Final

Environmental Assessment for the Implementation of 2005 Base Realignment and Closure Recommendations 5 and 132 at Fort Belvoir, Virginia

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

with technical assistance from

Tetra Tech, Inc.
Fairfax, VA

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ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF 2005 BASE REALIGNMENT AND CLOSURE (BRAC) RECOMMENDATIONS 5 and 132 AT FORT BELVOIR, VIRGINIA

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This environmental assessment (EA) addresses the proposed action to implement the 2005 Base Realignment and Closure (BRAC) recommendations 5 and 132 at Fort Belvoir, Virginia. It has been developed in accordance with the National Environmental Policy Act and implementing regulations issued by the Council on Environmental Quality (Title 40 of the *Code of Federal Regulations* [CFR] Parts 1500–1508) and the Army (32 CFR Part 651). Its purpose is to inform decisionmakers and the public of the likely environmental and socioeconomic consequences of the proposed action and alternatives.

An ***EXECUTIVE SUMMARY*** briefly describes the proposed action, environmental and socioeconomic consequences, and mitigation measures.

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SECTION 1.0: ***PURPOSE, NEED, AND SCOPE*** summarizes the purpose of and need for the proposed action and describes the scope of the environmental impact analysis process.

SECTION 2.0: ***PROPOSED ACTION*** describes the proposed action to implement the 2005 BRAC recommendations 5 and 132 at Fort Belvoir, Virginia.

SECTION 3.0: ***ALTERNATIVES*** examines alternatives to implementing the proposed action.

SECTION 4.0: ***AFFECTED ENVIRONMENT AND CONSEQUENCES*** describes the existing environmental and socioeconomic setting at Fort Belvoir, Virginia, and identifies potential effects of implementing the proposed action and alternatives.

SECTION 5.0: ***FINDINGS AND CONCLUSIONS*** summarizes the environmental and socioeconomic effects of implementing the proposed action and alternatives.

SECTION 6.0: ***REFERENCES*** provides bibliographical information for cited sources.

SECTION 7.0: ***PERSONS CONSULTED*** provides a listing of persons and agencies consulted during preparation of this EA.

SECTION 8.0: ***LIST OF PREPARERS*** identifies the persons who prepared the document.

SECTION 9.0: ***DISTRIBUTION LIST*** indicates recipients of this EA.

APPENDICES

- ***A*** BRAC Commission Recommendations 5 and 132
- ***B*** Agency Coordination Letters
- ***C*** Programmatic Agreement
- ***D*** Coastal Zone Consistency Determination
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- ***F*** Economic Impact Forecast System Model Results

An ***ACRONYMS AND ABBREVIATIONS*** list is provided at the end of the document.

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ENVIRONMENTAL ASSESSMENT

***TITLE OF PROPOSED ACTION*:** Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations 5 and 132 at Fort Belvoir, Virginia

***LEAD AGENCY*:** Department of the Army

***AFFECTED JURISDICTION*:** Fairfax County, Virginia

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ABSTRACT: This Environmental Assessment (EA) considers the proposed action to provide a combination of permanent and temporary space at Fort Belvoir, Virginia, for BRAC recommendations 5 and 132 by the September 15, 2011, BRAC deadline. The EA identifies, evaluates, and documents the effects of three alternatives involving constructing relocatable buildings, renovating existing buildings, and associated actions on the environment and economic and social conditions on Fort Belvoir and surrounding areas that would result from implementation of the proposed action. A No Action Alternative is also evaluated. Implementation of the proposed action is not expected to result in significant adverse environmental impacts. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact (FNSI) will be published in accordance with the National Environmental Policy Act.

EA PUBLICATION: The EA and draft FNSI are available for review and comment for 30 calendar days from the publication of a Notice of Availability (NOA) in the Fairfax County Times, Mount Vernon Voice, Mount Vernon Gazette, and the Washington Post. For additional information concerning the EA, please contact Mr. Don Carr, Fort Belvoir Director of Public Affairs, 9820 Flagler Road Suite 201, Fort Belvoir, Virginia 22060-5610, phone number (703)805-5001 (or by e-mail at donald.carr@ conus.army.mil). Copies of the EA and draft FNSI have been provided to the libraries listed in Section 9 of the EA. The EA is available on the following Web sites: http://www.belvoirbrac-eis.net and http://www.hqda.army.mil/acsim/brac/env_ea_review.htm. Written comments on the EA and draft FNSI are to be submitted by mail to Fort Belvoir Directorate of Public Works, ATTN: BRAC 5/132 Public Comments, 9430 Jackson Loop, Suite 100, Fort Belvoir, VA 22060-5116 no later than 30 calendar days from the publication of the NOA.

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This environmental assessment (EA) evaluates the potential environmental and socioeconomic effects of realigning the units, agencies, and activities known as Base Realignment and Closure (BRAC) Commission Recommendation Number 5 (BRAC 5) and BRAC Commission Recommendation Number 132 (BRAC 132). Relative to Fort Belvoir, BRAC 5 requires the relocation and realignment of activities and offices into a consolidated Program Executive Office, Enterprise Information Systems at Fort Belvoir, Virginia. BRAC 132 requires the relocation of various agencies, activities, and units—including the U.S. Army Legal Services Agency (USALSA) and the U.S. Army Audit Agency (AAA)—from various leased facilities in the National Capital Region to Fort Belvoir.

ES.2 BACKGROUND

In June 2007 the Army published its *Final Environmental Impact Statement, Implementation of 2005 Base Realignment and Closure (BRAC) Recommendation and Related Army Actions at Fort Belvoir, Virginia* (USACE 2007a) (2007 Fort Belvoir BRAC EIS). Since the 2007 Fort Belvoir BRAC Environmental Impact Statement (EIS) was completed, USALSA and AAA have identified further requirements that were not specifically addressed in the EIS, including the need for document libraries for which existing facilities on Fort Belvoir are not suitable. Furthermore, as planning at Fort Belvoir has progressed, BRAC space requirements have changed, available space is more limited than previously thought, and the timing of the movement of personnel has created challenges of space being available in time to meet the BRAC deadline of September 15, 2011, the date by which all BRAC 2005 actions must be completed. This EA evaluates the effects of accommodating BRAC 5 and BRAC 132 in light of those newly understood requirements.

ES.3 PROPOSED ACTION AND ALTERNATIVES

The proposed action is to provide sufficient space for incoming BRAC 5/132 as a combination of temporary space in relocatable buildings and permanent space in up to 19 existing buildings on Fort Belvoir. The 19 buildings under consideration for final assignment (permanent) locations to support BRAC 5/132 are 211, 214, 215, 216, 219, 220, 314, 767, 805, 808, 815, 1099, 1456, 1458, 1464, 1465, 1467, 1469, and 1471.

ES.4 ALTERNATIVES

ES.4.1 Alternative A: 460,000 SF of Relocatable Buildings

Under Alternative A, relocatable buildings would be constructed on up to all nine of the proposed primary sites to provide up to 460,000 square feet (SF) of temporary space for incoming BRAC 5/132. One or both secondary sites (the golf course maintenance area and the Directorate of Emergency Services [DES] lot) would be used for storage of recreational vehicles (RVs) moved from the RV lot. Existing buildings would be renovated to meet the remaining space requirement for BRAC 5/132.

ES.4.2 Alternative B: 150,000 SF of Relocatable Buildings

Under Alternative B, relocatable buildings would be erected on a combination of the RV lot, the Residential Communities Initiative (RCI) lot, the Gerber West site, and the Tompkins Basin site

(sites 1, 2, 8, and 9) to provide 150,000 SF of temporary space for BRAC 5/132. Existing buildings would be renovated to meet the remaining space requirement for BRAC 5/132.

ES.4.3 Alternative C: Warehouse Buildings

Under Alternative C, relocatable buildings would not be constructed. Instead, 15 existing buildings on Fort Belvoir, including Building 767, the Museum Support Center, and 13 other buildings would be used to provide space for incoming BRAC 5/132 personnel. One or both secondary sites (the golf course maintenance area and the DES lot) would be used for storing RVs if the RVs were moved from the RV lot. Parking for personnel located in Building 767 and the Museum Support Center would be provided near the buildings.

ES.4.4 No Action Alternative

Inclusion of the No Action Alternative is prescribed by the Council on Environmental Quality regulations and serves as the benchmark against which federal actions can be evaluated. No action assumes that Fort Belvoir would proceed with planning using the current turnover and fitout schedules for existing buildings as described in the 2007 Fort Belvoir BRAC EIS. Specifically, the EIS analyzed the renovation of Buildings 211, 214, 215, and 220, buildings that are also being considered to provide for the space requirements of BRAC 5/132. Note that the No Action Alternative does not provide sufficient space for the incoming units, activities, and agencies under BRAC 5/132. The No Action Alternative is evaluated in detail in this EA.

ES.5 ENVIRONMENTAL CONSEQUENCES

The EA evaluates potential effects on land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances. For each resource, the potential effects of implementing the proposed alternatives and the No Action Alternative are briefly described below. The consequences of the alternatives are summarized in Table ES-1.

ES.5.1 Alternative A: 460,000 SF of Relocatable Buildings

No adverse effects from implementing Alternative A would be expected on the following resource areas: land use; geology, topography, and prime farmland soils; floodplains and the coastal zone; sensitive species; wetlands; population, housing, quality of life, and environmental justice; utility systems, and hazardous wastes at Fort Belvoir.

Short-term minor adverse effects from implementing Alternative A would be expected on the following resource areas: air quality, the noise environment, soils, surface waters and groundwater, cultural resources, the protection of children, and traffic and transportation. Air quality would be affected primarily from introducing new on-road and non-road emission sources during the construction of the relocatable structures and renovation of buildings. The effects on noise would be primarily due to heavy equipment noise during construction and renovation activities. Adverse effects on the protection of children would be from inherent risks of construction sites to children at the Lewis West and Gerber West sites. Adverse effects on transportation would be from additional construction vehicles and construction worker commutes to the installation.

Table ES-1
Summary of potential environmental and socioeconomic consequences

Environmental and Socioeconomic Effects				
Resource area	**Alternative A (460,000 SF of relocatables)**	**Alternative B (150,000 SF of relocatables)**	**Alternative C (Warehouse buildings)**	**No Action Alternative**
Land use	No adverse effects on land use; LT minor adverse on land cover at DAAF, AMC, Lewis West, & Town Center sites	No adverse effects	No adverse effects	No effects
Aesthetics and visual resources	LT minor adverse at Lewis West & AMC sites; LT minor beneficial at Gerber West and Tompkins Basin	LT minor beneficial effects at Gerber West and Tompkins Basin/	No effects	No effects
Air quality	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Noise	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Geology and soils				
• Geology/topography	No adverse effects	No adverse effects	No adverse effects	No effects
• Soils	ST minor adverse	ST minor adverse	ST minor adverse	No effects
• Prime farmland soils	No adverse effects	No adverse effects	No adverse effects	No effects
Water resources				
• Surface waters	ST & LT minor adverse	ST & LT minor adverse	ST & LT minor adverse	No effects
• Groundwater	ST & LT minor adverse	ST & LT minor adverse	ST & LT minor adverse	No effects
• Floodplains	No adverse effects	No adverse effects	No adverse effects	No effects
• Coastal zone	No adverse effects	No adverse effects	No adverse effects	No effects
Biological resources				
• Vegetation	LT minor adverse	No adverse effects	No adverse effects	No effects
• Wildlife	LT minor adverse	No adverse effects	No adverse effects	No effects
• Sensitive species	No adverse effects	No adverse effects	No adverse effects	No effects
• Wetlands	No adverse effects	No adverse effects	No adverse effects	No effects
Cultural resources	ST minor adverse	ST minor adverse/	No effects	No effects
Socioeconomics				
• Economic development	ST minor beneficial	ST minor beneficial	ST minor beneficial	No effects
• Population	No adverse effects	No adverse effects	No adverse effects	No effects
• Housing	No adverse effects	No adverse effects	No adverse effects	No effects
• Quality of life	No adverse effects	No adverse effects	No adverse effects	No effects
• Environmental justice	No adverse effects	No adverse effects	No adverse effects	No effects
• Protection of children	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Transportation	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Utilities	LT minor adverse on landfill capacity	LT minor adverse on landfill capacity	LT minor adverse on landfill capacity	No effects
Hazardous and toxic substances	LT minor beneficial on ACM & LBP	LT minor beneficial on ACM & LBP	LT minor beneficial on ACM & LBP	No effects

Note: LT = long term, ST = short term

Long-term minor adverse effects from implementing Alternative A would be expected on land cover, aesthetic and visual resources, surface waters and groundwater, vegetation, wildlife, and the capacity of regional landfills. Installing a relocatable building on the Davison Army Airfield (DAAF) and Lewis West sites would require clearing wooded areas, and mature trees and maintained lawn would be removed from the Army Materiel Command (AMC) and Town Center sites, which would have adverse effects on biological resources at those sites. None of the adverse effects associated with implementing Alternative A would be significant.

Short-term minor beneficial effects from implementing Alternative A would be expected on economic development from expenditures for the construction of the relocatable buildings and building renovations.

Long-term minor beneficial effects from implementing Alternative A would be expected on aesthetics at the Gerber West and Tompkins Basin sites from overall site improvements and on asbestos-containing materials (ACM) and lead-based paint (LBP). Renovations in buildings containing these substances would result in their removal and proper disposal.

ES.5.2 Alternative B: 150,000 SF of Relocatable Buildings

No adverse effects from implementing Alternative B would be expected on the following resource areas: land use, aesthetics, geology, topography, prime farmland soils, biological resources (including protected species and wetlands), population, housing, quality of life, and environmental justice; utility systems at Fort Belvoir; and hazardous and toxic substances.

Short-term minor adverse effects from implementing Alternative B would be expected on the following resource areas: air quality, the noise environment, soils, cultural resources, the protection of children, and traffic and transportation. The causes of the adverse effects would be the same as those under Alternative A.

Long-term minor adverse effects from implementing Alternative B would be expected on surface waters and groundwater, and landfill capacity at regional landfills, again for the same reasons as under Alternative A. None of the adverse effects associated with implementing Alternative B would be significant.

Short-term minor beneficial effects from implementing Alternative B would be expected on economic development from expenditures for the construction of the relocatable buildings and renovation of existing buildings.

Long-term minor beneficial effects from implementing Alternative B would be expected on aesthetics from site improvements at the Gerber West and Tompkins Basin sites, and on ACM and LBP from their removal and proper disposal during building renovations.

ES.5.3 Alternative C: Warehouse Buildings

No adverse effects from implementing Alternative C would be expected on the following resource areas: land use, aesthetics, geology, topography, prime farmland soils, biological resources (including protected species and wetlands), cultural resources, population, housing, quality of life, and environmental justice; utility systems at Fort Belvoir; and hazardous and toxic substances.

Short-term minor adverse effects from implementing Alternative C would be expected on the following resource areas: air quality, the noise environment, soils, the protection of children, and traffic and transportation. The causes of the adverse effects would be the same as those under Alternative A.

Long-term minor adverse effects from implementing Alternative C would be expected on surface waters and groundwater, and landfill capacity at regional landfills, again for the same reasons as under Alternative A. None of the adverse effects associated with implementing Alternative C would be significant.

Short-term minor beneficial effects from implementing Alternative C would be expected on economic development from expenditures for parking lot construction and renovation of existing buildings.

Long-term minor beneficial effects from implementing Alternative C would be expected on ACM and LBP from their removal and proper disposal during building renovations.

ES.5.4 No Action Alternative

No adverse effects on any resource area would result from implementing the No Action Alternative. Under the No Action Alternative, the Army would not implement the proposed action. No action assumes that Fort Belvoir would proceed with planning using the current turnover and fitout schedules for existing buildings as described in the 2007 Fort Belvoir BRAC EIS. The No Action Alternative does not provide sufficient space for the incoming units, activities, and agencies under BRAC 5/132.

ES.6 CONCLUSIONS

On the basis of the analyses performed in this EA, installation of relocatable buildings on up to nine locations on Fort Belvoir and renovation of up to 19 buildings to provide space for incoming BRAC 5/132 personnel by September 15, 2011, would have no significant adverse consequences and would not be expected to have any significant direct, indirect, or cumulative adverse effects on the quality of the natural or human environment. No significant adverse effects would result from implementation of the proposed action under any of the alternatives. An environmental impact statement does not need to be prepared, and issuance of a finding of no significant impact would be appropriate.

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Appendix D Coastal Zone Management Act (CZMA) Consistency Determination for the Proposed Implementation of BRAC 5/132

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Acronyms and Abbreviations (*at end*)

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SECTION 1.0
PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

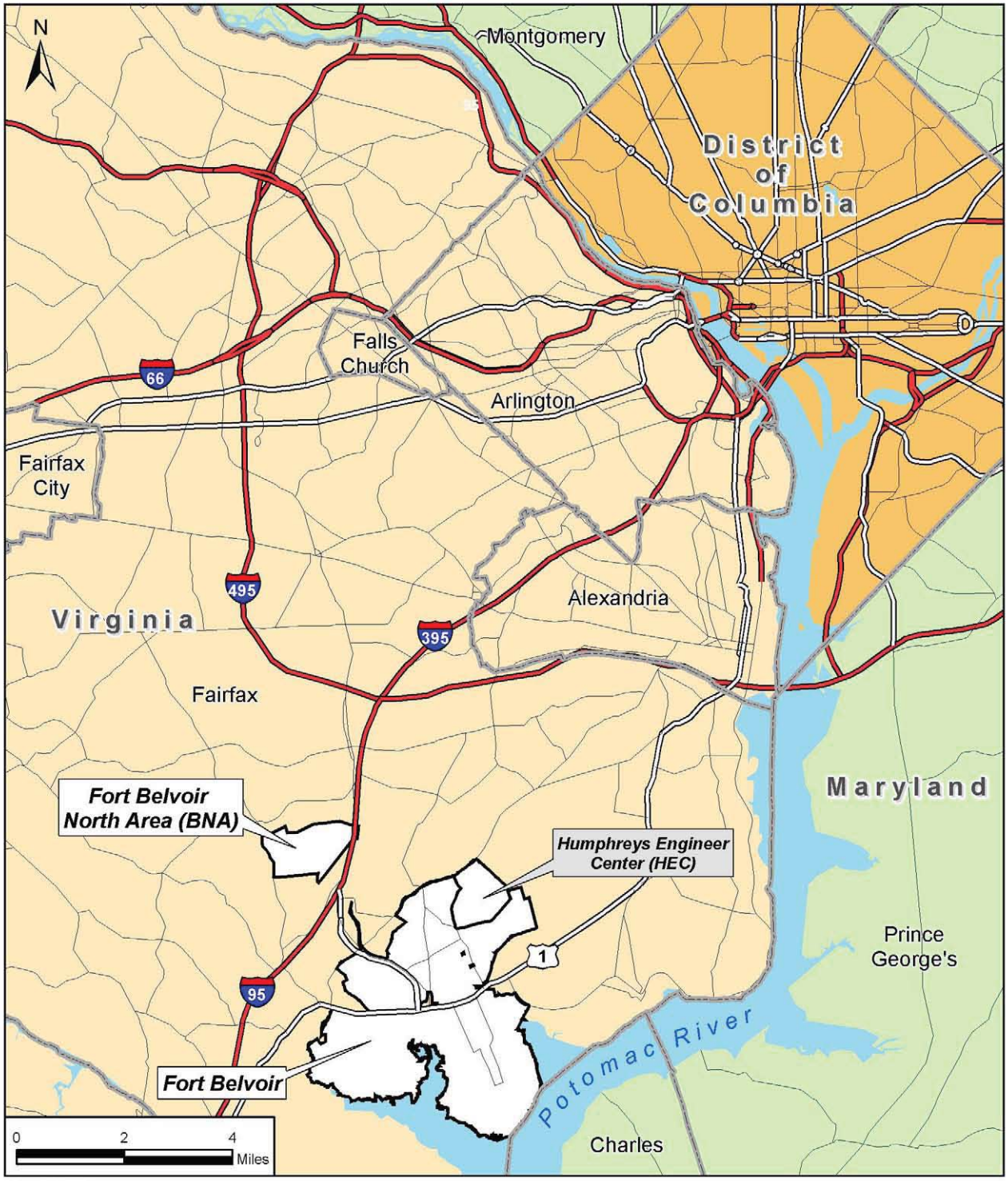
On September 8, 2005, the Defense Base Closure and Realignment Commission (BRAC Commission) recommended numerous realignment and closure actions for domestic military installations. The recommendations became law on November 9, 2005, and they must be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, as amended).

This environmental assessment (EA) evaluates the potential environmental and socioeconomic effects of realigning the units, agencies, and activities known as BRAC Commission Recommendation Number 5 (BRAC 5) and BRAC Commission Recommendation Number 132 (BRAC 132). Relative to Fort Belvoir, BRAC 5 requires the relocation and realignment of activities and offices into a consolidated Program Executive Office, Enterprise Information Systems at Fort Belvoir. BRAC 132 requires the relocation of various agencies, activities, and units—including the U.S. Army Legal Services Agency (USALSA) and the U.S. Army Audit Agency (AAA)—from various leased facilities in the National Capital Region to Fort Belvoir (Figure 1-1).

In June 2007 the Army published its *Final Environmental Impact Statement, Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* (USACE 2007a) (2007 Fort Belvoir BRAC EIS). Since the 2007 Fort Belvoir BRAC Environmental Impact Statement (EIS) was completed, USALSA and AAA have identified further requirements that were not specifically addressed in the EIS, including the need for document libraries for which existing facilities on Fort Belvoir are not suitable. Furthermore, as planning at Fort Belvoir has progressed, BRAC space requirements have changed, available space is more limited than previously thought, and the timing of moving personnel has created challenges of space being available in time to meet the BRAC deadline of September 15, 2011, the date by which all BRAC 2005 actions must be completed (see Section 1.6.1). This EA evaluates the effects of accommodating BRAC 5 and BRAC 132 in light of those newly understood requirements.

1.2 PURPOSE AND NEED

The proposed action is to provide a combination of permanent and temporary space at Fort Belvoir for BRAC 5/132 by the September 15, 2011 BRAC deadline. The purpose of the proposed action is to provide administrative space for the units, agencies, and activities collectively known as BRAC 5 and BRAC 132 on Fort Belvoir, as required by law. The overall relocation of the BRAC 5/132 elements (involving approximately 3,333 personnel) was evaluated in the 2007 Fort Belvoir BRAC EIS. This EA is needed to evaluate the potential effects of accommodating the BRAC 5/132 elements on Fort Belvoir—of which permanent space will not be available for some by September 15, 2011—in some combination of existing buildings and relocatable buildings, and other associated actions. In particular, permanent facilities for USALSA and AAA will not be available on Fort Belvoir by the September 15 deadline. The two agencies will require new facilities because existing facilities on Fort Belvoir do not meet the agencies' weight requirements, and USALSA must have all its elements in one building to provide coordination and effective legal representation across legal disciplines. Temporary space



LEGEND

- Installation Boundary
- County Boundary
- Primary Road (Limited Access)
- Primary Road
- Secondary Road

Installation Location

Figure 1-1

Source: Fort Belvoir GIS, 2009.

might be necessary for other incoming elements under BRAC 5/132 as well, depending on other factors (see Section 2.1).

1.3 SCOPE

This EA identifies, documents, and evaluates the environmental effects of realignment activities in accordance with the National Environmental Policy Act of 1969 (NEPA) and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army.[1]

The purpose of the EA is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. The range of actions, alternatives, and impacts considered in this EA is intertwined with the requirements for BRAC analysis. As further described in the EA, the scope is the geographic areas potentially affected by the realignment activities, as well as the areas of potential effects, which vary by resource.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the Department of Defense (DoD), except "(i) during the process of property disposal, and (ii) during the process of relocating 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" (Public Law 101-510, as amended, Sec. 2905(c)(2)(A)). The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected" (Sec. 2905(c)(2)(B)). The BRAC Commission's deliberation and decision and the need for closing or realigning a military installation are exempt from NEPA. Accordingly, this EA does not address the need for realignment.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons and entities promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by Title 32 of the *Code of Federal Regulations* (CFR) Part 651. Upon completion, the EA, along with a draft Finding of No Significant Impact (FNSI), will be made available to the public for 30 days. At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or the draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementing the proposed action. If it is determined before a final FNSI is issued

[1] *Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, Title 40 of the *Code of Federal Regulations* (CFR) Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.

that implementing the proposed action would result in significant impacts, the Army will publish in the *Federal Register* a notice of intent to prepare an EIS, commit to mitigation actions sufficient to reduce impacts to below significant levels, or not take the action.

Throughout this process, the public can obtain information on the status and progress of the proposed action and the EA by contacting Mr. Don Carr, Fort Belvoir Director of Public Affairs, 9820 Flagler Road Suite 201, Fort Belvoir, VA 22060-5610, phone number (703) 805-2583 (or by e-mail at donald.carr@conus.army.mil).

On October 14, 2009, and December 3, 2009, the Army mailed letters to federal, state, and local agencies and organizations soliciting their input concerning the proposed action. The Army had not received replies at the time that this EA was finalized. The letters sent by the Army are in Appendix B.

Preparation of this EA has included subject matter experts' consideration of all comments received from agencies, organizations, and individuals.

