTH of VIRGINIA

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
Policy Analysis and Development
P. O. Box 1163, Richmond, Virginia 23209

August 3, 1989

Mr. Charles H. Ellis, III
Senior Environmental Programs Analyst
Council on the Environment
903 Ninth Street Office Building
Richmond, Virginia 23219

RE: Scoping Notices from the Corps of Engineers for their Base Realignment and Closure, Fort Belvoir Development and Relocation of the Army Material Command

Dear Charlie:

Because we would ask the Corps to address the same issues in response to the Corps' scoping notices for the captioned projects, we have consolidated our responses into this single response.

The following are the issues that we believe the Corps should address in its environmental impact statements, draft or otherwise:

1. Pesticides -- The Corps should determine whether the construction or the operation and maintenance or the demolition or the closure of any of the projects will require the application of pesticides. If so, the Corps should cause a usage plan to be formulated, designed to mitigate or eliminate adverse environmental impacts and threats to worker safety from such pesticide usage. Formulation of such a plan can be coordinated with the various services within by the US Department of Agriculture.

2. Change in Land Use -- All of the projects appear to contemplate use of land already owned by the federal government, but further development of the projects' designs may create a need to buy additional land to complete the projects. If the acquisition of additional land becomes necessary, several questions are raised. Does the Federal Farmland Protection

Policy Act apply to the actions to be taken? If so, have the requirements of that Act been satisfied? Will any of the projects create negative impacts on adjacent agricultural lands, if any, such as interference with cropping patterns or breeding operations? If so, what measures to mitigate such negative impacts can be taken?

3. Radon -- Could any construction activities result in the containment of radon? Will radon testing be performed?

We appreciate the opportunity to respond to the scoping notices. If you have any questions, please feel free to call me. Best wishes.

Sincerely,

Mark D. Tubbs

cc: S. Mason Carbaugh

000256

COMMONWEALTH of VIRGINIA

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23
Telephone (804) 786-3
TDD: 804-786-4276

MEMORANDUM

DATE: August 7, 1989 Reply To: 4261-FX

TO: Mr. Charles Ellis

FROM: Bruce J. Larson, Senior Review and Compliance Coordinator: Archeology
Elizabeth P. Hoge, Review and Compliance Officer: Architecture

PROJECT: Army Material Command Relocation to Fort Belvoir Scoping Notice

LOCATION: Fairfax County

****

XX Due to the archeological potential of this location, as well as the project impacts, a Phase 1 archeological field survey is necessary. This survey should locate all archeological resources which may be impacted by the project as it is presently planned. Please contact our office for a list of persons who have expressed an interest in doing contract archeological work in Virginia. A copy of the resulting report should be forwarded to the DHR for comment. All necessary archeological work must be completed, reviewed, and approved by this office prior to the commencement of any construction related activities.

XX The statewide survey of standing structures has not been completed. Because the project area has not been surveyed for standing structures and there is potential for properties that are listed or eligible for listing in the National Register, we recommend that a survey be done. Please contact our office to discuss the type of survey that should be done and to request information about contractors who are available to do surveys.

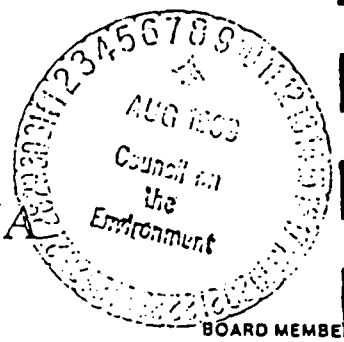
_____ Additional information is required in order to complete the project's review:

- _____ 35 mm, 3"X5", black and white, glossy prints of front and side elevations of all standing structures to be removed or impacted as a result of this project.
- _____ USGS map(s) showing project boundaries.
- _____ Plans and specifications.

COMMENTS:

000257





COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD

2111 Hamilton Street

Richard N. Burton
Executive Director

Post Office Box 11143
Richmond, Virginia 23230-1143
(804) 367-0055

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August 7, 1989

Mr. Charles H. Ellis, III
Senior Analyst
Council on the Environment
903 9th Street Office Building
Richmond, Virginia 23219

RE: 1) AMC Relocation to Fort Belvoir
2) Base Realignment/Closure and Fort Belvoir Development

Dear Mr. Ellis:

In addition to the basic and usual EIS admixture, we request that the proposer address, to the extent that they are applicable, the elements contained in our recently updated guidelines supplemental to the State EIS Procedures Manual.

With the consideration of these elements, we believe that the ensuing EIS would represent a comprehensive inclusion of the varied aspects of our jurisdictional purview.

We look forward to the review of that document.

Sincerely,

C. E. Easlick
Environmental Programs Analyst
Office of Water Resources Management

Attachment: SWCB Supplemental Guidelines

ed80/sph

VIRGINIA WATER CONTROL BOARD

SUPPLEMENTAL GUIDELINES

1. The location of the project relative to streams, lakes, waterways, etc., should be indicated on a USGS 7.5 minute topographic map. Any point of water withdrawal or wastewater discharge should be indicated on the map.

2. A description of all measures that will be utilized to control or prevent erosion and siltation into area streams should be provided. (Measures should meet guidelines promulgated in the Virginia Soil and Water Conservation Commission's Erosion and Sediment Control Handbook.

3. Information relative to sewage load to be generated by the facility, impact on existing sewage transmission and treatment facilities, and impacts of discharge (if on-site treatment facility) on State waters.

4. If hazardous chemicals, oils, or petroleum products will be handled at the facility, the EIS should explain what precaution will be taken to prevent spillage of these substances into Sta waters.

5. If use of pesticides or herbicides is contemplated in project area, details concerning application of these substances, precautions for handling, and their possible impacts on area streams (including toxicity or aquatic life) should be given.

6. Any possible impacts of the project on the quality, quantity, o distribution of groundwater should be stated.

7. EIS should specify the method of water supply to the facility and should mention whether the area water authority or water supply source can adequately meet project's projected water demand. Projected estimates of the future water demand by the proposed facility for at least a 20 year period should be provided.

8. Any water conservation measures that are to be incorporated in the design or operation of the proposed facility should be discussed and their effectiveness should be evaluated.

9. If the project involves either water withdrawals directly from free flowing streams or the construction of an impoundment, the data used to determine the hydrologic yield should be provided.

10. If the facility has an independent water supply, any measures t reduce water use during periods of drought should be discussed.

11. The time span for construction, especially construction in or near State waters, should be stated.

12. Alternatives should be discussed in as much detail as necessary for the proposed project, especially with regard to impacts on water quality and other aspects of the environment.

13. Methods of stormwater disposal should be detailed. If disposal is directly to area waters, all impacts on water quality should be propounded.

14. If the project entails dredging, filling, channelizing, construction of piers, bulkheads, etc., in State waters, a consideration of environmental impacts on the ecosystem in the affected waters should be given.

15. If the project involves a discharge of substances other than those discussed above to State waters, either surface or sub-surface, a definition of nature of discharge and its effects on State waters should be included in the EIS.

16. If the project involves water withdrawal and dam/reservoir construction, a discussion of the impacts on downstream water quality and ecosystem from the project site should be given.

17. Any possible impacts of the project on the quality or quantity of wetlands should be stated. The type of affected wetlands, as well as mitigative measures that will be utilized, should be listed. Locations of wetlands should be noted on the map.

18. The location of any threatened or endangered species of aquatic plants and animals should be provided.

19. If any of the waters are Scenic Rivers and/or Outstanding State Resource Waters, as described in VR680-21-07.2, a description should be provided of the specific designations and locations.

20. If the project involves reservoir construction, the volume, mean depth, mean annual flow of the major inflowing streams, and potential water quality of the waterbody (trophic state, annual total phosphorous loading, seasonal chlorophyll a levels, thermal stratification, and hypolimnion oxygen depletion) should be predicted.

ed42/sph

Northern Virginia Planning District Commission

7630 Little River Turnpike Suite 400 Annandale, Virginia 22003 (703) 642-0700

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(as of July 1, 1989)

August 18, 1989

Colonel Bernard E. Stalmann
District Engineer
U.S. Army Corps of Engineers,
Baltimore District
CENAB-PL-EA
P. O. Box 1715
Baltimore, MD 21203-1715

Attention: AMC EIS

Dear Colonel Stalmann:

I have received Public Notice PL-E-89-10 regarding the relocation of the Army Materials Command (AMC) headquarters to Fort Belvoir. It is my understanding that you are seeking input regarding issues that should be addressed in the Environmental Impact Statement (EIS).

Since the proposal is to construct a new facility, and will entail land disturbance and the alteration of existing site conditions, the EIS should:

- Document existing site conditions (e.g., land use, vegetative cover, etc.);
- Identify impacts on surface water and water resources;
- Identify wetland and flood plain encroachment;
- Document impacts on vegetation and wildlife (e.g., loss of habitat, impact to endangered species, etc.);
- Document potential loss of historic and archeological resources;
- Identify existing and potential erosion and sediment loss and document preventative measures;
- Determine soil suitability for the construction of the proposed facility;
- Document the effects of construction, facility operations, and additional traffic on air quality;
- Document mitigation activities.

Also, the Environmental Impact Statement should address any socioeconomic impacts associated with the facility relocation. In particular, the EIS should forecast effect of the proposed project on:

- Demographic character changes; and
- Changes in employment and income patterns.

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The proposed facility will demand water supply resources and generate wastewater. Prior to the development of the proposed facility it should be determined and documented that there is adequate water supply and wastewater allocation to service the new Army Materials Command (AMC) facility. If adequate water and wastewater services are not available then any proposed actions to provide adequate services should be documented.

Also, the EIS should document if any hazardous materials will be transported to, stored at, or generated at the AMC facility. Proposed safety, storage, and/or disposal actions should be documented.

In addition to hazardous waste, the EIS should document the volume of solid waste that is expected to be generated at the AMC facility. Documentation should include the types of solid waste, including hazardous waste, that will be generated; the disposal practices that will be implemented; and impacts on disposal facilities.

The development of the proposed AMC facility will possibly create a substantial amount of impervious surface thus increasing stormwater runoff. The EIS should identify how much impervious surface will be created; how much additional stormwater runoff is expected; and what mitigation steps will be taken so that postdevelopment runoff does not exceed predominant runoff.

The EIS should address the issues of public safety. It should be documented whether or not there is adequate police, fire, and emergency medical services available to serve the 2,500 additional personnel to be relocated to Fort Belvoir. If the existing public safety services are not adequate then mitigation/modification actions should be documented.

Also, the new facility will redirect 2,500 employees to Fort Belvoir. The EIS should document if roads and other transportation services/infrastructure are adequately designed to accommodate the additional traffic. If not then mitigation/modification activities should be documented within the EIS report.

Finally, the Commonwealth of Virginia has passed Chesapeake Bay Protection Legislation and has developed Bay protection regulations as mandated by the legislation. The EIS should address the Bay protection regulations; identify whether not this facility is in compliance with the regulations and local programs; and any mitigation procedures that will be required and implemented.

If you have any questions I may be reached at 703-642-0400. Thank you for the opportunity to comment on the proposed (AMC) facility.

Sincerely

Beth Topol
Environmental Planner

BT/ls

030203

metropolitan washington
COUNCIL OF GOVERNMENTS
1875 Eye Street, N.W., Suite 200, Washington, D.C. 20006-5454
(202) 223-6800 TDD 223-5980

August 9, 1989

U.S. Army Corps of Engineers
Baltimore District,
CENAB-PL-EA
P.O. Box 1715
Baltimore, MD 21203-1715

Attention: AMC EIS

Dear Sirs:

I am in receipt of Public Notice PL-E-89-10, Army Materiel/Command Headquarters at Fort Belvoir, Virginia, EIS At the present time I have no comments to offer, however, I would ask that I be kept informed of any future activities, reports, etc. which might pertain to this project.

Your assistance in this matter will be greatly appreciated.

Sincerely yours,

J. Shell, Jr.

James W. Shell, Jr.
Principal Water Resources Planner
Dept. of Environmental Programs

000265

NATIONAL CAPITAL PLANNING COMMISSION

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IN REPLY REFER TO:
NCPC File No. MP20

AUG 23 1989

Colonel Bernard E. Stalmann
U.S. Army Corps of Engineers
[illegible]
CENAB-PL
P.O. Box 1715
Baltimore, MD 21203-1715

ATTN: Fort Belvoir/AMC EISs

Dear Colonel Stalmann:

The Commission appreciates the opportunity to participate in your scoping process on the two environmental impact statements (EIS) being prepared for Fort Belvoir. Since many of the Commission's concerns regarding long-term development of the post are common to both the proposal involving the Comprehensive Base Realignment/Closure and Fort Belvoir development and the actions related to relocating the Army Material Command Headquarters (AMC) to Fort Belvoir from leased space in the City of Alexandria, we have combined our comments on the two notices in this one response. In instances where we have specific comments applicable to one or the other of the proposed EISs, we have noted these specific concerns. In view of other proposed Federal actions in this same general area affecting the Humphreys Engineering Center, the Engineer Proving Ground and GSA's Franconia site, we have also included comments related to these sites as well.

According to the scoping sessions held on August 8th and 9th, the Army is proposing a net increase of about 7,500 employees at Fort Belvoir. We understand that these totals do not include the Humphreys Engineering Center, where the Headquarters of the U.S. Army Corps of Engineers with about 1,300 employees is proposed, or the Engineering Proving Ground, where about 3,000,000 square feet of office space is proposed to accommodate the approximately 10,000 Army employees now housed in leased space in the Region.

As a result of these changes, we understand the Army will prepare the following plans for submission to the Commission and regional referral for review and comment to affected local governments, sub-regional, regional and state agencies and organizations prior to Commission action thereon:

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1. A revised Master Plan for Fort Belvoir (which will include the Humphreys Engineering Center but not the Engineer Proving Ground), and

2. A master plan (or its equivalent) for the Engineering Proving Ground which is proposed to be redeveloped for a major Army office center and a mixed use private development.

We also understand that GSA is to prepare a master plan for the redevelopment of the Franconia Storage Depot site into a major Federal office site.

The following comments address these three master plans, the related environmental documentation for all of these proposed Federal actions, the Comprehensive Plan for the National Capital and specific comments related to the two specific scoping meetings, as follows:

Master Plans

The Commission approved the current master plan for Fort Belvoir on May 5, 1983, including an employment level of 12,000 military and civilian employees. The proposed revised total of 22,500 employees would be an increase of 10,500 employees above the current master plan. This is a very significant increase.

The Commission staff recently informally reviewed an early draft of the revised Master Plan for the smaller Fort Belvoir. It showed a number of changes or pending projects that are inconsistent with the 1983 Commission approved plan. All of the post-1983 master plan changes should be included in the revised plan. The Army may want to consider combining the master plan report with the EISs, if possible, so that material in the environmental reports could be available during the early stages of the master plan review process. Commission procedures require that the National Environmental Policy Act (NEPA) process be completed before the Commission takes action on a master plan or project plan subject to the NEPA process. The timing of the Commission's action on the plans, therefore, will be dependent on the schedule for completion of the EISs.

It would be desirable for the Commission to review the Army's two master plans and GSA's Master Plan for the Franconia site at the same time. If this is not possible, we feel it is essential for the Commission to at least be able to review environmental documentation that assesses the cumulative impact of all Army plans as well as GSA's proposed master plan for a major Federal office

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center at its Franconia site. This is also the only way the Commission would have an adequate basis for proposing related modifications to the Comprehensive Plan for the National Capital, as discussed below.

Environmental Documentation

Public Notice PL-E-89-9 indicates that "several independent, yet related, actions will be incorporated into a single EIS to allow for a cumulative analysis of the potential environmental, transportation, social and cultural impacts." This cumulative analysis will be incorporated in the EIS on Base Realignment/Closure and Fort Belvoir Development and, according to the notice, include the following:

1. the results of the EIS for the Army Materiel Command;

2. the results of the Environmental Assessment for the Humphreys Engineering Center, including the proposed new headquarters for the Corps of Engineers;

3. information available during the preparation of the separate EIS for the development of 3 million square feet of Federal office space on part of the Engineer Proving Grounds; and

4. to the extent possible, the impacts of the proposed administrative office center at GSA's Franconia Depot.

In other words, the Army apparently intends to prepare three separate EIS's and one Environmental Assessment. GSA will presumably be preparing either an EIS or an Environmental Assessment on its proposed action. To the extent possible, it is the Army's stated intent to incorporate material from all five environmental analyses into the Fort Belvoir EIS so that all concerned can evaluate the cumulative impacts of all these Federal proposals.

It is not clear from the notice whether the schedules for all of the related environmental studies have been or can be coordinated sufficiently to permit this "tiered" approach to provide the necessary information prior to Commission actions on the three master plans and the related modifications to the Comprehensive Plan for the National Capital. The agendas for the scoping meetings indicate that the Final EIS's for the Army Material Command and the Base Realignment Closure and Fort Belvoir development would be completed by March 1990 and December 1990 respectively. We do not know what the schedules are for the Environmental Assessment for the Humphrey Engineering Center, the

EIS on the Engineer Proving Ground or GSA's environmental documentation on the Franconia site. In a meeting on August 16th, Colonel Hardiman indicated he felt they could all be coordinated in a timely manner.

The complete schedule for this "tiered" approach needs to be clarified in order to demonstrate that the necessary coordination will be achieved and the "cumulative analysis" will be complete for all three sites in time to serve as the basis for the necessary Commission actions.

Comprehensive Plan for the National Capital

The proposed increase in the number of employees at Fort Belvoir, the proposed redevelopment of the Engineering Proving Ground, the closure of Cameron Station, and the proposed redevelopment of GSA's Franconia Storage Depot will require several modifications to the Federal Employment and Federal Facilities elements of the Comprehensive Plan for the National Capital.

In the Federal Employment element, there is a designated "Belvoir Federal Area," as shown on Diagram #1 and on the table on page 11, "Planning Ranges Targeted for Year 2000 Employment Areas." As indicated on the table, the plan's targeted total employment in the "Belvoir Federal Area" for the year 2000 is between 11,000 and 11,300. This was based upon projected employment levels for the year 2000 in the master plans approved by the Commission at the time it adopted this element on March 3, 1983. If all of the current proposals were to be implemented by the year 2000, it would appear to result in an increase of between 26,000 and 33,000 Federal employees in the "Belvoir Federal Area," a very significant increase of almost threefold. The ultimate total number of proposed Federal employees in the "Belvoir Federal Area," according to the installation master plans, was 18,300, as shown on page 12 of the Federal Employment element. The more recent proposals would represent an increase of from 7,700 to 14,700 employees over these "ultimate" projections.

The Federal Facilities element contains Federal facility goals, location criteria and Federal planning and transportation policies. It also contains diagrams indicating the location of Federal lands in the National Capital Region and the predominate use of each such site. This element would also need to be modified as a result of the proposed actions, as follows:

1. deletion of Cameron Station as a Federally-owned site (unless some or all of this site should be retained for some other Federal use).

2. deletion of any portion of the Engineering Proving Ground site that may be conveyed to a private developer.

3. redesignation of GSA's Franconia site from "Special Service, Training and Support Facilities" to "Executive Branch Administrative Facilities."

All of these modifications to the Comprehensive Plan for the National Capital within the Belvoir Federal Area would need to be made by the Commission at the same time as, or prior to, the adoption of any of the master plans or revised master plans for any installation. In addition, these modifications need to be based on adequate environmental documentation of the cumulative impact of all the proposed actions by the Army and GSA. The Commission will, therefore, rely on the environmental documentation prepared by the Army and GSA as the basis for any proposed modifications to the Comprehensive Plan, as well as the approval of any proposed master or revised master plan.

As noted, it would appear that the proposed actions on these three Federal sites in the I-95 (Shirley Highway) corridor could result in the construction of from about 6 to 7 million square feet of office space that could accommodate from 26,000 to 33,000 additional Federal employees. See enclosed summary table. This significant increase raises questions about the appropriateness of these locations for major office centers of the proposed magnitude, their concentration in the same general area and whether all of these proposals can be accommodated without adverse environmental and transportation impacts on this part of Northern Virginia.

One of the Commission's policies in the Federal Employment element of the Comprehensive Plan for the National Capital is:

> "Federal employment locations outside the Central Employment Area should be directed, consistent with Federal agency needs and functions, toward employment centers as identified in the Comprehensive Plan particularly those well-served by public transit."

At the August 8, 1989 scoping meeting, you indicated that the Fort Belvoir Master Plan update will include a "Regional Transportation Plan" that will address the transportation needs of the proposed Federal actions at Fort Belvoir and at all of the other Federal sites in the larger area. Presumedly, this plan will establish how much additional activity and employment can actually be accommodated in this area, what additional transportation (highway and transit) facilities will be required, how these facilities will

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be provided and what impact they would have on affected areas. We feel such a plan and program is an essential precondition for any Commission action to modify the Federal Employment and Federal Facilities elements of the Comprehensive Plan to conform these elements with the proposed plans and the increased employment levels.

The proposed development of two major Federal office centers in a generally low density suburban area with about 3 million square feet of space at the Engineering Proving Ground and up to 2 million square feet of space at GSA's Franconia site and the relocation of Cameron Station to Fort Belvoir will require adequate public transportation to serve the thousands of Federal employees involved. The Franconia site is located in close proximity to the proposed Springfield Metro Station, which, however, has not yet been constructed or funded. It would also be served by the proposed Springfield Bypass or Fairfax Parkway now under construction in this area.

The EPG site, however, is not on the planned Metrorail system; nor is there any official plan to provide such service in this area. We understand that the Army will study the possible extension of the Springfield Metro line to serve the EPG site. A station near the intersection of I-95 and Backlick Road to serve IPG as well as the Humphrey Engineering Center and Fort Belvoir would seem desirable. Such a line could ultimately be extended further south out into Prince William County where some of these new Federal employees will probably choose to live.

There are policies in the Comprehensive Plan that these proposals are consistent with including the use of existing Federal facilities to meet agency requirements and the consolidation of agency functions in common or adjacent space to improve administration, employee management and productivity. However, these proposals may raise questions of economic impact on affected local jurisdictions which should be addressed. A Commission policy in the Federal Employment element states:

> "Major new locations or relocations of Federal employment that will occupy 100,000 square feet or more of building space in the Region should be planned and programmed (timed), to the maximum extent practicable, to minimize adverse economic impacts on affected local jurisdictions."

Your consolidated environment documentation should specifically address this issue and describe the economic impacts from these proposed Federal actions on all of the affected jurisdictions in

Northern Virginia, as well as the District of Columbia and Maryland.

Another policy in the Federal Employment element is that:

> "The historic relative distribution of Federal employment approximately 60 percent in the District of Columbia, the established seat of national government, and 40 percent elsewhere in the Region should continue during the next two decades."

The Army and the GSA should address the impact of their proposals on the geographic distribution of Federal employment in the National Capital Region and the extent to which the cumulative impact of these proposals may impact this 60/40 geographic distribution.

Detailed Scoping Comments

There are several areas of potential environmental and planning concern that we would like to bring to your attention as part of the scoping process.

1. Transportation

Traffic congestion of roadways in the area of Fort Belvoir is a very important issue. The traffic analysis in the Environmental Reports should, to the extent possible, account for all reasonably foreseeable development (public and private) in the area, assess the impact of this combined growth on existing and planned road systems, and outline in specific terms the improvements and transportation system management measures to be implemented by the Army to minimize or reduce expected adverse effects due to its actions. Extension of public transit should be studied as a way of limiting new vehicular trips. Air quality impacts related to the increased traffic on the local roads should be given careful review as well.

2. Environmentally Sensitive Areas

A large portion of Fort Belvoir contains environmentally sensitive areas including wetlands, floodplains, wildlife habitat areas, and forested lands. The 1983 approved master plan delineates these areas in general, and the Post is to be commended for its past efforts to protect environmental resources. Planned growth associated with

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the proposed actions could threaten these areas. We recommend that a thorough analysis of these features be undertaken as part of the environmental review and the master plan. To the extent possible, the precise boundaries of these areas should be delineated. Development that could adversely effect the integrity of these areas should be avoided. Compensation for any loss of wetland areas should be provided.

3. Extent of Impervious Surfaces

The new proposals under consideration for Fort Belvoir could result in a substantial increase in paved surfaces on the post. For example, the planned parking for the AMC facility alone could require paving over 14 acres of land area. Because Commission policy encourages agencies to limit the amount of impervious surfaces on their sites in order to preserve existing green areas and to reduce adverse stormwater runoff-related effects, we suggest that the documents explore alternatives to providing extensive paved surface parking areas. Further, possible measures for maintaining post-development stormwater runoff levels to pre-development conditions should be evaluated and included in the EISs and the master plan.

4. Socio-economic Impact

The socio-economic impact of moving large numbers of Federal employees from one jurisdiction to another should be evaluated in the two documents. Adverse impacts on the affected jurisdictions and employees should be minimized.

We hope these comments will be of assistance to you as you begin the NEPA process and the related master planning work. If you have any questions regarding our comments, please contact Ronald E. Wilson of my staff on 724-0191.

Sincerely,

Reginald W. Griffith

Reginald W. Griffith
Executive Director

Enclosure

cc: Col. Hardiman
Walt Freeman, DOD
Ira Wagreich, Fort Belvoir
Linda Eastman, GSA

030274

ESTIMATED FEDERAL EMPLOYMENT AND SPACE INCREASES IN THE BELVOIR FEDERAL AREA

	Site	Projected Employment Change	Est. Square Feet
1.	Revised Master Plan for Fort Belvoir (including Humphreys Engineering Center)	+ 8,800	+ 1,760,000
	a. Army Material Command (maximum of 2,500)		
	b. Base Closure and MCA (maximum of 5,000)		
	c. Headquarters, Corps of Engineers (1,300)		
2.	Master Plan for the Engineering Proving Ground (Army office center only)**	10,000	+ 3,000,000*
3.	Master Plan for GSA's Franconia Depot Storage Site (Proposed major Federal office center	7,000 to 14,000	1,200,000 to 2,400,000 Sq. ft.
	Totals	25,800 to 32,800 Employees	5,960,000 to 7,160,000 Sq. ft.

* Estimate assuming 200 gross square feet per employee.

** Formerly part of Fort Belvoir's Master Plan.

*** 10,000 Army employees are currently housed in leased space. Total does not include any possible private office development.

**** Estimate of 1,000,000 to 2,000,000 occupiable square feet inflated by 20% to be comparable to Army square foot estimates.

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX
BOARD OF SUPERVISORS
FAIRFAX, VIRGINIA 22030

GERRY HYLAND
BOARD OF SUPERVISORS
MOUNT VERNON DISTRICT
2511 PARKER S LANE
ALEXANDRIA, VA 22306

TELEPHONE: 780-7518

August 21, 1989

U. S. Corps of Engineers, Baltimore District
Attention: CENAB-PL-ES
Fort Belvoir EIS Comments
P. O. Box 1715
Baltimore, MD 21203

Gentlemen:

Thank you for this opportunity to comment on the scoping of Fort Belvoir's comprehensive base realignment/closure and Fort Belvoir's development environmental impact statement. I would like to take this time to briefly mention a few of my concerns and request they be incoporated into the EIS deliberations.

1. The time table of the four Environmental Impact Statements is troublesome.

AMC is due April, 1990
GSA is due sometime in 1990
The Comprehensive realignment is due in February 1991
The EPG is due in the Spring of 1991

The comprehensive realignment EIS, seems to me, should be completed prior to the AMC and the GSA statements because it encompasses the AMC and the GSA sites. The comprehensive realignment is the most encompassing statement and yet it is due out after the AMC and the GSA statements. It is my understanding that when each of the impact statements are completed and satisfied, construction would be allowed to begin. I do realize, however, that the federal government is ending many of its lease agreements with the private sector and that there is a great deal of pressure to move forward with the base realignment before those agreements terminate. I would just like to be enlightened as to the scheduling of these environmental impact statements.

2. During this environmental impact statement process, I would like to suggest that, although certainly not required, it would be to the benefit of all that your office work very closely with the citizenry who will be impacted by the development at Fort Belvoir. I have found by bringing the public into the process it negates a lot of misunderstanding and even builds consensus.

000273

3. I would also suggest to you that the impacts of the Fort's growth and development to Fairfax County's and the State of Virginia's infrastructure will be considerable. With that in mind I would strongly suggest that your office work closely with the Virginia Department of Transportation's Northern Virginia 2010 Transportation Planning Committee and the Northern Virginia Planning District Commission.

4. I also believe it would very advantageous to work with Fairfax County's Deputy Director for Human Services, Mr. Verdie Haywood to discuss a vital need for providing affordable housing for some of the population which the Fort's development will bring into the County.

5. I realize the Fort will be increasing the size of its hazardous waste depot. As you know, on behalf of my constituents in the Mt. Vernon District, I cannot support this facility and strongly recommend that this facility be located elsewhere, not on the Fort.

6. Under the direction of General Foote, Fort Belvoir has been a leader in both tree preservation and making sure that environmental wildlife corridors continue to exist throughout the land. During the development of the Fort, I would strongly suggest that General Foote's guidelines continue to be respected and that they become incorporated into the Fort's new master plan.

7. Lastly, and perhaps the most difficult of all issues to address is the one dealing with the tax benefits this development will have on Fairfax County. In other words, what will be the net tax benefits to the County?

Again thank you for this opportunity. Please know I am very willing to work closely with you on this major development of Fort Belvoir.

Sincerely,

Gerry Hyland

0439H

000274

FAIRFAX COUNTY PUBLIC SCHOOLS

Department of Facilities Services
10700 Page Avenue
Fairfax, Virginia 22030

October 5, 1989

Carl B. Barnes, Jr., LTC, Aviation
Acting District Engineer
Baltimore District, Corps of Engineers
CENAB-PL-ES
P.O. Box 1715
Baltimore, Maryland 21203-1715

Dear Colonel Barnes:

Fairfax County Public Schools received Public Notice PL-E89-16 regarding the Base Realignment/Closure and Fort Belvoir Development EIS. Development plans involving Fort Belvoir will impact on school facilities requirements. Consequently, I am requesting that you keep us informed of events pertaining to the EIS study. A representative from our office will attend the scoping meeting on October 16, 1989.

Further information concerning the study (i.e., meetings, draft reports) should be directed to Jeanne Yang, Office of Facilities Planning Services, Fairfax County Public Schools, 10700 Page Avenue, Fairfax, Virginia 22030.

Sincerely,

Gary D. Chevalier, Coordinator
Facilities Planning Services

GDS/ms

000275

Reference: CENAB-PL-ES (200)

November 5, 1989
238 South Jenkins Street
Alexandria, Virginia 22304

Subject: Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement

United States Corps of Engineers, Baltimore District
Attention: CENAB-PL-ES
Fort Belvoir EIS Comments
Post Office Box 1715
Baltimore, MD 21203

Dear Sirs:

This letter addresses the potential reuse of Cameron Station as cited in the last sentence of the next to the last paragraph of page two of Public Notice PL-E-89-16. I spoke briefly at the Scoping Meeting on 16 October 1989 at the Patrick Henry Elementary School in Alexandria, Virginia. From the "Screening" graphic presented that evening there was an option of alternatives and choices.

My interest in these matters stems from the location of my residence. Cameron Station previously was immediately across my back fence, but the Military District of Washington transferred several acres of land to the City of Alexandria for inclusion in the Holmes Run/Tarleton Park. This is tangible evidence of the continuing good neighbor policy on the part of the Army.

This residence is the nearest one to the confluence of Holmes Run and Backlick Run, where the stream becomes Cameron Run. In this location it was one of the first in the neighborhood to be flooded when the gates at Lake Barcroft were manually operated to dump a large amount of water in a brief duration during the by then tropical storm Eloise in 1975. Much of Cameron Station was also flooded at that time. The City of Alexandria hastened the completion of flood control measures downstream at two railroad bridges across Cameron Run and did not wait for the Army Corps of Engineers to exercise its new charter covering all "navigable" streams.

This neighborhood and Cameron Station were also flooded during the by then tropical storm Agnes in 1972 when the southern abutment of the dam at Lake Barcroft eroded and drained the lake. This was prior to the very extensive survey by the Army Corps of Engineers on the threat to the public by privately owned impoundments.

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In 1966, prior to my moving to this location, this neighborhood and Cameron Station were flooded by a nameless rainstorm. Some automobiles on the Cameron Station parking lot did not have time to sink in place, but floated to duck pond before sinking.

Near the beginning of World War II the survey stakes for a new Quarter Master Depot on the right bank of the Boundary Channel were pulled up to make way for some new thing called a "pentagon". The setting of survey stakes at a new site was postponed because of flooding at the new site, Cameron Station.

In spite of much of Cameron Station being in the flood plain, the land value is quoted as almost $ 1 million per acre. However, high property value is not sufficient reason for selling. The City of New York has not sold Central Park to the highest bidder, in spite of financial difficulties. The valuable land of the National Institutes of Health "Reservation" in the area bounded by Old Georgetown Road, Cedar Lane, Rockville Pike, and Battery Lane does not have a "for sale" sign. Some things are too valuable to put on the auction block.

As a Senator, John F. Kennedy introduced legislation to extract the Army Medical Library from the Army. This eventually became the prestigious National Library of Medicine and is located on the above mentioned "Reservation".

Senator Eggleton from Missouri introduced legislation to rescue the National Archives from the General Services Administration.

Both sets of legislation should be emulated to transfer the holdings of the former Armed Services Technical Information Agency to be under the administration of the National Archives, to be renamed the National Library of the Physical Sciences and Technology, and to be located above the flood plain at Cameron Station.

Sincerely,

Ronald R. Holder

330277

Baker Engineers

October 20, 1989

U.S. Army Corps of Engineers
Baltimore District
CENAB-PL-ES
P.O. Box 1715
Baltimore, MD 21203-1715

Attn: Ft. Belvoir EIS

Gentlemen:

We would appreciate copies of the information presented at the scoping meetings for the Fort Belvoir Environmental Impact Statement. We understand the deadline for written comments is November 6, 1989.

Please send the information to:

Miles A. Carlson, P.E.
Baker & Associates
1420 King Street
Alexandria, VA 22314

Your assistance is appreciated.

Sincerely,
BAKER AND ASSOCIATES

Harrell W. Little
Architectural Manager

Appendix B

Biological Assessment of Threatened and Endangered Species

DRAFT

Biological Assessment of Threatened and Endangered Species (BATES)

Fort Belvoir
Cameron Station
Fort Myer, Virginia

July 1990

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BIOLOGICAL ASSESSMENT OF THREATENED AND ENDANGERED SPECIES FORT BELVOIR, CAMERON STATION AND FORT MYER, VIRGINIA

This Biological Assessment of Threatened and Endangered Species (BATES) has been prepared as part of the Section 7 consultation process with the U.S. Fish and Wildlife Service for the Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement (EIS) that addresses the impacts related to activities at Fort Belvoir, Cameron Station and Fort Myer.

This BATES is organized into eight (8) sections and four (4) appendices. Section 1 describes the proposed action. General descriptions of each of the impacted installations are presented in Section 2. Sections 3 outlines the methodology utilized in conducting the survey, including agency coordination. The results of this survey and other independent surveys completed either for site specific projects, or for general inventory and management purposes, are discussed in Section 4. Section 5 outlines the potential impacts to rare, threatened and endangered species located on each of the installations if the activities described in the proposed action are implemented. In addition, Section 5 also discusses mitigation options for those actions having the potential to impact rare, threatened and endangered species. Alternatives to the proposed actions are described in Section 6 and the conclusions are outlined in Section 7. Section 8 is a listing of references. The four appendices include: agency coordination documentation (Appendix 1); potential rare, threatened and endangered species for each of the installations (Appendix 2); Species lists compiled for each installation and installation subarea during the survey period (Appendix 3); and species and areas on Fort Belvoir for which additional surveys are recommended prior to development (Appendix 4).

1.0 DESCRIPTION OF THE PROPOSED ACTIONS

The proposed actions are the complete closure of Cameron Station, as established by Public Law, 100-526, Defense Authorization Amendments and Base Closure and Realignment Act of 1988. Activities associated with this act are known as BRAC activities. Approximately 3900 personnel from Cameron Station will be realigned to Fort Belvoir. Also approximately 200 personnel, also from Cameron Station, will be realigned to Fort Myer; and two people from Cameron Station will be realigned to Fort McNair. Approximately 60 personnel from Fort George G. Meade, 70 personnel from Fort Holabird and 190 personnel from the Army Materiel Technology Laboratory, Fort Devens, Massachusetts, will be realigned to Fort Belvoir. In addition to the actions outlined as part of BRAC, Fort Belvoir is updating its Master Plan. A variety of planning actions are identified in the new Master Plan in addition to BRAC activities. These actions are listed in Table 1. Therefore, the EIS and this BATES will not only examine the impacts of the BRAC actions, but will also briefly summarize those other activities relating to actions currently being considered by the Office of Master Planning.

Table . Proposed Base Realignment and Closure & Development Plan Actions at Fort Belvoir

Base Realignment and Closure (BRAC) Actions

1. Headquarters Complex
2. Industrial Facilities
3. Office Park Road
4. North Post Commissary Warehouse Addition
5. Post Exchange
6. Commissary
7. Administration Facility
8. Advanced Materials Laboratory
9. Branch Exchange (Convenience/Gas)
10. Modify Buildings 1466 and 1445 for Base Closure

Development Plan Actions

Military Construction Activity (MCA)

1. Child Development and Religious Education Centers
2. Electronics Supply and Maintenance Facility
3. DC Army National Guard Armory
4. DC Army National Guard Aircraft Parking Apron
5. Convert Buildings 206 and 208 to Classrooms
6. Veterinary Clinic
7. Operations Bldg Renovation, Engineer School Backfill
8. Telephone Switch upgrade, Post-wide
9. Fixed Wing Runway Extension
10. Old Guard Horse Stables
11. Main Sewer Line Upgrade, Post-wide
12. North Post Fire Station
13. Headquarters, Air Force Intelligence Agency
14. Physical Fitness Center
15. Va. Army National Guard Armory/Headquarters (29th LID)
16. Gunston Road Extension
17. DC Army National Guard Hangar Addition
18. Sea Bee Operational Storage Facility
19. Renovate Heat Plant
20. Renovate Building 361 for ADP
21. DC Army National Guard Academy
22. Electrical Upgrade, Post-wide, Phase I
23. Lateral Sewer Line Repair, Post-wide
24. Relocate EPG Test/Storage Facilities
25. Ammunition Storage Facility
26. Information Systems Facility
27. CIDC Field Operations Building
28. DC Army National Guard Cantonment Area
29. Main Post Library
(30. there is no MCA 30)
31. Loop Road

(Development Plan: MCA, continued)

32. Community Center/Welcome Center
33. Facility Engineer Maintenance Shop
34. Warehouses
35. Tactical Energy Systems Lab
36. Conforming Storage Building (DRMO)
37. Military Police Station
38. Reserve Center/OMA (80th Div)
39. Consolidated Maintenance Shop (DOL)
40. Electro-Optics Laboratory
41. Fatigue Test Facility
42. Potential 500-person Administrative Facility, HEC

Non-Appropriated Funds (NAF)

1. Youth Center
2. Tompkins Basin Recreation Area
3. Horse Stables
4. Benyuard Pool Addition
5. Golf Course
6. Corporate Fitness Center
7. Child Development Center
8. Temporary Lodging Facility

Army and Air Force Exchange Services (AAFES)

1. Fast Food Facility (Burger King)
2. Fast Food Facility (Chicken)
3. Car Care Facility

Army Family Housing (AFH)

1. Lewis Heights Renewal, Phase 1
2. Lewis Heights Renewal, Phase 2
3. 1,500 NCO Housing Units (New)
4. Dogue Creek Village Whole House Renewal
5. George Washington Village Whole House Renewal
6. River Village Whole House Renewal
7. Belvoir Village Whole House Renewal
8. Gerber Village Whole House Renewal
9. Visiting Officers Quarters Renovation
10. Jadwin Loop Whole House Renewal
11. Colyer Village Whole House Renewal
12. Rossell Loop Whole House Renewal
13. Woodlawn Village Whole House Renewal
14. Fairfax Village Whole House Renewal

The reuse plan for Cameron Station has not been finalized. Studies recently completed by the Baltimore District, U.S. Army Corps of Engineers, and the City of Alexandria indicate that the highest and best use for Cameron Station parcel is a moderately intense mixed-use area. The area would be predominantly residential with supporting retail and office complexes. Approximately 30 percent of the parcel would remain as open space for both passive and active recreation. A task force has been organized to address reuse at Cameron Station. Reuse plans will evolve over the next several months, but most are expected to be very similar to the highest and best use studies and all are likely to involve similar potential environmental impacts. At this time the BATES will address potential impacts which may occur at Cameron Station under the Baltimore District's highest and best reuse scenario.

2.0 SITE DESCRIPTION

2.1 Fort Belvoir

Fort Belvoir is located in Fairfax County, Virginia on the Potomac Peninsula, 11 miles southwest of the City of Alexandria and 18 miles southwest of Washington, DC (Figures 1 and 2). Fort Belvoir is comprised of a main post with approximately 9000 acres; Humphreys Engineer Center (HEC), approximately 600 acre facility on the northeastern corner of Fort Belvoir, owned by the U.S. Army Corps of Engineers; and an additional 800 acres in an area to the north, known as the Engineering Proving Grounds (EPG). A separate EIS is being prepared for EPG, it will not be included in this BATES. The main post of Fort Belvoir includes training areas, administrative areas, housing, community facilities, Davison Airfield, DeWitt Hospital, two wildlife refuges, and an active sanitary landfill (U.S. Army, 1989, U.S. Army, 1982). Approximately one-half of the post has been developed for the various uses outlined above (Waas, 1983). Of the remaining acreage, between one-third and one-half may be classified as wetlands (i.e. palustrine forested, palustrine emergent/scrub-shrub) (U.S. DOI, 1977; USDA, 1982). The majority of these wetlands are associated with Accotink, Pohick and Dogue Creeks as well as the Potomac River, Gunston Cove and Accotink and Pohick Bays. The remaining areas are upland forested tracts composed primarily of red oak (*Quercus rubra*) and white oak (*Quercus alba*), American beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*), pignut hickory (*Carya glabra*), and Virginia pine (*Pinus virginiana*) (Waas, 1983).

2.2 Cameron Station

Cameron Station consists of approximately 164 acres within the City of Alexandria, Virginia (Figures 1 and 3). The BRAC activities include excessing the entire Cameron Station parcel. The station consists of warehouses and administrative space, with a landscaped park area and two ponds which are referred to as Cameron Lake. Vegetative cover is sparse, consisting primarily of lawns and ornamental plantings around the buildings. The area around Cameron Lake has been planted extensively with weeping willows (*Salix babylonica*). Remaining native vegetation in the vicinity of the lake includes several oak species, sweet gum (*Liquidambar styraciflua*), tulip poplar, flowering dogwood (*Cornus florida*), flowering cherry (*Prunus serotina*), and red maple (*Acer rubrum*). Another small area in the western portion of the base contains

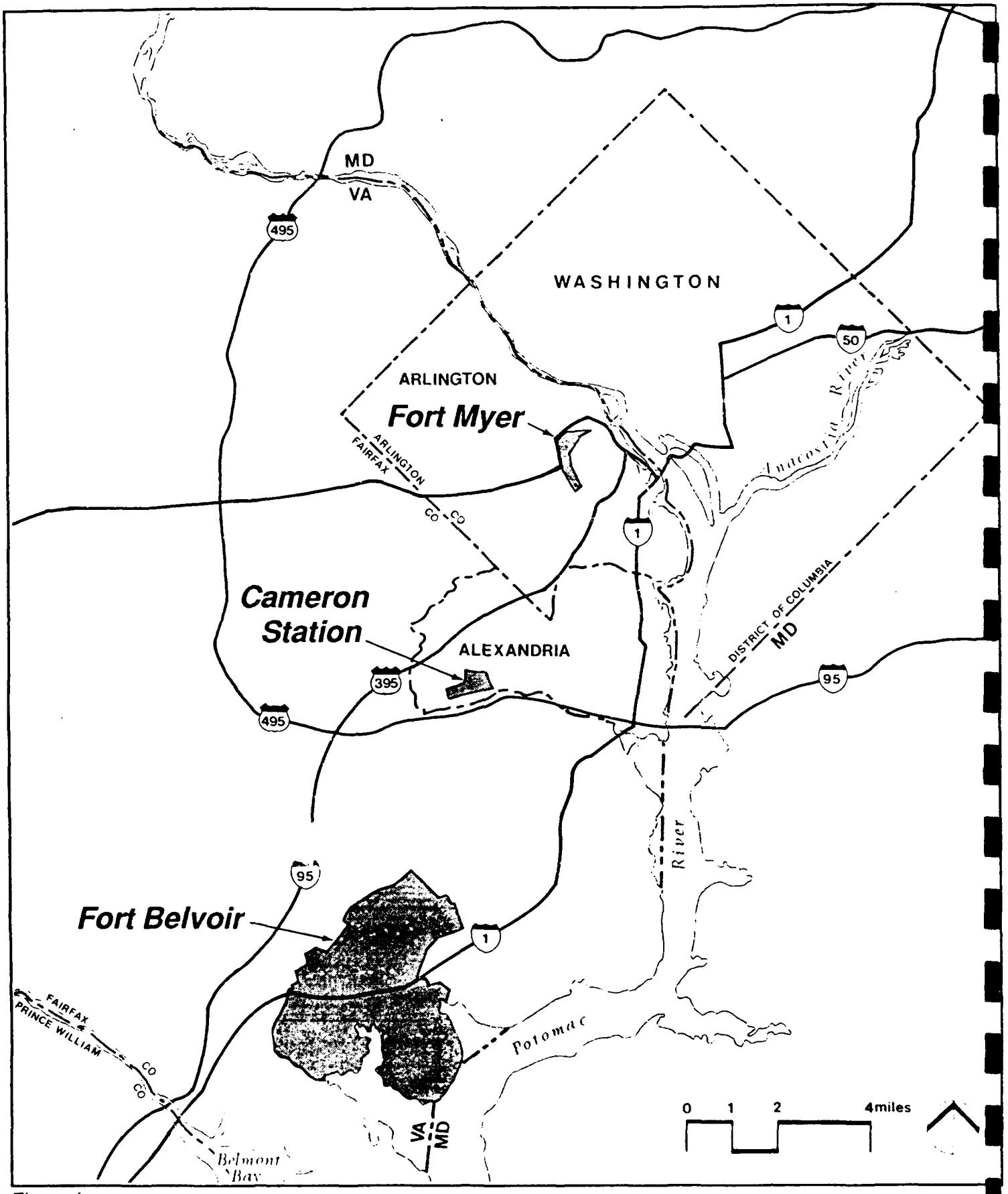


Figure 1

Project Area

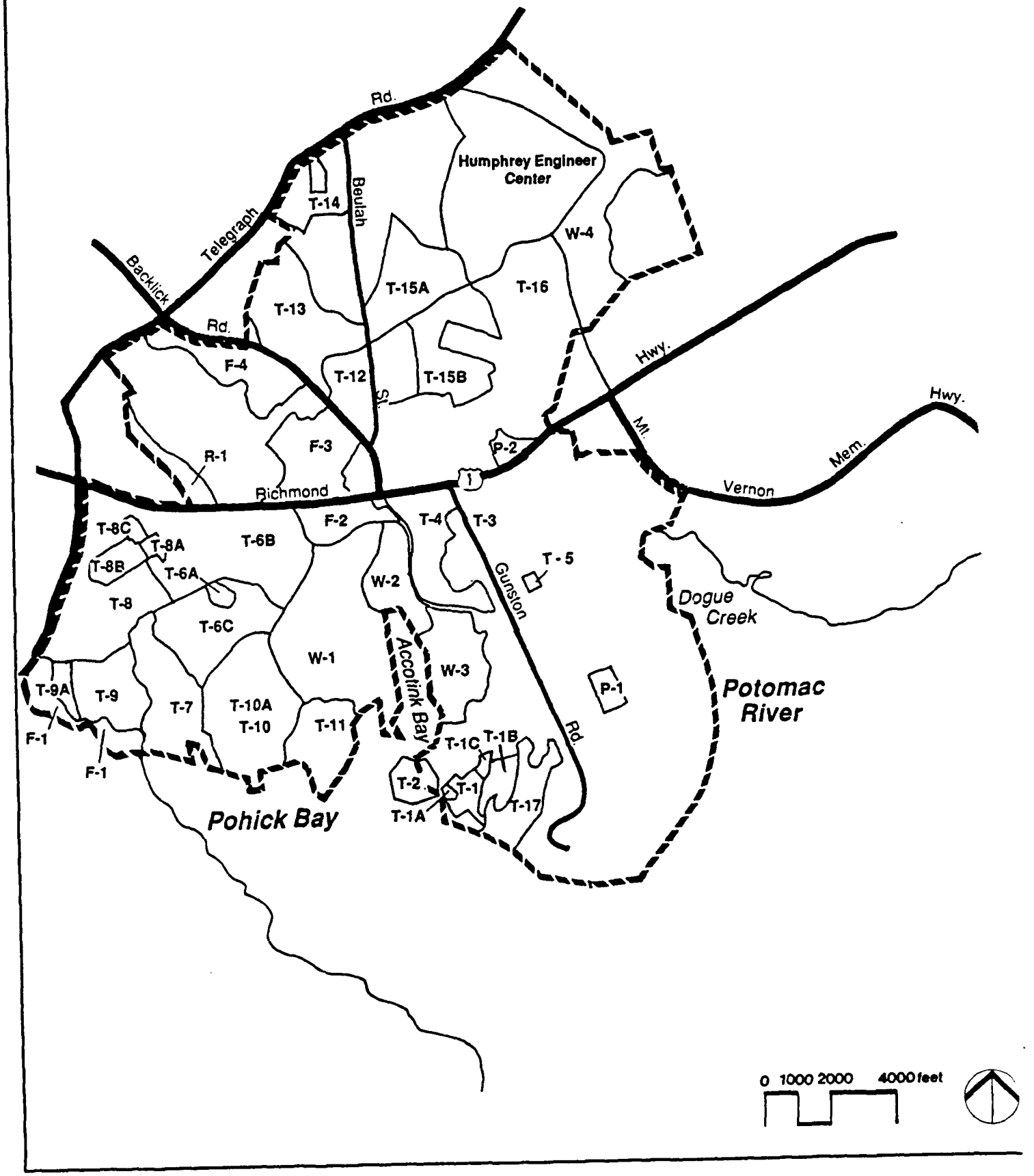


Figure 2

Fort Belvoir

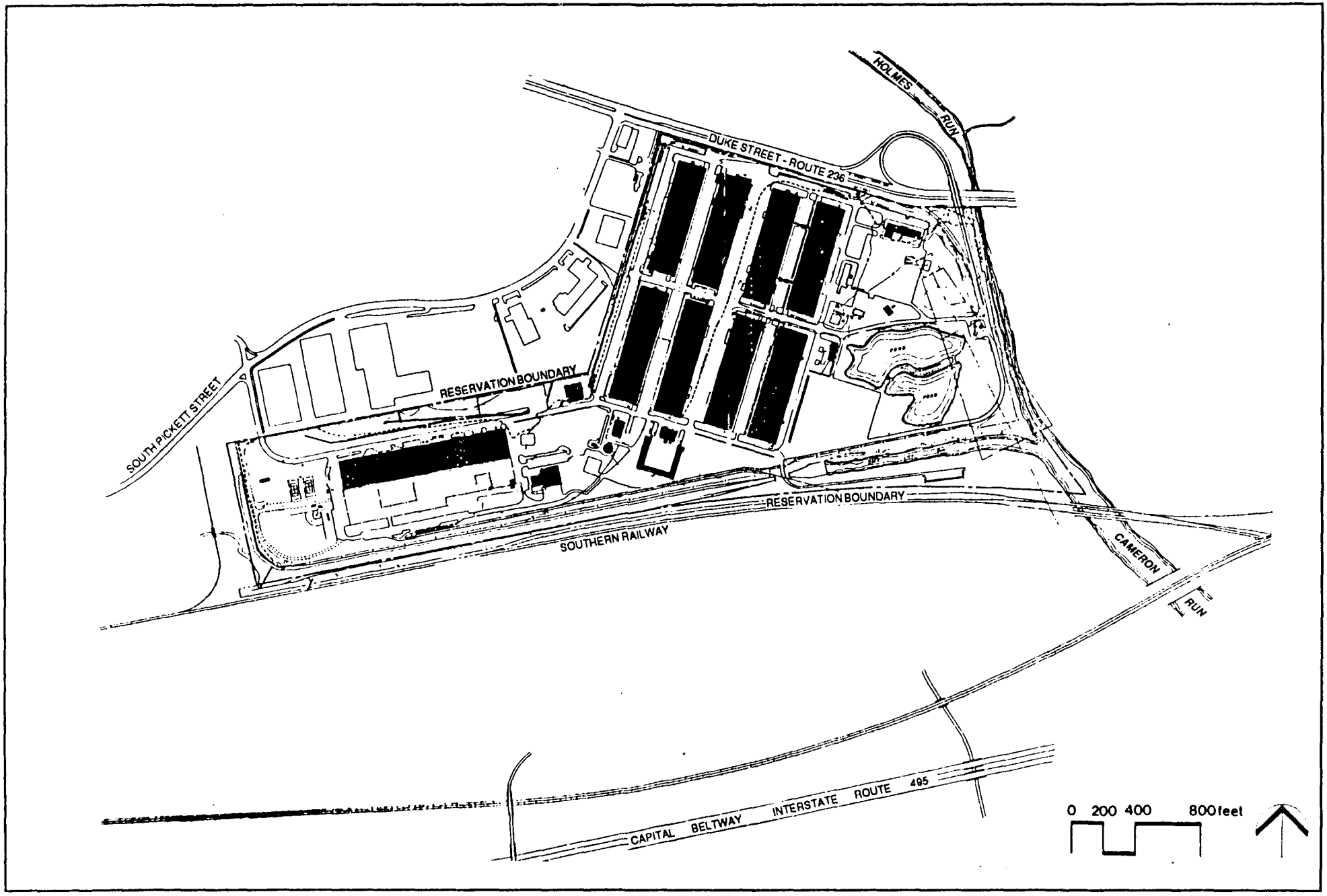


Figure 3

Cameron Station

similar tree species as well. Back Lick Run is a small stream on the southern boundary of the station. It is a tributary of Cameron Run and has undergone significant modifications due to channelization.