1.5 IMPACT ANALYSIS PERFORMED

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The proposed action is described in Section 2.0. Alternatives for implementing the proposed action, including the No Action Alternative, are described in Section 3.0. Existing conditions are described in Section 4.0, Affected Environment and Environmental Consequences. The expected effects of the proposed action, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Mitigation actions are identified for each aspect of the proposed action, as appropriate. Cumulative effects are discussed at the end of Section 4.0. Section 5.0 presents the Conclusions of the EA. Sections 6.0 through 9.0 provide the List of Preparers, Distribution List, References, and Acronyms and Abbreviations. Appendices include BRAC Commission Recommendations Number 5 and Number 132 (Appendix A), Agency Coordination Letters and Responses (Appendix B), Coastal Zone Management Act (CZMA) Consistency Determination (Appendix C), and supporting documentation for air quality and socioeconomics (Appendices D through E).

The resources addressed in this EA are land use, aesthetics, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomic resources, transportation, utilities, and hazardous and toxic materials.

1.6 REGULATORY FRAMEWORK

1.6.1 BRAC Procedural Requirements

As noted in Section 1.3, the Defense Base Closure and Realignment Act of 1990 specifically addresses the applicability of NEPA to actions of the BRAC Commission and to actions of the President in approving or disapproving the BRAC Commission's recommendations, as well as the congressional waiver of the procedural elements of NEPA where the actions of the DoD and the BRAC Commission in recommending bases for closure and realignment are concerned. The BRAC Commission procedures for identifying affected installations and bases are specified by this law. They include the DoD Force Structure Plan, selection criteria that were published in the

Federal Register for public comment, DoD recommendations, review and recommendations by the BRAC Commission, and review by the President.

The Defense Base Closure and Realignment Act of 1990 requires that all closures and realignments be initiated by no later than 2 years after the date on which the President transmits a report to Congress including the recommendations for closures and realignments (Pub. L. 101-510, as amended, Sec. 2904 (a)(3)) and completed by no later than the end of the 6-year period beginning on the same date (Pub. L. 101-510, as amended, Sec. 2904(a)(4)). President Bush concurred with the 2005 BRAC Commission's report and sent it to Congress on September 15, 2005. Therefore, the BRAC actions must be completed by no later than September 15, 2011.

1.6.2 Relevant Statutes and Executive Orders

In addressing environmental considerations, the Army is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act; Clean Water Act; Noise Control Act; Endangered Species Act; National Historic Preservation Act; Archaeological Resources Protection Act; Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act (RCRA); and Toxic Substances Control Act. EOs bearing on the proposed action include EO 11593 (Protection and Enhancement of the Cultural Environment), EO 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), EO 12088 (Federal Compliance with Pollution Control Standards), EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks), and EO 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), and EO 13514 (Federal leadership in Environmental, Energy, and Economic Performance). Such authorities are addressed throughout this EA when relevant to environmental resources and conditions. Full descriptions for the laws, regulations, and EOs are available on the Defense Environmental Network & Information Exchange Web site at http://www.denix.osd.mil.

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SECTION 2.0
DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

Implementing BRAC 5 and BRAC 132 will realign to Fort Belvoir as required by the Defense Base Closure and Realignment Act of 1990. The overall relocation of the BRAC 5/132 elements (involving approximately 3,333 personnel) was evaluated in the Fort Belvoir 2007 BRAC EIS. Timing for the movements, however, has created a challenge of space availability in time to meet the September 15, 2011, deadline by which all BRAC 2005 actions must be completed. Some buildings that will serve as final assignment locations for incoming BRAC 5/132 personnel might not have been vacated and renovated before the BRAC deadline. The Army has also identified space requirements for BRAC 5/132 that were not accommodated when the 2007 Fort Belvoir BRAC EIS was completed. In particular, permanent facilities for USALSA and AAA will not be available on Fort Belvoir by the BRAC deadline. The Army proposes to meet the space requirements of BRAC 5/132 by providing permanent and temporary space at Fort Belvoir in existing and relocatable buildings.

The total space required for the incoming BRAC 5/132 personnel is approximately 741,000 square feet (SF).[2] Some space for the incoming personnel will be made available by personnel now at Fort Belvoir relocating to other locations, as directed by BRAC 2005. The Army has estimated that some combination of a maximum of 460,000 SF of space in relocatable buildings and a maximum of 600,000 SF of space in existing buildings on Fort Belvoir, or the use of approximately 737,000 SF of existing building space on Fort Belvoir would be sufficient to provide for the space requirements of BRAC 5/132 until permanent space can be made available. The sites being considered for the relocatable buildings and the buildings being considered for renovation are described below.

2.2 PROPOSED ACTION

The proposed action is to provide sufficient space for incoming BRAC 5/132 as a combination of space in relocatable buildings and in up to 20 existing buildings on Fort Belvoir. The 20 buildings under consideration for final assignment (permanent) locations to support BRAC 5/132 are 211, 214, 215, 216, 219, 220, 314, 767, 805, 808, 815, 1099, 1456, 1458, 1464, 1465, 1467, 1469, 1471, and the Museum Support Center, a new building that does not yet have a building number.

Most BRAC 5/132 units, activities, and agencies, if placed in temporary space, would move to their permanent locations as renovations of existing buildings are completed. Because USALSA and AAA require new facilities, the agencies would remain in their assigned facilities until their permanent locations at Fort Belvoir are constructed, which may not be for many years. Analysis of the relocation of USALSA and AAA to their permanent locations is beyond the scope of this EA as that action will not occur before the September 15, 2011 deadline. That action is sufficiently far into the future and is not ready for analysis at this time. NEPA analysis for that action will occur at a future date.

[2] Unless otherwise noted, all square footages mentioned are gross square feet.

2.2.1 Sites for Relocatable Buildings

Relocatable buildings are proposed to be used to provide temporary space for incoming personnel from BRAC 5/132 activities to meet the September 15, 2011, deadline. A relocatable building is a building designed to be readily erected, disassembled, moved, stored, and reused. Relocatable buildings are delivered in pieces to be assembled on-site, and can be disassembled and reused when no longer needed. The structures are generally installed on a footing and pier system or with a perimeter wall and interior footings and piers, with piers placed 32, 36, or 48 inches deep and 8 to 12 feet apart (Welles, personal communication, 2009). Figure 2-1 shows a relocatable building at Fort Belvoir.

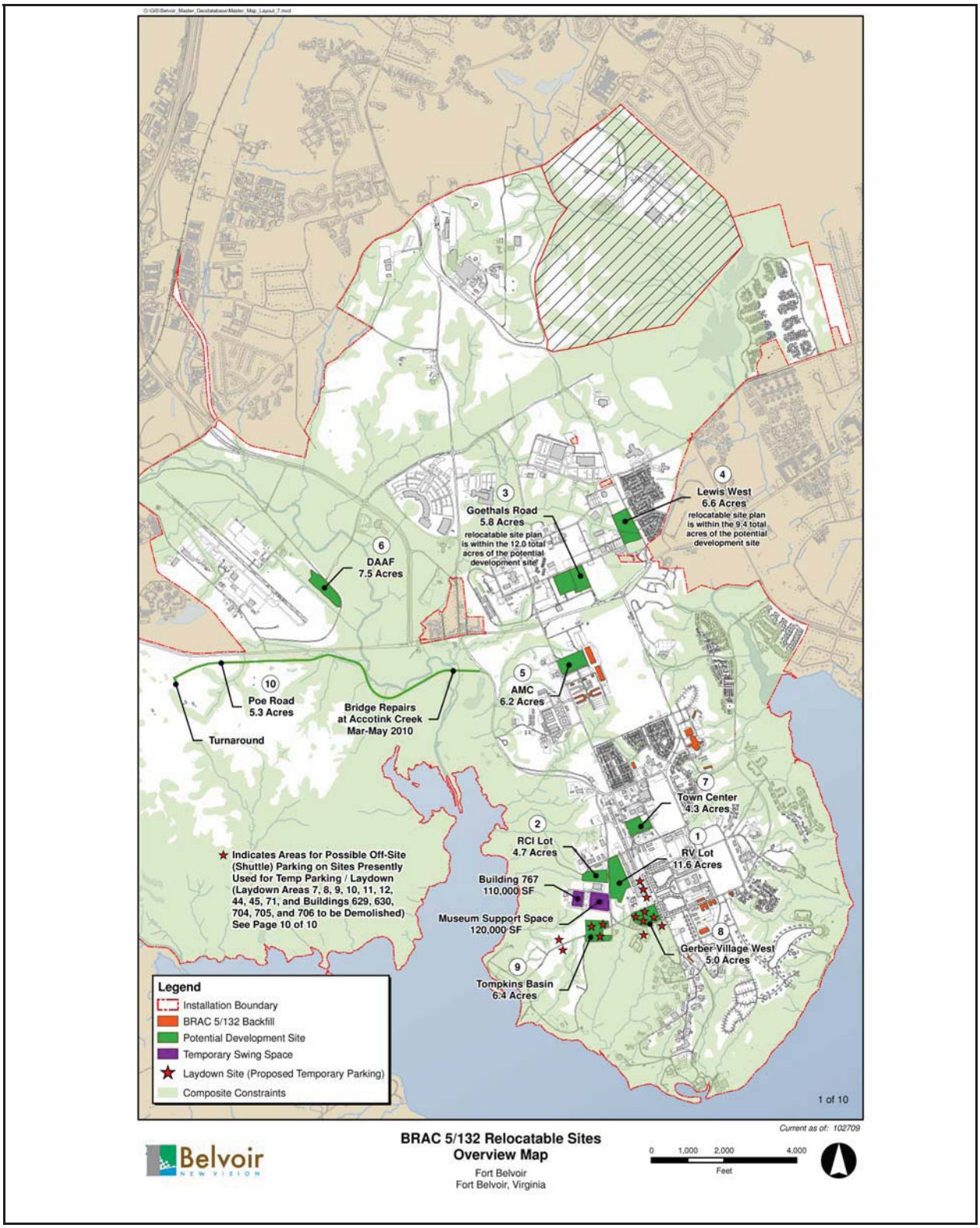
Figure 2-1. A relocatable building on Fort Belvoir.
The large white building at the top of the figure is a relocatable building. The open area bounded by roads below the building is the proposed "AMC" site for a relocatable building.

Nine sites are being considered for the installation of relocatable buildings (Figure 2-2). The sites are described below, and their attributes are summarized in Table 2-1.

2.2.1.1 Recreational Vehicle Lot

The recreational vehicle (RV) lot (see Figure 2-3) is the primary storage location for RVs at Fort Belvoir. The site is unimproved. Surrounding land is occupied by industrial facilities, administrative and commercial buildings, and wooded and cleared lots. Beyond the industrial buildings to the southeast is the Fort Belvoir Historic District. Access to the site for the purpose of installing a relocatable building would be off Route 1 through Tulley Gate (Pohick Road) and Theote Road. The site is 11.6 acres and could accommodate 138,240 SF of relocatable space (for approximately 410 personnel) and 400 parking spaces (300 employee/100 visitor). Table 2-1 provides details on the site.

All utilities are available at the site, and environmental issues (contamination, protected species, cultural resources, and such) known to be associated with the site are a former range area at the



Site Map

Figure 2-2

RV and RCI Lots

Figure 2-3

Source: BNVP, 2009.

Table 2-1
Primary sites for BRAC 5/132

Primary site site no.	Site size relocatable space parking spaces	Current use	Land use designation	Surrounding land uses	Project access route	Improvements necessary for relocatable installation	Equipment stored on-site	Known environmental issues
RV Lot Site 1	11.6 ac 138,240 GSF 400 parking spaces	RV storage	Industrial	Industrial, Community, Residential	Tulley Gate, Pohick Road, and Theote Road	Remove RVs/equipment stored on-site, site preparation	RVs	SWMU nearby, Range/lead contamination
RCI Lot Site 2	4.7 ac 36,000 GSF 150 parking spaces	Construction material storage and trailers	Industrial	Industrial	Tulley Gate, Pohick Road, and Theote Road	Remove materials stored on-site, site preparation	Construction materials; three trailers	SWMU nearby, Range/lead contamination
Goethals Road Site 3	5.8 ac 67,200 GSF 260 parking spaces	Undeveloped	Community	Community, Troop, Professional/ Institutional	Tulley Gate, Pohick Road, and Gunston Road	Site clearing and preparation	None; used for construction and special-event parking	SWMU nearby, storage tanks
Lewis West Site 4	6.6 ac 51,520 GSF 178 parking spaces	Undeveloped	Professional/ Institutional	Professional/ Institutional, Community, Residential	Tulley Gate, Pohick Road, Gunston Road	Tree clearing and site preparation	None	Stream and riparian area, stormwater runoff; sewer capacity; water pressure
AMC Site 5	6.2 ac 67,200 GSF 90 parking spaces	Undeveloped	Professional/ Institutional	Professional/ Institutional, Community	Tulley Gate, Pohick Road, Gunston Road	Tree clearing and site preparation	None	None
DAAF Site 6	7.5 ac 67,200 GSF 200 parking spaces	Undeveloped	Airfield	Airfield	Fairfax County Parkway, Farrar Road	Tree clearing, site preparation with MEC support	None	SWMU nearby, Range/lead contamination/ MEC, riparian area, stream, floodplain, wetlands
Town Center Site 7	4.3 ac 51,520 GSF 180 parking spaces	Mostly undeveloped; skate park, materials storage	Community	Community, Industrial	Tulley Gate, Pohick Road, Gunston Road	Remove materials stored on-site and some trees	AAFES storage	Adjacent to historic district and buildings

Table 2-1 (continued)

Primary site site no.	Site size relocatable space parking spaces	Current use	Land use designation	Surrounding land uses	Project access route	Improvements necessary for relocatable installation	Equipment stored on-site	Known environmental issues
Gerber West Site 8	5 ac 67,200 GSF 200 parking spaces	Occupied by 2 buildings that are to be demolished	Industrial	Industrial, Community, Residential	Tulley Gate, Pohick Road, and Theote Road	Remove Bldgs 629, 630; site preparation	Bldgs. 629, 630 (to be demolished)	SWMU nearby, Range/lead contamination, storage tanks, near species conservation area
Tompkins Basin Site 9	6.4 ac 67,200 GSF 210 parking spaces	RCI construction company use	Community	Community, Industrial	Tulley Gate, Pohick Road, and Theote Road	Site preparation	RCI construction equipment	Partially within a species conservation area

Note: AAFES = Army and Air Force Exchange Service, AMC = Army Materiel Command, DAAF = Davison Army Airfield, GSF = gross square feet, MEC = munitions and explosives of concern (unexploded ordnance, etc.), RCI = Residential Communities Initiative

extreme southwest corner of the site, a solid waste management unit (SWMU) at the northeast corner of the site, and a fuel tank that is permanently out of use. Groundwater contamination has been identified but not delineated northwest of the site. The range area is a Military Munitions Response Program (MMRP) site and cleanup of the range could limit when the site could be used. Staging for trailers during the installation of the relocatable building would be on-site.

RVs stored on the site would be relocated to one or both of the secondary site locations (see Section 2.2.3) before the site could be used for temporary space for BRAC 5/132. If the current inventory of RVs stored at the RV lot could not be accommodated on the secondary sites, Fort Belvoir would apply a tiered approach for discontinuing RV storage service, and RV owners would need to make other arrangements for their RV storage needs in their communities. Active-duty military stationed or living at Fort Belvoir would have priority for RV storage on the installation. Of the approximately 360 RVs stored on the lot, about 60 belong to active-duty military residents of Fort Belvoir.

2.2.1.2 Residential Communities Initiative Lot

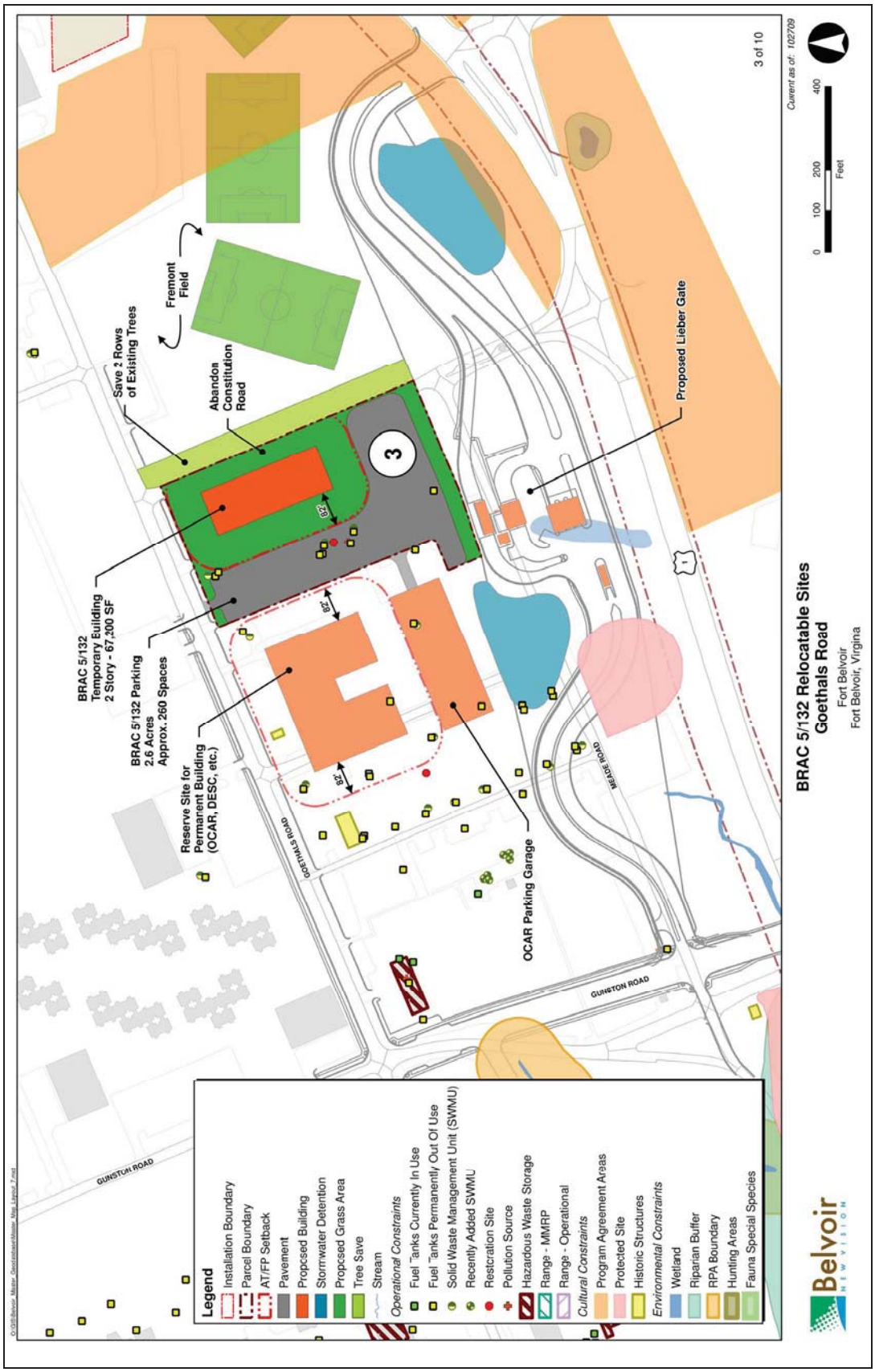
The Residential Communities Initiative (RCI) lot (see Figure 2-3) is west across Theote Road from the RV lot. The site is mostly unimproved. Construction materials are stored on the site. Surrounding land is occupied by administrative and commercial buildings, industrial facilities, and wooded and cleared lots. Construction access to the site for the purpose of installing a relocatable building would be off Route 1 through Tulley Gate (Pohick Road) and Theote Road. The site is 4.7 acres and could accommodate 36,000 SF of relocatable space (for approximately 180 personnel) and 150 parking spaces (117 employee/33 visitor). Table 2-1 provides details on the site.

All utilities are available at the site, and environmental issues known to be associated with the site are a former range area along the southwestern edge of the site and a nearby SWMU that will be undergoing Phase II investigation in fiscal year 2010. Groundwater contamination has been identified but not delineated north of the site. The range is that same one that is partially on the RV lot, and cleanup of the range could limit when the site could be used. Staging for trailers during the installation of the relocatable building would be on-site.

The RCI lot is leased to the Clark Pinnacle Family Communities company for storage and administrative space use during recent family housing construction on Fort Belvoir. The ancillary lease for the space has expired. The materials stored on the site would be removed before relocatable buildings would be installed. The Clark construction trailers on the site would remain in place if permitted by the layout of the relocatable building and parking. Otherwise, the trailers would be moved to another location. Clark Construction would use existing facilities and hardscape areas within its lease space or off-post facilities to accommodate the functions being served through the construction trailers.

2.2.1.3 Goethals Road Site

The Goethals Road site (see Figure 2-4) is along Constitution Drive between Goethals and Meade roads on Fort Belvoir's North Post. The site is unimproved, vacant land. Surrounding the site are open areas (Fremont Field), athletic fields, unaccompanied personnel housing, an equipment storage yard, and vacant land where a North Post access control point (Lieber Gate) is planned to be constructed from early 2010 to early 2011. Beyond Fremont Field is the National Register-



Goethals Road

Figure 2-4

Source: BNVP, 2009.

eligible Woodlawn Historic District. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road) and Gunston Road, or through the Kingman Gate (J.J. Kingman Road), Gunston Road (on North Post), and Abbot Road. The site is 5.8 acres and could accommodate 67,200 SF of relocatable space (for approximately 336 personnel) and 260 parking spaces (218 employee/42 visitor). Table 2-1 provides details on the site. The Goethals Road site, however, could be reduced by approximately 30 feet along the southern edge if it is determined that the proposed Lieber Gate needs to shift to the north.

All utilities are available at the site. Environmental issues at the site is potential soil contamination from storage tanks and a nearby SWMU. No other environmental issues are known to be associated with the site. The site could not accommodate all trailers required for a relocatable building on the site, so some trailers would be parked along Poe Road in the Southwest Area of Fort Belvoir or along other installation roads as necessary.

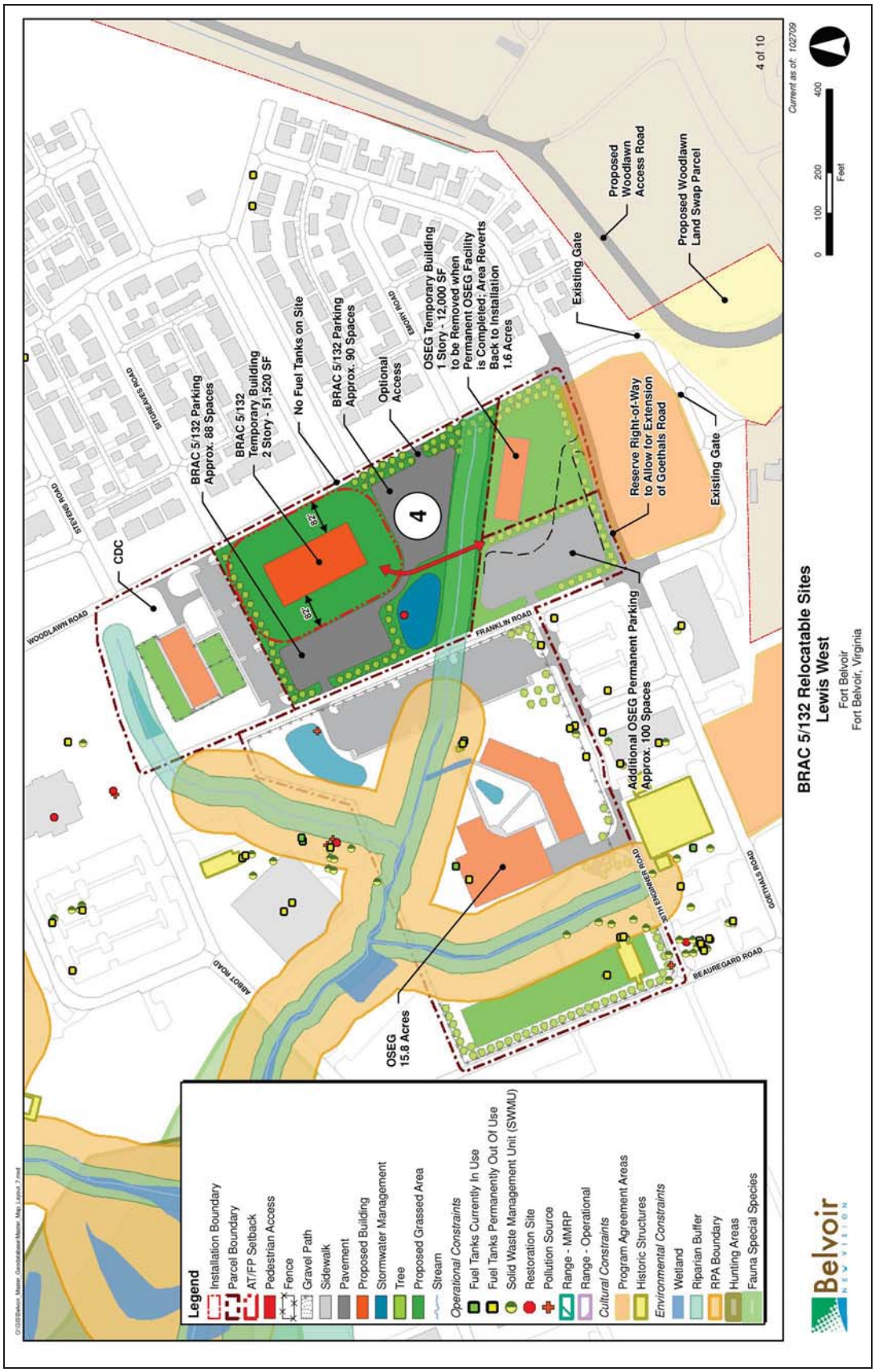
Being on the North Post, the site is not readily accessible. Gunston Road will be undergoing widening from early 2010 until mid- to late 2011, and 9th Street will also be under construction from late 2010 through mid-2011. The Gunston Road construction project would pose a constraint to using the site, and careful coordination between the two projects would be required.