2.3 Fort Myer

Fort Myer is approximately 364 acres and is situated adjacent to Arlington National Cemetery (Figures 1 and 4). As part of the BRAC activities, approximately 200 personnel will be transferred from Cameron Station to Fort Myer. Fort Myer consists of several administrative buildings, housing for military personnel, as well as warehouse, equipment storage and repair areas. In addition, many ancillary facilities are located at Fort Myer, including a post exchange, two chapels, a health clinic and several ball fields and parks. Fort Myer is also the current home and stables of the Old Guard Unit used for ceremonial purposes. The majority of the acreage at Fort Myer has been developed. One large picnic area, near the boundary with Arlington National Cemetery, remains uncleared. This area, however, is mowed. The remaining areas on Fort Myer are landscaped lawns and parks.

3.0 METHODOLOGY

Prior to performing the site reconnaissance, existing information was requested from both the Virginia Natural Heritage Program and the Biota of Virginia Office (BOVA) of the Virginia Department of Game and Inland Fisheries. This data was reviewed to determine if any rare, threatened or endangered species have been documented on any of the three installations (Fort Belvoir, Cameron Station and Fort Myer) covered under the scope of this BATES and its corresponding EIS. It should be noted that for the purposes of this BATES, all candidate species have been included within the categories they have been nominated for, based on the most current information available. The full text of information provided by these two agencies, which also includes some species not categorized as rare, threatened or endangered, is included in Appendix 1. A summary of potentially rare, threatened and endangered species, by installation, is provided in Appendix 2.

In Appendix 2 all known species designation codes are listed under three headings: State Rank, Federal Status, and State Status. State Rank is the designation assigned to a species by the Virginia Natural Heritage Program. It is an index of biological rarity for a species within the state. While these designations do not carry corresponding legal designations in all cases, many of the species with high rankings have been proposed for legal status and are monitored by the Virginia Heritage Program. Federal Status is the legal status assigned to a species by the U.S. Fish and Wildlife Service, Division of Endangered Species and Habitat Conservation. All species formally listed as endangered or threatened are protected under the Endangered Species Act of 1973 as amended. Candidate species are species whose status is under review to determine eligibility for threatened or endangered status. State status designations, for the most part, conform to the Federal status designations, and as such are legal definitions supported by Virginia's Endangered Species Act. The

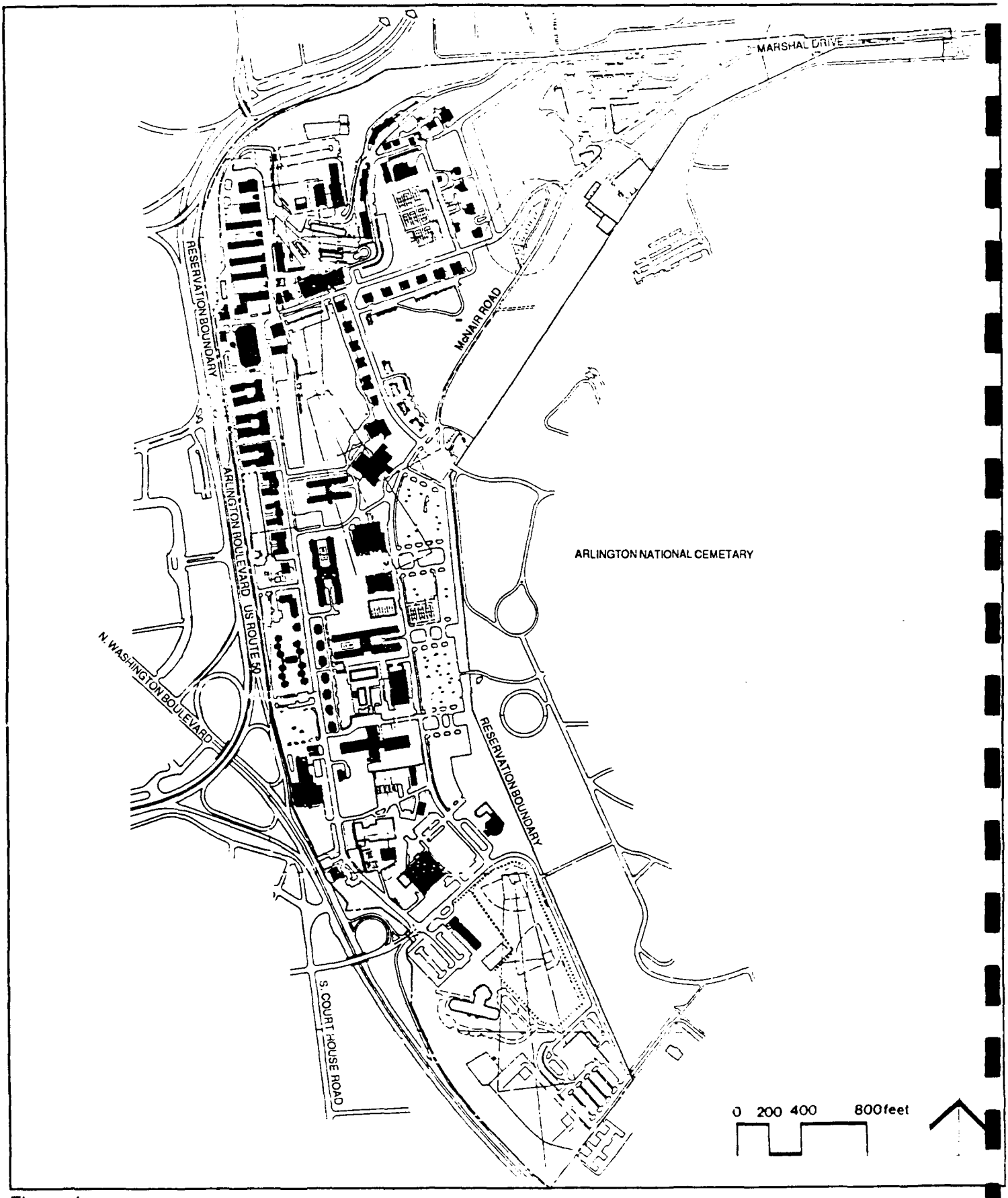


Figure 4

Fort Myer

exceptions to this are all status designations prefixed by the letter R (Virginia Natural Heritage Program, 1990). These designations reflect the findings of the 1989 Virginia Endangered Species Symposium and are used to determine which species should be recommended for listing as threatened or endangered, and which species need to be closely monitored for potential future listing.

In addition, the Virginia Heritage Program's element list for Virginia was reviewed and cross-referenced with the Atlas of the Virginia Flora, 2nd edition, to determine additional rare plant species which could be found on any of the installations based on preliminary habitat information and documented range. The resulting list can be found in Appendix 2 of this BATES. Studies being conducted by George Mason University were also reviewed to determine locations of additional species. Information on rare, threatened and endangered species included in other documents (environmental assessments, rare plant surveys, etc.) provided by the installations was also incorporated into a master species list for each installation (Appendix 2, location column). Personal interviews were then conducted with Scott Belfit, Environmental Specialist, Fort Belvoir; Dr. Carl Ernst, Department of Biology, George Mason University; Dr. John Holsinger, Department of Biology, Old Dominion University; Dr. Robert Jenkins, Roanoke College; Chris Pague and Chris Ludwig, Virginia Natural Heritage Program, to further refine the list for each installation.

A site reconnaissance was conducted during March 1990 at Fort Belvoir, Fort Myer and Cameron Station. The primary objective of the site visit was to look for preferred habitat for those species whose range may extend into the three installations being evaluated. The presence of those protected species was also evaluated. At Fort Belvoir, the survey included visits to each of the sites proposed for BRAC and Master Planning actions. In addition, observations were made in each of the management areas designated in Figure 2. Since Fort Myer and Cameron Station are both much smaller in size than Fort Belvoir, as well as more heavily developed, it was easier to evaluate a higher percentage of the habitat on these two installations. The survey at Fort Myer focused on the site proposed for BRAC actions and the few undisturbed areas on the post. All of Cameron Station was surveyed as this post will be closed under BRAC.

For each of the surveys, all species (including those not listed as rare, threatened or endangered) encountered, were recorded for each area visited (Appendix 3). Some areas were recommended for additional surveys if they exhibited potential habitat for a rare, threatened or endangered species which were not visible due to the seasonal timing of the field survey in March. The time when most of the plants and animals on the list would be more readily observed is between May and July.

Many of the potential species considered during this survey are plants. During early March, most of these species have not yet sprouted, and as such, would not be detectable in appropriate habitat. The migratory and nocturnal species (most of the bird and bats) also had not yet returned from their overwintering grounds and also could not be

located in appropriate habitat. A list showing both the species and the areas recommended for additional surveys on Fort Belvoir is presented in Appendix 4.

4.0 RESULTS

4.1 Confirmed Threatened or Endangered Species (Federal List)

Because of the disturbed and developed conditions at both Fort Myer and Cameron Station (i.e. little unaltered habitat remains), the survey completed at these installations was very thorough. Fort Belvoir, however, contains approximately 4,500 acres which are still undeveloped. As a result, all of the undeveloped acreage could not be thoroughly surveyed for this BATES. The focus of the survey was on BRAC and Master Planning sites, since a Record of Decision (ROD) will be prepared for both and these are the areas where development/redevelopment might occur. Subareas (Figure 2) were visited to determine general species composition and habitat types associated with each.

Table 2 lists the types of habitat found in each area surveyed at Fort Belvoir, and Appendix 3 lists the species encountered in each area during the March site survey. While Fort Myer and Cameron Station both exhibit little habitat diversity or species diversity, Fort Belvoir, due to its rolling terrain and numerous creeks, streams and beaver ponds contains many different habitat types.

4.1.1 Fort Belvoir

One federally endangered species and one federal candidate species have been confirmed at Fort Belvoir. Each of these species also carries the same designation on Virginia's endangered species list.

A bald eagle (*Haliaeetus leucocephalus*) nest was located within Accotink Wildlife Refuge in February 1990 by Fort Belvoir staff (S. Belfit, pers. comm.). The nest appears to be a first year nest, but the adults did fledge one young this breeding season. The nest should be monitored for activity during subsequent breeding seasons. According to information provided by the BOVA office, bald eagles tend to nest close to the shore but will nest further inland in areas where shorelines have been disturbed. The normal time for nesting is from November through January (BOVA, 1990). Nesting territories are from 0.5 to 1.5 miles^2 throughout the range. Bald eagles nest almost exclusively in live trees (average height in the Chesapeake Bay region of 97 feet) (BOVA, 1990). Tree species used for nest sites include loblolly pine (most frequent), Virginia pine, oaks, tulip poplar, beech, and hickory. There are only two instances in the Chesapeake Bay area where the birds have nested on man-made structures, both in the late 1950's. The bald eagle feeds mainly on fish but also takes waterfowl, muskrats, (*Ondatra zibethicus*), cottontail rabbits, (*Sylvilagus floridanus*) and turtles, as well as invertebrates. This species is opportunistic and will utilize both live prey and carrion. Habitat modification and destruction of nests continue to be limiting factors for eagles in the Chesapeake Bay Region.

Table 2. Habitat types found in designated areas surveyed on Fort Belvoir (Areas identified on Figure 2).

Area	River-banks	Wooded Wetlands	Uplands	Rich Woods	Wet Meadows	Marshes & Swamps	Open Water	Urban/ Disturbed
T1		*	*				*	
T1A			*					*
T1B			*					*
T1C			*					*
T2	*							*
T3								*
T4		*	*				*	*
T5								*
T6A								*
T6B		*	*	*			*	*
T6C		*	*	*			*	*
T7	*	*	*	*	*	*	*	*
T8	*	*	*	*	*	*	*	*
T8A								*
T8B			*					*
T8C			*					*
T9		*	*	*		*	*	*
T9A		*		*	*	*		
T10	*	*	*		*	*	*	
T10A								*
T11	*	*	*			*	*	
T12			*					*
T13		*	*	*		*	*	
T14		*	*				*	*
T15A		*	*	*			*	*
T15B		*	*				*	*
T16		*	*	*		*	*	*
T17	*	*	*				*	*
F1	*	*		*	*	*	*	
F2	*	*		*	*	*	*	
F3	*	*		*	*	*	*	
F4	*	*		*	*	*	*	
R1			*					
W1	*	*	*	*	*	*	*	
W2	*	*	*	*	*	*	*	
W3	*	*	*	*	*	*	*	
W4	*	*	*	*	*	*	*	

In addition to the two federally endangered species discussed above, a small mammal survey at Fort Belvoir currently being conducted by George Mason University has resulted in the capture of several pygmy shrews (*Sorex hoyi winnemanna*), a federal candidate species, at sampling sites south of Route 1. This species occurs over a wide range of elevation and habitat type. It inhabits wooded and open areas, wet or dry. Most habitats are within close proximity to water. This nocturnal species forages in dead plant material and burrows in leaf mold in both dry and moist woodlands and grassy borders and is active year round (Virginia Department of Game and Inland Fisheries, 1990).

4.1.2 Cameron Station and Fort Myer

Due to the developed nature of Cameron Station and Fort Myer it is highly unlikely that any State or Federally endangered species would be found within the installation boundaries. No State or Federally endangered species were located during the site visit, nor was any suitable habitat observed.

4.2 Confirmed Rare Species (Virginia List)

4.2.1 Fort Belvoir

The following species, which are considered by the Virginia Natural Heritage Program to be Critically Imperiled in Virginia (5 or fewer distinct populations in the state; or few remaining individuals; especially vulnerable to extirpation), have been confirmed at Fort Belvoir:

American coot (*Fulica americana*) is found in open ponds and marshes as well as saltwater bays in winter. This coot builds a floating nest of stems and marsh plants well concealed in the marsh or near the marsh edge. It feeds on leaves, fronds, seeds, and roots of various aquatic plants such as pond weeds, water milfoil, and bur-reed. They also feed on small fishes, tadpoles, snails, worms and aquatic insects (Terres, 1980). The American coot is a regular fall, winter and early spring resident of the tidal marshes of Fort Belvoir (Abbott, 1988).

The double-crested cormorant (*Phalocrocorax auritus*) is found along lakes, rivers, swamps, and coastal areas. It nests in colonies on the ground (rocks) or in trees. It feeds primarily on fish but will also eat amphibians, reptiles, crustaceans, mollusks, and worms (Terres, 1980). This species is usually only found at the installation during the fall, winter and early spring (Abbott, 1988).

The green-backed heron (*Butorides striatus*) inhabits lake margins, streams, ponds, and marshes. It requires thick bushes or trees nearby for nesting and soft, muddy borders in which to search for its prey. Nests may be built away from the water in dry woods and orchards, or in open marshes away from trees (Terres, 1980). Green-backed herons are uncommon breeders at Fort Belvoir (Abbott, 1988).

The following species are considered Imperiled in Virginia by the Virginia Natural Heritage Program (between 5 and 20 distinct populations; or with many individuals in fewer populations; susceptible to becoming endangered) have been confirmed at Fort Belvoir:

The least bittern's (*Ixobrychus exilis*) habitat consists of freshwater marshes where cattails and reeds predominate, but it is also found in saltwater or brackish marshes near the coast in the South. It builds a nest platform of dead and living plants, 8 - 14 inches above the water. The Least Bittern feeds on fish, frogs, tadpoles, salamanders, leeches, crayfish, occasionally shrews and mice, dragonflies, and other aquatic insects (Terres, 1980). This species is a rare permanent resident at Fort Belvoir, but is a regular breeder (Abbott, 1988).

The purple finch (*Carpodacus purpureus*) inhabits coniferous woodlands, openings in swamps, streams, hillside pastures, ornamental conifers along country roads and in city parks and suburbs. It is primarily a seed eater and prefers to nest in spruces, pines, cedars, and fir trees (Terres, 1980). This species is a rare visitor to Fort Belvoir, usually found during spring and fall migrations (Abbott, 1988).

The common moorhen (*Gallinula chloropus*) prefers freshwater marshes of cattails, bulrushes and willows with open water areas. The marshes should have a shallow water edge averaging 6-12 inches deep and a maximum depth of 3-4 feet. The marshes need not be large areas or isolated from human activity, provided water quality is sufficient to support prey items. Nesting cover should be relatively dense and composed of either live or floating mats of vegetation. This species migrates south in the fall and usually returns to the northern portions of its range in April through early May (Terres, 1980). Common moorhens are rare, but regular breeders in the marshes of Fort Belvoir (Abbott, 1988).

The Forster's tern (*Sterna forsteri*) breeds most commonly in salt and brackish coastal marshes (Martin and Zwank, 1987). They do, however, occasionally nest in freshwater marshes, usually appropriating grebe nests or the top of muskrat dens in these situations. The nests in salt and brackish water marshes are usually constructed on mats of floating vegetation. They feed primarily on small fish, in salt and brackish marsh situations in water less than three feet deep, but will take large insects in the air as well (Martin and Zwank, 1987). In freshwater situations they seem to rely more heavily on insects caught either in the air or picked up off the surface of the water (Martin and Zwank, 1987). This species is known to breed within the boundaries of the Accotink Wildlife Refuge (Areas W-1, W-2 and W-3) (Abbott, 1988).

The magnolia warbler (*Dendroica magnolia*) is a neotropical migrant which nests primarily in coniferous trees throughout their summer range (Scott, 1987). The nest is usually built on horizontal branches or up against the trunk of the tree, generally less than 15 feet above the ground. The preferred breeding habitats are hemlock stands, low dense thickets of spruces and balsam firs, interspersed with clearings, as well as swamp and pond borders fringed with conifers. Magnolia warblers are

strictly insectivorous and glean insects, primarily pest species, from the bark of conifers. This species appears to be at the southern edge of its breeding range in northern Virginia (Scott, 1987). This species is a common spring and fall migrant visitor at Fort Belvoir (Abbott, 1988).

The following species are listed as Rare to Uncommon in Virginia by the Virginia Natural Heritage Program (between 20 and 100 distinct populations; or fewer populations with more individuals; susceptible to large scale disturbances) and have been confirmed on Fort Belvoir:

The wood turtle (*Clemmys insculpta*) is found only in the extreme northern counties in Virginia. Overgrown areas near water are their preferred habitat. Most individuals have a restricted home range, moving to more aquatic habitats in hot weather. The wood turtles diet consists of algae, grasses, leaves, berries, insects, mollusks, earthworms, and tadpoles (McCauley, 1946: Martof, et al. 1980). A small number of these turtles were found spread between areas T-15A and T-16 during the March 1990 field survey.

The king rail (*Rallus elegans*) utilizes a variety of habitats from coastal saltwater and brackish marshes to inland freshwater marshes. The distribution of this species seems to be closely tied to the distribution of muskrats, which open up feeding and drinking areas for the birds with their foraging activities. King rails prefer areas with large populations of fiddler crabs and crayfish, but they will also eat other invertebrates, small fish, and in the winter, seeds and other vegetable matter. Nest sites are usually confined to a platform in the shallow water area of the marsh. This species is considered by some authorities to be a freshwater race of the related clapper rail (*Rallus longirostris*) (Terres, 1980). This species uses the fresh and brackish water marshes at Fort Belvoir for breeding. These birds have been recorded breeding in areas W-1, W-2, W-3, W-4, T-16 and in the Dogue Creek marsh area within the HEC boundary (Abbott, 1988).

Bank swallows (*Riparia riparia*) are aerial insectivores that have very specific nesting habitat requirements. They traditionally utilized sandy and gravelly, steep, exposed banks of streams, lakes, rivers, and oceans. In more recent times, however, they have also begun to use gravel pit slopes, and railroad and highway embankments. They are colonial nesters and will reuse established colonies until the site is no longer suitable. Typically the birds excavate a tunnel, either straight into or angled slightly upward into the upper face of the bank. The tunnels are usually one inch high, two inches wide and range from 16-60 inches long. Most of the tunnels, however, range from 28-36 inches long (Terres, 1980). This species is an occasional breeder at Fort Belvoir (Abbott, 1988).

The Red-headed woodpecker (*Melanerpes erythrocephalus*) utilizes a wide variety of habitats including farm fields, open woods, bottomland forests, and backyards. This species feeds on a variety of items, but insects taken either in the air or off the ground comprise the majority of their diet. In the fall and winter they become heavily dependent upon

beechnuts and acorns and will move south as northern food supplies dwindle. Red-headed woodpeckers are cavity nesters and typically excavate a cavity 8-24 inches deep in the dead tops or stumps of oaks, ashes, maples, elms, sycamores, cottonwoods, and willows. The cavity is usually between 5 and 80 feet above the ground, and the entrance hole is generally 1.25 inches in diameter. They will also make use of utility poles and bird houses built for them. Unfortunately, their nesting cavities are usually taken over by the more aggressive, European starling (*Sturnus vulgaris*). Direct competition with European starlings for nest holes has led to the substantial decline of this species throughout most of its range (Terres, 1980). This species is a permanent resident at Fort Belvoir, in the woodlands bordering the numerous beaver ponds and marshes (Abbott, 1988).

The southern short-tailed shrew (*Blarina carolinensis*) closely resembles both the northern short-tailed shrew *Blarina brevicauda* and the least shrew *Cryptotis parva*. While these species can sometimes be separated by fur color and size, it is often necessary to consult an expert for a positive identification of the southern short-tailed shrew. This shrew is most common in the south-central and south-eastern Coastal Plain. It is rarely observed, however, as it travels predominantly under the leaf litter. Like voles, they travel in above-ground runways, most of which are utilized by a variety of species. Nests are usually 4-6 inches in diameter and are usually constructed of grass and leaves under a stump or fallen log. Females produce 3 to 4 litters between February and November. This shrew feeds on insects, eating at least their own weight each day. This species also produces a toxin which paralyzes its prey (Webster, et al. 1985). It was recorded at all of the sampling stations monitored as part of the Preliminary Evaluation of Vertebrate Diversity conducted by George Mason University (Ernst et al., 1990).

4.2.2 Cameron Station

No rare species were encountered at Cameron Station during the site visit, due to the Station's position in the Atlantic Flyway, however, and the presence of open water, a few of the species considered rare in Virginia may be found at the Station intermittently during migration. They include: American coot, double-crested cormorant, green-backed heron, least bittern, purple finch, common moorhen, Forster's tern, magnolia warbler and bank swallow. In addition, Forster's terns and bank swallows have been sighted during the spring and summer, foraging over the water at Cameron Lake and Back Lick Run (VSO, 1989). Due to the absence of suitable breeding habitat, however, it is assumed that the birds are either non-breeding adults or nesting elsewhere.

4.2.3 Fort Myer

The developed nature of Fort Myer, coupled with the absence of open water, minimizes the chances that any of the species considered rare in Virginia would be found at the installation. The only exceptions to this would be migrating magnolia warblers and perhaps purple finches at feeders.

4.3 Suitable Habitat for Rare, Threatened and Endangered Species

4.3.1 Fort Belvoir

Because of the diverse habitats at Fort Belvoir, several additional species could be located at the post. Since the survey was conducted in March, when many of the migratory species had not returned from overwintering grounds, and many of the plant species had not sprouted, specimens of some potential species, were not located. Table 3 lists the additional species for which suitable habitat exists at Fort Belvoir.

4.3.2 Cameron Station and Fort Myer

Since both of these installations have been heavily developed, it is unlikely that any additional species could be located at either location. The manicured nature of the remaining open areas precludes colonization by rare, threatened and endangered plants. In addition, the lack of diverse vegetation limits the value of both of these installations to other rare threatened and endangered species not discussed in Sections 4.2.2 and 4.2.3.

5.0 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION TO LISTED SPECIES

5.1 FORT BELVOIR

Fort Belvoir will be affected by BRAC and master planning actions. Figure 5 shows the approximate locations of these actions. Many of these actions are currently in the planning stages, and a few are currently under construction.

All but three of the proposed actions shown on Figure 5 are currently sited in areas which are either significantly disturbed by training or heavy equipment use, or already contain structures or parking lots. Construction of the proposed facilities in these areas is not expected to have any significant impacts upon any rare, threatened or endangered species. Of the three actions which could impact threatened and endangered species two are master planning actions and the third involves an internal road extension. These projects include:

Map Location	Species
BRAC - 3	wood turtle
AFH - 3	wood turtle
NAF - 2	bald eagle
MCA - 25	bald eagle
MCA - 38	bald eagle

Table 3. Rare, Threatened and Endangered Species for which Suitable Habitat Exists at Fort Belvoir.