2.2.1.4 Lewis West Site

The Lewis West site (see Figure 2-5) is unimproved land off Woodlawn Road northeast of the Goethals Road site. No equipment or facilities are on the site that would have to be relocated. The Lewis Village family housing area is to the west, vacant land proposed to be used for a child development center is to the north, the proposed location of an Operational Security Evaluation Group facility is to the west, and vacant land and the Friends Meetinghouse (see below and Section 4.9) are to the south. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road), Gunston Road, Goethals Road, and Franklin Road, or through the Kingman Gate (J.J. Kingman Road), Gunston Road (on North Post), and Abbot Road. The site is 6.6 acres and could accommodate 51,520 SF of relocatable space (for approximately 258 personnel) and 178 parking spaces (167 employee/11 visitor). Table 2-1 provides details on the site.

All utilities are available at the site, but insufficient water pressure and sewer capacity at the site could be issues. Other environmental issues at the site include a riparian area crossing the site and appropriately handling stormwater drainage. A cultural resource (the Friends Meetinghouse—the National Register-eligible *Alexandria Monthly Meeting of the Religious Society of Friends Meetinghouse)* is also on private land southwest of the site. The site could not accommodate all trailers required for a relocatable building on the site, so some trailers would be parked along Poe Road in the Southwest Area of Fort Belvoir or along other installation roads as necessary.

Extensive site preparation would be required to use the site for a relocatable building. The site has approximately 7 acres of trees that were planted to restore the site where a World War II building was demolished. Many trees on the site are less than 4 inches in diameter (at *breast height*) and could be moved to various locations on the Main Post to be used as landscape trees. Mature trees are also on the site. In keeping with Fort Belvoir's Tree Removal and Protection Policy, for each tree measuring 4 inches or more in diameter (at *breast height*) removed from the Lewis West site (or any other site) for construction purposes, two trees would be planted elsewhere on the installation.



Lewis West

Figure 2-5

Source: BNVP, 2009.

2.2.1.5 Army Materiel Command (AMC) Site

The AMC site (see Figure 2-6) is undeveloped land between Gunston Road and Building 1456. The site has numerous mature trees and a maintained lawn. Surrounding the site are Buildings 1456 (the relocatable building shown in Figure 2-1), parking areas, wooded land, and community facilities. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road) and Gunston Road. The site is 6.2 acres and could accommodate 67,200 SF of relocatable space (for approximately 336 personnel) and 90 parking spaces (0 employee/90 visitor). Table 2-1 provides details on the site.

All utilities are available for the site. Trees could be retained on a portion of the site, but the parcel would require some tree removal and other preparation before a relocatable building could be installed on it. Mature trees would be replaced on the installation in accordance with Fort Belvoir's Tree Removal and Protection Policy. No other environmental issues are known to be associated with the site. The site could not accommodate all trailers required for a relocatable building on the site, so some trailers would be parked along Poe Road in the Southwest Area of Fort Belvoir or along other installation roads as necessary.

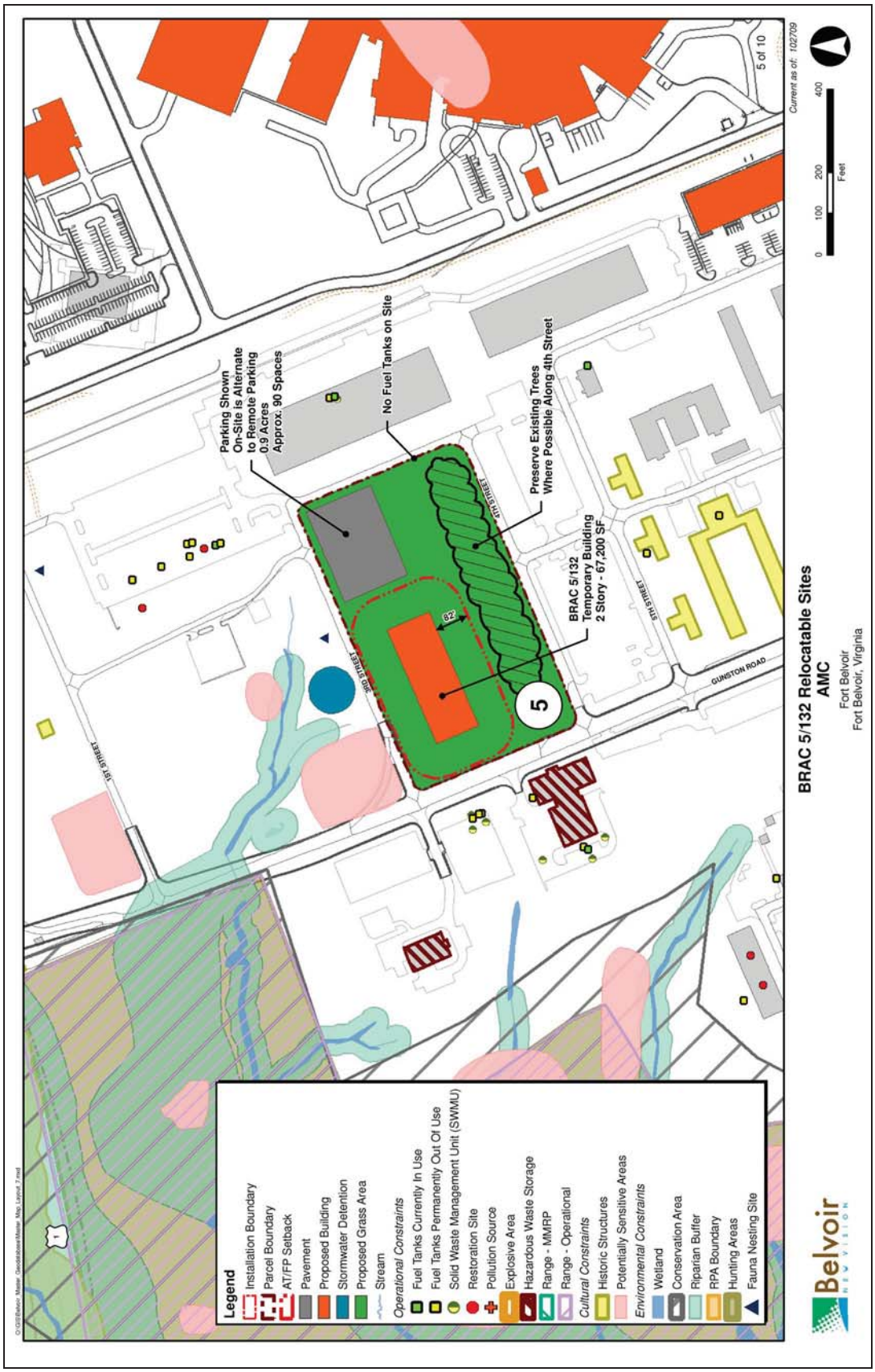
The site is accessible, but Gunston Road and 9th Street will be under construction, as mentioned above, during the time when the relocatable building would be installed. The parcel would not accommodate the entire parking requirement for the incoming personnel. Parking for personnel working in the building would have to be provided remotely (see Section 2.2.4).

2.2.1.6 Davison Army Airfield (DAAF) Site

The DAAF site (see Figure 2-7) is at the southeast corner of DAAF. The site is wooded. Surrounding land is also wooded, and the southern extent of a DAAF runway is southeast of the site. Construction access to the site would be off Fairfax County Parkway and Farrar Road. The site is 7.5 acres and could accommodate 67,200 SF of relocatable space (for approximately 336 personnel) and 200 parking spaces (200 employee/0 visitor). Table 2-1 provides details on the site.

All utilities are available for the site. The DAAF site is wooded primarily with hardwood trees. The site would have to be clearcut and trees planted elsewhere on Fort Belvoir for each mature tree removed in keeping with the installation's Tree Removal and Protection Policy. A stream, floodplain, and riparian area are along the southwest boundary of the site, and the site could have wetlands. A jurisdictional wetlands determination would have to be completed before a site layout could be finalized. The site is near an airfield, which could raise noise issues. An SWMU is near the site, and the site is southeast of an area used for fire training activities. The site is also on an operational range area and a determination would have to be made whether use of the site for a relocatable building with an administrative function would be compatible with the range mission. If it was determined not to be compatible, that portion of the operational range would need to be closed and cleared to facilitate construction. Any work on the site would require support for the potential presence of munitions and explosives of concern (MEC).

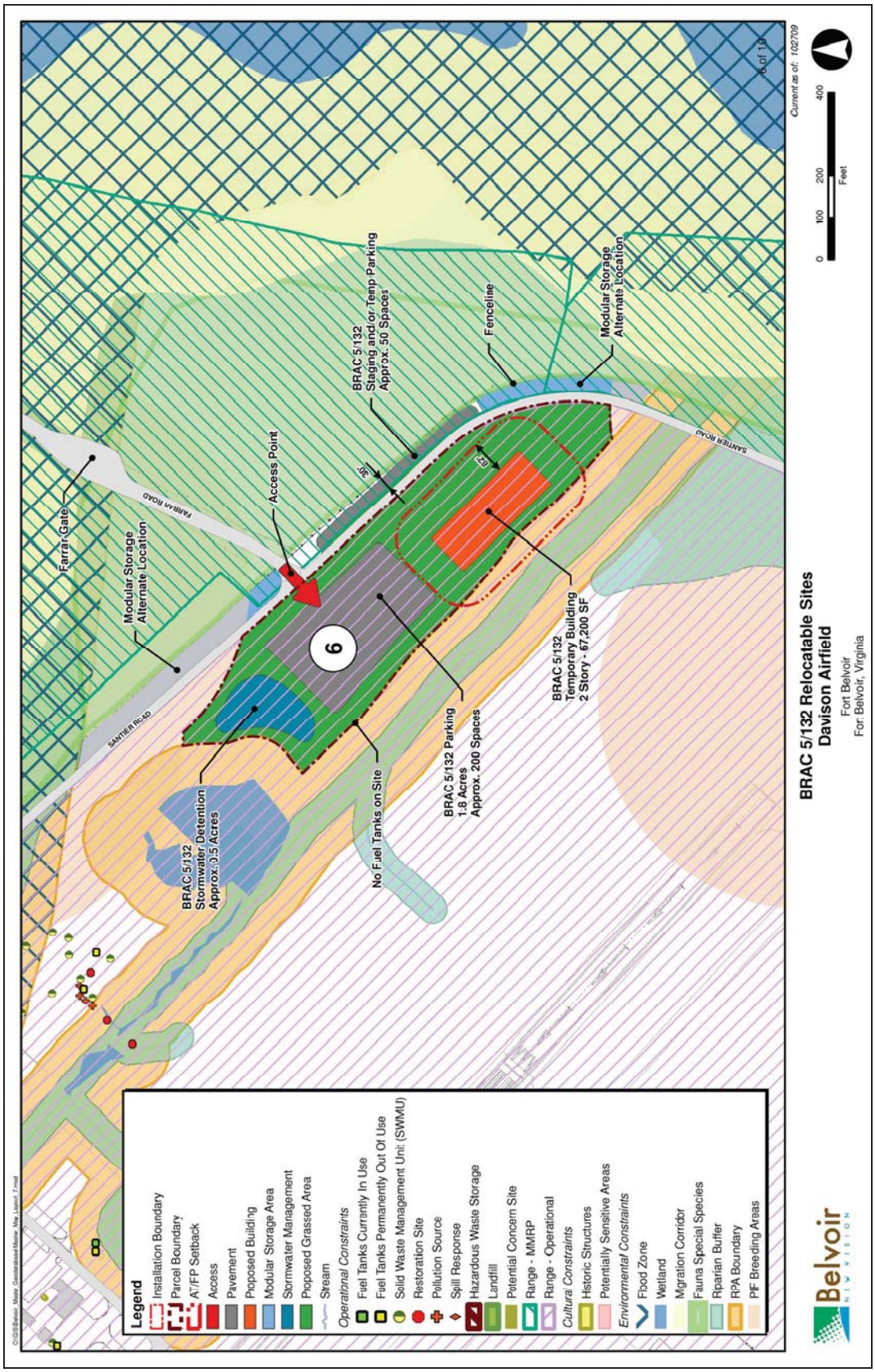
The site could not accommodate all trailers required for a relocatable building on the site, so some trailers would be parked along Poe Road in the Southwest Area of Fort Belvoir or along other installation roads as necessary. An installation access point at the intersection of Farrar Road and Santjer Road could require modification to handle employee traffic to the DAAF site.



AMC

Figure 2-6

Source: BNVP, 2009.



Davison Airfield

Figure 2-7

Source: BNVP, 2009.

Also, access to the site would be restricted from about March to September 2010 when bridge renovations will be occurring.

2.2.1.7 Town Center Site

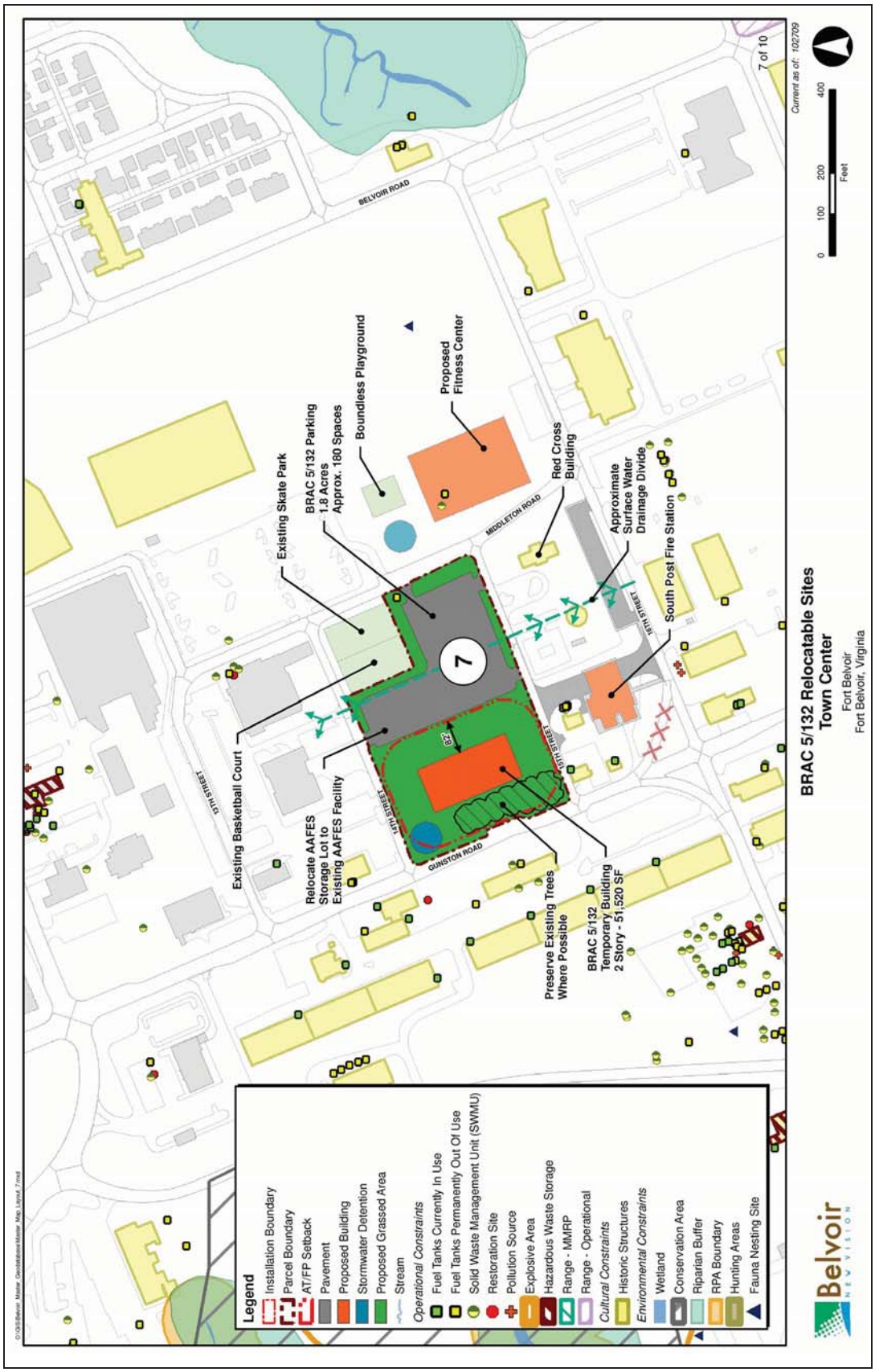
The Town Center site (see Figure 2-8) is on the east side of Gunston Road between 14th and 15th streets and west of Middleton Road. It is about one-third mile northeast of the RV lot. In the southwest corner of the intersection of 14th Street and Middleton Road is a skateboard park and basketball court. An Army and Air Force Exchange Service (AAFES) storage lot and a parking area are on the site. Surrounding facilities include administrative, commercial, and industrial buildings and associated parking to the north, east, and west; an athletic field east across Middleton Road; and small buildings and a water tower south of the site where the South Post Fire Station is to be constructed from mid-2010 to mid-2011. Most of the site is maintained lawn and scattered trees. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road) and Gunston Road, or through Theote Road, 16th Street, and Middleton Road. The site is 4.3 acres and could accommodate 51,520 SF of relocatable space (for approximately 258 personnel) and 180 parking spaces (167 employee/13 visitor). Table 2-1 provides details on the site.

All utilities are available for the site. The materials stored on the site by AAFES would be moved to another AAFES facility or eliminated. Mature trees removed from the site would have to be replaced elsewhere on Fort Belvoir in keeping with the installation's Tree Removal and Protection Policy. Numerous historic structures within the Fort Belvoir Historic District are near the site. No other environmental issues are known to be associated with the site. The site could not accommodate all trailers required for a relocatable building on the site, so some trailers would be parked along Poe Road in the Southwest Area of Fort Belvoir or along other installation roads as necessary.

2.2.1.8 Gerber West Site

The Gerber West site (see Figure 2-9) is on the south side of Warren Road between 21st Street and Lowen Road. The site is occupied by Buildings 629 and 630 and associated parking, which serve as a thrift shop and Boy and Girl Scout meeting place but that are scheduled to be demolished. Surrounding facilities are an equipment parking lot to the north, the Gerber Village family housing area to the east, and mostly undeveloped land to the south and west. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road), Theote Road, and Warren Road. The site is 5.0 acres and could accommodate 67,200 SF of relocatable space (for approximately 336 personnel) and 200 parking spaces (200 employee/0 visitor). Table 2-1 provides details on the site.

All utilities are available for the site. Stormwater drainage, a range, and lead or other substance contamination in the soil from storage tanks and a nearby SWMU are potential environmental issues at the site (see Sections 4.7 and 4.13). Also, the Gerber Village family housing area east of the site is within the National Register-eligible Fort Belvoir Historic District. An earthen berm about 4 feet high and covered with trees stands between the proposed Gerber West site and the backs of five Gerber Village houses that are adjacent to the site and west of Gunston Road. A species conservation area is also adjacent to the site to the south. Staging for trailers during the installation of the relocatable buildings would be on-site.



Town Center

Figure 2-8

Source: BNVP, 2009.

Figure 2-9

Gerber West and Tompkins Basin

Source: BNVP, 2009.

The Gerber West site, if not used for a relocatable building, could be used for trailer storage during the construction of relocatable buildings on other sites or for remote personnel parking in place of or in addition to on-site parking at other relocatable building sites (see Section 2.2.4).

2.2.1.9 Tompkins Basin Site

The Tompkins Basin site (see Figure 2-9) occupies land on both sides of Warren Road west of Theote Road. The land is cleared and undeveloped. The portion of the site north of Warren Road is leased to the RCI company and is used for cement production. Surrounding land is wooded, except for the McNellis Veterinary Facility to the east. Construction access to the site would be off Route 1 through Tulley Gate (Pohick Road) and Theote Road. The site is 6.4 acres and could accommodate 67,200 SF of relocatable space (for approximately 336 personnel) and 210 parking spaces (200 employee/10 visitor). Table 2-1 provides details on the site. Staging for trailers during the installation of the relocatable buildings would be on-site.

All utilities are available for the site. The only environmental issue known to be associated with the site is that it is partially within a species conservation area that extends south from the site.

The Tompkins Basin site, if not used for a relocatable building, could be used for trailer storage during the construction of relocatable buildings on other sites or for remote personnel parking in place of or in addition to on-site parking at other relocatable building sites (see Section 2.2.4).

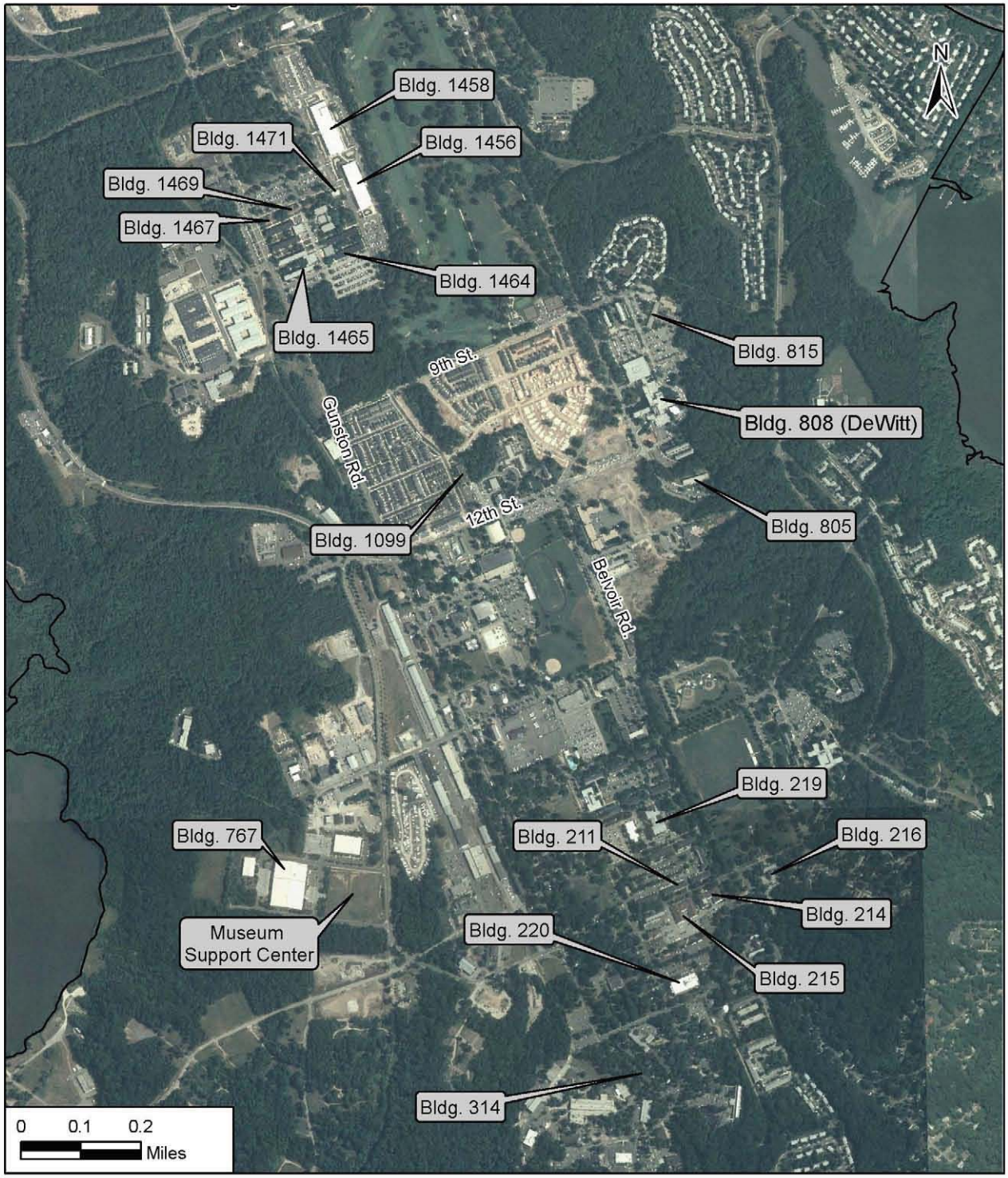
2.2.2 Buildings to be Renovated

Existing facilities that would be vacated at Fort Belvoir under BRAC 2005 are proposed to be used to accommodate some of the activities coming to Fort Belvoir under BRAC 5/132. The existing buildings under consideration to accommodate incoming units, activities, and agencies are numbers 211, 214, 215, 216, 219, 220, 314, 767, 805, 808, 815, 1099, 1456, 1458, 1464, 1465, 1467, 1469, 1471, and the Museum Support Center (Figure 2-10). Pertinent information on the buildings is summarized in Table 2-2. All buildings constructed before 1978 (all but 4 of the 20 buildings) are presumed to have construction materials that contain asbestos and to have been painted at some time with lead-based paint (LBP). Buildings 211, 216, 219, and possibly 314 are National Register-eligible buildings.