Scientific Name	Common Name	State Rank	Federal Status	State Status	Habitat
Plants					
Ampelopsis cordata	simple-leaved ampelopsis	S2		RSC	swamps and river banks
Anemone canadensis	round-leaved anemone	S1S2		RSC	low grounds
Asclepias rubra	red milkweed	S2			moist soil
Aster shortii	Short's aster	S2		RSC	banks, woodland borders
Blephila hirsuta	hairy woodmint	S1S2		RSC	woods and thickets
Buchnera americana	blue hearts	S2			sandy or gravelly soil
Carex cristatella	crested sedge	S1		RSC	meadows / thickets
Carex decomposita	large-panicled sedge	SH	C2		swamps
Carex hirtifolia	pubescent sedge	S1S2			woods, thickets
Carex hitchcockiana	Hitchcock's sedge	S2			woods, thickets
Carex interior	inland sedge	S1		RSC	wet soil
Carex lacustris	lake-bank sedge	S1		RSC	swamps
Carex lupuliformis	hop-like sedge	S1S2		RSC	swamps
Cassia fasciculata . ar. macrosperma	prairie senna	S1S2	C2	RSU	woodland borders
Centunculus minimus	chaffweed	S1			moist soil
Cirsium altissimum	roadside thistle	S2S3		RSC	fields, thickets
Cornus stolonifera	red-osier dogwood	S1		RSC	moist soil
Cuscuta coryli	hazel dodder	S2			on hazels, other shrubs or tall herbs
Cuscuta polygonorum	smartweed dodder	S1S2			on Polygonum and other herbs
Desmodium sessilifolia	sessile-leaved tick-trefoil	S1		RSC	dry soil
Eleocharis elliptica	slender spikerush	S1S2		RSC	
Erythronium albidum	white trout lily	S1		RSC	moist woods and thickets
Geum allepican	yellow avens	SH			meadows, thickets, woods
Helianthemum proprinquum	low frostweed	S1		RSU	dry soils
Limnobium spongia	American frog's-bit	S1S2		RSC	shallow, stagnant water
Liparis loesilii	fen orchis	S2		RSC	wet thickets, springy banks
Lythrum alatum	wing-angled loosestrife	S1		RSC	low grounds
Panax quinquefolius	American ginseng	S3S4	3C	LT	rich woods
Penstemon hirsutus	a beardtongue	S3		RSC	moist, sandy wood edges
Phacelia ranunculacea	blue scorpion-weed	S2		RSC	alluvial woods, floodplains
Potomogeton amplifolius	a pondweed	S2			ponds, lakes, slow streams
Potomogeton robbinsii	flatleaf pondweed	S1		RSC	ponds, lakes
Ptomogeton zosteriformis	flatstem pondweed	S1		RSC	still and running water
Pyrola chlorantha	greenish-flowered wintergreen	S1		RSC	dry woods
Pyrola secunda	one-sided wintergreen	S1		RSC	woods, thickets
Rhododendron arborescens	smooth azalea	S2		RSC	swamp forests, bogs
Rudbeckia triloba var. pinnatiloba	a black-eyed susan	S1	C2		basic to neutral soils
Sanicula trifoliata	large-fruited sanicle	S1		RSC	hilly woods

Table 3. Rare, Threatened and Endangered Species for which Suitable Habitat Exists at Fort Belvoir (continued).

Scientific Name	Common Name	State Rank	Federal Status	State Status	Habitat
Scirpus acutus	hard-stemmed bullrush	S1		RSC	fresh, alkali and brackish marshes
Scirpus etuberculatus	Canby bullrush	SH		RSU	inland freshwater marshes
Scirpus fluviatilis	river bullrush	S1		RSC	inland and coastal freshwater marshes
Senecio pauperculus	balsam ragweed	S1		RSC	basic soils, wood edges
Spartina pectinata	prairie cordgrass	S1S2			inland and coastal marshes, wet meadows
Spiraea latifolia	northern meadow-sweet	S1	PE	LE	moist and rocky ground
Triphora trianthophora	nodding pogonia	S1		RSC	rich woods
Utricularia vulgaris	a bladderwort	S1		RSC	freshwater
Valeriana pauciflora	valerian	S1		RSC	moist soil
Animals					
Stygobromis tenuis	a groundwater amphipod	S2S3			groundwater
Notropis bifrenatus	bridled shiner	S3		RSC	vegetated pools in streams
Lasionycteris noctivagans	silver-haired bat	S3			under loose bark, migrant
Myotis keeni	Keen's myotis	S3			loose bark, buildings
Condylura cristata	star-nosed mole	S3			moist soils near water

Key

LE - Listed Endangered
PE - Proposed Endangered
C1 - Candidate Species, category 1
C2 - Candidate Species, category 2
3C - Former Candidate, common or well protected
S1 - Critically Imperiled in Virginia often especially vulnerable to extirpation
S2 - Imperiled in Virginia susceptible to becoming endangered
S3 - Rare to uncommon may be susceptible to large scale disturbances
S4 - Common, usually not susceptible to immediate threats
SU - Status uncertain either due to low search effort or cryptic nature of species
RE - Recommended Endangered
RT - Recommended Threatened
RSC - Recommended Species of Special Concern
RSU - Recommended Status Undetermined

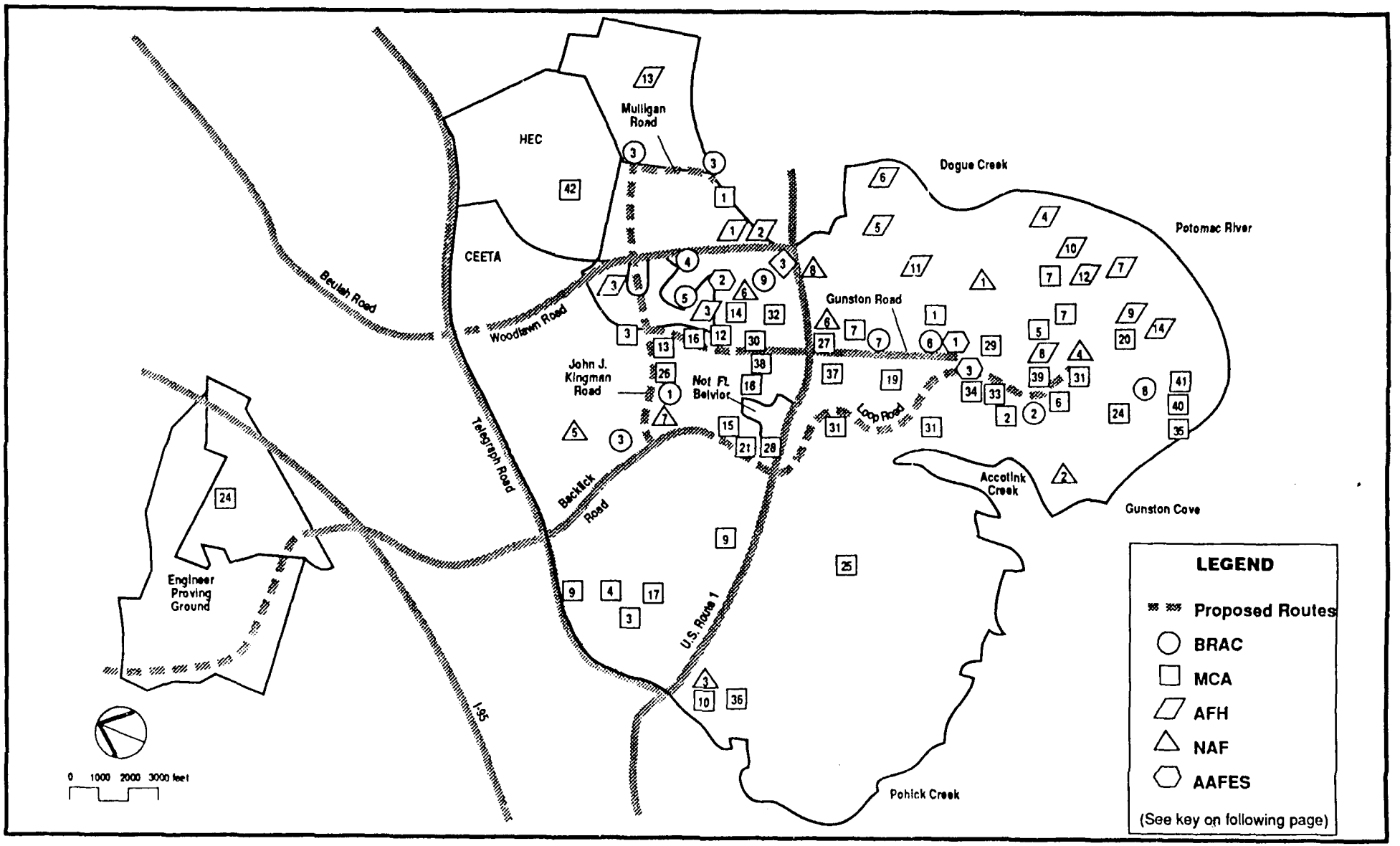


Figure
Locations of BRAC and Development Plan Sites

Key to Figure 1-2
Locations of BRAC and Development Plan Sites

Base Realignment and Closure (BRAC) Actions

1. Headquarters Complex
2. Industrial Park
3. Office Park Road
4. North Post Commissary Warehouse Addition
5. Post Exchange
6. Commissary
7. Administration Facility
8. Advanced Materials Laboratory
9. Branch Exchange (Convenience/Gas)
10. Modify Buildings 1466 and 1445 for Base Closure

Development Plan Actions

Military Construction Activity (MCA)

1. Child Development and Religious Education Centers
2. Electronics Supply and Maintenance Facility
3. DC Army National Guard Armory
4. DC Army National Guard Aircraft Parking Apron
5. Convert Buildings 206 and 208 to Classrooms
6. Veterinary Clinic
7. Operations Bldg Renovation, Engineer School Backfill
8. Telephone Switch upgrade, Post-wide
9. Fixed Wing Runway Extension
10. Old Guard Horse Stables
11. Main Sewer Line Upgrade, Post-wide
12. North Post Fire Station
13. Headquarters, Air Force Intelligence Agency
14. Physical Fitness Center
15. Va. Army National Guard Armory/Headquarters (29th LID)
16. Gunston Road Extension
17. DC Army National Guard Hangar Addition
18. Sea Bee Operational Storage Facility
19. Renovate Heat Plant
20. Renovate Building 361 for ADP
21. DC Army National Guard Academy
22. Electrical Upgrade, Post-wide, Phase I
23. Lateral Sewer Line Repair, Post-wide
24. Relocate EPG Test/Storage Facilities
25. Ammunition Storage Facility
26. Information Systems Facility
27. CIDC Field Operations Building
28. DC Army National Guard Cantonment Area
29. Main Post Library
(30. *there is no MCA 30)*

(Development Plan: MCA, continued)

31. Loop Road
32. Community Center/Welcome Center
33. Facility Engineer Maintenance Shop
34. Warehouses
35. Tactical Energy Systems Lab
36. Conforming Storage Building (DRMO)
37. Military Police Station
38. Reserve Center/OMA (80th Div)
39. Consolidated Maintenance Shop (DOL)
40. Electro-Optics Laboratory
41. Fatigue Test Facility
42. Potential 500-person Administrative Facility, HEC

Non-Appropriated Funds (NAF)

1. Youth Center
2. Tompkins Basin Recreation Area
3. Horse Stables
4. Benyuard Pool Addition
5. Golf Course
6. Corporate Fitness Center
7. Child Development Center
8. Temporary Lodging Facility

Army and Air Force Exchange Services (AAFES)

1. Fast Food Facility (Burger King)
2. Fast Food Facility (Chicken)
3. Car Care Facility

Army Family Housing (AFH)

1. Lewis Heights Renewal, Phase 1
2. Lewis Heights Renewal, Phase 2
3. 1,500 NCO Housing Units (New)
4. Dogue Creek Village Whole House Renewal
5. George Washington Village Whole House Renewal
6. River Village Whole House Renewal
7. Belvoir Village Whole House Renewal
8. Gerber Village Whole House Renewal
9. Visiting Officers Quarters Renovation
10. Jadwin Loop Whole House Renewal
11. Colyer Village Whole House Renewal
12. Rossell Loop Whole House Renewal
13. Woodlawn Village Whole House Renewal
14. Fairfax Village Whole House Renewal

BRAC 3 has the potential to impact a populaiton of wood turtles located near the proposed intersection of Woodlawn Road. Once the final alignment for the road has been determined, additional site surveys will be completed and additional coordination completed. The road will incorporate box culverts to facilitate the movement of the turtles and minimize road kills.

AFH 3 also has the potential to impact wood turtles at Fort Belvoir. As with BRAC 3, once siting has been determined additional surveys and agency coordination will be completed .

The ammunition storage facility proposed for MCA - 25 is located jsut outside the buffer required for the bald eagle's nest on post. Fort Belvoir personnel will monitor the use of the facility and the reactiono f the birds to determine if addtional management steps are warranted. An eagle management plan is currently being developed as part of the update to the Natural Resource Management Plan.

The boat traffic generated by NAF 2 and MCA 38 has the potential to effect not only the pair of bald eagle nesting at Fort Belvoir, but also two other pairs nesting nearby. One pair is located at Mason Neck NWR and the second is located on private property on Hallowing Point.

The reserve center operations will be structured so that training cruises are planned in areas determined to be least sensitive to disturbance during the breeding season.

Fort Belvoir personnel will monitor the activites of the eagles on the post and adopt an eagle management plan which will minimize the effects of boating and other similar activites to the eagles. The plan may require that portions of Gunston Cove be closed to boat traffic during the breeding season.

5.2 Cameron Station

5.2.1 Base Closure and Cleanup

As mandated by the Installation Restoration Program (IRP), the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) must provide clearance forCameron Station before reuse. The Enhanced Preliminary Assessment Report, Cameron Station, Alexandria, Virginia prepared by the Argonne National Laboratory for USATHAMA, indicates that several potential contaminated sites at Cameron Station. None of these sites, however, are "considered to be an imminent or substantial threat to the health of the surrounding populations or to the environment in general" (Argonne, 1989).

The clean-up operations required prior to excessing Cameron Station are not expected to have significant impacts on any rare species which could visit the site. Completely removing or filling Cameron Lake, if necessary, should not significantly impact the aquatic birds which have been recorded at the site, since other major waterways occur nearby which receive larger populations of these species during migration periods.

5.2.2 Reuse Alternatives

As mentioned in Section 1.0, the reuse plan has not been finalized for Cameron Station. The highest and best use study recently completed by the Baltimore District, U.S. Army Corps of Engineers, and the City of Alexandria Study suggests that the highest and best reuse for the parcel would be as a moderately intense mixed-use area. The studies recommended the area be developed primarily as residential with supporting retail and office complexes. The study further advised that approximately 30 percent of the parcel (roughly 49 acres) be left undeveloped for passive and active recreation. The Cameron Station Reuse Task Force has been organized to recommend a reuse plan. The plan is expected to be very similar to that outlined in the highest and best use study, and, as a result, would have similar environmental impacts.

The redevelopment of Cameron Station should not have any significant impact on rare, threatened or endangered species. No threatened or endangered species were observed on Cameron Station during the March 1990 field survey and, as there is no suitable habitat on the installation, it is unlikely that any of the species surveyed for would be found there. As discussed in Section 5.2.1, the rare migratory species currently utilizing the water bodies on, and adjacent to, Cameron Station can easily relocate to other waterways nearby and should not be effected by any reuse plan developed that is similar to the highest best study.

5.3 Fort Myer

The BRAC actions at Fort Myer will not impact any State or Federal endangered, threatened or rare species. All of the proposed sites (Figure 6) are either open fields, parking lots or contain existing structures which would be removed prior to the construction of the new facility.

6.0 ALTERNATIVES TO THE PROPOSED ACTIONS

6.1 Fort Belvoir

The alternatives to the proposed BRAC actions at Fort Belvoir involve the final siting of structures. The alternatives to Master Planning actions are final siting and size of structures, and the no action alternative. Based on the surveys conducted for this BATES, it would appear that four projects could impact rare, threatened or endangered species. BRAC 3 and AFH 3 will be desinged to minimize effects on wood turtles. This species is expected to elevated to state threatened status during the 1990 Virginia General Assemblt session. In addiiton NAF 2 and MCA 38 have the potential to impact three nesting pairs of bald eagles. Fort Belvoir personnel will coordinate these projects with the US Fish and Wildlife Service to develop and eagle management plan and a boat traffic management plan if required.

6.2 Cameron Station

There are no alternatives to base closure as stated in the Act. However, several alternative reuse plans for redevelopment may be evaluated for Cameron Station. Due to the poor quality of habitat at the installation, it is unlikely that any proposed reuse would significantly impact the use of the site by migratory species classified as rare, threatened or endangered.

6.3 Fort Myer

The alternatives to the BRAC actions scheduled for Fort Myer involve final siting of some of the larger facilities (Commissary, Administrative Building, etc.). The developed and manicured nature of the installation, however, coupled with the poor habitat quality and lack of rare, threatened and endangered species on the site, indicate that minimal impacts to wildlife would occur regardless of where the facilities were sited on Fort Myer.

7.0 CONCLUSIONS

7.1 Fort Belvoir

Potential habitat for endangered species exists within the training and other natural areas at Fort Belvoir. Due to the nature of this survey and previous site-specific surveys, additional protected species or their habitat could exist on the post. Additional species which could be found on the post and the areas where surveys based on habitat types should be conducted are listed in Appendix 4.

Much of the rare, threatened and endangered species habitat on Fort Belvoir is located within the floodplain, tributary and wetland systems of the Dogue, Accotink and Pohick Creek watersheds. One federally endangered species, the bald eagle, as well as one federal candidate species, the pygmy shrew, have been confirmed at Fort Belvoir. In addition, several species classified as rare in Virginia have also been confirmed at Fort Belvoir: American coot, double-crested cormorant, green-backed heron, least bittern, purple finch, common moorhen, Forster's tern, magnolia warbler, king rail, bank swallow, red-headed woodpecker, wood turtle, and southern short-tailed shrew. Additional site-specific surveys may reveal the presence of additional species.

The habitat for many of these species is located in wetlands which are protected by federal law and should not suffer any adverse impacts. The Chesapeake Bay Preservation Act will also serve to protect additional species located within protected areas and associated buffers. Upland species located outside of the buffer limits, however, are less protected by other laws.

As discussed in Section 5.1, Fort Belvoir personnel will develop an easgle management plan in coordination with the US Fish and Wildlife Service to protect the eagles both on the post and in the surrounding areas from adverse effects caused by boat traffic. In addition, final site design for BRAC 3 and AFH 3 will incorporate openspce, box culverts and buffers to protect the wood turtle population in the area.

7.2 Cameron Station and Fort Myer

Based on site surveys, little or no habitat exists on either Cameron Station or Fort Myer for rare, threatened and endangered species. The few rare species which utilize Cameron Lake, Back Lick Run and Holmes Run, in the vicinity of Cameron Station, during migration should not be significantly impacted by either the closure of the post or subsequent redevelopment and reuse since better quality habitat exists off-site, including but not limited to: the Potomac River, Hunting Creek, Huntley Meadows, Fort Belvoir, and Mason Neck National Wildlife Refuge.

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Appendix C

Fort Belvoir Wildlife Species

Appendix C. Terrestrial Wildlife of Fort Belvoir

Common Name	Scientific Name
greater siren	*Siren lacertina*
marbled salamander	*Ambystoma opacum*
Jefferson salamander	*Ambystoma jeffersonianum*
spotted salamander	*Ambystoma maculatum*
red-spotted newt	*Notophthalmus viridescens viridescens*
northern dusky salamander	*Desmognathus fuscus fuscus*
redback salamander	*Plethodon cinereus cinereus*
slimy salamander	*Plethodon glutinosus glutinosus*
four-toed salamander	*Hemidactylium scutatum*
eastern mud salamander	*Pseudotriton montanus montanus*
northern red salamander	*Psuedotriton ruber ruber*
northern two-lined salamander	*Eurycea bislineata bislineata*
longtail salamander	*Eurycea longicauda longicauda*
three-lined salamander	*Eurycea longicauda guttolineata*
eastern spadefoot	*Scaphiopus holbrooki holbrooki*
American toad	*Bufo americanus*
Fowler's toad	*Bufo woodhousii fowleri*
northern cricket frog	*Acris crepitans crepitans*
northern spring peeper	*Hyla crucifer*
green treefrog	*Hyla cinerea*
gray treefrog	*Hyla versicolor*
Cope's gray treefrog	*Hyla crysocelis*
upland chorus frog	*Pseudascris triseriata*
bullfrog	*Rana catesbeiana*
green frog	*Rana clamitans melanota*
wood frog	*Rana sylvatica*
southern leopard frog	*Rana sphenocephala*
pickerel frog	*Rana palustris*
common snapping turtle	*Chelydra serpentina*
stinkpot	*Sternotherus odoratus*
eastern mud turtle	*Kinosternon subrubrum subrubrum*
spotted turtle	*Clemmys guttata*
wood turtle	*Clemmys insculpta*
eastern box turtle	*Terrapene carolina carolina*
eastern painted turtle	*Chrysemys picta picta*
midland painted turtle	*Chrysemys picta marginata*
northern fence lizard	*Sceloporus undulatus hyacinthinus*
six-lined racerunner	*Cnemidophorous sexlineatus sexlineatus*
ground skink	*Scincella lateralis*
five-lined skink	*Eumeces fasiatus*
broadhead skink	*Eumeces laticeps*
southeastern five-lined skink	*Eumeces inexpectatus*
northern water snake	*Nerodia sipedon sipedon*
queen snake	*Regina septemvittata*
northern brown snake	*Storeria dekayi dekayi*
eastern garter snake	*Thamnophis sirtalis sirtalis*
eastern ribbon snake	*Thamnophis sauritus sauritus*

eastern earth snake	*Virgnia valeriae*
eastern hognose snake	*Heterodon platyrhinos*
northern ringneck snake	*Diadophis punctatus edwardsi*
eastern worm snake	*Carphophis amoenus amoenus*
northern black racer	*Coluber constrictor constrictor*
rough green snake	*Opheodrys aestivus*
corn snake	*Elaphe guttata guttata*
black rat snake	*Elaphe obsoleta obscleta*
eastern kingsnake	*Lampropeltis getulus getulus*
eastern milk snake	*Lampropeltis triangulum*
scarlet kingsnake	*Lamprepeltis triangulum triangulum*
mole kingsnake	*Lampropeltis calligaster rhombomaculata*
scarlet snake	*Cemophora coccinea*
northern copperhead	*Agkistrodon contotrix mokasen*
red-throated loon	*Gavia stellata*
common loon	*Gavia immer*
pied-billed grebe	*Podilymbus podiceps*
horned grebe	*Podicepsauritus*
red-necked grebe	*Podiceps grisegena*
double-crested cormorant	*Phalacrocorax auritus*
American bittern	*Botaurus lentiginosus*
least bittern	*Ixobrychus exilis*
great blue heron	*Ardea herodias*
great egret	*Casmerodius albus*
snowy egret	*Egretta thula*
little blue heron	*Egretta caerulea*
green-backed heron	*Butorides striatus*
black-crowned night-heron	*Nycticorax nycticorax*
yellow-crowned night-heron	*Nycticorax violaceus*
tundra swan	*Cygnus columbianus*
Canada goose	*Branta canadensis*
wood duck	*Aix sponsa*
green-winged teal	*Anas crecca*
American black duck	*Anas rubripes*
mallard	*Anas platyrhynchos*
northern pintail	*Anas acuta*
blue-winged teal	*Anas discors*
northern shoveler	*Anas clypeata*
gadwall	*Anas strepera*
American wigeon	*Anas americana*
canvasback	*Aythya valisineria*
redhead	*Aythya americana*
ring-necked duck	*Aythya collaris*
greater scaup	*Aythya marila*
lesser scaup	*Aythya affinis*
oldsquaw	*Clangula hyenalis*
common goldeneye	*Bucephala clangula*
bufflehead	*Bucephala albeola*
hooded merganser	*Lophodytes cuculattus*
common merganser	*Mergus merganser*
red-breasted merganser	*Mergus serrator*

ruddy duck	*Oxyura jamaicensis*
black vulture	*Coragyps atratus*
turkey vulture	*Cathartes aura*
osprey	*Pandion haliaetus*
bald eagle	*Haliaeetus leucocephalus*
northern harrier	*Circus cyaneus*
sharp-shinned hawk	*Accipter striatus*
Cooper's hawk	*Accipiter cooperi*
red-shouldered hawk	*Buteo lineatus*
broad-winged hawk	*Buteo platypterus*
red-tailed hawk	*Buteo jamaicensis*
rough-legged hawk	*Buteo lagopus*
American kestrel	*Falco sparverius*
merlin	*Falco columbarius*
peregrine falcon	*Falco peregrinus*
wild turkey	*Meleagris gallopava*
northern bobwhite	*Colinus virginianus*
king rail	*Rallus elegans*
Virginia rail	*Rallus limicola*
sora	*Porzana carolina*
common moorhen	*Gallinula chloropus*
American coot	*Fulica americana*
semipalmated plover	*Charadrius semipalmatus*
killdeer	*Charadrius vociferus*
greater yellowlegs	*Tringa melanoleuca*
lesser yellowlegs	*Tringa flavipes*
solitary sandpiper	*Tringa solitaria*
spotted sandpiper	*Actitis macularia*
semipalmated sandpiper	*Calidris pusilla*
western sandpiper	*Calidris mauri*
least sandpiper	*Calidris minutilla*
pectoral sandpiper	*Calidris melanotos*
common snipe	*Gallinago gallinago*
American woodcock	*Scolopax minor*
laughing gull	*Larus atricilla*
Bonaparte's gull	*Larus philadelphia*
ring-billed gull	*Larus delawarensis*
herring gull	*Larus argentatus*
great black-backed gull	*Larus marinus*
Caspian tern	*Sterna caspia*
common tern	*Sterna hirundo*
Forster's tern	*Sterna forsteri*
black tern	*Chlidonias niger*
rock dove	*Columba livia*
mourning dove	*Zenaida macroura*
black-billed cuckoo	*Coccyzus minor*
yellow-billed cuckoo	*Coccyzus americanus*
eastern screech-owl	*Otus asio*
great horned owl	*Bubo virginianus*
barred owl	*Strix varia*
common night hawk	*Chordeiles minor*