2.2.3 Secondary sites

Secondary sites are those sites that would be used to accommodate any vehicles, other equipment, or materials that would have to be moved off primary sites before the latter could be used for relocatable buildings. Two secondary sites, the golf course maintenance area and a Directorate of Emergency Services (DES) lot, both north of the North Post golf course, are shown on Figure 2-2.

The RV lot is the only primary site that has equipment (RVs) that would have to be moved to a secondary site. The materials stored on the RCI lot are the responsibility of the Clark Pinnacle Family Communities company. Materials stored on the small lot on the Town Center site are the responsibility of AAFES and would be moved to another AAFES facility. The thrift shop and Boy Scout/Girl Scout meeting place on the Gerber West site would not be replaced. Removal and relocation of the cement manufacturing equipment on the Tompkins Basin site are the responsibility of the Clark Pinnacle Family Communities company.



LEGEND

Installation Boundary

Proposed Buildings

Figure 2-10

Source: Fort Belvoir GIS, 2009.

Table 2-2
Buildings to be renovated for BRAC 5/132

Building number	Year built	Original use	LBP/ACM concerns	Historic (yes/no)	Renovation requirement	Renovated capacity	Gross square feet (renovated)	Net square feet (renovated)	Release date
211	1940	Barracks	Yes	Yes; Contributing	Minor	129	27,525	20,426	3/2011
214	1941	Instructional	Yes	No; Non-contributing	Minor	228	40,069	28,621	3/2011
215	1941	Instructional	Yes	No; Non-contributing	Minor	102	14,275	10,196	3/2011
216	1932	Post Hospital	Yes	Yes; Contributing	Minor	ND	24,378	18,058	8/2010
219	1931	Theater and gym	Yes	Yes; Contributing	Major	35	5,133	4,471	Immediately
220	1952	High school	Yes	No; Non-contributing	Minor	384	79,046	54,514	6/2011
314	1942	Administration	Yes	Maybe; Pending eligibility	ND	ND	16,697	12,368	12/2010
767	1994	Warehouse	No	No; Less than 50 years old	Minor	ND	110,000	ND	1/2011
805	1959	Barracks	Yes	No; Determined not eligible	ND	ND	18,232	12,155	3/2011
808 (DeWitt)	1957	Hospital	Yes	No; Non-contributing	Major	916	239,510	207,036	2015
815	1958	Medical clinic	Yes	No; Determined not eligible	ND	ND	17,834	11,889	3/2011
1099	1970	Dental clinic	Yes	No; Less than 50 years old	ND	ND	13,803	10,224	12/2012
1456	2005	Temporary administration	No	No; Less than 50 years old	Minor	626	100,923	80,738	2012
1458	2005	Temporary administration	No	No; Less than 50 years old	Minor	827	98,551	78,841	7/2011

Table 2-2 (continued)

Building number	Year built	Original use	LBP/ACM concerns	Historic (yes/no)	Renovation requirement	Renovated capacity	Gross square feet (renovated)	Net square feet (renovated)	Release date
1464	1958	Barracks with mess hall	Yes	No; Determined not eligible	Major	192	63,424	43,471	12/2010
1465	1956	Barracks with mess hall	Yes	No; Determined not eligible	Minor to Major	337	77,605	57,485	6/2011
1467	1939	Medical clinic	Yes	No; Determined not eligible	ND	ND	3,590	2,659	4/2011
1469	1939	General purpose administration	Yes	No; Determined not eligible	Major	22	3,547	2,627	4/2011
1471	1957	General purpose administration	Yes	No; Determined not eligible	ND	ND	2,642	1,957	6/2011
Museum Support Center	2009	Museum Artifact Storage	No	No	Minor	N/A	120,000	ND	1/2011

Note: The renovated capacity, renovation requirement, and net square feet (renovated) were estimated on the basis of a professional Fort Belvoir building analysis conducted in late 2008. The release date is the estimated date when the building would be available for renovations.

ACM = asbestos-containing materials, FBHD = Fort Belvoir Historic District, ICRMP = Integrated Cultural Resources Management Plan, LBP = lead-based paint, ND = no data available, NRHP = National Register of Historic Places, WW II = World War II.

2.2.3.1 Golf Course Maintenance Area

The golf course maintenance area is just south of Telegraph Road near the North Post golf course. The site is approximately 9.2 acres. Existing hardscape around the facility is fenced and partially used for RV storage. The site also serves as the Defense Reutilization and Marketing Service salvage storage area. Additional RVs or other equipment could be placed in the area without the need for any site improvements.

2.2.3.2 DES Lot

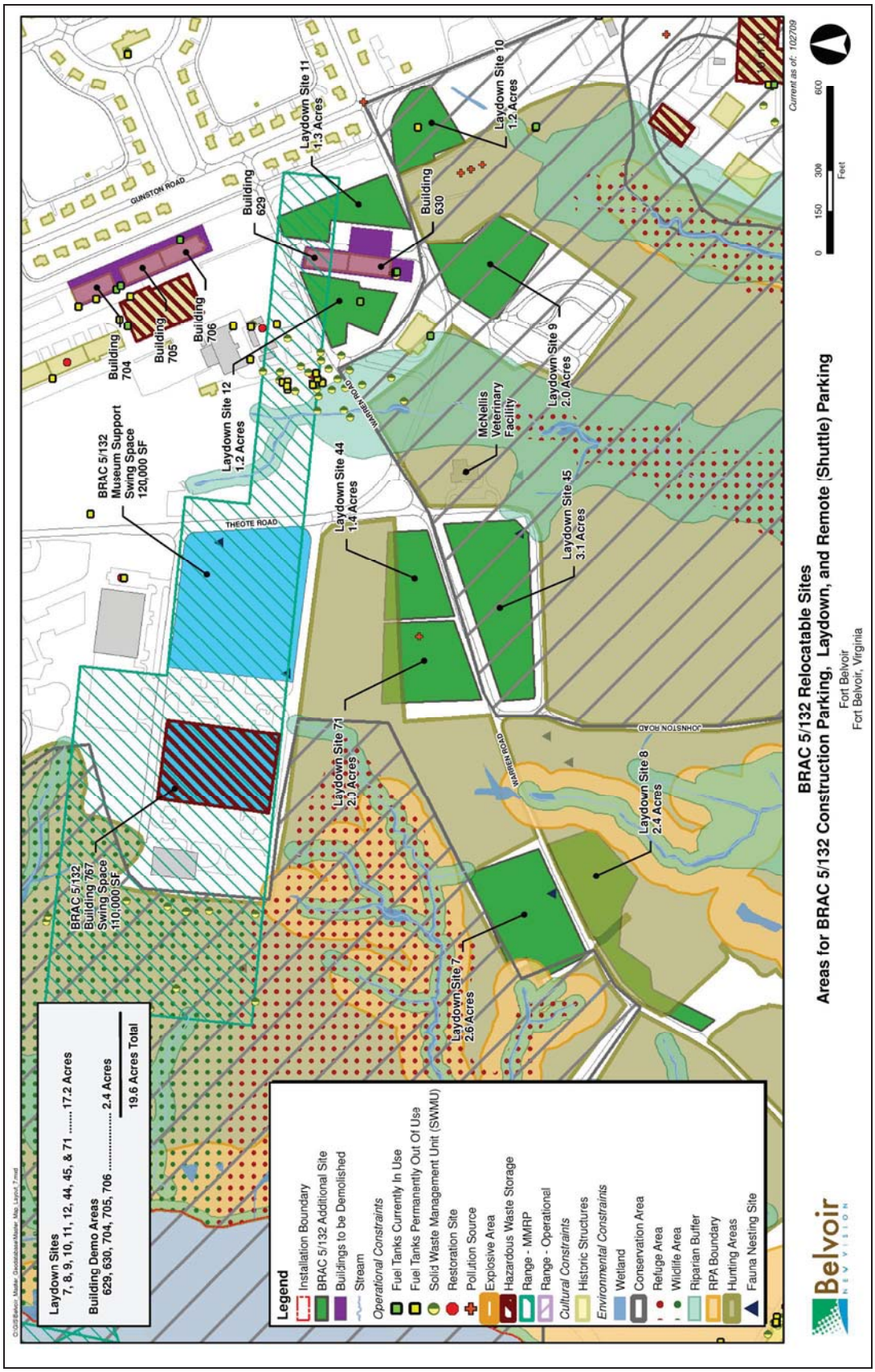
A small lot (approximately 1.5 acres) near the golf course maintenance area that was formerly used by DES for storage of towed vehicles is not now used. The lot is fenced and paved. Miscellaneous items and equipment (a cement mixer and approximately 70, 55-gallon drums) on the lot would be relocated to appropriate locations on Fort Belvoir. According to Fort Belvoir, the 55-gallon drums on the site are empty and stored there for use on other environmental projects (Hudson, personal communication, 2009). The lot could be used to store equipment or RVs moved from one of the proposed primary sites, though it might require resurfacing before being used.

2.2.4 Parking and Construction Staging Sites

Parking for trailers that would deliver the relocatable buildings to Fort Belvoir in pieces would be on the primary site where the buildings are to be installed, on laydown areas on and near the Gerber West and Tompkins Basin sites, or along installation roads where significant clearing and grading would not be necessary and where conflicts with other installation projects and operations would be minimized. The RV lot, RCI lot, Gerber West site, and Tompkins Basin site would be expected to accommodate all trailers necessary for installing relocatable buildings on those sites, but some trailers would be stored on laydown sites or along roads for relocatable buildings on other sites (Goethals Road, Lewis West, AMC, DAAF, and Town Center).

Laydown areas 11, 12, 44, 45, and 71 are on the Gerber West and Tompkins Basin primary sites (Figure 2-11). These areas and laydown areas 7, 8, 9, and 10 have been identified for potential use during the installation of relocatable buildings as sites for construction parking, staging, and storage and as sites where remote parking would be provided after relocatables had been installed for those primary sites where sufficient parking for personnel could not be provided on-site (e.g., the AMC site). A remote parking area could also be created on the site of Buildings 704, 705, and 706, which are north of the Gerber West site along Gunston Road. The buildings are scheduled for demolition under a separate action. Laydown areas 9, 10, 11, 12, 71, and 74 are adjacent to a species conservation area. Laydown area 45 is within the species conservation area.

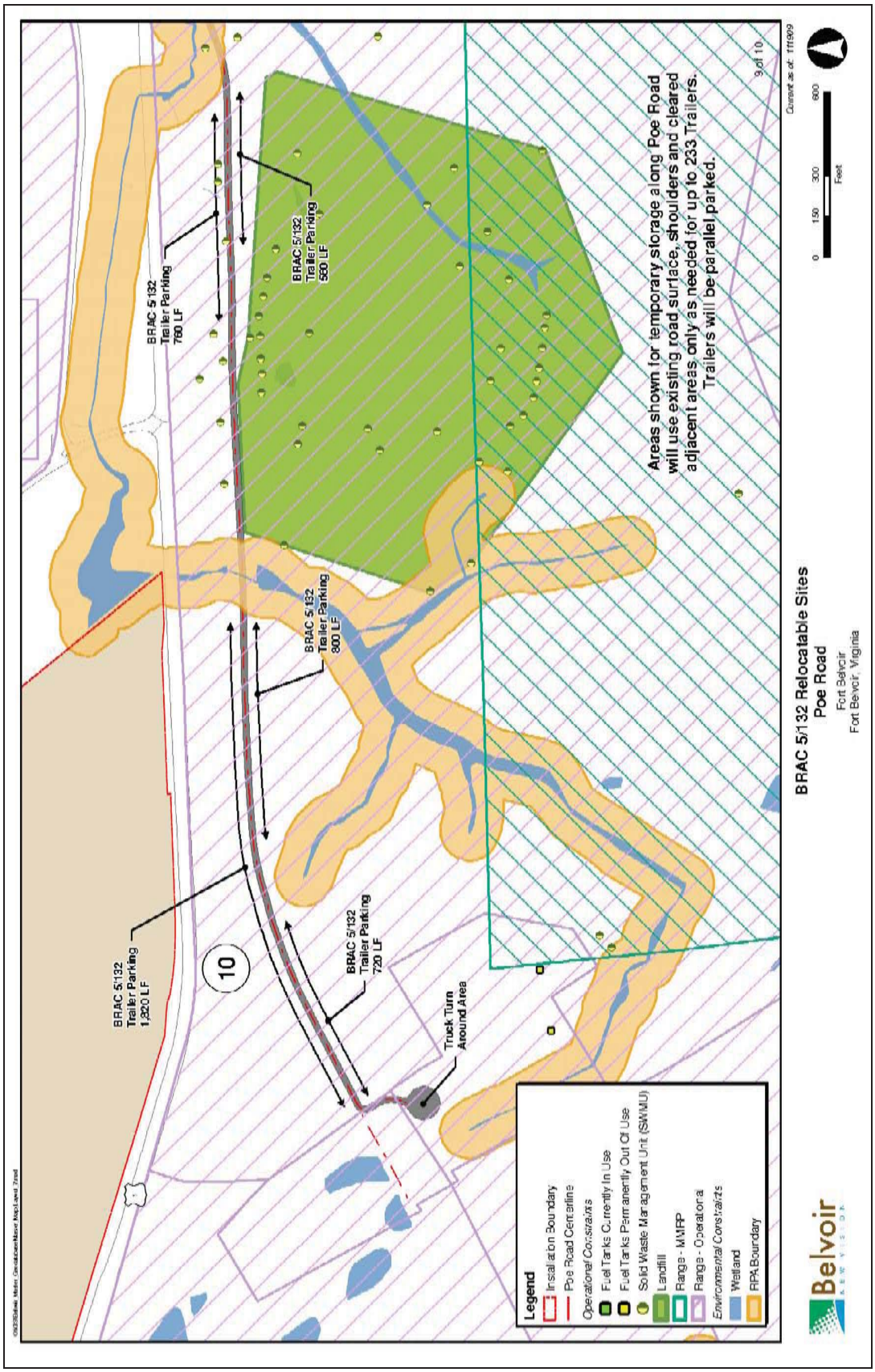
Poe Road has also been identified as an area where trailers carrying portions of relocatable buildings could be parked (Figure 2-12). If Poe Road was used, trailers would be parked on the road surface, on existing shoulders, and on cleared areas adjacent to Poe Road. Poe Road could accommodate parking for approximately 233 trailers, each measuring 20 feet wide by 50 feet long. Environmental concerns related to using Poe Road for temporary trailer parking are the presence of ranges, landfills, two archaeological sites, and a homeless shelter; and effects related to the military mission and installation security.



Construction Parking, Laydown, and Remote Parking

Figure 2-11

Source: BNVP, 2009.



Poe Road Temporary Trailer Parking

Figure 2-12

Source: BNVP, 2009.

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SECTION 3.0 ALTERNATIVES

3.1 INTRODUCTION

A bedrock principle of NEPA is that an agency should consider reasonable alternatives for implementing a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. This section identifies the alternatives being considered by the Army for accomplishing the proposed action, and it describes the No Action Alternative.

The Army is legally bound to provide space at Fort Belvoir by September 15, 2011 for all personnel moving to the installation from implementing BRAC 5/132. The proposed action (see Section 2.2.) is to provide a combination of permanent and temporary space at Fort Belvoir that is sufficient to accommodate BRAC 5/132 by the September 15, 2011, BRAC deadline. The Army has developed three alternatives for implementing the proposed action. The three alternatives, as well as the No Action Alternative, are described below and summarized in Table 3-1.

Table 3-1
Proposed action and alternatives

Alternative	Relocatable buildings (SF)	Existing buildings	Sites for relocatables	Secondary sites
Alternative A	460,000	See note	Up to all nine sites	One or both
Alternative B	150,000	See note	RV lot, RCI lot, Gerber West, Tompkins Basin (Sites 1, 2, 8, and 9)	One or both
Alternative C	N/A	See note	N/A	One or both
No Action Alternative	N/A	N/A	N/A	N/A

Note: Under all alternatives, space not provided in relocatable buildings would be in some combination of the 20 buildings listed in Section 2.2. Under Alternative C, all space would be provided in existing buildings.

3.2 ALTERNATIVE A: 460,000 SF OF RELOCATABLE BUILDINGS

Under Alternative A, relocatable buildings would be constructed on up to all nine of the proposed primary sites (see Section 2.2.1) to provide up to 460,000 SF of temporary space for incoming BRAC 5/132 personnel. One or both secondary sites (the golf course maintenance area and the DES lot) would be used for storing RVs moved from the RV lot. Existing buildings (see Section 2.2.2) would be renovated to meet the remaining space requirement for BRAC 5/132.

Alternative A would involve the greatest number of trailers entering Fort Belvoir to deliver sections of relocatable buildings. Fort Belvoir anticipates that the logistics for dealing with the influx of trailers could be handled by staggering delivery of the building sections such that only those sections that could be installed on the day of delivery would arrive at the installation each day, by storing trailers on the site where the sections are to be used, or by providing for storage of the trailers on Fort Belvoir at specific locations other than on the sites where the buildings would be installed. If that first option (staggering delivery) is not feasible and primary sites where on-site storage of all trailers for the site are used, Fort Belvoir anticipates that the laydown areas

described in Section 2.2.4 or Poe Road (or both) could be used for trailer storage. After constructing the relocatables, personnel parking would be on-site at most sites, on remote parking areas provided at laydown areas, at the locations of Buildings 629, 630, 704, 705, and 706 (see Figure 2-11), or any combination of those locations.

3.3 ALTERNATIVE B: 150,000 SF OF RELOCATABLE BUILDINGS

Under Alternative B, relocatable buildings would be erected on a combination of the RV lot, the RCI lot, the Gerber West site, and the Tompkins Basin site (sites 1, 2, 8, and 9) to provide 150,000 SF of temporary space for implementing BRAC 5/132. Existing buildings would be renovated to meet the remaining space requirement for implementing BRAC 5/132.

Because the four primary sites used under this alternative would provide parking for the trailers during installation of the relocatable buildings, Poe Road would not be needed for trailer parking. Personnel parking after the relocatables were installed would be provided on-site and at the sites of Buildings 705 and 706. Occupants of Buildings 705 and 706 would be relocated to other facilities on- or off-post.

3.4 ALTERNATIVE C: WAREHOUSE BUILDINGS

Under Alternative C, relocatable buildings would not be constructed. Instead, 15 existing buildings on Fort Belvoir, including Building 767, the Museum Support Center, and 13 other buildings listed in Table 2-2 (buildings 211, 214, 215, 216, 220, 314, 805, 1456, 1458, 1465, 1467, 1469, and 1471) would be used to provide space for incoming BRAC 5/132 personnel. One or both secondary sites (the golf course maintenance area and the DES lot) would be used for storing RVs if the RVs were moved from the RV lot. Parking for personnel located in Building 767 and the Museum Support Center would be provided near the buildings in parking areas created on one or more of the following areas: the RV lot, the RCI lot, the Gerber West site, the Tompkins Basin site, and the sites of Buildings 704, 705, and 706.

3.5 NO ACTION ALTERNATIVE

Inclusion of the No Action Alternative is prescribed by the CEQ regulations and serves as the benchmark against which federal actions can be evaluated. No action assumes that Fort Belvoir would proceed with planning using the current turnover and fitout schedules for existing buildings as described in the 2007 Fort Belvoir BRAC EIS. Specifically, that EIS analyzes the renovation of Buildings 211, 214, 215, and 220, buildings that are also being considered to provide for the space requirements of BRAC 5/132. Note that the No Action Alternative does not provide sufficient space for the incoming units, activities, and agencies under BRAC 5/132 by the BRAC deadline of September 15, 2011. The No Action Alternative is evaluated in detail in this EA.

SECTION 4.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section describes the existing conditions for areas that would be affected by the proposed action. The expected environmental consequences of implementing each of the alternatives discussed in Section 3.0 are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Cumulative effects are discussed in Section 4.14. Mitigation actions are identified for each aspect of the proposed action, as appropriate, and are summarized in Section 4.15.

4.2 LAND USE

4.2.1 Affected Environment

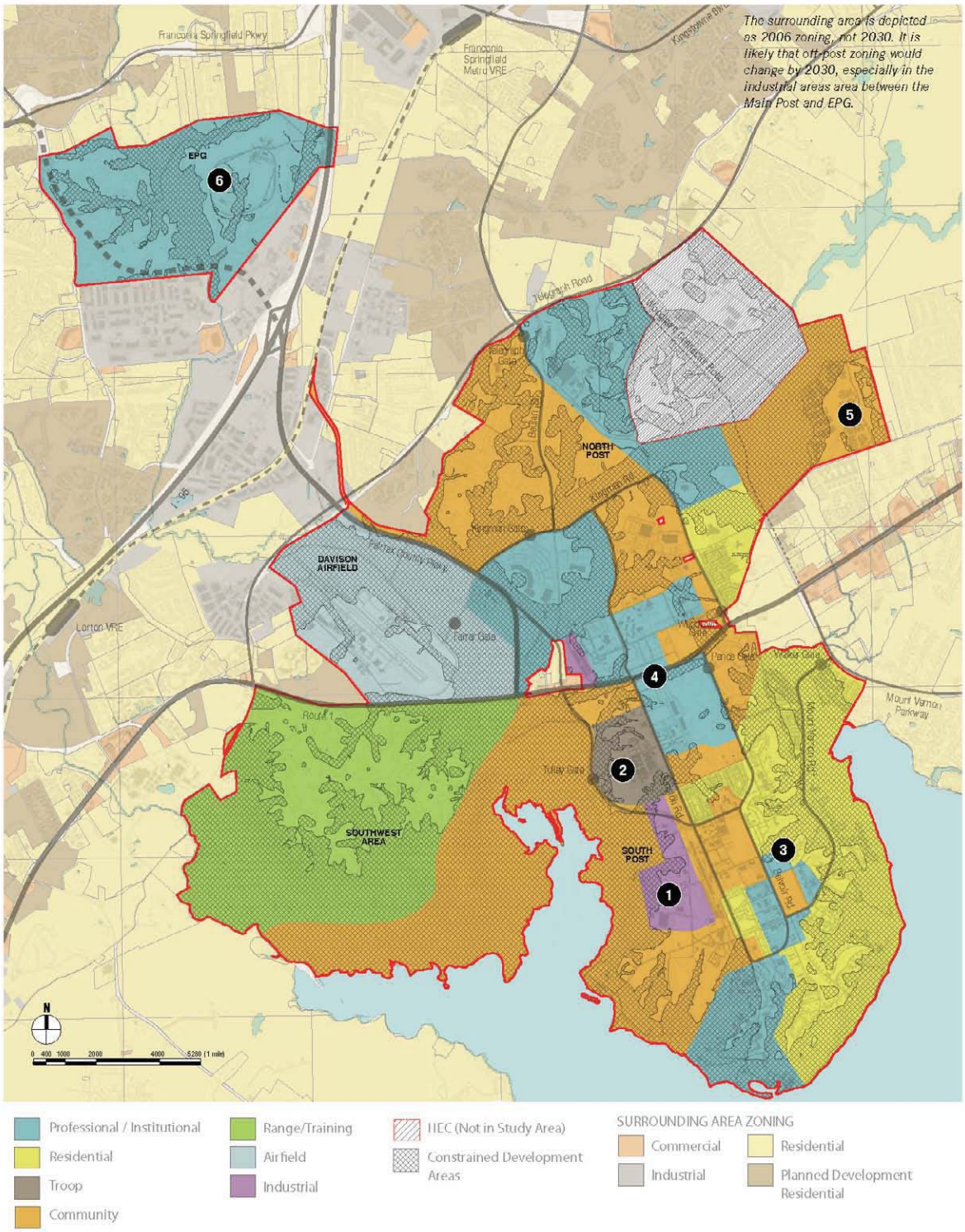
This section describes the designated land uses of the sites proposed to be used under the proposed action as well as the land cover of the sites. Land use refers to the category of use that the land is designated for, while land cover refers to what is physically on the site (vegetation, buildings, etc.). Land uses mentioned below are the proposed land use designations as provided in the *Fort Belvoir Real Property Master Plan: Long Range Component – December 2009* (Fort Belvoir 2009).

4.2.1.1 Primary Sites

RV Lot. The RV lot is on land designated as Industrial land use. The site is surrounded by land classified as Industrial, Community, and Residential land uses, though no housing is on the immediately adjacent land (Figure 4-1). The site is cleared and occupied by RVs in storage. Surrounding the area are woods to the south and developed areas.

RCI Lot. The RCI lot is designated as Industrial land use. Surrounding land uses are Industrial as well. The site is cleared and is serving temporarily as a site for storing construction materials. The surrounding land is developed, except for wooded areas to the west.

Goethals Road Site. The Goethals Road site is designated as Professional/Institutional land use on its western half and Community land use on its eastern half. The site is mostly maintained lawn with some small trees and small paved areas. Nearby areas are designated as Community and Professional/Institutional land uses. The western portion of the site is a possible location for a new Office of the Chief of Army Reserve (OCAR) facility. If the OCAR facility is built on this site, the parcel for a relocatable building would be limited to the eastern half of the site. Preliminary plans for the OCAR facility indicate that an above-ground parking structure could be next to a relocatable building if both facilities were to occupy the Goethals Road site. East of the site is a large open area (Fremont Field) with tents where functions are held. North of the site is cleared land with some paved areas and basketball courts, and south of the site is a maintained area with small trees covering more than half of the site. A North Post access control point (Lieber Gate) is planned to be constructed on land south of the Goethals Road site.



Source: Fort Belvoir, 2009.

Land Use Categories

Figure 4-1

Lewis West Site. The Lewis West site is designated as Community land use, though it is cleared and wooded. A World War II facility formerly sat on the site, but it was removed and trees were planted on the site to stabilize and restore it. The Lewis Village family housing area (Residential land use) is east of the site. Community land use is north and south of the site, and Professional/Institutional land use is west of the site. An administrative/commercial building with parking is north of the site. Land west of the site has an administration building and a former dining facility surrounded by maintained lawn and trees. A wooded, privately owned plot of land south of the site is the location of the Friends Meetinghouse.

AMC site. The AMC site and most surrounding land is Professional/Institutional land use. Across Gunston Road from the site is an area of Troop land use. The site is maintained lawn with numerous mature trees. South of the site is a parking area, east is one of two AMC relocatable buildings, north is a wooded area, and commercial/administrative buildings are west of the site across Gunston Road.

DAAF Site. The DAAF site is on land designated as Airfield land use near the southern end of a runway at Davison Army Airfield. Surrounding land is also Airfield land use. Other than the airfield, wooded land surrounds the site. The proposed DAAF site is within a Transitional Surface safety zone of the Davison Army Airfield. Height restrictions are imposed on structures in safety zones surrounding airfields for the purpose of ensuring unobstructed navigation.

The site also falls within the boundaries of a designated training area. Use of the DAAF site for administrative purposes would require that the use be found compatible with the training area designation and, if found to not be compatible, the site would have to be removed from the training area and its land use redesignated.

Town Center Site. The Town Center site is designated as Community land use, but it is vacant, previously developed land with a small materials storage lot and a small parking area. It is on the east side of Gunston Road between 14th Street and 15th Street, about one-third of a mile northeast of the RV lot. Nearby land uses are Community and Industrial. Some administrative, commercial, and storage/maintenance buildings and associated parking are north, east, and west of the site. An athletic field is east of the site across Middleton Road; and small buildings and a water tower are south of the site. A skateboard park is at the northeast corner of the site, but it is not included in the proposed parcel for a relocatable building. Maintained lawn with numerous mature trees cover most of the site.

Gerber West Site. The Gerber West site is on land classified as Community land use. The surrounding land is classified as Industrial, Community, and Residential, and nearby facilities include the RV lot to the north, family housing to the east, and mostly undeveloped land to the south and west. The site has a few trees at its western edge.

Tompkins Basin Site. The Tompkins Basin site is on land classified as Community, but is cleared and undeveloped. Surrounding land uses are wooded land and community facilities in Community and Industrial land use areas. The land is leased to the RCI construction company and some of the company's equipment is on the site.

4.2.1.2 Buildings to be Renovated

Buildings that would be renovated under the proposed action are in areas of the installation designated as Professional/Institutional, Industrial, Residential, and Community land uses. The areas surrounding the buildings are designated for similar land uses.

4.2.1.3 Secondary Sites

Golf Course Maintenance Area. The golf course maintenance area and its surroundings are designated Community land use. The site is near the northern boundary of Fort Belvoir and has maintenance facilities for the North Post golf course. Surrounding the maintenance facilities is a large area where RVs are parked. Beyond the site are wooded areas and the golf course.

DES lot. The DES lot is just east of the golf course maintenance area. It also is surrounded by woods and overgrown fields. Beulah Street is to the east and Telegraph Road is to the north. The site is classified as Community land use. The site is paved but the pavement is in disrepair. Some equipment (50-gallon drums, a cement mixer, and a small dumpster) is stored on the site. The site is fenced.

4.2.1.4 Parking and Construction Staging Sites

The stretches of Poe Road proposed for trailer storage are entirely within the Southwest Area of Fort Belvoir and are classified as Range/Training land use. The Southwest Area is mostly undeveloped, forested land.

The laydown areas and remote parking sites—all of which are part of or near the Gerber West and Tompkins Basin sites—are within and surrounded by land classified for Community and Industrial land uses, but the land is either not developed or is occupied by buildings that are planned to be demolished. Industrial and warehouse facilities are near Buildings 704, 705, and 706 (which would serve as sites for remote parking) and family housing is near laydown areas 10 and 11.

Areas that could be used for parking under Alternative C include the RCI lot, RV lot, part of the Gerber West site, part or all of the Tompkins Basin site, and the sites of Buildings 704, 705, and 706. The land uses of these sites are Community and Industrial. The sites are discussed above.

4.2.2 Environmental Consequences

4.2.2.1 Alternative A

No adverse effects on land use would be expected from implementing Alternative A. The land use designations of most of the sites under consideration for relocatable buildings are compatible with the intended use. In those cases where the land use designation is not specifically compatible with the intended use—the Town Center and Tompkins Basin sites are designated for Community land use; and the DAAF site is within the boundaries of an Army airfield—the current use of those properties (wooded and vacant land) and their surroundings are compatible with the intended use under the proposed action.

Intermittent aircraft and rotorcraft noise from Davison Army Airfield would be expected at the DAAF site, though placement of a relocatable building at the DAAF site would not interfere with

airfield operations as long as height restrictions applicable to the Transitional Surface within which the DAAF site sits are adhered to during site planning and relocatable building installation. Potential noise effects on tenants in a relocatable on the DAAF site are discussed further in Section 4.5.2.1.

Long-term minor adverse effects on land cover would be expected from implementing Alternative A. Though no land use conflicts would result from implementing the alternative, substantial land cover changes would be expected from installing a relocatable building on the DAAF site or the Lewis West site, and some mature trees would probably be lost if a relocatable were installed on either the AMC site or the Town Center site. Installing relocatables at other sites would not adversely affect land cover.

No adverse effects on land use or land use conflicts would be expected from using the secondary sites for RV storage, from using Poe Road for trailer parking, or from using laydown areas. Numerous RVs are already stored at the golf course maintenance area. The DES lot was previously used as a temporary vehicle storage lot, parking trailers along Poe Road would not conflict with other uses in the Southwest Area, and use of laydown areas for construction staging or remote parking would be compatible with existing uses of those areas.

No adverse effects on land use would be expected from renovating buildings and using them for BRAC 5/132 tenants. Though the buildings would be occupied by new tenants, the buildings are preexisting and changes of interior use would not have an effect on land use or land cover.

4.2.2.2 Alternative B

No adverse effects on land use would be expected if Alternative B was implemented. No adverse effects on land use would be expected from installing relocatable buildings on the RV lot, RCI lot, Gerber West site, and Tompkins Basin sites, from building renovations, or from the use of the sites of Buildings 705 and 706 for personnel parking.

4.2.2.3 Alternative C

No adverse effects on land use would be expected if Alternative C was implemented. No adverse effects on land use would be expected from building renovations, or from converting one or more of the proposed areas near Building 767 and the Museum Support Center into sites for personnel parking.

4.2.2.4 No Action Alternative

No adverse effects on land use would be expected from implementing the No Action Alternative. Under the No Action Alternative, no relocatable buildings would be installed and only those buildings analyzed in the 2007 Fort Belvoir BRAC EIS would be renovated to provide space for BRAC 5/132.

4.2.3 Best Management Practices and Mitigation

No best management practices (BMPs) or mitigation measures for effects on land use would be necessary under any of the proposed alternatives.

4.3 AESTHETICS AND VISUAL RESOURCES

Aesthetics and visual resources are the natural and man-made features of a landscape. They include cultural and historic landmarks, landforms of particular beauty or significance, water surfaces, and vegetation. Together these features form the overall impression that a viewer receives of an area or its landscape.

4.3.1 Affected Environment

4.3.1.1 Primary Sites

RV Lot. The RV lot is in an industrial area without aesthetically sensitive locations within the limited viewshed of the site. Views of the site from nearby community and residential areas are blocked by industrial-type buildings east of the lot. Views of the site from surroundings consist of a fenced area containing numerous parked RVs, many of which are not well maintained.

RCI Lot. The RCI lot is in an industrial area with no aesthetically sensitive locations within the viewshed. Views of the site from surrounding areas are of low quality, because the site primarily serves as a construction storage area.

Goethals Road Site. The site is within view of athletic facilities to the north and a large field to the east (Fremont Field). Potentially sensitive views of the site are from the unaccompanied personnel housing area northwest of the site and from the Friends Meetinghouse and Woodlawn Historic District east of the site. If a new OCAR facility is constructed on the western portion of the site, that new facility would block the view from the unaccompanied personnel housing. The approximate limit of the viewshed of the Woodlawn Historic District is Constitution Avenue, which is just east of the proposed Goethals Road site. Views of the site from surrounding areas are of medium quality. The site is undeveloped and possesses no outstanding visual quality, but the lawn and trees provide some natural visual quality.

Lewis West Site. The viewshed of the site includes the Lewis Village family housing area east of the site and the Friends Meetinghouse to the southwest. The view towards the Lewis West site from the Friends Meetinghouse has been determined not to contribute to the historic viewshed of the Woodlawn Historic District, and it is partially obscured by trees. Views from other directions are from surrounding administrative and commercial facilities. Views of the site from surrounding areas are of medium quality because of the trees on the site.

AMC Site. The AMC site is viewed from parking areas, other relocatable buildings in administrative use, and commercial buildings, as well as from traffic on Gunston Road. Views of the site from surrounding areas are of relatively high quality because of the site's mixture of maintained lawn and large, mature trees. Also, the site is surrounded by areas of lesser visual quality (prefabricated buildings, parking lots, and Gunston Road).

DAAF Site. The DAAF site is along Santjer Road on Davison Army Airfield. The site and surroundings are wooded, and southwest of the site is a cleared area that surrounds the end of a runway at the airfield. No other development is near the site. Views of the site from surrounding areas are of high quality because it is a completely wooded site, but because there is no other development within view of the site, the site is visible from Santjer Road only.

Town Center Site. The Town Center site is viewed from buildings and parking areas to the north, an athletic field to the east, and Gunston Road and maintenance/storage facilities to the west. The view to the south is from lightly developed land with small and large buildings and parking areas. Views of the site from surrounding areas are of medium quality. The AAFES storage lot, the basketball courts and skateboard park, and a parking area are not visually attractive, but mature trees on the site are.

Gerber West Site. No visually sensitive areas are north, west, or south of the Gerber West site. East of the site across Lowen Road is the Gerber Village family housing area. Views of the site from surrounding areas are of low quality because the site has two warehouse type buildings (Buildings 629 and 630) and a parking lot. The view of the site from the Gerber Village family housing area is partially obscured by trees along Lowen Road.

Tompkins Basin Site. No visually sensitive areas surround the Tompkins Basin site. A single facility, the McNellis Veterinary Facility to the east, has a view of the site. From other directions the only view of the site is from Warren, Theote, and Morrow roads. Views of the site from surrounding areas are of low quality because vegetation has been removed from the site.

4.3.1.2 Buildings to be Renovated

Buildings that would be renovated under the proposed action would primarily have interior renovations, which would not have an effect on aesthetics.

4.3.1.3 Secondary Sites

Golf Course Maintenance Area. No views from surrounding areas are of the golf course maintenance area. Only staff at the golf course maintenance facilities regularly view the site.

DES Lot. No views of the DES lot are from surrounding areas. The site can be seen from the road to the golf course maintenance facilities, but the view from Beulah Street is obscured by vegetation.

4.3.1.4 Parking and Construction Staging Sites

Poe Road is not visible from nearby areas or developed areas of Fort Belvoir. Laydown areas 7 and 8, along Warren Road southwest of the Tompkins Basin site, are surrounded by forested areas and are not near facilities or developed areas. Only the McNellis Veterinary Facility and short stretches of Theote and Warren roads have a view of laydown areas 44, 45, and 71 (the Tompkins Basin site). Laydown areas 11, 12, and the sites of Buildings 629, 630, 704, 705, and 706 can be seen from some houses in the Gerber Village family housing area and from Gunston Road, Lowen Road, 21st Street, Dalrymple Road, and Warren Road. Views of the laydown areas are of undeveloped land that is either bare soil (laydown areas 44, 45, and 71) or lawn.

4.3.2 Environmental Consequences

4.3.2.1 Alternative A

Long-term minor adverse and beneficial effects on aesthetics would be expected from implementing Alternative A. Most of the proposed primary and secondary sites are not within the viewsheds of areas with sensitive land uses. Exceptions include the family housing area east of

the Lewis West site, the Friends Meetinghouse south of the Lewis West site and east of the Goethals Road site, and the family housing area east of the Gerber West site. A relocatable building on the Lewis West site would change the existing view of an undeveloped, vegetated area to one of a large relocatable building with associated parking. Relocatable buildings and the construction phases would visually degrade the views from the housing. As mentioned above, however, the view towards the Lewis West site from the Friends Meetinghouse has been determined not to contribute to the historic viewshed of the Woodlawn Historic District, so a relocatable building placed on the site would not affect the historic district. Additionally, a tree buffer would be preserved between the Lewis West site and the Friends Meetinghouse to screens views from the south. A buffer of trees would also be preserved between the Friends Meetinghouse and the Goethals Road site to protect the viewshed and aesthetics of the historic district.

While the uses surrounding the AMC site are not aesthetically sensitive, the site itself is attractive with its maintained lawn and mature trees and the aesthetic quality of the site and views of the site from the surrounding facilities would be degraded by removal of the trees and the construction and presence of a relocatable building on the site.

Using the Gerber West or Tompkins Basin sites for relocatable buildings or remote parking would improve the aesthetics of the sites by upgrading them from bare-soil sites and old warehouse-type structures surrounded by degraded parking and grounds to modern structures with new parking areas and landscaping. Using laydown areas for construction material storage would temporarily degrade aesthetics, but would not create a long-term adverse effect.

No adverse effects on aesthetics would be expected from using the DAAF site for a relocatable building, the golf course maintenance area for RV storage, the DES lot for RV storage, or Poe Road for trailer parking because the sites are in locations where they are not normally seen from their surroundings.

No adverse effects on aesthetics would be expected from building renovations.

4.3.2.2 Alternative B

No adverse effects on aesthetics would be expected from implementing Alternative B. No adverse effects on aesthetics would result from using the RV lot or the RCI lot for relocatable buildings. Long-term minor beneficial effects on aesthetics would result from implementing Alternative B. Using the Gerber West and Tompkins Basin sites for relocatable buildings could marginally improve the aesthetics of the sites. No adverse effects on aesthetics would be expected from building renovations or from using the sites of Buildings 705 and 706 for parking areas.

4.3.2.3 Alternative C

No adverse effects on aesthetics would be expected from implementing Alternative C. Other than interior renovations to existing buildings on Fort Belvoir, the only change that would occur under Alternative C would be a conversion of one or more sites near Building 767 and the Museum Support Center to parking areas. The areas proposed for parking are in industrial and institutional areas of the installation and contain RV storage, parking, and warehouse buildings, construction materials, or are bare ground. Converting the areas to parking would not adversely affect the aesthetics of the surroundings.

4.3.2.4 No Action Alternative

No adverse effects on aesthetics would be expected from implementing the No Action Alternative. Under the No Action Alternative, the proposed action would not be implemented, so the aesthetics of the installation would not be changed.

4.3.3 Best Management Practices and Mitigation

No BMPs or mitigation measures for effects on aesthetics would be necessary under any of the alternatives. Planning and construction of BRAC 5/132 facilities, however, would be expected to follow the guidelines set forth in the *Fort Belvoir Installation Design Guide*. That would allow any new additions to remain consistent with the existing landscape and architectural character of the installation. Building design for large structures would include elements to help the structures blend into their surroundings. During construction, the Army would retain as many older trees as possible because their presence dramatically enhances visual aesthetics. After completing construction, the Army would install integrated landscaping in accordance with the *Fort Belvoir Installation Design Guide*. Doing so would lessen the aesthetic effects of the new buildings. In areas where existing trees cannot be preserved, Fort Belvoir could elect to plant trees to obstruct the view of buildings from high-traffic areas.

4.4 AIR QUALITY

4.4.1 Affected Environment

4.4.1.1 National Ambient Air Quality Standards and Attainment Status

The U.S. Environmental Protection Agency (EPA) Region 3 and the Virginia Department of Environmental Quality (VDEQ) regulate air quality in Virginia. The Clean Air Act (42 U.S.C. 7401-7671q), as amended, gives EPA responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), nitrous oxides (NO_x), ozone (O_3), and lead. Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. While each state has the authority to adopt standards stricter than those established under the federal program, Virginia accepts the federal standards.

Federal regulations designate air-quality control regions (AQCRs) in violation of the NAAQS as *nonattainment* areas. Federal regulations designate AQCRs with levels below the NAAQS as *attainment* areas. *Maintenance* AQCRs are areas that have previously been designated nonattainment and have been redesignated as attainment for a probationary period through implementation of maintenance plans. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme.

Fairfax County (and therefore Fort Belvoir) is within the National Capital Interstate AQCR (AQCR 47) (40 CFR 81.12). AQCR 47 is in the O_3 transport region that includes 12 states and Washington, DC. EPA has designated Fairfax County as the following:

- Moderate nonattainment for the 8-hour O_3 NAAQS

- Nonattainment for the $PM_{2.5}$ NAAQS
- Attainment for all other criteria pollutants (40 CFR 81.347)

4.4.1.2 Installation-Wide and Regional Emissions

On the basis of the installation's potential to emit, Fort Belvoir is a major source as defined by the Clean Air Act. An installation-wide Title V permit was issued on March 24, 2003 (VDEQ 2004). As part of the Title V permit requirements, the installation tracks air emissions from the significant stationary emission sources on post. Most of the emission sources are boilers and generators; however, the installation also has other source types including gasoline dispensing, lithographic printing, cold solvent degreasing, and a firefighting training facility. Fort Belvoir also has hundreds of insignificant sources of air pollution including closed sanitary landfills, aboveground and underground storage tanks, spray painting operations, welding operations, oil-water separators, and woodworking activities. The Metropolitan Washington Council of Governments compiles an emissions inventory for AQCR 47 and sets regional emissions budgets. Table 4.4-1 lists the emissions from significant sources at Fort Belvoir for calendar year 2008 and the estimated total emissions for AQCR 47 for 2009.

Table 4.4-1
Existing air emissions for Fort Belvoir and AQCR 47

	Annual emissions (tons per year)	
Criteria pollutants	**Fort Belvoir [a]**	**AQCR 47[b,c]**
VOC	2.9	81,190
NO_x	43.8	117,102
SO_2	20.0	231,898
$PM_{2.5}$	2.2	23,364

VOC = volatile organic compound
[a] Source: U.S. Army Fort Belvoir 2009.
[b] Source: MWCOG 2007
[c] Source: MWCOG 2008

4.4.2 Environmental Consequences

4.4.2.1 Alternative A

Short-term minor adverse effects on air quality would be expected from implementing Alternative A. Increases in emissions would be less than the applicability thresholds under the General Conformity Rules (GCRs) (see below), and would not violate federal, state, or local air regulations.

Implementing Alternative A would affect air quality primarily from introducing new on-road and non-road emission sources while constructing the relocatable structures and renovating buildings. All direct and indirect emissions associated with Alternative A were estimated (Table 4.4-2). Emission estimates included construction equipment, heavy trucks, paving activities, and construction worker commutes. The estimates account for constructing the relocatable buildings, renovating existing structures, and clearing and paving the surface parking areas. No operational emissions are associated with Alternative A. Detailed emissions calculations are reported in Appendix E.

General Conformity. The GCR specifies threshold emissions levels by pollutant to determine the applicability of conformity requirements for a project. For an area in moderate nonattainment for the 8-hour O_3 NAAQS within the O_3 transport region, the applicability criterion is 100 tons per year (tpy) for NO_x and 50 tpy for volatile organic compounds (VOCs) (40 CFR 93.153). For an area in nonattainment for the $PM_{2.5}$ NAAQS, the applicability criterion is 100 tpy for $PM_{2.5}$, NO_x, and SO_2 (71 *Federal Register* 40420). VOCs and ammonia were also identified as potential $PM_{2.5}$ precursors. Neither Virginia nor EPA, however, has found that ammonia contributes to $PM_{2.5}$ problems in AQCR 47 or other downwind areas. Therefore, ammonia was not carried forward for detailed analysis, while the VOC emissions are addressed as a precursor to O_3.

To determine the applicability of the GCR to Alternative A, air emissions of the nonattainment pollutants and their precursors were compared to the applicability thresholds and regional emissions budgets (Tables 4.4-2 and 4.4-3). The requirements of the rule are not applicable because the highest total annual direct and indirect emissions from Alternative A would not be expected to exceed the applicability threshold for any applicable pollutant during any years, and would not be regionally significant. It is understood that a project of this size and type would be *de minimis* (i.e., of minimal importance), and not interfere with the state's timely attainment of the NAAQS. Detailed emission calculations and a Record of Non-Applicability are provided in Appendix E.

Table 4.4-2
Total estimated emissions compared to applicability thresholds

	Estimated emissions (tpy)			
	NO_x	VOC	$PM_{2.5}$	SO_2
Alternative A	20.9	4.0	2.1	<0.01
Alternative B	7.4	1.9	0.7	<0.01
Alternative C	0.9	0.8	<0.01	<0.01
De minimis threshold	100	50	100	100
Exceeds threshold?	No	No	No	No

Table 4.4-3
Total estimated emissions compared to regional emissions

	Criteria pollutant or precursor			
	NO_x	VOC	$PM_{2.5}$	SO_2
Highest annual emissions (tpy)				
Alternative A	20.9	4.0	2.1	<0.01
Alternative B	7.4	1.9	0.7	<0.01
Alternative C	0.9	0.8	<0.01	<0.01
Regional emissions (tpy)	117,102	81,190	23,364	231,898
Percent regional emissions	<0.01%	<0.01%	<0.01%	<0.01%
Regionally significant?	No	No	No	No

Source: MWCOG 2007 and 2008

Regulatory Review and Air Permit Requirements. Any new stationary sources of air emissions associated with Alternative A could be subject to federal and state air permitting regulations. Such requirements include minor new source review, nonattainment new source review,

prevention of significant deterioration, and new source performance standards for selected categories of industrial sources. The facilities would not be equipped with boilers or emergency generators, and no new stationary sources of air emissions would be introduced under Alternative A. No permits to construct or modifications to Fort Belvoir's Title V permit would be required.

Mobile Emissions. Sources of mobile emissions would include additional worker commutes and heavy truck traffic to support construction and renovation activities. According to evaluation in the 2007 Fort Belvoir BRAC EIS (USACE 2007a), no long-term changes in numbers of personnel or commuter vehicles would be associated with Alternative A. The primary air pollutants from mobile-sources are CO, NO_X, and VOCs. Lead emissions from mobile sources have declined in recent years from using unleaded gasoline and are extremely small. Potential SO_2 and particulate emissions from mobile sources are small compared to emissions from point sources, such as power plants and industrial facilities.

CO is a site-specific pollutant with higher concentrations found adjacent to roadways and signalized intersections. Microscale analysis is often conducted on a project-specific basis in regions where CO is of particular concern. Fairfax County, and therefore Fort Belvoir, is neither a nonattainment nor a maintenance area for CO; therefore, microscale analysis is not necessary for this EA. The traffic associated with Alternative A is not anticipated to be an air quality concern for particulate matter because it does not involve any new highways or expressways, and the intersections affected are primarily secondary arterial roads (USEPA 2006). In addition, Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics emitted from highway vehicles and non-road equipment. As with particulate matter, traffic associated with Alternative A is not anticipated to be an air quality concern for MSATs because the intersections affected are primarily secondary arterial roads, and new traffic is expected to be below the threshold that would have potential for meaningful MSATs effects. Quantitative procedures to address particulate matter and MSATs are not standard practice for non-transportation projects on secondary arterials; therefore they are not included in this EA (FHWA 2006).

4.4.2.2 Alternative B

Short-term minor adverse effects on air quality would be expected from implementing Alternative B. Increases in emissions, however, would be *de minimis* and would not be expected to contribute to a violation of any federal, state, or local air quality regulations. The types of emission sources would be the same as those discussed for Alternative A and total emissions would be less than those for Alternative A (Table 4.4-2).

The above discussions of general conformity, regulatory review, air permit requirements, and mobile emissions for Alternative A apply equally to Alternative B. This project would be *de minimis* in terms of air quality effects and would not interfere with the state's timely attainment of the NAAQS. Detailed emission calculations and a Record of Non-Applicability are provided in Appendix E.

4.4.2.3 Alternative C

Short-term minor adverse effects on air quality would be expected from implementing Alternative C. Increases in emissions, however, would be *de minimis* and would not be expected to contribute to a violation of any federal, state, or local air quality regulations. The types of emission sources would be the same as those discussed for Alternative A and total emissions would be less than those for Alternative A (Table 4.4-2).

The above discussions of general conformity, regulatory review, air permit requirements, and mobile emissions for Alternative A apply equally to Alternative C. This project would be *de minimis* in terms of air quality effects and would not interfere with the state's timely attainment of the NAAQS. Detailed emission calculations and a Record of Non-Applicability are provided in Appendix E.