whip-poor-will	*Caprimulgus vociferus*
chimney swift	*Chaetura pelagica*
ruby-throated hummingbird	*Archilochus colubris*
belted kingfisher	*Ceryle alcyon*
red-headed woodpecker	*Melanerpes erthrocephalus*
red-bellied woodpecker	*Melanerpes carolinus*
yellow-bellied sapsucker	*Sphyrapicus varius*
downy woodpecker	*Picoides pubescens*
hairy woodpecker	*Picoides villosus*
northern flicker	*Colaptes auratus*
pileated woodpecker	*Dryocopus pileatus*
olive-sided flycatcher	*Conotopus borealis*
eastern wood-peewee	*Conotopus virens*
yellow-bellied flycatcher	*Empidonax flaviventris*
acadian flycatcher	*Empidonax virescens*
alder flycatcher	*Empidonax alnorum*
willow flycatcher	*Empidonax trailii*
least flycatcher	*Empidonax minimus*
eastern phoebe	*Sayorinis phoebe*
great crested flycatcher	*Myiarchus crinitus*
eastern kingbird	*Tyrannus tyrannus*
water pipit	*Anthus spinoletta*
horned lark	*Eremophila alpestris*
purple martin	*Progne subis*
tree swallow	*Tachycineta bicolor*
northern rough-winge swallow	*Stelgidopterys serripennis*
bank swallow	*Riparia riparia*
cliff swallow	*Hirundo pyrrhonota*
barn swallow	*Hirundo rustica*
blue jay	*Cyanocitta cristata*
American crow	*Corvus americana*
fish crow	*Corvus ossifragus*
Carolina chickadee	*Paurus carolinensis*
tufted titmouse	*Parus bicolor*
red-breasted nuthatch	*Sitta canadensis*
white-breasted nuthatch	*Sitta carolinensis*
brown creeper	*Certhia americana*
Carolina wren	*Thryothorus ludovicianus*
house wren	*Troglodytes aedon*
winter wren	*Troglodytes troglodytes*
marsh wren	*Cistothorus palustris*
golden-crowned kinglet	*regulus satrapa*
ruby-crowned kinglet	*Regulus calendula*
blue-gray gnatcatcher	*Plioptila caerula*
eastern bluebird	*Sialia sialis*
veery	*Catharus fuscescens*
gray-cheeked thrush	*Catharys minimus*
Swainson's thrush	*Catharus ustulatus*
hermit thrush	*Catharus guttatus*
wood thrush	*Hylocicla mustelina*
American robin	*Turdus migratorius*

gray catbird	*Dumetella carolinensis*
northern mockingbird	*Mimus polyglottos*
brown thrasher	*Toxostoma rufum*
cedar waxwing	*Bombycilla cedrorum*
loggerhead shrike	*Lanius ludovicianus*
European starling	*Sturnus vulgaris*
white-eyed vireo	*Vireo griseus*
solitary vireo	*Vireo solitarius*
yellow-throated vireo	*Vireo flavifrons*
warbling vireo	*Vireo gilvus*
Philadelphia vireo	*Vireo philadelphicus*
red-eyed vireo	*Vireo olivaceus*
blue-winged warbler	*Vermivora pinus*
golden-winged warbler	*Vermivora chrysoptera*
Tennesee warbler	*Vermivora peregrina*
orange-crowned warbler	*Vermivora celata*
Nashville warbler	*Vermivora ruficapilla*
northern parula	*Parula americana*
yellow warbler	*Dendroica petechia*
chestnut-sided warbler	*Dendroica pensylvanica*
magnolia warbler	*Dendroica magnolia*
Cape May warbler	*Dendroica tigrina*
black-throated blue warbler	*Dendroica caerulescens*
yellow-rumped warbler	*Dendroica coronata*
black-throated green warbler	*Dendroica virens*
blackburnian warbler	*Dendroica fusca*
yellow-throated warbler	*Dendroica dominica*
pine warbler	*Dendroica pinus*
prairie warbler	*Dendroica discolor*
palm warbler	*Dendroica palmarum*
bay-breasted warbler	*Dendroica castanea*
blackpoll warbler	*Dendroica straita*
cerulean warbler	*Dendroica cerulea*
black-and-white warbler	*Mniotila varia*
American redstart	*Setophaga ruticilla*
prothonotary warbler	*Protonotaria citrea*
worm-eating warbler	*Helmitheros vermivorus*
ovenbird	*Seiurus aurocapillus*
northern waterthrush	*Seiurus noveboracensis*
Louisiana waterthrush	*Sieurus motacilla*
Kentucky warbler	*Oporornis formosus*
Connecticut warbler	*Oporornis agilis*
mourning warbler	*Oporornis philadelphia*
common yellowthroat	*Geothlypis trichas*
hooded warbler	*Wilsonia citrina*
Wilson's warbler	*Wilsonia pusilla*
Canada warbler	*Wilsonia canadensis*
yellow-breasted chat	*Icteria virens*
summer tanager	*Piranga olivacea*
scarlet tanager	*Piranga rubra*
northern cardinal	*Cardinalis cardinalis*

rose-breated grosbeak	*Pheucticus ludovicianus*
blue grosbeak	*Guiraca caerulea*
indigo bunting	*Passerina cyanea*
rufous-sided towhee	*Pipilo erythrophthalmus*
American tree sparrow	*Spizella arborea*
chipping sparrow	*Spizella passerina*
field sparrow	*Spizella pusilla*
vesper sparrow	*Pooecetes gramineus*
savanah sparrow	*Passerculus sandwichensis*
fox sparrow	*Passerella iliaca*
song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
swamp sparrow	*Melospiza geogiana*
white-throated sparrow	*Zonotrichia albicollis*
white-crowned sparrow	*Zonotrichia leucophrys*
dark-eyed junco	*Junco hyemalis*
bobolink	*Dolichonyx oryzivorus*
red-winged blackbird	*Agelaius phoeniceus*
eastern meadowlark	*Sturnella magna*
rusty blackbird	*Euphagus carolinus*
common grackle	*Quiscalus quiscula*
brown-headed cowbird	*Molothrus ater*
orchard oriole	*Icterus spurius*
northern oriole	*Icterus galbula*
purple finch	*Carpodacus purpureus*
house finch	*Carpodacus mexicanus*
red crossbill	*Loxia curvirostra*
white-winged crossbill	*Loxia leucoptera*
pine siskin	*Carduelis pinus*
American goldfinch	*Carduelis tristis*
evening grosbeak	*Coccothaustes vespertinus*
house sparrow	*Passer domesticus*
Virginia opossum	*Didelphis virginiana*
southeastern shrew	*Sores longirostris*
pygmy shrew	*Sorex hoyi*
least shrew	*Cryptotis parva*
northern short-tailed shrew	*Sorex brevicauda*
southern short-tailed shrew	*Blarina carolinensis*
star-nosed mole	*Condylura cristata cristata*
eastern mole	*Scalopus aquaticus*
little brown bat	*Myotis lucifugus*
silver-haired bat	*Lasionycteris noctivagans*
eastern pipistrelle	*Pipistrellus subflavus*
big brown bat	*Eptesicus fuscus*
red bat	*Lasiurus borealis*
hoary bat	*Lasiurus cinereus*
seminole bat	*Lasiurus seminolus*
evening bat	*Nycticeius humeralis*
raccoon	*Procyon lotor*
long-tailed weasel	*Mustela frenata*
common mink	*Mustela vison*

river otter	*Lutra canadensis*
striped skunk	*Mephitis mephitis*
red fox	*Vulpes vulpes*
eastern gray fox	*Urocyon cinereoargentus*
woodchuck	*Marmota monax*
Fisher's eastern chipmunk	*Tamias striatus*
northern gray squirrel	*Sciurus carolinensis*
fox squirrel	*Sciurus niger*
red squirrel	*Tamaisciurus hudsonicus*
southern flying squirrel	*Glaucomys volans*
beaver	*Castor canandensis*
eastern harvest mouse	*Reithrodontomys humulis*
deer mouse	*Peromyscus maniculatus*
northern white-footed mouse	*Peromyscus leucopus*
marsh rice rat	*Oryzomys palustris*
meadow vole	*Microtus pennsylvanicus*
pine vole	*Microtus pinetorum*
muskrat	*Ondatra zibethicus*
Norway rat	*Rattus norvegicus*
house mouse	*Mus musculus*
meadow jumping mouse	*Zapus hudsonius*
eastern cottontail	*Sylvilagus floridanus*
white-tailed deer	*Odocoileus virginianus*

Source: Biota of Virginia (BOVA), Virginia Game and Inland Fisheries (1990).

Appendix D

Rare Threatened and Endangered Species
for which Habitat exists at Fort Belvoir

Appendix D. Rare, Threatened and Endangered Species for which Suitable Habitat Exists at Fort Belvoir.

Scientific Name	Common Name	State Rank	Federal Status	State Status	Habitat
Plants					
Ampelopsis cordata	simple-leaved ampelopsis	S2		RSC	swamps and river banks
Anemone canadensis	round-leaved anemone	S1S2		RSC	low grounds
Asclepias rubra	red milkweed	S2			moist soil
Aster shortii	Short's aster	S2		RSC	banks, woodland borders
Blephila hirsuta	hairy woodmint	S1S2		RSC	woods and thickets
Buchnera americana	blue hearts	S2			sandy or gravelly soil
Carex cristatella	crested sedge	S1		RSC	meadows / thickets
Carex decomposita	large-panicled sedge	SH	C2		swamps
Carex hirtifolia	pubescent sedge	S1S2			woods, thickets
Carex hitchcockiana	Hitchcock's sedge	S2			woods, thickets
Carex interior	inland sedge	S1		RSC	wet soil
Carex lacustris	lake-bank sedge	S1		RSC	swamps
Carex lupuliformis	hop-like sedge	S1S2		RSC	swamps
Cassia fasciculata var. macrosperma	prairie senna	S1S2	C2	RSU	woodland borders
Centunculus minimus	chaffweed	S1			moist soil
Cirsium altissimum	roadside thistle	S2S3		RSC	fields, thickets
Cornus stolonifera	red-osier dogwood	S1		RSC	moist soil
Cuscuta coryli	hazel dodder	S2			on hazels, other shrubs or tall herbs
Cuscuta polygonorum	smartweed dodder	S1S2			on Polygonum and other herbs
Desmodium sessilifolia	sessile-leaved tick-trefoil	S1		RSC	dry soil
Eleocharis elliptica	slender spikerush	S1S2		RSC	
Erythronium albidum	white trout lily	S1		RSC	moist woods and thickets
Geum allepican	yellow avens	SH			meadows, thickets, woods
Helianthemum proprinquum	low frostweed	S1		RSU	dry soils
Limnobium spongia	American frog's-bit	S1S2		RSC	shallow, stagnant water
Liparis loesilii	fen orchis	S2		RSC	wet thickets, springy banks
Lythrum alatum	wing-angled loosestrife	S1		RSC	low grounds
Panax quinquefolius	American ginseng	S3S4	3C	LT	rich woods
Penstemon hirsutus	a beardtongue	S3		RSC	moist, sandy wood edges
Phacelia ranunculacea	blue scorpion-weed	S2		RSC	alluvial woods, floodplains
Potomogeton amplifolius	a pondweed	S2			ponds, lakes, slow streams
Potomogeton robbinsii	flatleaf pondweed	S1		RSC	ponds, lakes
Ptomogeton zosteriformis	flatstem pondweed	S1		RSC	still and running water
Pyrola chlorantha	greenish-flowered wintergreen	S1		RSC	dry woods
Pyrola secunda	one-sided wintergreen	S1		RSC	woods, thickets
Rhododendron arborescens	smooth azalea	S2		RSC	swamp forests, bogs
Rudbeckia triloba var. pinnatiloba	a black-eyed susan	S1	C2		basic to neutral soils
Sanicula trifoliata	large-fruited sanicle	S1		RSC	hilly woods

Scientific Name	Common Name	State Rank	Federal Status	State Status	Habitat
Scirpus acutus	hard-stemmed bullrush	S1		RSC	fresh, alkali and brackish marshes
Scirpus etuberculatus	Canby bullrush	SH		RSU	inland freshwater marshes
Scirpus fluviatilis	river bullrush	S1		RSC	inland and coastal freshwater marshes
Senecio pauperculus	balsam ragweed	S1		RSC	basic soils, wood edges
Spartina pectinata	prairie cordgrass	S1S3			inland and coastal marshes, wet meadows
Spiraea latifolia	northern meadow-sweet	S1	PE	LE	moist and rocky ground
Triphora trianthophora	nodding pogonia	S1		RSC	rich woods
Utricularia vulgaris	a bladderwort	S1		RSC	freshwater
Valeriana pauciflora	valerian	S1		RSC	moist soil
Animals					
Stygobromis tenuis	a groundwater amphipod	S2S3			groundwater
Notropis bifrenatus	bridled shiner	S3		RSC	vegetated pools in streams
Lasionycteris noctivagans	silver-haired bat	S3			under loose bark, migrant
Myotis keeni	Keen's myotis	S3			loose bark, buildings
Condylura cristata	star-nosed mole	S3			moist soils near water

Key

LE - Listed Endangered

PE - Proposed Endangered

C1 - Candidate Species, category 1

C2 - Candidate Species, category 2

3C - Former Candidate, common or well protected

S1 - Critically Imperiled in Virginia often especially vulnerable to extirpation

S2 - Imperiled in Virginia susceptible to becoming endangered

S3 - Rare to uncommon may be susceptible to large scale disturbances

S4 - Common, usually not susceptible to immediate threats

SU - Status uncertain either due to low search effort or cryptic nature of species

RE - Recommended Endangered

RT - Recommended Threatened

RSC - Recommended Species of Special Concern

RSU - Recommended Status Undetermined

Appendix E

Chesapeake Bay Program Information

MEMORANDUM OF AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND THE ENVIRONMENTAL PROTECTION AGENCY CONCERNING FEDERAL ENFORCEMENT FOR THE SECTION 404 PROGRAM OF THE CLEAN WATER ACT

I. PURPOSE AND SCOPE

The United States Department of the Army (Army) and the United States Environmental Protection Agency (EPA) hereby establish policy and procedures pursuant to which they will undertake federal enforcement of the dredged and fill material permit requirements ("Section 404 program") of the Clean Water Act (CWA). The U.S Army Corps of Engineers (Corps) and EPA have enforcement authorities for the Section 404 program, as specified in Sections 301(a), 308, 309, 404(n), and 404(s) of the CWA. In addition, the 1987 Amendments to the CWA (the Water Quality Act of 1987) provide new administrative penalty authority under Section 309(g) for violations of the Section 404 program. For purposes of effective administration of these statutory authorities, this Memorandum of Agreement (MOA) sets forth an appropriate allocation of enforcement responsibilities between EPA and the Corps. The prime goal of the MOA is to strengthen the Section 404 enforcement program by using the expertise, resources and initiative of both agencies in a manner which is effective and efficient in achieving the goals of the CWA.

II. POLICY

A. *General.* It shall be the policy of the Army and EPA to maintain the integrity of the program through federal enforcement of Section 404 requirements. The basic premise of this effort is to establish a framework for effective Section 404 enforcement with very little overlap. EPA will conduct initial on-site investigations when it is efficient with respect to available time, resources and/or expenditures, and use its authorities as provided in this agreement. In the majority of enforcement cases the Corps, because it has more field resources, will conduct initial investigations and use its authorities as provided in this agreement. This will allow each agency to play a role in enforcement which concentrates its resources in those areas for which its authorities and expertise are best suited. The Corps and EPA are encouraged to consult with each other on cases involving novel or important legal issues and/or technical situations. Assistance from the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NMFS) and other federal, state, tribal and local agencies will be sought and accepted when appropriate.

B. *Geographic Jurisdictional Determinations.* Geographic jurisdictional determinations for a specific case will be made by the investigating agency. If asked for an oral decision, the investigator will caution that oral statements regarding jurisdiction are not an official agency determination. Each agency will advise the other of any problem trends that they become aware of through case by case determinations and initiate interagency discussions or other action to address the issue. (Note: Geographic jurisdictional determinations for "special case" situations and interpretation of Section 404(f) exemptions for "special Section 404(f) matters" will be handled in accordance with the Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency Concerning the Determination of the Geographic Jurisdiction of the Section 404 Program and the Application of the Exemptions Under Section 404(f) of the Clean Water Act.)

C. *Violation Determinations.* The investigating agency shall be responsible for violation determinations, for example, the need for a permit. Each agency will advise the other of any problem trends that they become aware of through case by case determinations and initiate interagency discussions or other action to address the issue.

D. *Lead Enforcement Agency.* The Corps will act as the lead enforcement agency for all violations of Corps-issued permits. The Corps will also act as the lead enforcement agency for unpermitted discharge violations which do not meet the criteria for forwarding to EPA, as listed in Section III.D. of this MOA. EPA will act as the lead enforcement agency on all unpermitted discharge violations which meet those criteria. The lead enforcement agency will complete the enforcement action once an investigation has established that a violation exists. A lead enforcement agency decision with regard to any issue in a particular case, including a decision that no enforcement action be taken, is final for that case. This provision does not preclude the lead enforcement agency from referring the matter to the other agency under Sections III.D.2 and III.D.4 of this MOA.

E. *Environmental Protection Measures.* It is the policy of both agencies to avoid permanent environmental harm caused by the violator's activities by requiring remedial actions or ordering removal and restoration. In those cases where a complete remedy/removal is not appropriate, the violator may be required, in addition to other legal remedies which are appropriate (e.g., payment of administrative penalties) to provide compensatory mitigation to compensate for the harm caused by such illegal actions. Such compensatory mitigation activities shall be placed as an enforceable requirement upon a violator as authorized by law.

III. PROCEDURES

A. *Flow chart.* The attached flow chart provides an outline of the procedures

EPA and the Corps will follow in enforcement cases involving unpermitted discharges. The procedures in (B.), (C.), (D.), (E.) and (F.) below are in a sequence in which they could occur. However, these procedures may be combined in an effort to expedite the enforcement process.

B. *Investigation.* EPA, if it so requests and upon prior notification to the Corps, will be the investigating agency for unpermitted activities occurring in specially defined geographic areas (e.g., a particular wetland type, areas declared a "special case" within the meaning of the Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency Concerning the Determination of the Geographic Jurisdiction of the Section 404 Program and the Application of the Exemptions Under Section 404(f) of the Clean Water Act). Timing of investigations will be commensurate with agency resources and potential environmental damage. To reduce the potential for duplicative federal effort, each agency should verify prior to initiating an investigation that the other agency does not intend or has not already begun an investigation of the same reported violation. If a violation exists, a field investigation report will be prepared which at a minimum provides a detailed description of the illegal activity, the existing environmental setting, initial view on potential impacts and a recommendation on the need for initial corrective measures. Both agencies agree that investigations must be conducted in a professional, legal manner that will not prejudice future enforcement action on the case. Investigation reports will be provided to the agency selected as the lead on the case.

C. *Immediate Enforcement Action.* The investigating or lead enforcement agency should inform the responsible parties of the violation and inform them that all illegal activity should cease pending further federal action. A notification letter or administrative order to that effect will be sent in the most expeditious manner. If time allows, an order for initial corrective measures may be included with the notification letter or administrative order. Also, if time allows, input from other federal, state, tribal and local agencies will be considered when determining the need for such initial corrective measures. In all cases the Corps will provide EPA a copy of its violation letters and EPA will provide the Corps copies of its §308 letters and/or §309 administrative orders. These communications will include language requesting the other agency's views and recommendations on the case. The violator will also be notified that the other agency has been contacted.

D. *Lead Enforcement Agency Selection.* Using the following criteria, the investigating agency will determine which agency will complete action on the enforcement case:

1. EPA will act as the lead enforcement agency when an unpermitted activity involves the following:

a. Repeat Violator(s);
b. Flagrant Violation(s);
c. Where EPA requests a class of cases or a particular case; or
d. The Corps recommends that an EPA administrative penalty action may be warranted.

2. The Corps will act as the lead enforcement agency in all other unpermitted cases not identified in Part III D.1. above. Where EPA notifies the Corps that, because of limited staff resources or other reasons, it will not take action on a specific case, the Corps may take action commensurate with resource availability.

3. The Corps will act as the lead enforcement agency for Corps-issued permit condition violations.

4. Where EPA requests the Corps to take action on a permit condition violation, this MOA establishes a "right of first refusal" for the Corps. Where the Corps notifies EPA that, because of limited staff resources or other reasons, it will not take an action on a permit condition violation case, the EPA may take action commensurate with resource availability. However, a determination by the Corps that the activity is in compliance with the permit will represent a final enforcement decision for that case.

E. *Enforcement Response.* The lead enforcement agency shall determine, based on its authority, the appropriate enforcement response taking into consideration any views provided by the other agency. An appropriate enforcement response may include an administrative order, administrative penalty complaint, a civil or criminal judicial referral or other appropriate formal enforcement response.

F. *Resolution.* The lead enforcement agency shall make a final determination that a violation is resolved and notify interested parties so that concurrent enforcement files within another agency can be closed. In addition, the lead enforcement agency shall make arrangements for proper monitoring when required for any remedy/removal, compensatory mitigation or other corrective measures.

G. *After-the-Fact Permits.* No after-the-fact (ATF) permit application shall be accepted until resolution has been reached through an appropriate enforcement response as determined by the lead enforcement agency (e.g., until all administrative, legal and/or corrective action has been completed, or a decision has been made that no enforcement action is to be taken).

IV. RELATED MATTERS

A. *Interagency Agreements.* The Army and EPA are encouraged to enter into interagency agreements with other federal, state, tribal and local agencies which will provide assistance to the Corps and EPA in pursuit of Section 404 enforcement activities. For example, the preliminary enforcement site investigations or post-case monitoring activities required to ensure compliance with any enforcement order can be delegated to third parties (e.g., FWS) who agree to assist Corps/EPA in compliance efforts. However, only the Corps or EPA may make a violation determination and/or pursue an appropriate enforcement response based upon information received from a third party.

B. *Corps/EPA Field Agreements.* Corps Division or District offices and their respective EPA Regional offices are encouraged to enter into field level agreements to more specifically implement the provisions of this MOA.

C. *Data Information Exchange.* Data which would enhance either agency's enforcement efforts should be exchanged between the Corps and EPA where available. At a minimum, each agency shall begin to develop a computerized data list of persons receiving ATF permits or that have been subject to a Section 404 enforcement action subsequent to February 4, 1987 (enactment date of the 1987 Clean Water Act Amendments) in order to provide historical compliance data on persons found to have illegally discharged. Such information will help in an administrative penalty action to evaluate the statutory factor concerning history of a violator and will help to determine whether pursuit of a criminal action is appropriate.

V. GENERAL

A. The procedures and responsibilities of each agency specified in this MOA may be delegated to subordinates consistent with established agency procedures.

B. The policy and procedures contained within this MOA do not create any rights, either substantive or procedural, enforceable by any party regarding an enforcement action brought by either agency or by the U.S. Deviation or variance from these MOA procedures will not constitute a defense for violators or others concerned with any Section 404 enforcement action.

C. Nothing in this document is intended to diminish, modify or otherwise affect the statutory or regulatory authorities of either agency. All formal guidance interpreting this MOA shall be issued jointly.

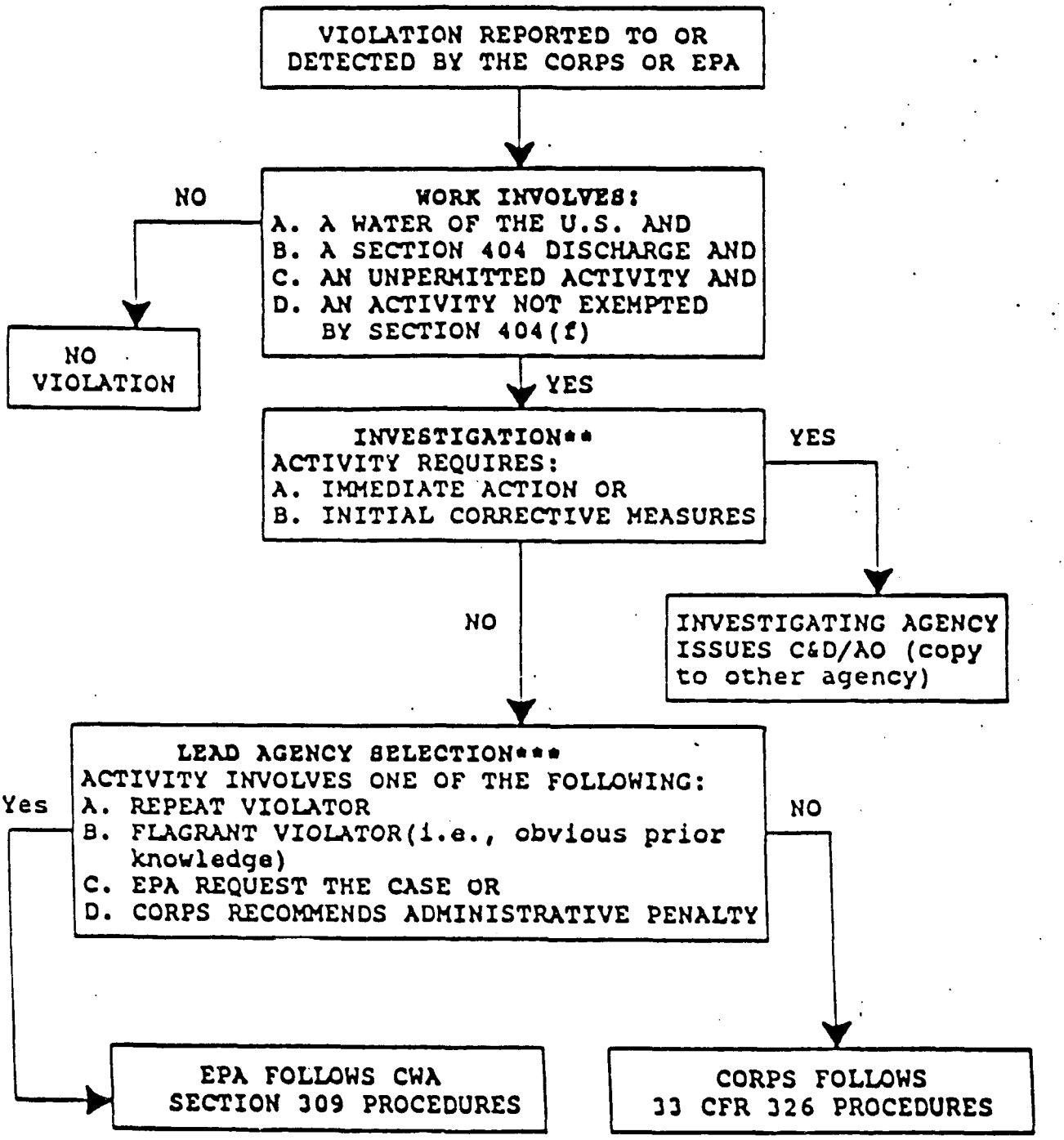
D. This agreement shall take effect 60 days after the date of the last signature below and will continue in effect for five years unless extended, modified or revoked by agreement of both parties, or revoked by either party alone upon six months written notice, prior to that time.

Nov. 19, 1989

for Robert W. Page (Date)
Assistant Secretary of
the Army (Civil Works)

(Date)

Rebecca W. Hanmer
Acting Assistant Administrator
for Water
U.S. Environmental Protection Agency



* Enforcement procedures for permit condition violation cases are set forth at Part III.D.3. and III.D.4.

** Procedures for investigating unpermitted activity cases are set forth at Part III.B.

*** Examples of situations in which "C" & "D" might arise include cases which are important due to deterrent value, due to the violation occurring in a critical priority resource or in an advanced identification area, involving an uncooperative individual, etc.

Chesapeake Executive Council

Federal Workplan

Chesapeake Bay Program

Agreement Commitment Report

July 1988

ADOPTION STATEMENT

We, the undersigned, adopt the **Federal Workplan** in fulfillment of Governance Commitment Number 8 of the 1987 Chesapeake Bay Agreement:

> *"...by July 1988, the Environmental Protection Agency, acting for the federal government, will develop a coordinated, federal agency workplan which identifies specific federal programs to be integrated into a coordinated federal effort to support the restoration of the Chesapeake Bay."*

The Federal Workplan describes each participating agency's Bay initiatives, the current level of coordination, outlines a process for expanding that cooperation, and points to future directions for agency efforts in support of the Agreement. Agencies have included projections of potential programs and projects for the future which may be the basis for coordinated, complementary budget proposals.

In adopting the Federal Workplan, we call upon the participating federal agencies to:

1. Review and revise the document annually;

2. Report to the Executive Council annually on progress in implementing the Workplan and in improving coordination among the agencies; and

3. Work with the Implementation Committee to identify opportunities for future federal cooperation and coordination in implementing the 1987 Chesapeake Bay Agreement.

For the Commonwealth of Virginia

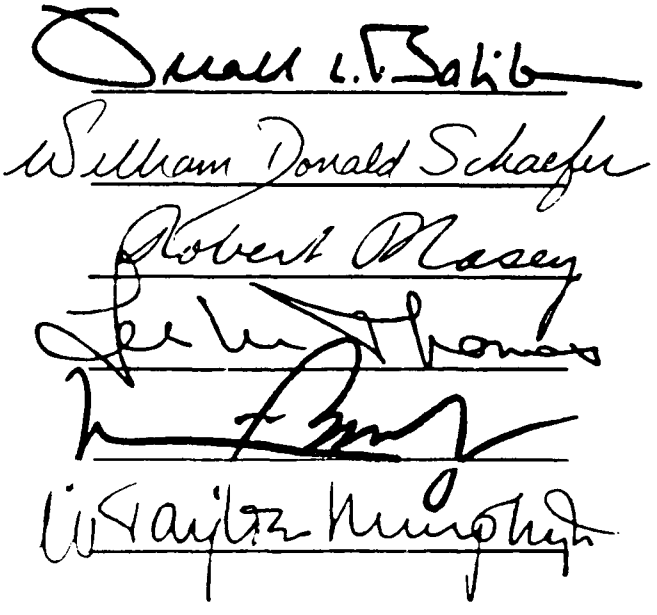
For the State of Maryland

For the Commonwealth of Pennsylvania

For the United States of America

For the District of Columbia

For the Chesapeake Bay Commission



Chesapeake Executive Council

Federal Facilities Strategy

Chesapeake Bay Program

Agreement Commitment Report

July 1988

ADOPTION STATEMENT

We, the undersigned, adopt the **Federal Facilities Strategy**, in fulfillment of Water Quality Commitment Number 5 of the 1987 Chesapeake Bay Agreement:

> *"...by July 1988, the Environmental Protection Agency, acting for the federal government, will develop, adopt and begin implementation of a strategy for the control and reduction of point and nonpoint sources of nutrient, toxic and conventional pollution from all federal facilities."*

The Federal Facilities Strategy recognizes that all of the federal departments and agencies with real estate in the Bay drainage area have the potential to affect the water quality and living resources of the Bay. The Strategy recognizes further that federal departments will undertake initiatives to restore and protect the Bay by initially selecting those facilities which have the greatest potential to affect the Bay and requiring that action plans for these facilities be designed and implemented as the first priority.

The facilities will design and implement abatement programs for point sources, toxicants and nonpoint sources. The last component of the Strategy is a calendar of milestones which has been agreed upon by all federal departments and agencies with facilities on the Bay.

In accepting this Federal Facilities Strategy, we call upon the departments and agencies participating in its implementation to review, evaluate and report annually on the implementation of their plans.

For the Commonwealth of Virginia

For the State of Maryland

For the Commonwealth of Pennsylvania

For the United States of America

For the District of Columbia

For the Chesapeake Bay Commission

NEWS RELEASE
OFFICE OF ASSISTANT SECRETARY OF DEFENS
(PUBLIC AFFAIRS)
WASHINGTON, D.C. - 20301
PLEASE NOTE DATE

HOLD FOR RELEASE
UNTIL 10 A.M. (EDT)
FRIDAY, APRIL 20, 1990

No. 182-90
(202) 695-0192 (info)
(202) 697-3189 (copies)
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DEFENSE DEPARTMENT AND EPA SIGN NEW AGREEMENT TO RESTORE CHESAPEAKE BAY

Defense Secretary Dick Cheney and Environmental Protection Agency Administrator William Reilly today signed an agreement strengthening a cooperative effort to restore the Chesapeake Bay, through improved pollution prevention practices, better training, regular inspections, and policies that ensure compliance with the President's goal of "no net loss" of wetlands.

Cheney and Reilly signed a tougher version of the agreement governing use of the Bay in a special ceremony at Ft. McNair on the shores of the Potomac River. Ft. McNair, one of 65 major installations maintained by the Defense Department on about 350,000 acres in the Bay watershed, is in full compliance with EPA's pollution control requirements.

The Defense Department will spend about $50 million in Fiscal Year 1990 at military facilities affected by the agreement to improve Bay water quality, reduce pollution, reduce erosion, and manage its resources.

"As a user of the Chesapeake's many resources, the Defense Department has a shared responsibility to restore and protect this national treasure. I want our environmental policies in the Chesapeake Bay area to stand as a model for federal environmental activities everywhere," Cheney said.

"Federal agencies should be role models in the Bay restoration effort," Reilly agreed. "With more than 60 military installations located throughout the watershed, the Department of Defense is a significant presence on the Chesapeake Bay and a major user of its resources. The nation is renewing its commitment to our environment on the 20th anniversary of Earth Day. Secretary Cheney's presence at this ceremony demonstrates the Defense Department's environmental commitment."

The Cooperative Agreement expands the original EPA/DoD agreement signed in September 1984. Under the terms of the new agreement, the Department of Defense will ensure that its facilities on the Chesapeake Bay:

- Work with EPA and the Bay states to ensure full compliance with water quality requirements of the National Pollutant Discharge Elimination System (NPDES) Program and Baywide initiatives to reduce nutrients and toxics.

(more)

- Incorporate pollution prevention practices into their daily activities;

- Fund construction that may be needed to support compliance and other projects identified through initiatives in this agreement;

- Improve the operation and maintenance of wastewater treatment facilities by sending staff to state operator training programs;

- Ensure that new development and construction are consistent with the President's goal of "no net loss" of wetlands; and

- Improve nonpoint source (NPS) control methods to implement best management practices that are consistent with state NPS management programs.

Reilly said that EPA will assist DoD in evaluating the environmental programs of the Bay area defense facilities. Under the terms of the agreement, he said that EPA will also:

- Conduct annual workshops to alert DoD facility managers to new pollution control methods and requirements;

- Meet with DoD officials annually to assess progress and compliance;

- Provide technical advice and assistance, particularly on nonpoint source control, wetlands, and shoreline protection issues;

- Work with states to ensure that all major DoD wastewater discharge permits are issued with appropriate nutrient and toxics controls; and

- Work in partnership with the states to inspect all major Defense NPDES installations.

The new agreement also commits the Defense Department to selecting a facility to serve as a model to field test the use of pollution prevention techniques. The pilot DoD facility is expected to be announced shortly.

Cheney said that the Defense Department is "doing more than updating old policies. The Defense Department is building a new environmental ethic into everything we do. This ethic can be summed up in three words -- compliance, responsibility, and cooperation."

The Defense Department is also planning a series of environmental initiatives in 1990, including special observances of Earth Day. On the agenda are a national forum in June on "Our Nation's Defense and the Environment" and a conference this week in Atlanta on environmental compliance and the environmental challenges of the 1990's.

(end)

THE 1990 EPA/DOD COOPERATIVE AGREEMENT

The EPA/DOD Cooperative Agreement on the Chesapeake Bay was signed by Secretary of Defense Dick Cheney and EPA Administrator William K. Reilly on April 20, 1990.

This Agreement aligns the 1984 Joint Resolution with the goals of the 1987 Chesapeake Bay Agreement. The major provisions of the agreement are as follows:

Participation

- DOD will actively participate in the Federal Agencies Committee and other subcommittees or work groups and identify opportunities to participate in Bay restoration activities.

- DOD will send wastewater treatment plant operators to State Operator Training Programs.

Planning

- DOD will integrate environmental planning requirements identified in the Agreement into the implementation plans of all installations with a potentially significant impact on the Bay that were identified in DOD's water quality assessment study of Bay facilities.

- DOD will integrate the land and living resources management goals of the 1987 Bay Agreement into daily operations at its installations. This will include implementing nonpoint source controls on DOD leased and owned land; sediment and erosion control at construction sites, especially along shorelines; identification and protection of wetlands and submerged aquatic vegetation (SAV) beds; and integrated pest management (IPM) practices.

- DOD will incorporate pollution prevention practices into daily operations, emphasizing source reduction and environmentally sound recycling of materials.

- New development will be sited and constructed to minimize impact on the Bay and ensure that it is consistent with the President's goal of "no net loss" of wetlands.

- DOD activities will be consistent with State Nonpoint Source Management Programs.

FUNDING

- DOD will ensure funding for compliance, pollution abatement and prevention, and natural resources management projects.

Audits and Inspections

- DOD will conduct periodic multi-media environmental audits to assure compliance with all pollution control laws.

- DOD will ensure compliance with all requirements of the National Pollutant Discharge Elimination System (NPDES) Program which regulates the discharge of wastewater to rivers and streams.

EPA will:

- provide technical advice and assistance, particularly on nonpoint source control, wetlands, and shoreline protection,

- work with the States to ensure that all major DOD wastewater discharge permits are issued and have appropriate nutrient and toxics controls,

- work with the States to inspect all major (NPDES) permittees,

- conduct annual workshops for all federal facility coordinators and managers in the Bay region, and

- assess progress and compliance with DOD officials annually.

THE 1984 EPA/DOD JOINT RESOLUTION

The EPA/DOD Joint Resolution on the Chesapeake Bay was signed by then Secretary of Defense Caspar W. Weinberger and EPA Administrator William D. Ruckelhaus on September 13, 1984. It expired on January 1, 1990.

It established the following broad commitments for "pollution abatement" activities:

- DOD agreed to give priority consideration for funding to pollution abatement projects and studies in the Chesapeake Bay.

- As a pilot project, DOD would initiate environmental self-auditing at 14 Bay installations.

- DOD would provide to EPA and the States any information necessary to issue or reissue all major wastewater discharge permits required under the National Pollutant Discharge Elimination System (NPDES) Program.

- DOD would take action to reduce soil erosion and other pollutants from nonpoint sources.

- EPA and the Bay States would issue or reissue all major DOD NPDES permits in the Chesapeake Bay by September 30, 1985.

- EPA and the States would conduct annual inspections of these major installations.

- EPA would provide technical assistance on nonpoint and point source control.

COOPERATIVE AGREEMENT

BETWEEN

DEPARTMENT OF DEFENSE
AND
ENVIRONMENTAL PROTECTION AGENCY
CONCERNING

CHESAPEAKE BAY ACTIVITIES

PREAMBLE

1. The Chesapeake Bay is a national treasure and a resource of worldwide significance. Its ecological, economic, and cultural importance is felt far beyond its waters and the communities that line its shores. In recent decades however, the Bay has suffered serious declines in quality and productivity.

2. The 1987 Chesapeake Bay Agreement between the Environmental Protection Agency (EPA), representing the Federal government, the District of Columbia, the State of Maryland, the Commonwealths of Pennsylvania and Virginia, and the Chesapeake Bay Commission, established a policy to reverse this decline, and a framework for continued cooperative efforts to restore and protect the Chesapeake Bay. It contains goals and priority commitments to achieve these objectives for living resources; water quality; population growth and development; public information, education and participation; public access; and governance.

3. The Department of Defense (DoD) continues its ongoing commitment to protect the environment and the natural resources which have been entrusted to its care, while at the same time accomplishing its primary mission of national defense.

4. DoD maintains over 60 installations in the Chesapeake Bay drainage basin, encompassing approximately 350,000 acres. Recognizing its role as a major Federal user of the land and waters of the Chesapeake Bay region, DoD completed a water quality assessment study to determine the relative impact of its activities on the water quality and living resources of this important estuary.

5. EPA has regulatory responsibility for the control and abatement of pollution in areas of air, water, solid waste, toxic substances, pesticides, noise, and radiation. This includes setting and enforcing environmental standards; conducting research on the

cause, effect, control, and prevention of environmental problems; and assisting State and local cooperators.

6. EPA, in conjunction with Federal, State and local cooperators, has been conducting studies, environmental surveys and assessments and developing strategies for improving and restoring the Chesapeake Bay.

7. DoD and EPA share a mutual interest in restoring and protecting the Chesapeake Bay. The actions carried out under this Agreement will strengthen coordination, increase understanding and action on key environmental issues, and reduce duplication of resources and expertise.

8. Therefore, DoD and EPA agree to cooperate to implement the goals and objectives of the Chesapeake Bay Agreement.

PURPOSE

This Cooperative Agreement establishes a policy of coordination and cooperation between DoD and EPA on Chesapeake Bay activities, consistent with the goals, objectives, and commitments of the 1987 Chesapeake Bay Agreement. It supersedes the September 13, 1984 Joint Resolution between DoD and EPA on pollution abatement in the Chesapeake Bay.

AUTHORITY

1. Executive Order 12088 directs each Executive Agency responsible for compliance with pollution control standards to take necessary actions for prevention, control, and abatement of environmental pollution from activities under its control.

2. EPA has statutory authority (e.g. Section 117, Clean Water Act as Amended) to develop increased Federal participation in cooperative Chesapeake Bay activities. These efforts are supported and encouraged by DoD.

3. Nothing in this Agreement diminishes or expands the administrative authority of each agency in execution of its statutory requirements. The Agreement is intended to facilitate those authorities through cooperative means.

DEFINITIONS

"Exceptions list" and "significant noncompliance (SNC)" as they are defined and used in this agreement are terms that apply to compliance under the requirements of the federal National Pollution Discharge Elimination System (NPDES) program.

The EPA Exceptions List is an internal tracking mechanism used by EPA to track facilities that are chronic noncompliers. It is based on a compilation of major NPDES permit holders that have been in significant noncompliance for two consecutive quarters or more. The Exceptions List is developed quarterly by EPA Region III based on the Quarterly Noncompliance Report (QNCR).

"Major NPDES Permit Holder" is generally defined as a facility that discharges 1 million gallons per day (MGD) or more of wastewater or is rated at 80 or above on the EPA Major Industrial Rating Scale for NPDES Facilities.

Significant Noncompliance (SNC): For purposes of determining SNC, any and all violations which meet the criteria listed in 40 CFR, Section 123.45 for Category I noncompliance and some of the criteria for Category II noncompliance are to be considered in SNC. For a detailed explanation of Category I and II, and SNC refer to 40 CFR, Section 123.45 and to Appendix I of the Guidance for Preparation of Quarterly and Semi-Annual Noncompliance Reports in the Enforcement Management System Guide (September 1989).

RESPONSIBILITIES

IT IS AGREED THAT:

A. The Environmental Protection Agency will:

1. Support DoD membership on the Federal Agencies Coordinating Committee, Implementation Committee, and other Agreement entities as appropriate.

2. Coordinate with DoD concerning the development of programs, technical policies, regulations, guidelines, training, research, demonstrations and pollution prevention initiatives relative to the Chesapeake Bay Program.

3. In cooperation with the delegated States, act to insure the issuance or reissuance of all major and other significant DoD National Pollution Discharge Elimination System (NPDES) permits in the Chesapeake Bay region. These permits will contain requirements (including reducing or eliminating toxic pollutants) appropriate to insure the protection of the waters of the Chesapeake Bay.

4. Provide on-site evaluations of specified programs to DoD installations in the Chesapeake Bay region upon request. EPA and delegated states will inspect DoD facilities for compliance in accordance with appropriate Federal, State and local environmental statutes and regulations. EPA will ensure that annual inspections are conducted by EPA or delegated States for all major NPDES permitees in the Chesapeake Bay Region and that findings are provided to the inspected facility on a timely basis.

5. Provide DoD with technical advice and assistance on controlling nonpoint and other water pollution sources, tidal and nontidal wetlands protection and enhancement, and shoreline protection. Facilitate cooperation with the Soil Conservation Service, the Forest Service, the Fish and Wildlife Service, and the Geological Service in these activities. Technical publications on these subjects will be made available to DoD installations in the Chesapeake Bay region upon request.

6. Conduct annual workshops for all federal facility coordinators and managers in the Chesapeake Bay region. Facilitate DoD participation in EPA on-site Operator Training Programs for wastewater treatment plant operators pursuant to Section 104(g) of the Clean Water Act.

7. Provide access to data in the Chesapeake Bay Program's (CBP) computerized data files. EPA further agrees to provide DoD with appropriate training and assistance in the use of the computer facility to promote DoD's contributions to the Bay's restoration efforts.

8. Provide copies of all documents prepared under the CBP to the Office of the Deputy Assistant Secretary of Defense for Environment, to the Headquarters

offices of the Military Services, and to all DoD installations in the Chesapeake Bay region.

9. Meet with DoD at least annually to review progress and activities in implementing this Agreement and to discuss the compliance status of DoD facilities in the Chesapeake Bay Region.

10. Assist the Military Services and DoD installations in developing their public information programs on Chesapeake Bay issues.

11. Coordinate SARA Title III requirements with Federal facilities in the Chesapeake Bay basin as called for in the basin-wide Toxics Reduction Strategy.

B. The Department of Defense will:

Participation

1. Continue to actively participate in the Chesapeake Bay Program (CBP) through central coordination of all related activities. The designated representative of the Secretary of Defense will represent the interests of DoD on the Implementation Committee.

   (a) DoD will provide annually an updated list of Commanders' addresses and telephone numbers for all facilities listed in attachment C.

   (b) DoD representatives will also actively participate on the Federal Agencies Committee and other subcommittees or work groups as appropriate.

   (c) DoD installations will enhance internal communications on the Chesapeake Bay cleanup program by actively promoting knowledge of and participation in CBP restoration efforts.

   (d) DoD installations will cooperate with state, regional, local and other Federal agencies through the CBP and other coordination mechanisms to identify separate and joint opportunities for Bay restoration activities. DoD will evaluate its programs with other agencies on a continuing basis to improve

effectiveness of Chesapeake Bay activities within its existing programs of natural resources conservation and environmental quality management.

(e) DoD installations will ensure that their wastewater treatment plant operators will receive adequate training and proper certifications through EPA/State On-site Operator Training Programs or other means as appropriate.

2. Support achieving goals and commitments made in Nutrient, Toxics, and Conventional Pollutant Control Strategies, including coordination with EPA regarding SARA Title III requirements for Federal facilities in the basin.

Planning

3. Develop, and review annually, implementation plans for all installations identified in DoD's water quality assessment study as having a significant impact potential on the Chesapeake Bay consistent with the Chesapeake Bay Federal Facilities Strategy. (Appendix A and B). Ensure such plans integrate other environmental planning requirements provided for under this Agreement. Provide copies of plans to EPA and affected states upon request.

4. Integrate at all facilities listed in Appendix C CBP goals and concerns into DoD's existing integrated natural resources management plans and practices, including:

(a) Implement best management practices (BMPs) for nonpoint source pollution control on leased farmland, commercial forest land, and on all other DoD lands.

(b) Remove impediments to passage of migratory fishes in the Chesapeake Bay watershed.

(c) Identify, protect, enhance, restore, and create wetlands.

(d) Cooperate with other agencies to identify and protect existing submerged aquatic vegetation (SAV) beds.

(e) Control sediment and erosion at Defense construction sites.

(f) Control shoreline erosion and sedimentation.

(g) Maintain integrated pest management (IPM) practices for all pest control operations on DoD lands.

(h) Maintain and enhance waterfowl and wildlife habitat.

5. (a) Incorporate the practice of pollution prevention into the policies, program procedures and operations of DoD's Chesapeake Bay facilities policies, program procedures and operations of DoD's Chesapeake Bay facilities through implementation of an environmental management hierarchy which emphasizes pollution prevention through source reduction first and then environmentally-sound recycling of materials that cannot be reduced, avoided or eliminated.

(b) Select a DoD installation within the Chesapeake Bay Region to serve as a model community to demonstrate how pollution prevention techniques can be combined into an integrated pollution prevention plan.

6. Identify environmental projects (e.g. evaluation of biological nutrient removal techniques or the use of wetlands as nutrient reduction methods, testing of stormwater runoff control techniques, shoreline erosion control measures, agricultural practices on outlease areas) as potential demonstration projects for EPA or State programs.

7. Design, locate, and construct new development in a manner that will minimize its impact on the Chesapeake Bay and its tributaries, and in consonance with the President's goal of no net loss of wetlands.

8. Ensure that DoD projects and activities at facilities listed in Appendix B do not conflict with policies, standards and activities in the States' Nonpoint Source Management Programs

pursuant to the Federal consistency provision in Section 319 of the Clean Water Act.

Funding

9. Ensure funding is obtained by the most expeditious means possible for pollution abatement and prevention projects and studies needed for those facilities on the EPA Exceptions List or in significant noncompliance or whenever necessary to meet final effluent limits.

   (a) Review and fund major pollution abatement project design, construction, operation, prevention, and maintenance management practices to ensure their effectiveness in protecting the Chesapeake Bay and its tributaries.

   (b) Give appropriate consideration to other pollution abatement and prevention projects and to natural resources management projects required to meet the objectives of this Agreement.

   (c) Make maximum use of the OMB Circular A-106 process to integrate compliance objectives, funding and coordination with EPA.

Audits and Inspections

10. Conduct periodic multi-media environmental audits (as defined by EPA) at all major (Appendix A) DoD facilities in the Chesapeake Bay Region on a regular ongoing basis and make the results and audit findings available to EPA and the states. Audits will be conducted in a manner consistent with the EPA Generic Protocol for Environmental Audits at Federal Facilities.

11. Take all appropriate actions necessary to ensure compliance with all provisions of NPDES permits, with special attention to effluent limits, all chemical and/or biological toxics monitoring programs and pretreatment requirements. Ensure that all Discharge Monitoring Reports required by NPDES permits are complete and submitted to EPA within the time frame required by the permit.

12. Continue to provide information to EPA or the States necessary to issue or reissue all major National Pollutant Discharge Elimination System (NPDES) wastewater discharge permits.

13. Ensure future water quality monitoring results are in a form compatible with the CBP's data base, and forward results to appropriate offices on a timely basis.

14. Meet with EPA at least annually to report on progress and activities in implementing this agreement and to discuss the compliance status of DoD facilities.

DELEGATION

Authorized representatives of EPA and DoD may enter into supplemental agreements within the scope of this document.

MODIFICATION AND TERMINATION

This Agreement may be modified or amended upon request of either party and the concurrence of the other. The Agreement may be terminated with 60-day notice of either party.

IMPLEMENTATION

This Agreement becomes effective when signed by both parties and shall remain in effect until modified or terminated.

Department of Defense
Secretary of Defense

Date: 4/20/90

Environmental Protection Agency
Administrator

Date: April 27, 1990

APPENDIX A

DoD Installations in the Chesapeake Bay Region
with NPDES permits 1.0 MGD or greater.