4.4.2.4 No Action Alternative

No effects on air quality would be expected under the No Action Alternative. No additional construction or renovation would take place under the No Action Alternative.

4.4.3 Best Management Practices and Mitigation

BMPs would be required and implemented for both construction emissions associated with the BRAC 5/132 activities. The construction would be accomplished in full compliance with current and pending Virginia regulatory requirements, with compliant practices and products. Such requirements include the following:

- Visible emissions and fugitive dust and emissions (9 Virginia Administrative Code [VAC] 5-40-60)
- Asphalt paving operations (9 VAC 5-40-5490)
- Open burning (9 VAC 5-40-5600)
- Portable fuel containers (9 VAC 5-40-5700)
- Architectural and industrial maintenance coatings (9 VAC 5-40-7120)
- Consumer products (9 VAC 5-40-7240 et seq.).

This above listing is not all-inclusive; the Army and any contractors would comply with all applicable air pollution control regulations.

In addition to BMPs, to ensure compliance with the Coastal Zone Management Act requirements, the Army would implement mitigation measures to reduce air quality impacts. Mitigation measures were established to reduce the emissions associated with the overall BRAC action at Fort Belvoir to a level where they could reasonably be accounted for in the State Implementation Plan (SIP). The measures are detailed in a Construction Performance Plan provided in the *Construction Performance Plan for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* that is Attachment 1 of the *Record of Decision for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* (ROD) (USACE 2007b). The CPP is included in Appendix E of this EA, and its measures would include the following:

- Limiting construction on Code Orange, Red, and Purple ozone days
- Limiting the use of off-road trucks on the project site
- Requiring that all off-road diesel equipment not meeting Tier 2 or better standards be retrofitted with emission control devices
- Implementing anti-idling restrictions for both on-road and off-road vehicles and equipment

- Using ultra-low sulfur diesel, alternate fuels, or fuel additives
- Meeting new engine standards for off-road vehicles

4.5 NOISE

4.5.1 Affected Environment

4.5.1.1 Overview and Regulatory Requirements

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) are used to quantify sound frequency. The human ear responds differently to different frequencies. *A-weighing*, measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Sounds encountered in daily life and their dBA levels are provided in Table 4.5-1.

Table 4.5-1
Common sounds and their levels

Outdoor	Sound level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998

The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant. Therefore, A-weighted Day-night Sound Level has been developed. Day-night Sound Level (DNL) is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because: (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (PL 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, EPA provided information suggesting continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. The Fairfax County Code prohibits the creation of sound louder than 55 dB in a residential area, and 60 dB in a commercial area. In addition, it prohibits the creation of any excessive noise on any street adjacent to any school, institution of learning, court, or hospital that interferes with its function (Fairfax County Code Section 108-4-1). Sounds generated from construction and demolition activities are exempt from the Fairfax County ordinance between 7:00 a.m. and 9:00 p.m.

4.5.1.2 Existing Conditions

Existing sources of noise near the proposed sites include local road traffic, aircraft overflights, lawn maintenance equipment, construction activities from other projects, and natural noises such as the rustling of leaves and bird vocalizations. Existing noise levels (L_{eq} and DNL) were estimated for the alternative sites and surrounding areas using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present* (ANSI 2003). Table 4.5-2 outlines the closest Noise Sensitive Areas (NSAs) such as residents, schools, churches, and hospitals, and the estimated existing noise levels at each location.

Table 4.5-2
NSAs and estimated noise levels at proposed sites

	Closest NSA				Estimated existing sound levels (dBA)		
Site	Distance meters (feet)	Direction	Type	Land use category	DNL	L_{eq} (Daytime)	L_{eq} (Nighttime)
DAAF	518 (1,700)	South	Residential	Military Air Installation	60	58	52
AMC	720 (2,400)	South	Residential	Quiet Urban Residential	55	53	47
RV lot	180 (600)	East	Residential				
RCI lot	335 (1,100)	East	Residential				
Town Center	400 (1,300)	South	Residential				
Goethals	400 (1,300)	East	Place Of Worship[a]	Quiet Suburban (Semi-Urban) Residential	50	48	42
Lewis West	46 (150)	East	Residential				
	230 (750)	South	Place Of Worship[a]				
Gerber West	55 (175)	East	Residential				
Tompkins Basin	425 (1,400)	East	Residential				
DES lot	410 (1,350)	Northwest	Residential				
Golf course maintenance area	220 (720)	west	residential				

Source: ANSI 2003
[a] Religious Society of Friends

4.5.2 Environmental Consequences

4.5.2.1 Alternative A

Short-term minor adverse effects on the noise environment would be expected from implementing Alternative A. The effects would be primarily from heavy equipment noise during construction and renovation activities. The effects would be somewhat confined to areas near the primary sites used for relocatable buildings and the buildings being renovated.

Table 4.5-3 presents typical noise levels (dBA at 50 feet) that EPA has estimated for the main phases of outdoor construction. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple items of equipment operating concurrently, noise levels can be relatively high at daytime at locations within several hundred feet of active construction sites. The zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations farther than 1,000 feet from construction sites seldom experience noteworthy levels of construction noise.

Table 4.5-3
Noise levels associated with outdoor construction

Construction phase	L_{eq} (dBA)
Ground clearing	84
Excavation, grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971

The RCI lot, AMC site, DAAF site, Town Center site, and Tompkins Basin site do not have NSAs within 1,000 feet. Therefore, construction noise at those sites would have negligible effects. Construction noise would be expected to have short-term minor adverse effects on all sensitive receptors, including residences, within 1,000 of the remaining locations. No long-term increases in the overall noise environment would be expected with Alternative A.

Because of the proximity of Davison Army Airfield to the DAAF site, intermittent aircraft and rotorcraft noise should be expected. Tenants would experience brief and transient acoustical events. Such events could be loud enough to interfere intermittently with speech both inside and outside the building. Land use for the site is not normally recommended for the permanent location of office space or administrative facilities.

The Lewis West and Goethals Road sites are within one-half mile of the Friends Meetinghouse, the Woodlawn Baptist Church, or both. The programmatic agreement (PA) with the Virginia State Historic Preservation Officer (SHPO) and consulting parties outlines measures to avoid adverse noise effects during BRAC related construction. As outlined in the PA, if the sites are selected, Fort Belvoir would establish a point of contact (POC) to receive and respond to any noise complaints. That POC would be an individual with the authority to curtail construction activities to reduce the amount of noise produced. In addition, construction would not occur on Sundays within one-half mile of the Woodlawn Historic District without consulting with the affected parties.

Although construction-related noise effects would be small, the following BMPs would be used to reduce these already-limited noise effects:

- Construction would predominately occur during normal weekday business hours
- Construction equipment mufflers would be properly maintained and in good working order

Noise from renovation activities would be minimal and confined primarily to areas inside the buildings. Limited truck and worker vehicle traffic could be audible at some nearby locations. Such effects would be expected to be negligible. No noise effects would be expected from using Poe Road for trailer storage or from using laydown areas or proposed remote parking sites.

Construction and renovation noise would dominate the soundscape for all onsite personnel. Personnel, and particularly equipment operators, would don adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations. In addition, because construction noise is the only source of noise associated with Alternative A, no violation of the Fairfax County noise ordinance would be expected.

No long-term increases in the overall noise environment (e.g., L_{eq}, DNL) would be expected with the implementation of Alternative A. No military training activities, use of weaponry, demolitions, or aircraft operations would occur. Therefore, no changes in the existing noise environment associated with those sources would be expected.

4.5.2.2 Alternative B

Short-term minor adverse effects on the noise environment would be expected from implementing Alternative B. The effects would be similar in nature but less than those outlined in Alternative B. The effects would be confined to areas near the RV lot, the RCI lot, and the Gerber West and Tompkins Basin sites, and sites of building renovation.

The RCI lot and Tompkins Basin site do not have NSAs within 1,000 feet. Therefore, construction noise at the site would be expected to have negligible effects. Construction noise would have short-term minor adverse effects on all residences within 1,000 feet of the RV lot and Gerber West site. BMPs would be similar to those outlined under Alternative A. No long-term increases in the overall noise environment would be expected with Alternative B.

Sites associated with Alternative B are farther than one-half mile from the Friends Meetinghouse, the Woodlawn Baptist Church, and the Woodlawn Historic District. Measures outlined in the PA to reduce noise during BRAC construction would not apply. Noise from Davison Army Airfield would not be a concern with Alternative B.

4.5.2.3 Alternative C

Short-term minor adverse effects on the noise environment would be expected from implementing Alternative C. The effects would be primarily from the creation of parking lots near Building 767 and the Museum Support Center. The areas proposed for personnel parking near Building 767 and the Museum Support Center do not have NSAs within 1,000 feet. Therefore, construction noise at the site would be expected to have negligible effects. Construction noise would have short-term minor adverse effects on all residences within 1,000 feet of any area used for personnel parking. BMPs would be similar to those outlined under Alternative A. No long-term increases in the overall noise environment would be expected with Alternative C.

Sites associated with Alternative C are farther than one-half mile from the Friends Meetinghouse, the Woodlawn Baptist Church, and the Woodlawn Historic District. Measures outlined in the PA to reduce noise during BRAC construction would not apply. Noise from Davison Army Airfield would not be a concern with Alternative C.

4.5.2.4 No Action Alternative

No effects on the noise environment would be expected from implementing the No Action Alternative. No construction, changes in traffic, or changes in operations associated with BRAC 5 or BRAC 132 would occur. Noise conditions would remain as described in Section 4.4.1.

4.5.3 Best Management Practices and Mitigation

General construction BMPs that would be implemented are outlined in Section 4.5.2.1. No mitigation measures for noise would be required if the BRAC 5/132 action was implemented.

4.6 GEOLOGY AND SOILS

4.6.1 Affected Environment

4.6.1.1 Primary Sites

RV Lot. The RV lot is topographically flat and the soil on the site is predominantly Urban with a small area of Mattapex silt loam, 2–15 percent slope, on the southwestern fringe of the parcel (Fort Belvoir GIS 2009). The Urban soil includes ridgetop or other well-drained, flatter areas that have been disturbed minimally to drastically by construction and development over the years. The Urban soil has low erodibility and is suitable for foundations. The Mattapex soil series is well to moderately well-drained and highly erodible. Problems with this soil primarily result from wetness and drainage problems that can be addressed during construction planning (USACE 2007a).

Geologically, the Main Post of Fort Belvoir is within the high and low Coastal Plain Terraces of the Coastal Plain Physiographic Province. The province consists of unconsolidated sand, silt, and clay underlain by residual soil and weathered crystalline rocks. Most of the province deposits in the Fort Belvoir area consist of a sequence of unconsolidated sediments that belong to the Potomac Group. The Potomac Group is characterized by lens-shaped deposits of interbedded sand, silt, clay, and gravel, primarily of non-marine origin. The Potomac Group is approximately 600 feet thick beneath most of Fort Belvoir (USACE 2007a).

RCI Lot. The RCI lot is topographically flat and the soil on the site is predominantly Urban with a small area of Mattapex silt loam, 2–15 percent slope, along the south boundary of the parcel, and Beltsville silt loam, 0–15 percent slope on the western fringe of the parcel (Fort Belvoir GIS 2009). The Beltsville silt loam, 0–15 percent slope soil is moderately well drained and like the Mattapex soil series is highly erodible and presents wetness and drainage problems that can be addressed during construction planning (USACE 2007a). The Urban and Mattapex soil series are described above in the soils discussion for the RV lot. The geology of the RCI lot is similar to that described for the RV lot.

Lewis West Site. The undeveloped Lewis West site is topographically flat and the soil on the site is Urban (Fort Belvoir GIS 2009). The Urban soil series is described above in the soils discussion for the RV lot. The geology of the Lewis West site is similar to that described for the RV lot.

Goethals Road Site. The Goethals Road site is topographically flat and the soil on the site is Urban (Fort Belvoir GIS 2009). The Urban soil series is described above in the soils discussion for the RV lot. The geology of the Goethals Road site is similar to that described for the RV lot.

AMC Site. The AMC site is topographically flat and the soil on the site is Urban (Fort Belvoir GIS 2009). The Urban soil series is described above in the soils discussion for the RV lot. The geology of the AMC site is similar to that described for the RV lot.

DAAF Site. The DAAF site is mostly flat and the soils consist of Keyport silt loam, 0–2 percent slope; Bertie silt loam, 0–2 percent slope and Dragston fine sandy loam, 0–2 percent slope (Fort Belvoir GIS 2009). The Keyport and Bertie silt loam, 0–2 percent slope soils are moderately well-drained and are not highly erodible. The Dragston fine sandy loam, 0–2 percent slope is somewhat poorly drained and is not highly erodible. Such soils might present wetness and drainage problems that can be addressed during construction planning. The foundation support for these soils varies (USACE 2007a). The geology of the DAAF site is similar to that described for the RV lot.

Town Center Site. The Town Center site is topographically flat and the soil is classified as Urban (Fort Belvoir GIS 2009). The Urban soil series is described in Section 3.5.1.1. The geology of the Town Center site is similar to that described for the RV lot.

Gerber West Site. The Gerber West site is topographically flat and the soil is classified as Urban (Fort Belvoir GIS 2009). The Urban soil series is described above in the soils discussion for the RV lot. The geology of the Gerber West site is similar to that described for the RV lot.

Tompkins Basin Site. The Tompkins Basin site is topographically flat and the soil is classified as Urban (Fort Belvoir GIS 2009). The Urban soil series is described above in the soils discussion for the RV lot. The geology of the Tompkins Basin site is similar to that described for the RV lot.

Prime farmland is land federally designated under the Farmland Protection Policy Act as having the best combination of physical and chemical characteristics for producing agricultural crops with minimum inputs of fuel, fertilizer, pesticides and labor and without intolerable soil erosion. While some soil types on Fort Belvoir are classified as prime farmland soils or soils of statewide importance, recent land uses within the facility are not consistent with prime farmland or farmland of statewide importance designations (USACE 2007a). In any event, this land was taken out of the inventory of farmland before passage of the FPPA.

4.6.1.2 Buildings to be Renovated

The buildings to be renovated are all within developed areas of the Main Post of Fort Belvoir. The soils are classified as Urban. The geological setting of the Main Post is described in Section 4.6.1.1.

4.6.1.3 Secondary sites

Golf Course Maintenance Area. The golf course maintenance area is topographically flat and the soil on the site is predominantly Urban. Along the southern fringe of the parcel is small area of Dumfries sandy loam, 2–50 percent slopes, and Beltsville silt loam, 0–15 percent slope (Fort Belvoir GIS 2009). The Urban soil and the Beltsville silt loam are described above in the soils discussion for the RV lot and RCI lot. Dumfries sandy loam, 2–50 percent slopes soil is well-drained, and is not highly erodible. Problems with this soil could include unstable slopes, land slippage, high shrink-swell clays, poor foundation support and high water table conditions (USACE 2007a).

The golf course maintenance area is within the Main Post of Fort Belvoir; therefore, the underlying geology is generally similar to that described above for the RV lot.

DES Lot. The DES lot is topographically flat and the soil on the site is classified as Cut and Fill (Fort Belvoir GIS 2009). The Cut and Fill unit consists of areas where soil material has been removed (cut) and a non-native material placed into low areas (fill) to level/lower slopes, facilitating construction activities (USACE 2007a). The DES lot is within the Main Post of Fort Belvoir; therefore, the underlying geology is similar to that described for the RV lot.

4.6.1.4 Parking and Construction Staging Sites

Poe Road. Soils along the stretches of Poe Road being considered for trailer parking are predominantly Mattapex silt loam, 2–7 percent slopes, and Matapeake silt loam, 2–7 percent slopes (USDA NRCS 2009), with small areas of Dumfries sandy loam, 2–50 percent slopes, and Lenoir silt loam, 0–2 percent slopes. The depth to any restrictive feature for all these soil types is more than 80 inches. All the soils except the Lenoir soil are either well drained or moderately well drained; the Lenoir soil, which occurs near the intersection of Poe Road and Stewart Road, is somewhat poorly drained.

Laydown areas 7, 8, 9, and 10. The soils on laydown areas 7, 8, 9, and 10 are classified as Urban soils. The sites are generally flat. Other laydown areas are part of the Gerber West and Tompkins Basin sites, as described above.

4.6.2 Environmental Consequences

4.6.2.1 Alternative A

Short-term minor adverse effects on soils would be expected from implementing Alternative A. Preparing site(s) for the installation of relocatable buildings, construction staging, or remote parking could cause a minor loss of soil from the sites. Any losses would be minimized by using BMPs and developing a site-specific sediment and erosion control plan, if determined to be necessary. No effects on soils would be expected after construction activities were complete. No adverse effects on geology or topography would be expected. Renovating and using existing buildings, using secondary sites, and using Poe Road and laydown areas would not have adverse effects on geology, soils, or topography.

4.6.2.2 Alternative B

Short-term minor adverse effects on soils would be expected from implementing Alternative B. No adverse effects on geology or topography would be expected. The effects of implementing Alternative B would be similar to those discussed above for Alternative A, although less soil disturbance would be expected to occur under Alternative B.

4.6.2.3 Alternative C

Short-term minor adverse effects on soils would be expected from implementing Alternative C. No adverse effects on geology or topography would be expected. The effects of implementing Alternative C would be similar to those discussed above for Alternative A, although less soil disturbance would be expected to occur under Alternative C because soil disturbance would result from only parking lot construction.

4.6.2.4 No Action Alternative

No effects on geology, soils, or topography would be expected if the No Action Alternative was implemented. Under the No Action Alternative, no relocatable buildings would be installed, so geology, soils, and topography would not be affected.

4.6.3 Best Management Practices and Mitigation

Standard engineering practices and BMPs would be implemented to address construction-related issues stemming from local geology. Such practices could include appropriate design criteria (e.g. depth and location) for placing footings and piers in preparation for installing relocatable buildings. No mitigation measures for geology or topography would be required with the implementation of the proposed action.

Fort Belvoir and the Virginia Department of Conservation and Recreation require that construction site operators minimize erosion by developing and implementing a site specific stormwater pollution prevention plan. Such a plan describes BMPs and procedures to control erosion and sediment at the construction site. Because Virginia has already established requirements to limit soil erosion from construction sites, specific mitigation measures for soils would not be required.

4.7 WATER RESOURCES

4.7.1 Affected Environment

4.7.1.1 Primary Sites

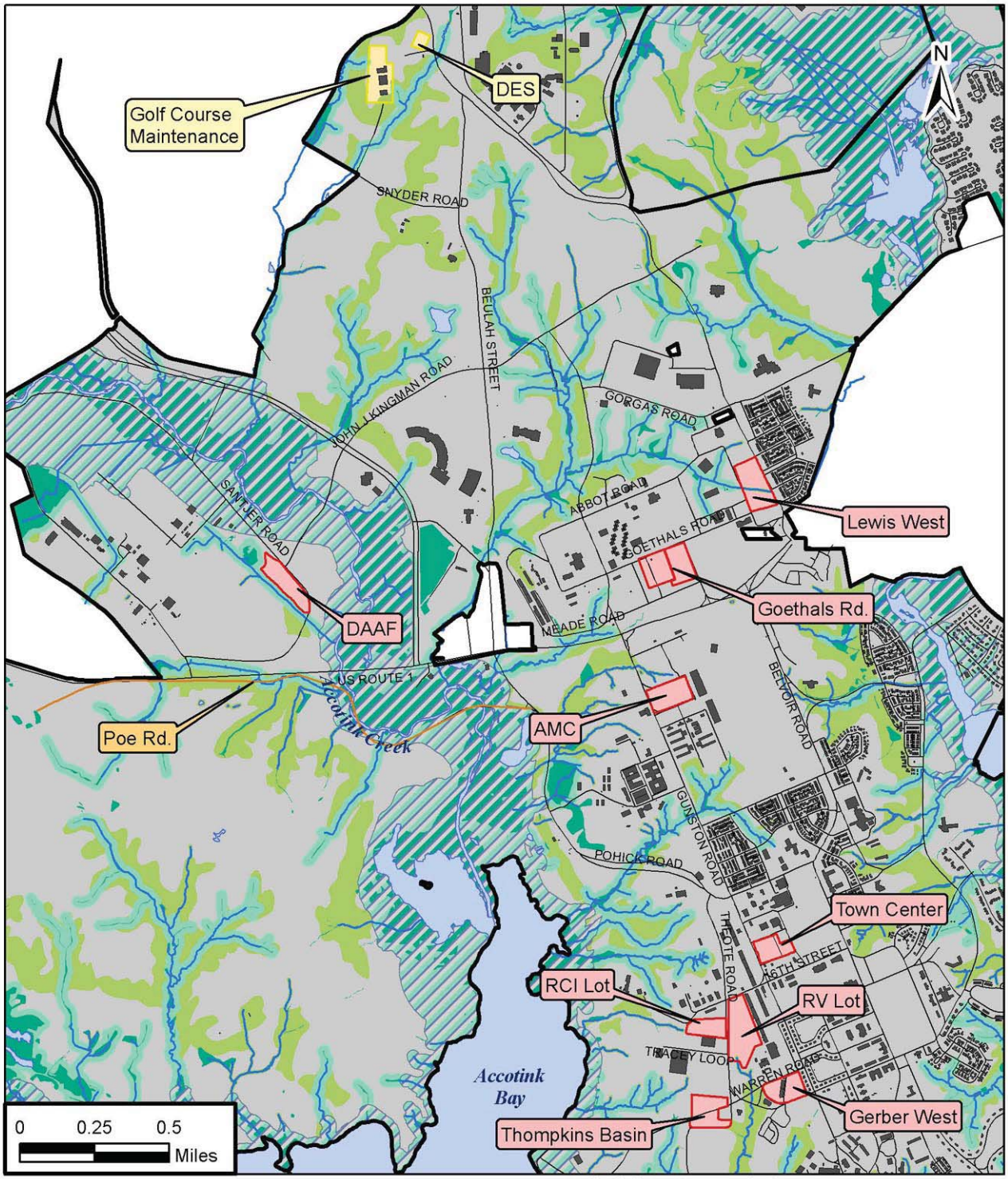
RV Lot. The southern portion of the RV lot encompasses the headwaters area of a small Gunston Cove tributary stream and its associated riparian buffer (BNVP 2009). No other sensitive water resources are within or adjacent to the site.

RCI Lot. The RCI lot contains no surface water bodies. Its natural surface drainage would trend west toward the headwaters of two small streams that drain west into Accotink Bay (Figure 4-2). That site contains no sensitive floodplains, Resource Protection Area (RPA), wetlands, or riparian buffers. A riparian buffer surrounding the headwaters of a small Accotink Bay tributary stream begins just west of the site boundary (BNVP 2009).

Goethals Road Site. The Goethels Road site does not contain any surface water-bodies. It is in the watershed of Mason Run, an Accotink Creek tributary that also drains the Lewis West site. The site contains no sensitive floodplains, RPA, wetlands, or riparian buffers.

Lewis West Site. The Lewis West site contains the headwaters of a small stream that drains to the Mason Run tributary of Accotink Creek, but the flow within the site footprint might not be perennial (BNVP 2009, USGS 1983). A riparian buffer borders the stream swale within the Lewis West site. The designated RPA around the stream begins just west of the site across Franklin Road and does not extend into the site. The site contains no floodplains or wetlands.

AMC Site. The AMC site contains no surface water-bodies. The headwaters of an Accotink Bay tributary begin just north of the site footprint across 3rd Street. Natural surface drainage from the site



LEGEND

- Installation Boundary
- Primary Site
- Secondary Site
- Temporary Trailer Parking
- Road
- Building
- Stream
- Surface Water
- Floodplain
- Wetland
- RPA
- Riparian Buffer

Water Resources

Figure 4-2

Source: Fort Belvoir GIS, 2009.

would trend toward this stream or other small Accotink Bay tributary headwaters west of Gunston Road. The site contains no sensitive floodplains, RPA, wetlands, or riparian buffers.

DAAF Site. The forested DAAF site is west of Accotink Creek along Santjer Road. It is bordered on the west by a channelized drainage swale that parallels the runway orientation of the Airfield. Natural drainage from the site would reach Accotink Creek via this swale. A riparian buffer and RPA also border the site along this drainageway. A floodplain associated with the riparian area partially covers the site.

Town Center Site. The Town Center site contains no surface water-bodies or sensitive water resources areas.

Gerber West Site. The Gerber West site contains no surface water-bodies or sensitive riparian areas. It is between two headwater areas of two small streams, one to the west and one to the south, that generally flow southwest toward Gunston Cove (BNVP 2009; Fort Belvoir GIS 2009). A riparian buffer for one of these streams begins just west of the site.

Tompkins Basin Site. The Tompkins Basin site contains no surface water-bodies and is near the same headwater areas as the Gerber West site. A small area of riparian buffer surrounding the stream east of the Tompkins Basin site (between it and the Gerber Village West site) extends into the southeast corner of the Tompkins Basin site. No other sensitive water resources are within the site.

4.7.1.2 Buildings to be Renovated

Buildings would receive renovations only, so water resources are not an issue relevant to that aspect of the proposed action.

4.7.1.3 Secondary Sites

The golf course maintenance area and DES lot are between the headwaters of two small streams that flow southwest and converge before reaching Accotink Creek, and RPA and riparian buffer areas associated with these two headwater areas are adjacent to each site (Figure 4-2). A riparian buffer area extends into the southern portion of the golf course maintenance area (Fort Belvoir GIS 2006, 2009). The sites contain no floodplain or wetlands.

4.7.1.4 Parking and Construction Staging Sites

The stretches of Poe Road being considered for temporary trailer parking have no sensitive water resources areas (BNVP 2009). An Accotink Creek tributary, along with its associated RPA and riparian buffer, follows a generally eastward course and crosses both Poe Road and U.S. Route 1 in the vicinity of the proposed stretches of Poe Road. No RPA or other sensitive water resources are within the proposed road stretches.

All laydown areas and remote parking sites are near the Gerber West and Tompkins Basin sites, and none of the laydown areas contain any surface water-bodies. Laydown areas 9, 10, 11, and 12 are in the vicinity of the riparian buffer and headwater stream areas as described above for the Gerber West site. Water resources in the vicinity of laydown areas 7, 8, 44, 45, and 71 are as described above for the Tompkins Basin site. A portion of an RPA overlaps the northwest corner of laydown area 7.

4.7.2 Environmental Consequences

4.7.2.1 Alternative A

Short-term minor adverse effects on surface waters and groundwater resources would be expected from implementing Alternative A. Land disturbance associated with site preparation and staging for construction could increase soil erosion and runoff of sediment and other pollutants. The effects would be minimized by using construction-specific BMPs to control stormwater runoff and by implementing site-specific sediment and erosion control plans during site preparation and construction. Stormwater runoff would be controlled in accordance with the provisions of a Virginia Stormwater Management Program permit. Riparian buffer areas on the Lewis West site, the DAAF site, and along Poe Road would be avoided to the maximum extent practicable. Activities would comply with all applicable federal, state, and Army requirements to reduce the effects of land disturbance activities on nearby water resources and minimize potential detrimental effects through effective stormwater planning.

Long-term minor adverse effects on water resources would be expected from removing vegetated cover and increases in impervious surface area, most notably from clearing the wooded DAAF site, and from tree removal and site preparation necessary at the AMC and Lewis West sites. Some tree removal also would be associated with use of the Town Center site. Impervious surface area would be increased at all sites used for relocatable buildings or parking facilities, with the possible exception of the Gerber West site, which already has two buildings and a parking area, and the sites proposed for remote parking facilities, which have buildings on them. Using the nine proposed primary sites under Alternative A would be expected to create the largest overall increase in impervious cover, but the effects on the affected watersheds would be expected to be minor because the sites are not co-located on Fort Belvoir and, where necessary, stormwater from the construction sites would be controlled in accordance with a Virginia Stormwater Management Program permit. No effects on floodplains would be expected.

A Coastal Zone Management Act federal consistency determination is included in Appendix D. No effects on the Chesapeake Bay or the Virginia Coastal Zone Management program would be expected. Site preparation, construction, staging, temporary storage, and other activities associated with the proposed action would occur in a manner consistent with the Virginia Coastal Zone Management program enforceable policies to the maximum extent practicable.

Renovation of existing buildings and using the two secondary sites for storage of RVs would not be expected to affect water resources.

Short-term minor adverse effects on water resources would be expected from using Poe Road for trailer parking. Some contaminants from the trailers and small amounts of soil and road debris would be expected to reach surface waters along Poe Road with the passage of up to 233 large trailers. Poe Road would be used only temporarily for trailer storage, however, and no long-term effects on surface waters or ground water would be expected.

4.7.2.2 Alternative B

Minor adverse effects on surface waters and groundwater resources would be expected. Effects would be similar to those described for Alternative A but to a lesser degree because fewer of the proposed primary sites would be used, and no use of Poe Road for trailer storage would occur. No

effects would be expected from renovating existing buildings, from using the two secondary sites for storage, or from using laydown areas and the sites of buildings to be demolished for parking.

4.7.2.3 Alternative C

Minor adverse effects on surface waters and groundwater resources would be expected if Alternative C was implemented. Effects would be similar to those described for Alternative A but to a lesser degree because no relocatable buildings would be constructed and there would be no use of Poe Road for trailer storage. No effects would be expected from renovating existing buildings or from using the two secondary sites for storage. Parking areas constructed for personnel in the Museum Support Center and Building 767 would be provided with stormwater control measures in accordance with a Virginia Stormwater Management Program permit.

4.7.2.4 No Action Alternative

No effects on surface waters and groundwater resources would be expected under the No Action Alternative. Under the No Action Alternative, no relocatable buildings would be installed, so water resources would not be affected.

4.7.3 Best Management Practices and Mitigation

BMPs to limit erosion, protect soils, manage storm water, and limit pollutant runoff would meet or exceed all applicable federal, state, local, and Army requirements and regulations, including (but not limited to) those included in the latest version of Virginia's *Erosion and Sediment Control Handbook* (VDCR 1992) and Fairfax County's *Public Facilities Manual* (Fairfax County 2001). Measures taken during site preparation and building installation could include using staged delivery and installation of relocatable buildings (as described in Section 3.2), prompt stabilization of any disturbed or exposed soil, silt retention fences or hay bales, storm drain inlet filters, and regular inspection and maintenance of such BMP measures. Site design for finished use of the sites would incorporate measures that meet or exceed all requirements for storm water management and pollution prevention Such measures could include BMPs and low-impact development practices such as preserving existing vegetation to the maximum extent practicable, using on-site storm water runoff controls, or other measures to spread or slow runoff from small storms, constructing or restoring vegetated buffers along site perimeters for management of nonpoint (diffuse) runoff, and site-specific controls where warranted for water quality management of hot spot areas such as parking lots.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

4.8.1.1 Vegetation

Of the primary sites, the vegetation of the AMC, DAAF, Lewis West, and Town Center sites consists of more than maintained lawn. The AMC and Town Center sites have several mature trees, the DAAF site is completely wooded, and the Lewis West site has many young trees on it. The other sites have maintained lawns or developed land with a few trees, or they are mostly devoid of vegetation. The AMC site and Lewis West site are on developed areas of the installation, while the DAAF site is near a heavily wooded area that is near the Fish and Wildlife Corridor on Fort Belvoir, which connects Huntley Meadows Park with the Southwest Area and

the Accotink Bay area. Poe Road passes through an area that is primarily hardwood forest mixed with conifers. The secondary sites and the sites proposed for laydown and remote parking are not vegetated.

4.8.1.2 Wildlife

Most of the primary and secondary sites are of limited value for wildlife and the wildlife that would be expected to be found on them would be urban adapted, such as squirrels and common birds. Wildlife using the DAAF site could include numerous species of birds, mammals, and other animals, because the site is part of a large natural area surrounded by developed land. The Southwest Area of Fort Belvoir, where Poe Road is located, provides important wildlife habitat in a mostly urbanized area. The laydown areas and proposed sites for remote parking do not provide important wildlife habitat.

4.8.1.3 Sensitive Species

No sensitive species are known to be found on or use the proposed primary or secondary sites or the laydown areas. Only the DAAF site has habitat that could be suitable for sensitive species found on the installation. Accotink Creek passes through the wooded area east of Santjer Road, and Accotink Creek is considered to be habitat for the state-threatened North American wood turtle (*Clemmys insculpta*). Poe Road crosses the Accotink Creek drainage, though the areas proposed for trailer parking are outside the area considered to provide habitat for the species. Laydown and remote parking sites do not support sensitive species.

The Gerber West and Tompkins Basin primary sites, the laydown areas on those sites, and laydown areas 9 and 10 are adjacent to a conservation area (T17) to the south which requires stringent stormwater management to protect the Northern Virginia well amphipod (*Stygobromus phreaticus*) and the Laura's clubtail (*Stylurus laurae*) and their associated habitat. The T17 training area is the only known location for the amphipod, which is granted special status in Virginia. The species had previously been thought to be extinct. The Laura's clubtail is a state rare dragonfly whose larvae are sensitive to shoreline disturbances and siltation.

A number of nests of the state threatened bald eagle (*Haliaeetus leucocephalus*) occur on Fort Belvoir and the shoreline of Pohick Bay is a designated conservation zone for the species. Dogue Creek, Accotink Creek, Pohick Creek, and the Potomac River are designated Anadromous Fish Use Areas.

Coordination letters concerning the proposed action were sent to the U.S. Fish and Wildlife Service (USFWS), the Virginia Department of Conservation and Recreation (VA-DCR), and VA-DGIF on December 3, 2009 (see Appendix B). Responses received from VA-DCR and VA-DGIF are in Appendix B. No response was received from USFWS.

4.8.1.4 Wetlands

No wetlands are known to be on any of the proposed primary sites, secondary sites, or the laydown and remote parking sites. Poe Road crosses Accotink Creek and passes near the creek in a few locations. Wetlands could be present on the DAAF site, though a jurisdictional determination of the extent of any wetlands on the site and the kind of wetlands on the site has not yet been performed.

4.8.2 Environmental Consequences

4.8.2.1 Alternative A

Long-term minor adverse effects on vegetation and wildlife would be expected from the loss of trees on the AMC, Lewis West, and Town Center sites, and from the reduction in wooded area at the DAAF site. No adverse effects on sensitive species or wetlands would be expected. The North American wood turtle is rare on Fort Belvoir and is associated with riparian areas, so it is doubtful that it would be found on or use the woods of the DAAF site. Any tree of 4 inches or more in diameter (at *breast height*) removed to install a relocatable building would be replaced with two other trees on Fort Belvoir property, in keeping with the installation's tree replacement policy.

Stormwater protection measures sufficient to adequately protect the habitat of the Northern Virginia well amphipod and Laura's clubtail would be required on the Gerber West and Tompkins Basin sites and on laydown areas. Runoff from parking areas and all impervious surfaces on the sites would have to be adequately captured and treated with stormwater management measures. The precise measures that would be used would be determined during final site layout and planning, when the amount of stormwater runoff from the sites would be calculated. Fort Belvoir will continue to coordinate with the Virginia Department of Game and Inland Fisheries (VA-DGIF) regarding the protection of the bald eagle and surrounding aquatic resources and would implement all projects in accordance with its Integrated Natural Resources Management Plan (INRMP).

The DAAF site would be surveyed before site clearing or building installation to determine whether wetlands are present on the site. If wetlands were found, then a jurisdictional determination of their extent and type would be performed. The site layout for a relocatable building and associated facilities on the DAAF site would avoid wetlands if possible, and if that was not possible, then a Section 404 permit would be obtained from the U.S. Corps of Engineers to impact wetlands. Any mitigation measures required by the Corps would be performed, resulting in no adverse effects on wetlands from implementation of the proposed action.

4.8.2.2 Alternative B

No adverse effects on vegetation or wildlife would be expected from implementing Alternative B. The four sites that would be used for relocatable buildings under the alternative are not vegetated and do not provide important habitat for wildlife. No adverse effects on sensitive species or wetlands would be expected.

4.8.2.3 Alternative C

No adverse effects on vegetation or wildlife would be expected from implementing Alternative C. The sites proposed for use as parking areas for the Museum Support Center and Buildings 767 are previously disturbed, unvegetated areas. Building renovations would not affect biological resources.

4.8.2.4 No Action Alternative

No adverse effects on vegetation or wildlife would be expected from implementing the No Action Alternative. No site would be disturbed under the No Action Alternative.

4.8.3 Best Management Practices and Mitigation

Measures that the Army could consider to reduce the effects of the proposed action on biological resources include the following:

- Conduct a jurisdictional wetland determination on the DAAF site to determine whether wetlands are present. If they are present, acquire a Clean Water Act section 404(b)(1) wetland permit and Virginia Water Protection Permit, if necessary, to achieve no net loss of wetlands functions and values.
- Ensure that no development occurs in sensitive natural areas.
- Avoid to the extent possible all ecologically sensitive areas and habitats, the Forest and Wildlife Corridor, RPAs, and wetlands.
- Comply with general performance criteria found in the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq.; see 9 VAC 10-20-120) as they apply to RPAs and Resource Management Areas.
- Adhere to Fort Belvoir Natural Resources management policies and goals, as specified in the INRMP, including compliance with Fort Belvoir's two-to-one tree replacement policy.
- Replace any lost wetlands as close as possible to and within the same watershed as the affected wetland.
- Use low-impact development techniques to limit the loss of natural vegetation.
- Consult with VA-DGIF concerning ways to limit impacts on vegetative communities and nearby natural areas.

No mitigation measures for the protection of biological resources would be required with the implementation of the proposed action.

4.9 CULTURAL RESOURCES

4.9.1 Affected Environment

The 2007 BRAC EIS for Fort Belvoir contains prehistoric and historic context information for the installation; a discussion of cultural resources regulatory frameworks applicable to Fort Belvoir complete with a compliance summary; and details of identified prehistoric and historic archaeological and architectural properties identified associated with the installation. By reference, discussions in the EIS are incorporated into this EA. This section discusses the affected environment of the specific sites associated with the BRAC 5/132 action and the consequences associated with implementing the proposed action of this EA.

A Programmatic Agreement Among United States Army, Virginia State Historic Preservation Officer, the Catawba Tribal Historic Preservation Office, and the Advisory Council on Historic Preservation for the Base Realignment and Closure (BRAC) Related Expansion of Fort Belvoir, Virginia was signed in 2008 (Fort Belvoir 2008) (Appendix C). The implementation of this PA fulfills the Army's cultural resource section 106 compliance responsibilities for implementing BRAC. The PA covers many topics; those that are immediately relevant to this EA are summarized below.

Area of Potential Effect (APE). The PA defines four APEs for BRAC undertakings. The APEs are defined as follows:

- "Direct impacts APE: The direct impacts APE relates to direct construction impacts exclusive of auditory and visual impacts. This APE encompasses all of the land of Fort Belvoir exclusive of the Engineer Proving Ground." The APE is further refined, for the purposes this EA, as the parcels as illustrated in Figures 2-3 through 2-9 and 2-11 through 2-12.
- "Auditory APE: The auditory APE is defined as an irregular circle extending approximately one and one-quarter mile from the proposed helicopter pad."
- "Visual APE: The visual APE has three components which capture the potential visual effects resulting from the construction of the new hospital, construction within and adjacent to the Fort Belvoir Historic District, and revisions to the Land Use Plan. The visual APE for the Hospital is a circular area extending approximately one-half mile from the center of the proposed hospital site into the Woodlawn Historic District. The APE for the Fort Belvoir Historic District consists of the Historic District plus a one block radius from the boundary of the district. The APE for the land use plan is one-quarter mile from the boundary of Fort Belvoir." For the purposes of this EA, the APE has been further refined to include the contributing viewshed of the Woodlawn Historic District as identified by the Woodlawn Historic District Viewshed Study.
- "Cumulative effects APE: The cumulative effects APE is defined as the greater Fort Belvoir area. This APE considers potential cumulative traffic and development activities resulting from the BRAC Action as well as potential impacts resulting from changes to the Fort Belvoir Land Use Plan Update."

Protection of the Woodlawn Historic District Viewshed. Section II of the PA acknowledges the potential for adverse BRAC-related effects on the Woodlawn Historic District's viewshed and outlines a process for the installation to reduce, avoid, or minimize them in consultation with the consulting parties of the PA. Specifically it does the following:

- Delineates the boundaries of the Woodlawn Historic District
- Obligates Fort Belvoir to designate as Open Space an area adjacent to the historic district
- Defines appropriate uses of the designated Open Space and limits the amount of permanent construction that can occur on such space
- Obligates Fort Belvoir to fund a viewshed study to identify areas on the Fort that are historically sensitive
- Requires that Fort Belvoir incorporate the historically sensitive areas into installation plan and design documents; it further states that all development in areas determined to be historically sensitive is subject to restrictions on building height, architectural style, and associated landscaping and that all reasonable efforts must be made to maximize open space

Section II. G of the PA identifies the Fort Belvoir Cultural Resources Manager (CRM) as the party responsible for reviewing all BRAC projects, determining any potential effects, initiating redesign if there is a potential for adverse effects, justifying any unavoidable adverse effects, and carrying out any consultations and coordination associated with project review and the development of mitigation measures. It applies to actions associated with the Woodlawn Historic District and all Fort Belvoir BRAC-related actions.

Protection of the Fort Belvoir Historic District. Section III of the PA acknowledges the potential for adverse BRAC-related effects on the Fort Belvoir Historic District and outlines a strategy for minimizing them. This includes commitments to:

- Carry out any rehabilitation adaptive/reuse projects in accordance with historic property treatment guidance and standards developed by the Secretary of the Interior
- Complete surveys of architectural properties 50 years old or older that would be affected by BRAC
- Ensure that new construction on or adjacent to the historic district is architecturally compatible with the established historic character of the area
- Rehabilitate the exterior of all Fort Belvoir Historic buildings affected by BRAC within 4 years of executing the agreement
- Review all BRAC projects affecting National Register of Historic Places (NRHP)-eligible properties and all new construction within or adjacent to the historic district for compliance with Secretary of the Interior standards and other guidance documents

Ambient Lighting. Section IV of the PA requires that Fort Belvoir implement an installation-wide outdoor lighting policy that limits the amount of ambient light produced by the installation that meets or exceeds local county requirements. The Fort Belvoir Outdoor Lighting Policy would apply to all construction/development performed as part of the proposed action.

Auditory Effects. Section V of the PA requires Fort Belvoir to minimize adverse auditory effects on historic resources by limiting weekend work, establishing a process for receiving and responding to community complaints, and scheduling work around special events.

Archaeological Property Identification and Post Review Discoveries. Sections VI and VII of the PA essentially require compliance with section 106 of the National Historic Preservation Act (NHPA)—conducting archaeological survey work in advance of any activity potentially affecting archaeological sites and then implementing site protection measures for identified resources potentially eligible for listing on the NRHP. All of Fort Belvoir has been surveyed for archaeology except areas so disturbed that they are unlikely to contain intact archaeological deposits. Nonetheless the PA specifies that if any archaeological sites or materials are encountered during BRAC actions, work would stop, authorities would be notified, and mitigation measures developed and then implemented to minimize effects on the site. All material remains are to be treated in accordance with applicable regulatory frameworks (36 CFR Part 79 and the Native American Graves Protection and Repatriation Act, for example).

4.9.1.1 Primary Sites

RV Lot. The RV lot has been heavily disturbed by almost 100 years of development and has been determined to contain no archeological resources. The lot is further than two blocks from the boundary of the Fort Belvoir Historic District and is outside the defined viewshed of the district. Additionally, a double row of warehouse buildings screens views of the site from the Fort Belvoir Historic District.

RCI Lot. The RCI lot has been heavily disturbed by almost 100 years of development and has been determined to contain no archeological resources. The lot is further than three blocks from the boundary of the Fort Belvoir Historic District and is outside the defined viewshed of the district. The RCI lot is west of the RV lot and is screened by the same warehouse buildings that screen views of the RV lot from the Fort Belvoir Historic District.

Goethals Road Site. The Goethals Road site was heavily disturbed by the construction of a barracks complex during World War II and has been determined to contain no archeological resources. The site is west of the Woodlawn Historic District. From a review of the Woodland

Historic District Viewshed Study, the Fort Belvoir CRM determined that the southern portions of a relocatable building and the southern portion of a parking lot would be in the contributing viewshed of the Woodlawn Historic District. Because the proposed building would be a maximum of two stories, however, existing vegetation along the eastern edge of Constitution Drive would screen the site from the Woodlawn Historic District viewshed.

Lewis West Site. The Lewis West site was heavily disturbed by the construction of a barracks complex during World War II and has been determined to contain no archeological resources. The site is immediately north of the Woodlawn Historic District. That view has been heavily compromised by the construction of Lewis Village and Building 1839 (Concepts Analysis). The proposed location for a relocatable building is north of a wooded area designated as open space, which serves as a vegetative buffer and screen between the proposed site and the historic district.

AMC Site. The AMC site was heavily disturbed by the construction of barracks complexes during World Wars I and II and has been determined to contain no archeological resources. One archeological site (44FX1896) has been identified immediately north of the site on the north side of 3rd Street. This site was determined to be ineligible for NRHP listing in 1993 (VDHR File #: 92-2348-F).

The AMC site is more than three-quarters of a mile from the Fort Belvoir Historic District, is not visible from the district, and is outside the defined viewshed of the district. The Woodlawn Historic District Viewshed Study determined that any structure less than 150 feet in height constructed at the AMC site would not be visible from the Woodlawn Historic District.

DAAF Site. Fort Belvoir performed a Phase I archeological survey of the DAAF site as part of the installation-wide archeological survey performed in 1993. No archeological resources were identified at the DAAF site.

The Davison Army Airfield was evaluated for NRHP eligibility as part of a 2009 survey of architectural resources on Fort Belvoir that are older than 50 years of age. Based on that evaluation, Fort Belvoir determined that the airfield is not eligible for the NRHP. The Virginia SHPO did not concur with that finding, and the determination was sent to the Keeper for decision. The Keeper has requested that Fort Belvoir provide additional information to determine the airfield's eligibility. Fort Belvoir is completing additional information to fulfill that request.

Town Center Site. The Town Center site was heavily disturbed by the construction of barracks complexes during World Wars I and II and has been determined to contain no archeological resources. The site is adjacent to the Fort Belvoir Historic District and is in its viewshed. The adjacent areas of the Fort Belvoir Historic District are industrial in nature (warehouses to the west and utility buildings to the south). A precedent exists for the construction of temporary buildings in this area (particularly during World War I).

Gerber West Site. The Gerber West site was heavily disturbed by the construction of barracks complexes during World Wars I and II and has been determined to contain no archeological resources. Development of the site would require the demolition of Buildings 629 and 630. Both buildings have been evaluated and determined ineligible for NRHP listing. Fort Belvoir received concurrence from the SHPO on a determination of no adverse effect for the demolition of those buildings in 2006 (VDHR File #: 2006-1396).

The Gerber West site is adjacent to the Fort Belvoir Historic District and is in its viewshed. The adjacent areas of the Fort Belvoir Historic District are residential in nature (family housing). The proposed site is screened from view from the historic district by a dense line of trees.

Tompkins Basin. Fort Belvoir performed a Phase I archeological survey of the Tompkins Basin site as part of the installation-wide archeological survey performed in 1993. No archeological resources were identified at the Tompkins Basin site. Two archeological resources (44FX0624 and 44FX1503) have been identified within 200 feet of the Tompkins Basin site. Both of those were determined ineligible for listing in the NRHP in 1993 (VDHR File #: 92-2348-F).

The Tompkins Basin site is more than one-quarter mile from the Fort Belvoir Historic District and almost 2 miles from the Woodlawn Historic District and is not visible from either district.

4.9.1.2 Buildings to be Renovated

The proposed action involves renovating up to 19 buildings on the Main Post as detailed in Section 2. Fort Belvoir has demonstrated a strong commitment to architectural survey, evaluation, and protection as evidenced by the Fort Belvoir Historic District and the number of studies conducted to date. Section III.B of the PA requires that Fort Belvoir, in consultation with the SHPO, continue to evaluate the NRHP eligibility of existing buildings and structures 50 years old or older that would be affected by any BRAC actions. Key information about the 19 buildings considered in this EA is summarized in Table 2-2.

Three of the proposed Buildings—211, 216, and 219—have been identified as contributing resources to the Fort Belvoir Historic District. A third building, 314, has been identified as a contributing resource to the 300 Area Historic District. Fort Belvoir is awaiting concurrence from the SHPO on the eligibility of the 300 Area Historic District.

4.9.1.3 Secondary Sites

Golf Course Maintenance Area and DES Lot. Fort Belvoir performed a Phase I archeological survey of the golf course maintenance area and DES lot sites as part of the installation-wide archeological survey performed in 1993. No archeological resources were identified at either site.

The golf course maintenance area and DES lot sites are 1.8 miles from the Woodlawn Historic District and 3 miles from the Fort Belvoir Historic District and are not visible from either district.

4.9.1.4 Parking and Construction Staging Sites

The discussion of the Gerber West site in Section 4.9.1.1 applies equally to laydown areas 11 and 12, because they are in the Gerber West site. Laydown areas 9 and 10 are directly south of the Gerber West site and border the Fort Belvoir Historic District. Buildings 704, 705, and 706, the sites of which are proposed for use as remote parking areas under the proposed action, have been evaluated and determined ineligible for NRHP listing. Fort Belvoir received concurrence on a determination of no adverse effect for the demolition of Building 704 in 2006 (VDHR File #: 2006-1774) and for the demolition of Buildings 705 and 706 in 2007 (VDHR File #: 2007-1124).

The discussion of the Tompkins Basin site in Section 4.9.1.1 applies equally to laydown areas 44, 45, and 71 because they are in the Tompkins Basin site.

Laydown areas 7 and 8 are west of the Tompkins Basin site. One archeological site (44FX0623) has been identified adjacent to laydown area 7. That site was determined ineligible for NRHP listing in 1993 (VDHR File #: 92-2348-F).

Fort Belvoir has identified three archeological sites (44FX1673, 44FX1674, and 44FX1680) at the western end of the proposed Poe Road parking area. Site 44FX1673 was determined ineligible for NRHP listing in 1993 (VDHR File #: 92-2348-F). The remaining sites have been recommended for further study.