Aberdeen Proving Ground (Aberdeen and Edgewood Areas), MD
Army Corps of Engineers Washington Aqueduct-Dalecarlia Plant, DC
David W. Taylor NSRDC - Annapolis, MD
Fort Deitrick, MD
Fort Eustis, VA
Fort George G. Meade, MD
Letterkenny Army Depot, PA
Naval Air Station/Naval Air Test Center - Patuxent River, MD
Naval Base - Norfolk, VA
Naval Base Supply Center - Norfork, VA
Naval Ordnance Station - Indian Head, MD
Naval Shipyard - Norfolk, VA
Naval Surface Weapons Center - White Oak, MD
U.S. Marine Corps - Quantico, VA

APPENDIX B

DoD Installations in the Chesapeake Bay Region with a Significant Impact Potential on the Bay's Water Quality

Aberdeen Proving Ground (Aberdeen and Edgewood Areas)
Allegheny Ballistics Lab
Andrews Air Force Base
Defense General Supply Center - Richmond
Fort Belvoir
Fort Eustis
Fort George G. Meade
Harry Diamond Lab - Blossom Point
Langley Air Force Base
Letterkenny Army Depot
Naval Air Station - Oceana
Naval Air Station/ Naval Air Test Center - Patuxent River
Naval Amphibious Base - Little Creek
Naval Ordnance Station - Indian Head
Naval Shipyard - Norfolk
Naval Supply Center - Cheatham Annex
Naval Supply Center - Craney Island
Naval Supply Center - Yorktown
Naval Surface Weapons Center - Dahlgren
Naval Surface Weapons Center - White Oak
Naval Weapons Station - Yorktown
Navy Ships Part Control Center - Mechanicsburg
Sewells Point Navy Complex (Naval Station, Naval Air Station, Naval Aviation Depot, Public Works Center, Supply Center)
U.S. Marine Corps - Quantico
Vint Hill Farms Station

APPENDIX C

DoD Installations in the Chesapeake Bay Region

AIR FORCE

Andrews Air Force Base, Andrews AFB, MD
Bolling Air Force Base, Washington, DC
Brandywine RDV Site, Brandywine, MD
Davidsonville RDV Site, Davidsonville, MD
Langley Air Force Base, Hampton, VA

ARMY

Aberdeen Proving Ground Complex, Aberdeen, MD
Aberdeen Proving Ground, Aberdeen, MD
Aberdeen Proving Ground, Edgewood, MD
Cameron Station, Alexandria, VA
Carlisle Barracks, Carlisle, PA
Fort A.P. Hill, Bowling Green, VA
Fort Belvoir, Fort Belvoir, VA
Fort Detrick, Frederick, MD
Fort Eustis, Newport News, VA
Fort Lee, Fort Lee, VA
Fort McNair, Washington, DC
Fort Meade, Fort Meade, MD
Fort Monroe, Fort Monroe, VA
Fort Myer, Arlington, VA
Fort Ritchie, Fort Ritchie, MD
Fort Story, Virginia Beach, VA
Harry Diamond Lab-Adelphi, MD
Harry Diamond Labs-Blossom Point, MD
Harry Diamond Labs-Woodbridge, Woodbridge, VA
Letterkenny Army Depot, Chambersburg, PA
New Cumberland Army Depot, New Cumberland, PA
Vint Hill Farms Station, Warrenton, VA
Walter Reed Army Medical Center, Silver Spring, MD

DEFENSE LOGISTICS AGENCY

Defense General Supply Center, Richmond, VA

NAVY

Allegheny Ballistics Lab-Plant L. Rocket Center, WV
David W. Taylor NSRDC-Annapolis, Annapolis, MD
David W. Taylor NSRDC-Bethesda, Bethesda, MD
Sewell's Point Navy Complex, Norfolk, VA
Naval Aviation Depot, Norfolk, VA
Naval Air Station-Norfolk, Norfolk, VA

APPENDIX C

DoD Installations in the Chesapeake Bay Region

AIR FORCE

Andrews Air Force Base, Andrews AFB, MD
Bolling Air Force Base, Washington, DC
Brandywine RDV Site, Brandywine, MD
Davidsonville RDV Site, Davidsonville, MD
Langley Air Force Base, Hampton, VA

ARMY

Aberdeen Proving Ground Complex, Aberdeen, MD
Aberdeen Proving Ground, Aberdeen, MD
Aberdeen Proving Ground, Edgewood, MD
Cameron Station, Alexandria, VA
Carlisle Barracks, Carlisle, PA
Fort A.P. Hill, Bowling Green, VA
Fort Belvoir, Fort Belvoir, VA
Fort Detrick, Frederick, MD
Fort Eustis, Newport News, VA
Fort Lee, Fort Lee, VA
Fort McNair, Washington, DC
Fort Meade, Fort Meade, MD
Fort Monroe, Fort Monroe, VA
Fort Myer, Arlington, VA
Fort Ritchie, Fort Ritchie, MD
Fort Stony, Virginia Beach, VA
Harry Diamond Lab-Adelphi, MD
Harry Diamond Labs-Blossom Point, MD
Harry Diamond Labs-Woodbridge, Woodbridge, VA
Letterkenny Army Depot, Chambersburg, PA
New Cumberland Army Depot, New Cumberland, PA
Vint Hill Farms Station, Warrenton, VA
Walter Reed Army Medical Center, Silver Spring, MD

DEFENSE LOGISTICS AGENCY

Defense General Supply Center, Richmond, VA

NAVY

Allegheny Ballistics Lab-Plant L. Rocket Center WV
David W. Taylor NSRDC-Annapolis, Annapolis, MD
David W. Taylor NSRDC-Bethesda, Bethesda, MD
Sewell's Point Navy Complex, Norfolk, VA
Naval Aviation Depot, Norfolk, VA
Naval Air Station-Norfolk, Norfolk, VA

Naval Station-Norfolk, Norfolk, VA
Naval Supply Center-Norfolk, Norfolk, VA
Public Works Center-Norfolk, Norfolk, VA
Naval Air Station-Oceana, Virginia Beach, VA
Naval Air Station, Patuxent River Complex, Lexington Park, MD
Naval Air Station, Lexington Park, MD
Naval Air Test Center, Lexington Park, MD
Naval Air Station-Solomons Annex, Solomons, MD
Naval Amphibious Base-Little Creek, Norfolk, VA
Naval Communications Unit, Cheltenham, MD
Naval Electronic Systems Engineering Activity, St. Inigoes, MD
Naval Medical Command-National Capital Region, Bethesda, MD
Naval Observatory, Washington, DC
Naval Ordnance Station, Indian Head, MD
Naval Radio Station-Sugar Grove, Sugar Grove, WV
Naval Radio Transmitter Facility, Annapolis, MD
Naval Research Lab, Washington, DC
Naval Research Lab-Chesapeake Bay Detachment, Randle Cliff Beach, MD
Naval Shipyard-Norfolk, Portsmouth, VA
Naval Station-Annapolis, Annapolis, MD
Naval Supply Center-Cheatham Annex, Williamsburg, VA
Naval Supply Center-Craney Island, Portsmouth, VA
Naval Supply Center-Yorktown, Yorktown, VA
Naval Surface Weapons Center-Dahlgren, Dahlgren, VA
Naval Surface Weapons Center-White Oak, Silver Spring, MD
Naval Weapons Station, Yorktown, VA
Navy Ships Parts Control Center, Mechanicsburg, PA
St. Juliens Creek Annex, Portsmouth, VA
U.S. Marine Corps-Quantico, Quantico, VA
U.S. Naval Academy, Annapolis, MD
U.S. Naval Academy Farm, Gambrills, MD
Washington Navy Yard, Washington, DC

THE WHITE HOUSE

WASHINGTON

April 18, 1990

I am happy to send my greetings to all those assembled for the signing of the Chesapeake Bay Cooperative Agreement between the Department of Defense and the Environmental Protection Agency. My thanks to Secretary Cheney, Administrator Reilly, and their staffs for working so hard to make this ceremony possible.

The Chesapeake Bay is a vital natural resource for the Middle Atlantic region. Thousands of citizens rely on it for commerce and recreation. This important agreement reaffirms my Administration's commitment to protecting our environment, and it will play an important role in continuing efforts to improve the water quality of the Chesapeake Bay.

With almost 60 installations located in the Bay area and along its tributaries, the Department of Defense maintains a significant presence, and I commend its efforts to cooperate with the Environmental Protection Agency in environmental restoration and protection. The pollution abatement projects you have begun will lessen the effect of military operations on the Bay's fragile ecosystem and help to preserve the Chesapeake Bay for generations to come.

Barbara joins me in sending our best wishes for a memorable ceremony and for the successful implementation of your Cooperative Agreement.

George Bush

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
U.S. ARMY CORPS OF ENGINEERS (COE)
AND THE
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

I. Purposes

This memorandum of understanding establishes the participation of the U.S. Army Corps of Engineners (COE) in the management of the Chesapeake Bay Program (CBP). It reflects the mutual desire that the capabilities of the COE in their areas of expertise contribute to a coordinated effort toward protection and restoration of the Chesapeake Bay environment.

II. Understandings

A. COE Participation in CBP Coordinative Structure

COE will participate actively in the management structure of the Chesapeake Bay Program (CBP). The Baltimore District will represent the COE on the Implementation Committee. Appropriate representatives will serve on the various subcommittees. COE personnel will participate in additional activities as needed to fulfill the COE's part in the Chesapeake Bay Program.

B. COE Participation in the Chesapeake Bay Program

EPA and COE will cooperate in those areas where there is a mutual interest. EPA recognizes the expertise of the COE in the planning, design, and construction of water resource development projects for flood control, navigation, water management, and erosion control devices. The COE also has expertise in development of models and monitoring programs.

CBP recognizes the role that the COE will play in a number of areas including:

1. COE will cooperate with states, EPA, NOAA, USDA, and Fish and Wildlife Service through participation on committees established by the CBP in assisting in the identification of priority research modeling and monitoring needs. Through this mechanism, the potential for joint funding of projects relative to the Bay clean-up effort will also be identified.

2. COE will cooperate with states, EPA, NOAA, USDA, and Fish and Wildlife Service to evaluate the District level programs and make recommendations for possible modifications to improve effectiveness within the existing national COE framework.

3. During the conduct of the recently authorized Chesapeake Bay Erosion Control Study, the COE will actively coordinate with the state and Federal agencies during development and execution of the study. It is recognized that there is currently available data on erosion in the form of aerial photography from other Federal agencies as well as the states.

Development of additional data will take full advantage of that which is presently available. In addition, data collection activities will be coordinated with other agencies.

4. The COE will continue to coordinate its annual maintenance dredging program with the state and Federal agencies so as to develop disposal plans that are technically and environmentally acceptable.

5. COE will participate (in conjunction with other agencies) in public awareness programs to acquaint citizens with Chesapeake Bay-related issues.

C. COE recognizes the role of EPA as the lead agency for Federal participation in the CBP. The COE will assist in developing increased Federal participation in cooperative Chesapeake Bay activities, particularly those within the COE that are authorized and funded. The COE will provide other support to the extent that such activities do not hinder its Federally mandated responsibilities.

III. Authorities

Nothing in this memorandum of understanding alters the statutory authorities and responsibilities of the COE. It is intended to facilitate those authorities through the cooperative mechanisms of the CBP.

U.S. Environmental Protection Agency

Date Nov 21 1984

U.S. Corps of Engineers

Date 21 Nov 84

THE CHESAPEAKE BAY IS A NATIONAL TREASURE and a resource of worldwide significance. Its ecological, economic, and cultural importance are felt far beyond its waters and the communities that line its shores. Man's use and abuse of its bounty, however, together with the continued growth and development of population in its watershed, have taken a toll on the Bay system. In recent decades, the Bay has suffered serious declines in quality and productivity. ◇ *REPRESENTING* the Federal government and the States which surround the Chesapeake Bay, we acknowledge our stake in the resources of the Bay and accept our share of responsibility for its current condition. We are determined that this decline will be reversed. In response, all of our jurisdictions have embarked on ambitious programs to protect our shared resource and restore it to a more productive state. ◇ *IN* 1980, the legislatures of Virginia and Maryland established the Chesapeake Bay Commission to coordinate interstate planning and programs from a legislative perspective. In 1985, Pennsylvania joined the Commission. And, in 1983, Virginia, Maryland, Pennsylvania, the District of Columbia, the U.S. Environmental Protection Agency and the Chesapeake Bay Commission formally agreed to a cooperative approach to this undertaking and established specific mechanisms for its coordination. Since 1983, our joint commitment has carried us to new levels of governmental cooperation and scientific understanding. It has formed a firm base for the future success of this long-term program. The extent and complexity of our task now call for an expanded and refined agreement to guide our efforts toward the twenty-first century. ◇ *RECOGNIZING* that the Chesapeake Bay's importance transcends regional boundaries, we commit to managing the Chesapeake Bay as an integrated ecosystem and pledge our best efforts to achieve the goals in this Agreement. We propose a series of objectives that will establish a policy and institutional framework for continued cooperative efforts to restore and protect Chesapeake Bay. We further commit to specific actions to achieve those objectives. The implementation of these commitments will be reviewed annually and additional commitments developed as needed.

GOALS AND PRIORITY COMMITMENTS

THIS NEW AGREEMENT CONTAINS Goals and Priority Commitments for Living Resources; Water Quality; Population Growth and Development; Public Information, Education and Participation; Public Access; and Governance. ◇ The parties to this 1987 Agreement are the U.S. Environmental Protection Agency representing the Federal government, the District of Columbia, the State of Maryland and the Commonwealths of Pennsylvania and Virginia (hereinafter the "States") and the Chesapeake Bay Commission. This Agreement may be amended and attachments added in the future by unanimous action of the Chesapeake Executive Council.

LIVING RESOURCES

GOAL: *PROVIDE FOR THE RESTORATION AND PROTECTION OF THE LIVING RESOURCES, THEIR HABITATS AND ECOLOGICAL RELATIONSHIPS.* The productivity, diversity and abundance of living resources are the best ultimate measures of the Chesapeake Bay's condition. These living resources are the main focus of the restoration and protection effort. Some species of shellfish and finfish are of immense commercial and recreational value to man. Others are valuable because they are part of the vast array of plant and animal life that make up the Chesapeake Bay ecosystem on which all species depend. We recognize that the entire natural system must be healthy to be productive. We will determine the essential elements of habitat and environmental quality necessary to support living resources and will see that these conditions are attained and maintained. We will also control the harvest of and monitor populations of commercially, recreationally and ecologically valuable species to ensure sustained, viable populations. We recognize that to be successful, these actions must be carried out in an integrated and coordinated manner across the whole Bay system.

OBJECTIVES:

- ◇ Restore, enhance, protect and manage submerged aquatic vegetation.
- ◇ Protect, enhance and restore wetlands, coastal sand dunes, forest buffers and other shoreline and riverline systems important to water quality and habitat.
- ◇ Conserve soil resources and reduce erosion and sedimentation to protect Bay habitats.
- ◇ Maintain adequate river flow regimes necessary to sustain estuarine habitats, and where appropriate, establishing minimum instream flows.
- ◇ Develop and implement Bay-wide stock assessment programs.
- ◇ Develop Bay-wide fisheries management strategies and develop complementary state programs and plans to protect and restore the finfish and shellfish stocks of the Bay, especially the freshwater and estuarine spawners.
- ◇ Provide for the restoration of shellfish stocks in the Bay, especially the abundance of commercially important species.
- ◇ Restore, enhance and protect waterfowl and wildlife.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- ◇ by *January 1988*, to develop and adopt guidelines for the protection of water quality and habitat conditions necessary to support the living resources found in the Chesapeake Bay system, and to use these guidelines in the implementation of water quality and habitat protection programs.
- ◇ by *July 1988*, to develop, adopt and begin to implement a Bay-wide plan for the assessment of commercially, recreationally and selected ecologically valuable species.
- ◇ by *July 1988*, to adopt a schedule for the development of Bay-wide resource management strategies for commercially, recreationally and selected ecologically valuable species.
- ◇ by *July 1989*, to develop, adopt and begin to implement Bay-wide management plans for oysters, blue crabs and American Shad. Plans for other major commercially, recreationally and ecologically valuable species should be initiated by 1990.
- ◇ by *December 1988*, to develop a Bay-wide policy for the protection of tidal and non-tidal wetlands.
- ◇ Provide for fish passage at dams, and remove stream blockages wherever necessary to restore natural passage for migratory fish.

WATER QUALITY

GOAL: *REDUCE AND CONTROL POINT AND NONPOINT SOURCES OF POLLUTION TO ATTAIN THE WATER QUALITY CONDITION NECESSARY TO SUPPORT THE LIVING RESOURCES OF THE BAY.* The improvement and maintenance of water quality are the single most critical elements in the overall restoration and protection of the Chesapeake Bay. Water is the medium in which all living resources of the bay live, and their ability to survive and flourish is directly dependent on it. ◊ To ensure the productivity of the living resources of the Bay, we must clearly establish the water quality conditions they require and must then attain and maintain those conditions. Foremost, we must improve or maintain dissolved oxygen concentrations in the Bay and its tributaries through a continued and expanded commitment to the reduction of nutrients from both point and nonpoint sources. We must do the same for toxics and conventional pollutants. To be effective, we will develop basin-wide implementation plans for the control and reduction of pollutants which are based on our best understanding (including that derived from modeling) of the Bay and its tributaries as an integrated system.

OBJECTIVES:

◊ Provide timely construction and maintenance of public and private sewerage facilities to assure control of pollutant discharges.

◊ Minimize the discharge of untreated or inadequately treated sewage into Bay waters from such sources as combined sewer overflows, leaking sewage systems, and failing septic systems.

◊ Evaluate and institute, where appropriate, alternative technologies for point source pollution control, such as biological nutrient removal and land application of effluent to reduce pollution loads in a cost-effective manner.

◊ Establish and enforce pollutant limitations to ensure compliance with water quality laws.

◊ Reduce the levels of nonpoint sources of pollution.

◊ Reduce sedimentation by strengthening enforcement of existing control regulations.

◊ Eliminate pollutant discharges from recreational boats.

◊ Identify and control toxic discharges to the Bay system, including metals and toxic organics, to protect water quality, aquatic resources and human health through implementation and enforcement of the states' National Pollutant Discharge Elimination System permit programs and other programs.

◊ Reduce chlorine discharges in critical finfish and shellfish areas. Minimize water pollution incidents and provide adequate response to pollutant spills.

◊ Manage sewage sludge, dredged spoil and hazardous wastes to protect the Bay system.

◊ Manage groundwater to protect the water quality of the Bay.

◊ Quantify the impacts and identify the sources of atmospheric inputs on the Bay system.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

◊ by *July 1988*, to develop, adopt and begin implementation of a basin-wide strategy to equitably achieve by the year 2000 at least a 40 percent reduction of nitrogen and phosphorus entering the main stem of the Chesapeake Bay. The strategy should be based on agreed upon 1985 point source loads and on nonpoint loads in an average rainfall year.

◊ by *December 1991*, to re-evaluate the 40 percent reduction target based on the results of modeling, research, monitoring and other information available at that time.

◊ by *December 1988*, to develop, adopt and begin implementation of a basin-wide strategy to achieve a reduction of toxics consistent with the Water Quality Act of 1987 which will ensure protection of human health and living resources. The strategy will cover both point and nonpoint sources, monitoring protocols, enforcement of pretreatment regulations and methods for dealing with in-place toxic sediments where necessary.

◊ by *July 1988*, to develop and adopt, as required by the Water Quality Act of 1987, a basin-wide implementation strategy for the management and control of conventional pollutants entering the Chesapeake Bay system from point and nonpoint sources.

◊ by *July 1988*, the Environmental Protection Agency, acting for the federal government, will develop, adopt and begin implementation of a strategy for the control and reduction of point and nonpoint sources of nutrient, toxic and conventional pollution from all federal facilities.

POPULATION GROWTH AND DEVELOPMENT

GOAL: *PLAN FOR AND MANAGE THE ADVERSE ENVIRONMENTAL EFFECTS OF HUMAN POPULATION GROWTH AND LAND DEVELOPMENT IN THE CHESAPEAKE BAY WATERSHED.* There is a clear correlation between population growth and associated development and environmental degradation in the Chesapeake Bay system. Enhancing, or even maintaining, the quality of the Bay while accommodating growth will frequently involve difficult decisions and restrictions and will require continued and enhanced commitment to proper development standards. The states and the federal government will assert the full measure of their authority to mitigate the potential adverse effects of continued growth. Local jurisdictions have been delegated authority over many decisions regarding growth and development which have both direct and indirect effects on the Chesapeake Bay system and its living resources. The role of local governments in the restoration and protection effort will be given proper recognition and support through state and federal resources. ◇ States will engage in an active partnership with local governments to establish policy guidelines to manage growth and development.

OBJECTIVES:

- ◇ Designate a state-level office responsible for ensuring consistency with this Agreement among the agencies responsible for comprehensive oversight of development activity, including infrastructure planning, capital budgets, land preservation and waste management activities.
- ◇ Provide local governments with financial and technical assistance to continue and expand their management efforts.
- ◇ Consult with local government representatives in the development of Chesapeake Bay restoration and protection plans and programs.
- ◇ Identify and give public recognition to innovative and otherwise noteworthy examples of local government restoration and protection-related programs.
- ◇ Assure that government development projects meet all environmental requirements.
- ◇ Promote, among local, state and federal governments, and the private sector, the use of innovative techniques to avoid and, where necessary, mitigate the adverse impacts of growth.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- ◇ to commission a panel of experts to report, by *December 1988*, on anticipated population growth and land development patterns in the Bay region through the year 2020, the infrastructure requirements necessary to serve growth and development, environmental programs needed to improve Bay resources while accommodating growth, alternative means of managing and directing growth and alternative mechanisms for financing governmental services and environmental controls. The panel of experts will consist of twelve members: three each from Virginia, Maryland and Pennsylvania, and one each from the District of Columbia, Environmental Protection Agency and the Chesapeake Bay Commission.
- ◇ by *January 1989*, to adopt development policies and guidelines designed to reduce adverse impacts on the water quality and living resources of the Bay, including minimum best management practices for development and to cooperatively assist local governments in evaluating land-use and development decisions within their purview, consistent with the policies and guidelines.
- ◇ to evaluate state and federal development projects in light of their potential impacts on the water quality and living resources of the Chesapeake Bay, and design and carry out each state and federal development project so as to serve as a model for the private sector in terms of land-use practices.
- ◇ by *December 1988*, to develop a strategy to provide incentives, technical assistance and guidance to local governments to actively encourage them to incorporate protection of tidal and non-tidal wetlands and fragile natural areas in their land-use planning, water and sewer planning, construction and other growth-related management processes.

PUBLIC INFORMATION, EDUCATION AND PARTICIPATION

GOAL: *PROMOTE GREATER UNDERSTANDING AMONG CITIZENS ABOUT THE CHESAPEAKE BAY SYSTEM, THE PROBLEMS FACING IT AND POLICIES AND PROGRAMS DESIGNED TO HELP IT, AND TO FOSTER INDIVIDUAL RESPONSIBILITY AND STEWARDSHIP OF THE BAY'S RESOURCES.*

GOAL: *PROVIDE INCREASED OPPORTUNITIES FOR CITIZENS TO PARTICIPATE IN DECISIONS AND PROGRAMS AFFECTING THE BAY.* The understanding and support of the general public and interest groups are essential to sustaining the long-term commitment to the restoration and protection of the Chesapeake Bay system and its living resources. Citizens must have opportunities to learn about that system and associated management policies and programs and must be given opportunities to contribute ideas about how best to manage that natural system.

OBJECTIVES:

- ◊ Provide timely information on the progress of the restoration program.
- ◊ Assure a continuing process of public input and participation in policy decisions affecting the Bay.
- ◊ Enhance Bay-oriented education opportunities to increase public awareness and understanding of the Bay system.
- ◊ Provide curricula and field experiences for students.
- ◊ Promote opportunities to involve citizens directly in Bay restoration efforts.
- ◊ Coordinate the production and distribution of Bay information and education materials.

COMMITMENT:

TO ACHIEVE THESE GOALS WE AGREE:

- ◊ to conduct coordinated education and information programs to inform the general public, local governments, business, students, community associations and others of their roles, responsibilities and opportunities in the restoration and protection effort, and to promote public involvement in the management and decision-making process.
- ◊ to provide for public review and comment on all implementation plans developed pursuant to this agreement.
- ◊ by *March 1988*, to develop state and federal communication plans for public information, education and participation, and by *May 1988*, to develop a unified, Bay-wide communication plan.
- ◊ to promote Chesapeake Bay restoration efforts by establishing an annual Bay-wide series of Chesapeake Bay Watershed Awareness events, to include a Governor's Cup Fishing Tournament.

PUBLIC ACCESS

GOAL: *PROMOTE INCREASED OPPORTUNITIES FOR PUBLIC APPRECIATION AND ENJOYMENT OF THE BAY AND ITS TRIBUTARIES.* Interest in and commitment to the Chesapeake Bay and its tributaries are greatly affected by personal contact with that natural system. Consequently, improved opportunities for access to the shores and waters of the system are essential if public awareness and support are to be maintained and increased.

OBJECTIVES:

- ◊ Improve and maintain access to the Bay including public beaches, parks and forested lands.
- ◊ Improve opportunities for recreational and commercial fishing.
- ◊ Secure shoreline acreage to maintain open space and provide opportunities for passive recreation.
- ◊ Secure necessary acreage to protect unique habitat and environmentally sensitive areas.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- ◊ to intensify our efforts to improve and expand public access opportunities being made available by the federal government, the states, and local governments, by developing a strategy, which includes an inventory of current access opportunities by *July 1988*, which targets state and federal actions to secure additional tidal shorefront acres by *December 1990* along the Bay and its tributaries.
- ◊ by *December 1988*, to prepare a comprehensive guide to access facilities and the natural resource system for the tidal Chesapeake Bay

GOAL *SUPPORT AND ENHANCE THE PRESENT COMPREHENSIVE, COOPERATIVE AND COORDINATED APPROACH TOWARD MANAGEMENT OF THE CHESAPEAKE BAY SYSTEM.*

GOAL *PROVIDE FOR CONTINUITY OF MANAGEMENT EFFORTS AND PERPETUATION OF COMMITMENTS NECESSARY TO ENSURE LONG-TERM RESULTS.*

The cooperation necessary to sustain an effective Chesapeake Bay restoration and protection effort requires a formal working arrangement involving the states and the federal government. That institutional arrangement must allow for and promote voluntary individual actions coordinated within a well-defined context of the individual responsibilities and authorities of each state and the federal government. It must also ensure that actions which require a concerted, Bay-wide approach be addressed in common and without duplication. One of the principal functions of the coordinating institution is to develop strategic plans and oversee their implementation, based on advice from the public, from the scientific community and from user groups. ◊ In addition, the coordinating body must exert leadership to marshal public support, and it must be accountable for progress made under the terms of this agreement. The coordinating body will continue to be called the Chesapeake Executive Council. The Chesapeake Executive Council shall be comprised of the Governors, the Mayor of the District of Columbia, the Administrator of the Environmental Protection Agency and the Chairman of the Chesapeake Bay Commission. The chairmanship of the Council shall rotate annually as determined by the Council. The term of the Chairman shall be one year. The Administrator of the Environmental Protection Agency shall represent the federal government and the Chairman of the Chesapeake Bay Commission shall represent its members.

OBJECTIVES:

- ◊ Continue to demonstrate strong, regional leadership by convening an annual public meeting of the Chesapeake Executive Council.
- ◊ Continue to support the Chesapeake Executive Council and provide for technical and public policy advice by maintaining strong advisory committees.
- ◊ Coordinate Bay management activities and develop and maintain effective mechanisms for accountability.
- ◊ The Chesapeake Bay Liaison Office shall provide staff support to the Chesapeake Executive Council by providing analyses and data management, and by generating reports related to the overall program. The Implementation Committee shall provide guidance to the CBLO Director in all matters relating to support for the Council and their supporting committees, subcommittees and work groups including the development of all plans and other documents associated with the Council.
- ◊ Examine the feasibility of joint funding support of the Chesapeake Bay Liaison Office.
- ◊ Track and evaluate activities which may affect estuarine water quality and resources and report at least annually.
- ◊ Develop and maintain a coordinated Chesapeake Bay data management system.
- ◊ Continue to implement a coordinated Bay-wide monitoring system and to develop a Bay-wide living resources monitoring system.
- ◊ Develop and implement a coordinated Bay-wide research program.

COMMITMENT:

TO ACHIEVE THESE GOALS WE AGREE:

- ◊ to develop an annual Chesapeake Bay work plan endorsed by the Chesapeake Executive Council.
- ◊ to continue to support Bay-wide environmental monitoring and research to provide the technical and scientific information necessary to support management decisions.
- ◊ to strengthen the Chesapeake Bay Liaison Office by assigning, as appropriate, staff persons from each jurisdiction and from participating federal agencies to assist with the technical support functions of that office.
- ◊ by *July 1988*, to develop and adopt a comprehensive research plan to be evaluated and updated annually to address the technical needs of the Chesapeake Bay Program.
- ◊ by *July 1988*, develop a Bay-wide monitoring plan for selected commercially, recreationally and ecologically valuable species.
- ◊ by *March 1988*, to establish a local government advisory committee to the Chesapeake Executive Council and charge that committee to develop a strategy for local government participation in the Bay program.
- ◊ to consider and review the feasibility of establishing an independent Chesapeake Bay Executive Board.
- ◊ by *July 1988*, the Environmental Protection Agency, acting for the federal government, will develop, a coordinated, federal agency workplan which identifies specific federal programs to be integrated into a coordinated federal effort to support the restoration of the Chesapeake Bay.

BY THIS AGREEMENT we reaffirm our commitment to restore and protect the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system. We agree to report in *January 1989* on progress made in fulfilling the commitments in this agreement, and to consider at that time additional commitments. The implementation strategies which will be developed pursuant to this agreement will be appended as annexes, and annual reports will include an accounting of progress made on each strategy.

December 15, 1987
(Date)

FOR THE COMMONWEALTH OF VIRGINIA

Gerald L. Baliles

FOR THE STATE OF MARYLAND

William Donald Schaefer

FOR THE COMMONWEALTH OF PENNSYLVANIA

Robert P. Casey, Governor

FOR THE UNITED STATES OF AMERICA

FOR THE DISTRICT OF COLUMBIA

Marion Barry, Mayor

FOR THE CHESAPEAKE BAY COMMISSION

Kenneth C. Coles

AN INVITATION TO ENDORSEMENTS

Document printing sponsored by First National Bank of Maryland. Distribution made possible by sponsorship by Conoco Coastal Petroleum Corporation and by Bell Mowery and Conaway Planning.

APPENDIX F

Programmatic Agreement

The Army was unable to complete all the required cultural resource studies and coordination for the BRAC actions covered by this NEPA document because of time and funding constraints.

The Department of the Army, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers in a programmatic agreement signed February 5, 1990, agreed that the Army will complete the NEPA analysis for some BRAC actions before the NHPA responsibilities are completed. Section 106 and Section 110 NHPA responsibilities will be completed before any construction or disposal of property is initiated by the Army.

A copy of the Programmatic Agreement is attached to this appendix.

PROGRAMMATIC AGREEMENT
AMONG
DEPARTMENT OF THE ARMY
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND
THE NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
CONCERNING
REALIGNMENT AND CLOSURE OF ARMY INSTALLATIONS
IN ACCORDANCE WITH
BASE CLOSURE AND REALIGNMENT ACT

WHEREAS, the Department of the Army (Army) is responsible for implementation of applicable portions of the Base Closure and Realignment Act of 1988 (P.L. 100-526), commonly known as the "BRAC" program; and

WHEREAS, the Army is proceeding with base realignment and closure actions, to include the realignment of functions and units, closure of installations, and disposal of surplus property in a manner consistent with the "Report of the Defense Secretary's Commission on Base Realignments and Closures," December 29, 1988 (Commission Report); and

WHEREAS, the Army has determined that its implementation of the BRAC program may have effects on properties included in and eligible for inclusion in the National Register of Historic Places (historic properties); and

WHEREAS, the Army has consulted with the Advisory Council on Historic Preservation (Council) and the National Conference of State Historic Preservation Officers (NCSHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Sections 106 and 110(f) of the National Historic Preservation Act (NHPA) and Army Regulation 420-40, "Historic Preservation;"

NOW, THEREFORE, the Army, the Council, and the NCSHPO agree that the Army's implementation of the BRAC program shall be administered in accordance with the following stipulations, which will satisfy the Army's Section 106 and 110(f) responsibilities for all individual undertakings under the BRAC program.

Stipulations

The Army will ensure that the following measures are carried out.

I. Applicability

The terms of this Agreement are intended to apply to all Army installations which may be affected under the provisions of P.L. 100-526 (see Attachment 1), with the exception of the 52 Stand Alone Housing Sites that are variously located in

Connecticut, Illinois, Maryland, Massachusetts, Missouri, New Jersey, New York, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin. Those sites will be the subjects of individual consultation between the Army and the appropriate State Historic Preservation Officer (SHPO) in accordance with Section 800.4 and 800.5 of 36 CFR Part 800.

II. Areas of Potential Effects

Although some BRAC activities may induce changes in population distribution, traffic, and land use that extend beyond the particular facilities to be closed and parcels on which new construction will occur, the effect of these changes on historic properties is uncertain and in most cases is expected to be minor. Accordingly, the area of potential effects (36 CFR 800.2[c]) of a BRAC action shall be understood to be the area of the facility to be closed and/or constructed, unless there is compelling evidence that effects are likely to occur in a broader area. In cases of dispute over the area of potential effects of a BRAC action, the opinion of the Council will be binding on all parties to this Agreement.

III. NEPA and Preliminary Coordination with the SHPO

A. It is mutually understood that many of the terms of this Agreement will be carried out after the Army has complied with the National Environmental Policy Act (NEPA) and filed its Record of Decision (ROD). Nevertheless:

1. whenever it is feasible for the Army to carry out the terms of this Agreement prior to filing the ROD, the Army will do so; and

2. whenever the Army files a ROD on a BRAC action for which the terms of this Agreement have not yet been fully implemented, the Army will stipulate in the ROD that the NHPA has not yet been complied with and that no action will be taken which would foreclose completion of the Army's responsibilities under the NHPA; and

3. the Army will ensure that no actions that could result in effects on historic properties are undertaken pursuant to a ROD until the terms of this Agreement have been carried out.

B. The Army will notify the appropriate SHPO at the earliest time possible of the nature and timing of the BRAC actions for individual installations and will provide the

following information:

1. a description of the type and location of the undertaking.

2. currently available milestones for BRAC actions affecting the installation.

3. information available about historic properties at the installation.

C. The Army will coordinate the NEPA process with its NHPA activities. In accordance with the memorandum to all BRAC participants dated July 12, 1989 (Attachment 2), NEPA documentation for each facility will:

1. identify known historic properties and past studies;

2. identify the potential for historic properties to be affected by the BRAC process; and

3. identify the steps necessary for the Army to meet its Section 106 responsibilities under NHPA.

D. The Army will invite comments from affected SHPOs on Environmental Assessments (EA) and Draft Environmental Impact Statements (DEIS).

E. The Army shall provide a copy of this Agreement, its attachments, AR 420-40, 36 CFR 800, and the materials listed in Stipulation IX of this Agreement to appropriate commanders.

IV. IDENTIFICATION AND EVALUATION

A. Identification

1. Based on the assembly of existing information through the NEPA process, the Army will consult with individual SHPOs and make a reasonable and good faith effort to identify historic properties located on installations under Army control that will be affected by BRAC.

2. When existing information is not adequate for identifying significant properties, the Army will undertake installation-specific field surveys in accordance with appropriate professional standards as defined in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42; hereafter "Standards and

Guidelines"), except as provided in Attachment 3.

3. The Army will develop priorities for undertaking identification and evaluation of historic properties on individual installations. These priorities will be determined by:

a. the specific nature and timing of the undertaking proposed;

b. the nature and extent of the individual Army installation and its land use history;

c. the potential nature and extent of historic properties; and

d. possible constraints on field investigations, such as ranges, impact and contaminated areas, safety zones and hazardous materials.

4. All identification and evaluation activities will be carried out in consultation with the appropriate SHPO. In addition, the Army and the SHPOs will assemble and exchange information as it becomes available on the location and evaluation of historic properties.

5. The Army will ensure the identification of records and objects related to the historic significance of properties to be disposed of. Each installation will be required to identify extant historic records and related historic objects.

6. Throughout the planning and implementation of the BRAC program, the Army will provide guidance to the field to ensure that historic properties are not inadvertently damaged, destroyed, or allowed to deteriorate.

B. Evaluation

The Army will determine the eligibility of properties for inclusion in the National Register in accordance with 36 CFR 800.4(c), and with reference to inventories and planning by the State, the Army's history and traditions, previous Army historic site surveys, and any thematic studies that may have been completed or are underway.

V. Determinations of Effect

A. The Army, in consultation with the appropriate SHPO, shall determine the effect of BRAC actions on historic properties in accordance with 36 CFR 800.5, applying the Criteria of Effect

and Adverse Effect at 36 CFR 800.9.

B. Where the Army determines pursuant to 36 CFR 800.5 that an adverse effect may occur, then:

1. if the Army determines, in consultation with the SHPO and taking into account the comments, if any, of the interested persons identified at 36 CFR 800.5(e)(1), that it is appropriate to apply the standard mitigation measures set forth in Attachment 4, the Army may provide the SHPO and the Council with sufficient documentation to support this determination, advise them that it intends to carry out the specified measures, and request their concurrence within 15 days. If the Council and the SHPO concur within 15 days of their receipt of such documentation, the Army shall carry out the standard mitigation measures it has determined to be appropriate. Failure by the Council or SHPO to respond within the specified time period shall be taken to evidence that party's concurrence. Should the Council or SHPO disagree with the Army's determination, the Army will undertake consultation in accordance with 36 CFR 800.5(e).

2. if the Army and the SHPO, taking into account the comments, if any, of the interested persons identified at 36 CFR 800.5(e)(1), agree on a program to avoid, minimize, or mitigate the adverse effect, the Army may provide the Council with sufficient documentation to support this determination and request its concurrence within 30 days. If the Council concurs within 30 days of its receipt of such documentation, the Army shall carry out the program. Failure by the Council to respond within the specified time period shall be taken to evidence the Council's concurrence. Should the Council object to the program, the Army will undertake consultation in accordance with 36 CFR 800.5(e).

3. if the Army determines that neither paragraph 1 nor paragraph 2 above is applicable, the Army will undertake consultation in accordance with 36 CFR 800.5(e).

VI. Treatment and Management.

A. The Army will ensure that the effects of BRAC actions on historic properties are treated in accordance with the determinations and agreements reached pursuant to Stipulation V.

B. For those installations or portions of installations which will remain under Army control, the Army will develop treatment and management plans to ensure that properties affected by BRAC are incorporated into installation Historic Preservation Plans (HPP) in accordance with AR 420-40, and shall create such

HPPs should they not presently exist. All such HPPs shall be developed or amended to include properties affected by BRAC within a reasonable period of time following the date of this Agreement, not to exceed the September 30, 1995 date for completion of BRAC actions as specified in P.L. 100-526.

C. For those installations of which the Army will dispose, the Army will work with the local re-use committees, appropriate SHPOs and other interested parties to develop treatments and/or management plans to ensure compatible reuse.

D. Notwithstanding any other provision of this Agreement, the Army may undertake documentation of historic structures in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (48 FR 44730-34) prior to making a determination or reaching an agreement pursuant to Stipulation V, if the Army judges that such documentation is likely to be part of a mitigation program that will subsequently be agreed to.

E. Notwithstanding any other provision of this Agreement, the Army may enter into agreements with SHPOs and the Council, seeking the concurrence of other interested persons, if any, establishing processes for the identification, evaluation, treatment and management of historic properties that may be subject to effect by a BRAC action, in lieu of identifying such properties and establishing specific treatment or management plans for them prior to making a decision regarding such an action, where:

1. the precise nature, schedule, location or design of the action is uncertain, and

2. the Army, SHPO, and Council agree that the effects of the action are likely to be relatively minor, or affect properties whose treatment or management will require the application of routine procedures.

VII. Interim Protection, Records Retention, and Long Term Curation

A. The Army will notify the appropriate commanders of the need for interim protection of identified and potential historic properties to ensure that deferred maintenance or other management decisions do not adversely effect the integrity of these properties. Important architectural elements will be identified to ensure future appropriate disposal.

B. The Army will consult with the SHPO on terms of curation

and disposition of historical documents, drawings, photographs, reports, and archeological materials generated by BRAC studies.

VIII. Public Involvement

A. The Army will ensure that the activities of the local re-use committees will be coordinated, as appropriate, with activities carried out under this Agreement.

B. The Army and the appropriate SHPO will consider the need for additional consulting parties consistent with the Council's publication, "Public Participation in Section 106 Review: A Guide for Agency Officials" (Advisory Council on Historic Preservation, 1989).

C. To the extent possible, public participation shall be coordinated with public participation under NEPA.

IX. Standards and Guidelines

Standards and guidelines for implementing this Agreement include, but are not limited to:

Army Regulation (AR) 420-40: Historic Preservation (Department of the Army, 15 May 1984);

36 CFR Part 800: Protection of Historic Properties;

The Section 110 Guidelines: Guidelines for Federal Agency Responsibilities under Sec. 110 of the National Historic Preservation Act (53 FR 4727-4746);

The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42);

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (National Park Service, 1983);

Identification of Historic Properties: a Decisionmaking Guide for Managers (Advisory Council on Historic Preservation, 1988);

Public Participation in Section 106 Review: A Guide for Agency Officials (Advisory Council on Historic Preservation, 1989); and

Preparing Agreement Documents (Advisory Council on Historic Preservation, 1989).

X. Dispute Resolution

A. Should a SHPO or an interested person identified at 36 CFR 800.5(e)(1) object to the Army's implementation of any part of this Agreement, the Army shall consult with the objecting party to resolve the objection. If the Army determines that the objection cannot be resolved, the Army shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. provide the Army with recommendations, which the Army will take into account in reaching a final decision regarding the dispute; or

2. notify the Army that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the Army in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

B. Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the Army's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

C. Should a member of the public object to any measure carried out under the terms of this Agreement, or the manner in which such a measure is implemented, the Army shall take the objection into account and consult as needed with the objecting party, the SHPO, and the Council to resolve the objection.

XI. Amendments

Any party to this Agreement who determines that some portion of the Agreement cannot be met must immediately request the other signatories to consider an amendment or addendum to this Agreement which would ensure full compliance. Such an amendment or addendum shall be executed in the same manner as the original Agreement. Should any party to this Agreement be unable to maintain a level of effort sufficient to carry out the terms of

this Agreement, that party shall notify the others and seek an appropriate amendment.

Execution and implementation of this Programmatic Agreement evidences that the Army has satisfied its responsibilities under Sections 106 and 110(f) of the National Historic Preservation Act for all individual undertakings of the program.

DEPARTMENT OF THE ARMY

BY: _____ (date) 5 FEB. 19 9

Paul W. Johnson, Deputy Assistant Secretary of the Army
(Installations and Housing)

NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS

BY: _____ (date) 2-5-90

F. Lawerence Oaks, President

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: _____ (date) Feb. 5, 1990

John F. W. Rogers, Chairman

ATTACHMENT 1

Alabama

Alabama Army Ammunition Plant - closure
Coosa River Annex - closure
Anniston Depot - realignment
Redstone Arsenal - realignment

Arizona

Navajo Activity - closure
Fort Huachuca - realignment
Yuma Proving Ground - realignment

California

Presidio of San Francisco - closure
Hamilton Army Air Field - closure
Sierra Depot - potential realignment
Fort Ord - realignment
Oakland Army Base - realignment
Fort Irwin - realignment
Camp Parks - realignment
Sacramento Army Depot - realignment

Colorado

Bennett Army National Guard Facility - closure
Pueblo Depot - realignment
Fort Carson - realignment
Fitzsimmons Army Medical Center - realignment

District of Columbia

Fort McNair - realignment
Walter Reed Army Medical Center - realignment

Florida

Cape St. George Reservation - closure

Georgia

Fort Gordon - realignment
Fort Benning - realignment

Hawaii

Kapalama Military Reservation - closure
Schofield Barracks - realignment

Illinois

Fort Sheridan - closure

Indiana

Jefferson Proving Ground - closure
Indiana Army Ammunition Plant - partial closure
Fort Benjamin Harrison - realignment

Iowa

Fort De Moines - partial closure

Kansas

Fort Leavenworth - realignment

Kentucky

Lexington Bluegrass Army Depot - closure
Bluegrass Activity - realignment
Fort Knox - realignment
Fort Campbell - realignment

Louisiana

New Orleans Military Ocean Terminal - closure

Massachusetts

Army Material Technology Laboratory - closure
Fort Devens - realignment
Natick Research, Development & Engineering Center - realignment

Maryland

Nike site at Aberdeen Proving Ground - closure
Gaithersburg Army Reserve Center - closure
Fort Meade - partial closure and realignment
Fort Holabird - partial closure and realignment
Fort Detrick - realignment
Aberdeen Proving Ground - realignment
Harry Diamond Laboratory - realignment

Michigan

Pontiac Storage Facility - closure
Detroit Arsenal - realignment

Missouri

Nike site at Kansas City - closure
Fort Leonard Wood - realignment

North Carolina

Fort Bragg - realignment

New Jersey

Fort Dix - realignment
Fort Monmouth - realignment
Picatinny Arsenal - realignment
Nike Philadelphia 41/43 (stand alone housing) - closure

New Mexico

Fort Wingate - closure
White Sands Missile Range - realignment

Nevada

Hawthorne Army Ammunition Plant - realignment

New York

Fort Drum - realignment

Okalahoma

Fort Sill - realignment

Oregon

Umatilla Depot - realignment

Pennsylvania

Tacony Warehouse - closure
Tobyhanna Depot - realignment
Letterkenny Depot - realignment
Fort Indian Town Gap - realignment

South Carolina

Fort Jackson - realignment

Texas

Fort Bliss - realignment
Red River Depot - realignment

Utah

Fort Douglas - closure
Tooele Depot - realignment

Virginia

Cameron Station - closure
Fort Belvoir - realignment
Fort Lee - realignment
Fort Myer - realignment
Fort A. P. Hill - realignment

Washington

Fort Lewis - realignment

Wisconsin

Fort McCoy - realignment

DACS-DMB (5-10c)
SUBJECT: Plan to Accomplish Historic and Cultural Resources Requirements IAW Base Realignment and Closure Implementation Plan for the Army

b. Convene a meeting of Cultural Resources (CR) Subcommittee of BRACO Environmental Committee as required, but not less than every 6 months. The chair of the subcommittee is the HQDA Historic Preservation Officer and members are the historic preservation officers for AMC, FORSCOM, and TRADOC, and the cultural resource specialist for Mobile District.

c. Develop standards for information about historic and cultural resources and for assessments of undertakings having an effect on significant historic resources.

d. Assist MACOMs in developing MOAs and compliance documents for individual installations.

e. Consult with the National Conference of State Historic Preservation Officers (NCSHPO) and the Advisory Council to develop an Army-wide Programmatic Agreement (PA) (IAW 36 CFR 800).

f. Obtain the signature of the Army's Federal representative on Memorandums of Agreement(MOA) entered into with the Advisory Council and the SHPOs for installation base realignment and closure undertakings.

g. Review historic and cultural resources work requirements and cost estimates, as requested by MACOMs.

h. Monitor compliance activities in order to correlate with BRACO schedule and report to Deputy Assistant Secretary of the Army (Installations and Housing).

i. Point of contact is Constance Ramirez (CEHSC-FN) CML 202-272-0867, AV 285-0867.

6. MACOMs will:

a. Ensure that all installations meet NEPA requirements.

b. Include compliance with NEPA in MACOM Base Realignment and Closure Implementation Plan and engineer action plan.

c. Identify installation historic and cultural resources work requirements and cost estimates.

d. Identify compliance tasks and schedule for each installation.

e. Assist installations, as appropriate, in development of MOAs and other compliance and mitigation documents.

f. Forward all MOAs to COE for ratification by Army's Federal Representative (DASA(I&H)).

g. Ensure that guidance and information on historic preservation compliance is disseminated in a timely manner to MACOM components.

h. Review DD Form 1391 to ensure project compliance with NHPA and/or MOAs.

i. Coordinate with Center for Military History on treatment of historic records associated with historic places.

j. Provide installation points of contact for historic resources to OCOE (CEHSC-FN).

k. MACOM historic preservation contacts are:

FORSCOM: Dr. James Cobb/FACEN-CDP/(404)362-7186

TRADOC: Dr. Paul Green/ATEN-FN/(804) 727-2362

AMC: Mr. Paul McGuff/CESWF-PL-RC/USACE Fort Worth District/(817)334-2095

MDW: Ms. Peggy Weigle/ANRM-MRB/(202)475-1199

7. Installations will:

a. Provide all existing information about historic and cultural resources to USACE districts preparing Environmental Assessment/ Environmental Impact Statement.

b. Ensure adequacy of historic and cultural resource information in NEPA documentation.

c. Establish a POC for historic resources for all base realignment and closure actions and forward name, address and telephone number to MACOM POC.

d. Provide materials about the installation's mission and its historic and cultural resources for compliance consultation with SHPO, Advisory Council and MACOM.

c. Identify future work that will be required in order to meet NEPA and NHPA Section 106, 110, and 111 requirements. Recommendations for work should be restricted solely to those effects brought about by base closure or realignment. Information about work efforts to be recommended at the affected installations will include:

(1) Approximate size (in acres) of areas to be recommended for archeological survey.

(2) Approximate number and locations of buildings, structures, districts, objects or sites to be recommended for historical inventory.

(3) Approximate number of known archeological sites needing additional testing or data analysis to determine National Register eligibility.

(4) Separate cost estimates to complete each of the above studies broken out at a minimum by contract and administration costs or by in-house costs if the tasks can be completed by Corps of Engineers cultural resource personnel.

(5) Separate cost estimates for those installations to be realigned if activity placement alternatives have been identified that will differentially affect cultural resources. The estimates should reflect the different costs between locating activities in areas thought to have a high potential for possessing significant cultural resources versus areas thought to have a low potential for possessing significant resources.

d. Provide MACOMs with cost estimates to complete work identified in Subparagraph c above NLT 4 Aug 89. Work items shall indicate if tasks are to identify and evaluate historic resources or to mitigate the effects of the base realignment and/or closure undertaking.

e. Provide POC for historic resources actions to MACOMS and COE.

9. USACE Mobile District will:

a. Provide project management oversight and coordination between the USACE direct support districts, MACOMs, and DA during the NHPA process.

b. Continue overall project management and coordination duties during the ongoing NHPA compliance process, following completion of initial EA/EIS documentation, to include oversight of historic preservation action plan.

c. Consult with the MACOMs on the preparation of the historic preservation action plan to be developed in conjunction with the MACOM funding requests.

d. Assist the MACOMs and DA to see that work items identified in the action plan are carried out through a number of contracting alternatives, including utilization of the existing USACE direct support districts.

e. Assist OCE ERACO CR Subcommittee in developing MACOM funding requirements and consolidating funding requirements for submission to OCE ERACO, and oversee distribution of funds for accomplishment of items in historic preservation action plan.

f. Represent the USACE direct support districts on the OCE ERACO CR Subcommittee.

g. Ensure that historic preservation compliance documents (and MOAs if required) are completed for Stand Alone Housing.

10. Schedule: In order to ensure that NHPA requirements do not delay realignments and closure activities, the following schedule has been established:

a. 25 May 89: CR Subcommittee met to develop plan.

b. 5 Jun 89: Historic and Cultural Resources Requirements Plan distributed.

c. 1 Aug 89: Complete PA with Advisory Council.

d. 4 Aug 89: Cost estimates for future work due from Districts for MACOMs.

e. 17 Oct 89: CR Subcommittee meeting to review work items, adjust implementation and action plans and develop baseline information for MOAs.

f. Apr 90: Complete early MOAs; CR Subcommittee meeting.

g. Oct 90: Complete all possible MOAs; CR Subcommittee meeting.

h. Apr 91: Complete late MOAs; CR Subcommittee meeting.

DACS-DMB (5-10c)
SUBJECT: Plan to Accomplish Historic and Cultural Resource Require-ments IAW Base Realignment and Closure Implementation for the Army

11. Point of contact is David Yentzer, DAEN-ZCI-A, CML (202) 694-4313/AV 224-4313 for administrative questions and Constance Ramierz, CEHSC-FN, CML (202) 272-0867/AV 285-0867 for technical questions.

BY DIRECTION OF THE CHIEF OF STAFF:

CHARLES E. WILLIAMS
Major General, GS
Director of Management

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U. S. ARMY MILITARY TRAFFIC MANAGEMENT COMMAND
U. S. ARMY RECRUITING COMMAND

ATTACHMENT 4

STANDARD MITIGATION MEASURES

1. Transfer of a historic building or structure subject to a preservation covenant, enforceable under applicable State law, equivalent to the example shown in Figure 7 of the Council's 1989 publication: "Preparing Agreement Documents" (pp. 30-31), combined with a program of recordation approved by the SHPO as consistent with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (48 FR 44730-34).

2. Recovery of data from an archeological site or sites in accordance with a research design and data recovery plan prepared in consultation with the SHPO and interested persons (including any interested Indian tribe or other Native American group) and addressing each of the following points:

- the property, properties, or portions of properties where data recovery is to be carried out;

- any property, properties, or portions of properties that will be altered or transferred without data recovery;

- the research questions to be addressed through the data recovery, and the importance and relevance of each;

- the methods to be used, and their relevance to the research questions;

- the methods to be used in analysis, data management, and dissemination of data, including a schedule;

- the disposition of recovered materials and records;

- the methods for involving the interested public in the data recovery;

- the methods for disseminating results of the work to the interested public;

- the methods by which local governments, Indian tribes, and other interested persons will be kept informed of the work and afforded the opportunity to comment; and

- the methods and schedule by which progress and final reports will be provided to the SHPO, the Council, and interested persons.

ATTACHMENT 3

EXCEPTIONS TO IDENTIFICATION PROCEDURES

Where existing information is not adequate for identifying historic properties, the Army nonetheless need not undertake installation-specific field surveys pursuant to Stipulation IV.A.2 if:

a. the lands involved will be transferred to another Federal agency that will use them for purposes no more likely to adversely affect historic properties than those for which the lands are presently used by the Army, provided the recipient Federal agency agrees to develop and implement a program, in consultation with the SHPO and other interested persons, for carrying out the requirements of Section 110(a)(2) of the National Historic Preservation Act on the lands it receives; or

b. the lands involved will be transferred to a State or local agency that enters into an agreement with the Army, the SHPO, and the Council stipulating that it will use them for purposes likely to have no adverse effect on historic properties which may be present, and that it will develop and implement a program, in consultation with the SHPO, the Council, and other interested persons, for identifying and protecting historic properties in a manner consistent with the "Standards and Guidelines" and other applicable Department of the Interior and Council guidelines: or

c. the BRAC action that will affect the lands involved, and the nature of the historic properties that may exist on such lands, are such that the Army, the SHPO, the Council, and other interested persons agree that identification need not be carried out, or may be carried out at a later date, and enter into an agreement stipulating how and by whom any identification will be carried out.