4.9.2 Environmental Consequences

4.9.2.1 Alternative A

Short-term minor adverse effects on cultural resources would be expected from implementing Alternative A. The adverse effects would be from construction noise during installation of the relocatable buildings. No long-term adverse effects on cultural resources would be expected from implementing Alternative A. No archaeological or architectural resources are known to be present on any of the proposed sites. In compliance with Section VII of the PA, any post-review discoveries of archaeological sites or materials would be treated in compliance with best practices and regulatory frameworks including stopping work, contacting authorities, developing case-specific impact minimization strategies, and properly handling and housing associated collections.

Fort Belvoir's CRM has reviewed the proposed action, as required by Section II. G of the PA, and applied the criteria of adverse effects to each of the proposed primary sites. The CRM determined that the proposed action would not be expected to have long-term adverse effects on historic properties. The CRM also determined that no adverse ambient-light effects on historic properties would be expected from implementing the proposed action. Below are summaries of the CRM's findings.

RV lot and RCI lot: Both sites are outside the defined viewsheds of the historic districts, so no effects on the districts would be expected from using the sites.

Goethals Road site: Heavily screened views of a building approximately one-quarter-mile from the boundary of the Woodlawn Historic District would not constitute an adverse effect on the Woodlawn Historic District.

Lewis West site: The proposed Lewis West parcel is adequately screened by vegetation and the site's development as outlined in this EA would not be expected to have an adverse effect on historic properties.

AMC site: The proposed two-story relocatable building falls well below the 150-foot height limit, and no adverse visual effect on the Woodlawn Historic District would be expected.

DAAF site: The airfield would not be adversely affected by a relocatable building on the DAAF site because even though the DAAF site is within the boundaries of the airfield, it is not contiguous with the potentially eligible structures. The DAAF site is on the east edge of the airfield at the southern end of a runway and is surrounded by woods.

Town Center site: The utilitarian nature of the proposed relocatable building is architecturally compatible with the industrial nature of the portion of the Fort Belvoir Historic District near the Town Center site, so it would not be expected to have an adverse effect on the viewshed of the historic district. The proposed two-story relocatable building is well outside the viewshed of the Woodlawn Historic District.

Gerber West site: The Gerber West site is screened from view from the Fort Belvoir Historic District by a dense line of trees that would be retained. The line of trees has been used historically to block views of this formerly industrial area (warehouse) from the adjacent residential area. Because of the presence of the vegetative screening, the proposed relocatable building would not be expected to have adverse effects on the viewshed of the Fort Belvoir Historic District.

Tompkins Basin site: The site is outside the defined viewsheds of both historic districts, so no effects on the districts would be expected from using the site.

Implementing Alternative A would be expected to have no adverse effects on historic buildings. In accordance with the PA, all the involved buildings that are at least 50 years old have been evaluated for eligibility of the NRHP.

The majority of the work that would be performed on existing buildings would involve interior renovations. The interiors of the buildings have undergone numerous modifications in the recent past and lack historic integrity. In accordance with Stipulation III.D of the PA, Fort Belvoir would request funding to perform exterior rehabilitation of the historic buildings affected by the proposed action. Fort Belvoir awarded a contract for the rehabilitation of the exterior of Building 216 in September 2009. All proposed work on the historic buildings would conform to the *Secretary of the Interior's Standards for Rehabilitation* and would not be expected to have adverse effects on historic properties.

Implementing Alternative A would not be expected to have an adverse effect on cultural resources of the proposed secondary sites or laydown areas. Fort Belvoir's CRM applied the criteria of adverse effects on each of the proposed secondary sites and determined that the proposed use of the sites would not be expected to have adverse effects on historic properties.

Fort Belvoir would avoid adverse effects on the archaeological sites near Poe Road by establishing a 30-foot buffer between the identified boundary of the archaeological sites and any land disturbance. The Poe Road proposed parking area is more than one mile away from both the Woodlawn and Fort Belvoir Historic Districts and would not be expected to have adverse auditory or visual effects on historic resources.

Assessment of auditory effects for all sites (primary, secondary, parking, and laydown): Short-term adverse noise effects from construction activities would be expected from the use of the Town Center site, Gerber West site, and laydown areas 9, 10, 11, and 12. Any auditory effects would be minimized by implementing Stipulation V of the PA. As noted in Section 4.5 of this EA, no long-term change in the existing noise environment is expected; therefore, no long-term adverse noise effects on historic properties would occur from construction at any of the proposed primary sites.

4.9.2.2 Alternative B

Short-term minor adverse effects on cultural resources would be expected from implementing Alternative B. The adverse effects would be from construction noise during installation of the relocatable buildings. No long-term adverse effects on cultural resources would be expected from implementing Alternative B. No primary sites used under Alternative B would affect the Woodlawn Historic District. Under Alternative B, use of the Gerber West site only could have an effect on the Fort Belvoir Historic District. No adverse effects on historic buildings would be expected for the same reasons provided above for Alternative A. Poe Road would not be used for trailer parking under Alternative B, so there would be no potential for effects on the potentially NRHP-eligible archaeological sites in the vicinity of the road. All precautions and adherences to the provisions of the PA, as discussed above, would apply equally to implementing Alternative B.

4.9.2.3 Alternative C

No adverse effects on cultural resources would be expected from implementing Alternative C. No sites proposed to be used under Alternative C would affect the Woodlawn Historic District. Under Alternative C, use of the Gerber West site as a parking area only could have an effect on the Fort Belvoir Historic District. The reasoning provided above for no adverse effect for using the Gerber West site, secondary sites, and buildings under Alternative A are valid for their use under Alternative C. Poe Road would not be used for temporary trailer parking under the alternative, so there would be no potential for effects on the potentially NRHP-eligible archaeological sites in the vicinity of the road. All precautions and adherences to the provisions of the PA, as discussed above, would apply equally to implementing Alternative C.

4.9.2.4 No Action Alternative

No adverse effects on cultural resources would be expected from implementing the No Action Alternative. Building renovations that would occur under the No Action Alternative (as discussed in the 2007 Fort Belvoir BRAC EIS) would be conducted in accordance with the provisions of the PA. No relocatable buildings would be installed under the No Action Alternative.

4.9.3 Best Management Practices and Mitigation

The BMPs and mitigation measures listed above in Section 4.9.1 would be implemented as necessary for the protection of cultural resources if the proposed action was implemented.

4.10 SOCIOECONOMICS

4.10.1 Affected Environment

This section describes the economy and the sociological environment of the region surrounding Fort Belvoir. The economic indicators characterize the region of influence (ROI). An ROI is a geographic area selected as a basis on which the social and economic effects of project alternatives are analyzed. Fort Belvoir is about 15 miles south of Washington, D.C. The federal government is the core of the region, providing jobs and procuring goods and services throughout the area, so there is a high degree of economic and social integration of Washington, D.C., and the adjacent communities. The ROI for the socioeconomic environment is the Washington, D.C., Metropolitan Statistical Area.

The baseline year for socioeconomic data is 2008, the most recent year for which most of the socioeconomic indicators (e.g., population, employment, and income data) are reasonably available. Where 2008 data are not available, the most recent data available are presented.

4.10.1.1 Economic Environment

The ROI is large and robust economic region. The presence of the federal government provides some stability to the ROI during periods of economic downturn, resulting in less fluctuation in unemployment and other economic indicators that could be experienced in other regions or on a national level. The U.S. economy officially entered a recession at the end of calendar year 2008. The U.S. unemployment rate was 9.6 percent as of August 2009, whereas the ROI unemployment rate was 6.0 percent. Between 2005 and 2008, the U.S. annual unemployment rate ranged from 4.0 percent to 6.0 percent. The ROI unemployment rate only varied between 3.0 and 3.8 percent during the same period (BLS 2009).

The ROI had a labor force of more than 3 million persons, with 2.9 million employed and about 113,800 unemployed. The ROI labor force increased 13 percent between 2000 and 2008, and the number of persons employed increased by 12 percent, higher than the national labor force and employment growth of 8 percent and 6 percent, respectively (BLS 2009).

ROI income levels were higher than national levels. The ROI median household income of $85,824 was 165 percent of the national median household income of $52,029. ROI per capita personal income was $41,929, which was 152 percent of the national per capita income of $27,589 (U.S. Census Bureau 2009).

4.10.1.2 Demographics

The ROI's 2008 population was 5,356,474, an increase of about 5 percent since 2005. During the same period, the nation's population also increased by about 5 percent (U.S. Census Bureau 2005, 2009).

4.10.1.3 Housing

The ROI is characterized by high housing costs and low vacancy rates. More than 2.1 million housing units were in the ROI in 2008. More than 1.9 million (92 percent) were occupied and about 170,000 (8 percent) were vacant. For comparison, at the national level 88 percent of the housing units were occupied and 12 percent were vacant. The median value of ROI owner-occupied housing units was $430,600, which is notably higher than the national median value of $197,600. Median gross rent in the ROI was $1,253, also much higher than the national median gross rent of $824 (U.S. Census Bureau 2009).

Fort Belvoir has more than 2,000 on-post family housing units in 15 neighborhoods (Pinnacle 2009). McRee Barracks is Fort Belvoir's unaccompanied personnel housing facility. It consists of 6 buildings with 404 rooms (Fort Belvoir Web Site 2009).

4.10.1.4 Quality of Life

Law Enforcement, Fire Protection, Medical Services. The Fort Belvoir Directorate of Emergency Services oversees professional law enforcement, fire protection, emergency services, and access control on Fort Belvoir to maintain the safety and security of the Soldiers, civilians,

and family members living and working on Fort Belvoir (Fort Belvoir PAO 2008). City, county, and state police departments from other agencies provide law enforcement in the ROI. Fort Belvoir has automatic and mutual aid police and fire service agreements with Fairfax County.

The DeWitt Army Community Hospital on Fort Belvoir provides health care services to active and retired military personnel and their families residing in Northern Virginia. A new on-post hospital is under construction to replace the Dewitt Army Community Hospital. The project is in support of the BRAC 2005 Recommendations.

Schools. The ROI has more than 20 school districts with more than 1,000 schools and an enrollment of about 800,000 children (NCES 2008). Children living on Fort Belvoir attend schools that are part of the Fairfax County Public School System. The Fort Belvoir Elementary School, on the installation, is part of the Fairfax County Public School System and enrolls more than 1,300 students from kindergarten through sixth grade (Fort Belvoir PAO 2008). The Fort Belvoir Elementary School is not adjacent to the proposed or alternate sites analyzed in this EA.

Services, Shops, and Recreation. Fort Belvoir has a Post Exchange and Commissary, bank, credit union, barber shop, beauty shop, dry cleaner, laundromat, service station, optician, florist, library, a movie theater, and a veterinary clinic. Fort Belvoir's Morale, Welfare, and Recreation (MWR) program also provides many recreation, sports, entertainment, travel, and leisure facilities and activities for Soldiers, their families, retirees, and civilians. The Army Community Service Center offers many support programs to Soldiers and their families. The ROI also has an abundance of shops, restaurants, services and recreational facilities (e.g., athletic fields, parks, movie theaters, historic sites, and music and theatrical venues).

4.10.1.5 Environmental Justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify the disproportionate placement of high and adverse environmental or health effects from proposed federal actions on minority or low-income populations and to identify alternatives that could mitigate those effects.

To identify potential environmental-justice areas, data was collected on minority and low-income populations for U.S. Census block groups in the ROI. Block groups are subdivisions of a census tract and represent the level at which disproportionate effects would be most noticeable. Table 4.10-1 lists the block groups that correspond to Fort Belvoir and the block groups that are contiguous with the boundaries of the installation. Census block group 4219-1 coincides with the land area of Fort Belvoir. Block group 4220-2 coincides with Accotink Village, an enclave within Fort Belvoir.

Minority populations should be identified for environmental justice analyses where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997). The latter guidance was used for this analysis, identifying Census block groups with minority or low-income population percentages exceeding the Virginia state levels, which has a lower threshold than the 50 percent

Table 4.10-1
Minority and low-income populations

	Minority		Low-income	
Corresponding land area	**Census tract-block group**	**Percent minority**	**Census tract-block group**	**Percent below poverty level**
Fort Belvoir	4161-1	13%	4161-1	1%
Fort Belvoir	4161-2	12%	4161-2	2%
Fort Belvoir	4162-1	46%	4162-1	5%
Fort Belvoir	4163-1	8%	4163-1	4%
Fort Belvoir	4211-4	30%	4211-4	3%
Fort Belvoir	4211-6	30%	4211-6	0%
Fort Belvoir	4211-7	32%	4211-7	6%
Fort Belvoir	4212-1	20%	4212-1	0.2%
Fort Belvoir	4213-2	29%	4213-2	0.8%
Fort Belvoir	4217-1	45%	4217-1	6%
Fort Belvoir	4218-1	55%	4218-1	6%
Fort Belvoir	4218-2	67%	4218-2	6%
Fort Belvoir	4219-1	53%	4219-1	8%
Fort Belvoir	4220-1	44%	4220-1	4%
Fort Belvoir	4220-2	56%	4220-2	16%
Fort Belvoir	4221-4	46%	4221-4	6%
Virginia	Virginia	30%	Virginia	9.6%

Source: U.S. Census Bureau 2000.

threshold (the percentage of minority populations in the state is 30 percent, and the percentage of persons below poverty level is 9.6 percent).

Table 4.10-1 lists minority-population and low-income statistics for those block groups and for Virginia. Of the 16 block groups identified in the Fort Belvoir area, 9 of them had a higher percentage of minority residents compared to Virginia, and 1 of the block groups had a higher percentage of low-income residents compared to Virginia.

4.10.1.6 Protection of Children

On April 17, 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. That EO seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of Army policies, programs, activities, and standards. The EO recognizes a growing body of scientific knowledge that demonstrates that children might suffer disproportionately from environmental health risks and safety risks. The risks arise because children's bodily systems are not fully developed; children eat, drink, and breathe more in proportion to their body weight; their size and weight could diminish protection from standard safety features; and their behavior patterns might make them more susceptible to accidents. On the basis of those factors, President Clinton directed each federal agency to make it a high priority to identify and assess environmental health risks and safety risks that could disproportionately affect children. President Clinton also directed each federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Historically, children have been present at Fort Belvoir as residents and visitors (e.g., living in family housing, attending events, using recreational facilities). The Army has taken precautions for their safety by a number of means, including fencing, limiting access to certain areas, and providing adult supervision.

On-post residential areas are adjacent to the Lewis West site and near the Town Center and Gerber West sites.

4.10.2 Environmental Consequences

4.10.2.1 Alternative A

Economic Environment. The economic effects of implementing the proposed alternatives were estimated using the Economic Impact Forecast System (EIFS) model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment from the construction and renovation of facilities on Fort Belvoir represent the direct effects of the proposed action. From the input data and calculated multipliers, the model estimated changes in ROI sales volume, income, and employment, accounting for the direct and indirect effects of the action.

For purposes of this analysis, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine the historical range of economic variation, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The positive and negative historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered to be significant. Appendix F discusses this methodology in more detail and presents the model input and output tables developed for this analysis.

Short-term minor beneficial effects on the economic environment would be expected from implementing Alternative A. The expenditures associated with construction of the relocatable buildings and renovation of existing buildings on Fort Belvoir would generate jobs in the construction industry and increases in local spending and income. The economic benefits would be short-term, lasting only for the duration of the construction and renovation period. The increase in sales volume, income, and employment would fall within historical fluctuations (i.e., within the RTV range) and be considered minor (see Table 4.10-2 and Appendix F).

Demographics. No effects on demographics would be expected. The impact of personnel moving into the ROI because of BRAC actions was evaluated in the 2007 Fort Belvoir BRAC EIS. Constructing relocatable buildings and renovating buildings on Fort Belvoir would not affect the ROI population.

Housing. No effects on housing would be expected. Constructing relocatable buildings and renovating buildings on Fort Belvoir would not affect on-post housing or the ROI housing market.

Quality of life. No effects on quality of life would be expected. No effects on law enforcement, fire protection, and emergency medical response would result from implementing Alternative A. The proposed relocatable buildings and renovated buildings would be on Fort Belvoir property

Table 4.10-2
EIFS model output

Indicator	Alternative A	Alternative B
Total Sales Volume	$222,888,500	$228,134,800
Percentage change	0.10%	0.11%
RTV range	-4.49% to 12.08%	-4.49% to 12.08%
Total Income	$47,185,010	$48,295,630
Percentage change	0.03%	0.03%
RTV range	-3.85% to 11.60%	-3.85% to 11.60%
Total Employment	972	995
Percentage change	0.03%	0.03%
RTV range	-2.92% to 3.42%	-2.92% to 3.42%
Local Population	0	0
Percentage change	0.00%	0.00%
RTV range	-0.72% to 1.19%	-0.72% to 1.19%

within the jurisdiction of the Fort Belvoir Directorate of Emergency Services, which would respond to emergencies at the proposed facilities as it does with existing facilities on the installation.

No effects would be expected on schools, services, shops, or recreation. Constructing relocatable buildings and renovating buildings on Fort Belvoir would not affect these resources.

Environmental Justice. No effects on environmental justice would be expected from implementing Alternative A. Implementing Alternative A would not be expected to have disproportionate adverse environmental or health effects on low-income or minority populations.

Protection of Children. Short-term minor adverse effects on the protection of children would be expected. Of the proposed primary sites, the RV lot, RCI lot, Lewis West, AMC, DAAF, Town Center, Gerber West, and Tompkins Basin are adjacent to areas where children are typically present, such as residential housing areas or community or park land. Construction activity could pose an increased safety risk because construction sites can be enticing to children. During construction, the safety measures stated at 29 CFR Part 1926, *Safety and Health Regulations for Construction,* and Army Regulation 385-10, *Army Safety Program*, would be followed to protect the health and safety of nearby residents and construction workers. It is recommended that barriers and "No Trespassing" signs be placed around construction sites to deter children from playing in the areas and that construction vehicles and equipment be secured when not in use. In addition, the secondary sites (which would be used to accommodate any RV vehicles, other equipment, or materials that would have to be moved off primary sites before the latter could be used for relocatable buildings) would be fenced and any vehicles stored on the sites would be locked.

4.10.2.2 Alternative B

Economic Environment. Short-term minor beneficial economic effects would be expected, as described previously in Section 4.10.2.1.

Demographics. No effects on demographics would be expected, as described previously in Section 4.10.2.1.

Housing. No effects on housing would be expected, as described previously in Section 4.10.2.1.

Quality of life. No effects on quality of life would be expected, as described previously in Section 4.10.2.1.

Environmental Justice. No effects on environmental justice would be expected, as described previously in Section 4.10.2.1.

Protection of Children. Short-term minor adverse effects on protection of children would be expected, as described previously in Section 4.10.2.1.

4.10.2.3 Alternative C

Short-term minor beneficial economic effects and short-term minor adverse effects on protection of children would be expected if Alternative C was implemented. The discussions above of the individual aspects of socioeconomics for Alternative B apply equally to Alternative C.

4.10.2.4 No Action Alternative

No effects on any aspect of the socioeconomic environment would be expected from implementing the No Action Alternative.

4.10.3 Best Management Practices and Mitigation

No BMPs or mitigation measures for socioeconomic resources would be required with the implementation of the proposed action.

4.11 TRANSPORTATION

This section describes the existing transportation systems near Fort Belvoir, the effects of the BRAC 5/132 action, and potential mitigation measures, if required. The overall 2005 BRAC action was discussed in the 2007 Fort Belvoir EIS (USACE 2007a) and the traffic and transportation effects of the proposed action of this EA are largely accounted for within the analysis contained in the EIS.

4.11.1 Affected Environment

Off-post Transportation Systems. Fort Belvoir, in Fairfax County Virginia, an installation of approximately 8,400 acres, accommodates 7,600 residents and 23,000 employees. The overall 2005 BRAC action will increase the employment number on Fort Belvoir to more than 29,000 employees by the year 2011, and the residential population is expected to increase to nearly 9,400 employees in that same time frame.

Transportation challenges on roadways in and around Fort Belvoir occur during the morning and evening peak periods because off-post roadways are congested, and queues form at the gates for access into the installation. Local roadways include the Fairfax County Parkway and U.S. Route 1 (Route 1). Traffic tends to flow unimpeded in the off-peak direction of flow, except for turn lanes

into Fort Belvoir. Further to the west is Interstate 95 (I-95). I-95 is congested during the morning and evening peak hours in the peak direction of flow, often up to 3 hours of congestion during each of the peak periods. During the off-peak hours, very little traffic congestion occurs on roadways off post.

Level of service (LOS) is a measure of the quality of service, operating conditions for a roadway segment or intersection. At intersections, LOS is a function of the average overall wait time for a vehicle to pass through the intersection. In general, LOS can be characterized as follows: A = free flow; B = reasonably free flow; C = stable flow; D = approaching unstable flow; E = unstable flow, and F = forced or breakdown flow. The two intersections accessing Fort Belvoir most likely to be affected by the proposed action are (1) Pohick Road and Route 1; and (2) Fairfax County Parkway and John J. Kingman Road. The Pohick Road and Route 1 intersection operates at LOS-C during the weekday morning peak period and at LOS-F during the weekday evening peak period. The Fairfax County Parkway/John J. Kingman Road intersection currently operates at LOS-D during the weekday morning peak period and a LOS-F during the weekday evening peak period (USACE 2007a).

Gates and On-post Transportation Systems. The inbound flow of traffic into Fort Belvoir is approximately 4,000 vehicles per hour during the morning peak hour of the cumulative daily flow of about 26,400 vehicles (14.7 percent of the daily flow). Tulley Gate is the most heavily used gate for the South Post with more than 9,000 trips per day (representing 34 percent of the total trips) because it serves all visitors and is the southernmost gate on Route 1 for traffic from Route 1 and the Fairfax County Parkway. The Kingman Gate is the busiest gate for the North Post with more than 5,000 trips per day (25 percent of the total trips) (USACE 2007a). Often, during the morning peak period, queues form at the gates as people wait to be checked. Sometimes traffic backs up onto Route 1.

The Fort Belvoir on-post road network primarily forms a gridded pattern with an adjunct circumferential system. Primary roadways link the gates with major facilities on-post. High-density areas are laid out with an additional grid based roadway system (Figure 2-1). The roadways on Fort Belvoir are classified as primary, secondary, and tertiary. Primary roads serve as main arteries carrying traffic onto and off the post and connecting the main parts of the installation. The roadway system on Fort Belvoir's Main Post includes the following:

- John J. Kingman Road on North Post, which provides access from the Fairfax County Parkway to a number of sites, including the Andrew T. McNamara Headquarters Complex, US Army Intelligence and Security Command, North Post golf course, Mosby Reserve Center, and Davison Army Airfield.
- Beulah Street, which provides access to the North Post from Telegraph Road, and connects to Kingman Road.
- Woodlawn, Meade, Goethals, Abbot, Gorgas, and Meeres roads provide internal circulation within the North Post.
- Gunston Road, the only connector between the North and the South Post that has a bridge crossing over Route 1.
- Pohick Road, which provides access to the South Post from Route 1 via Tulley Gate. All visitors and trucks to Fort Belvoir must enter the post via Tulley Gate and be processed at the Post Visitor Center.
- Belvoir Road, which provides access to the South Post from Route 1 via Pence Gate.

- Mount Vernon Road, which provides access to South Post from Mount Vernon Memorial Highway via Walker Gate, and links to Surveyor Road to provide connections Belvoir Road.
- 9th, 12th, 16th, 18th, 21st, and 23rd streets, which provide for east-west movement on South Post and connect Gunston Road with Belvoir Road.

A number of problems exist with traffic circulation on the Main Post because some locations on the Main Post experience traffic congestion. Chief among these problematic locations are the following:

- Gunston Road, which is the only north-south connection between North and South Posts that is grade separated from Route 1. The roadway carries a high volume of traffic and is often congested during the peak periods. In addition, Gunston Road is under construction to upgrade its capacity for incoming personnel.
- Lack of north-south connections over Route 1 in the vicinity of Belvoir Road. Travelers can use Pence Gate and Kingman Gate to travel on Route 1 and Fairfax County Parkway to get from South Post to North Post or vice versa. Those much longer routes deter their use, resulting in heavy use of Gunston Road.
- Belvoir Road is congested between Route 1 and 12th Street.
- A lack of cross streets between Gunston and Belvoir roads forces all traffic onto the limited number of connections between the two roadways, adding to the congestion on both major roadways.
- Other construction sites as a result of BRAC 2005. The primary construction sites of interest on the Main Post are those of Belvoir Community Hospital and upgrading Gunston Road, Pohick Road, and 9th Street.

Secondary roads feed traffic to the primary roads and provide for direct movement between areas of the installation. Tertiary roads provide access to all other activity areas and facilities.

Parking capacity at Fort Belvoir is appropriate for existing demand. Barracks and larger facilities have dedicated parking lots, and parallel parking is provided on many streets. Pedestrian traffic is accommodated by a system of sidewalks along many streets and walkways between buildings. Troop pathways are provided between foot traffic high-volume areas.

4.11.2 Environmental Consequences

4.11.2.1 Alternative A

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative A. The effects would be from additional construction vehicles, construction worker commutes, and an increase in installation personnel commutes lasting for up to 6 months while both the incoming BRAC 5/132 personnel and the outgoing BRAC personnel are on the installation. No change in the number of permanent personnel at Fort Belvoir is associated with Alternative A.

The 2007 Fort Belvoir BRAC EIS thoroughly examines the post-BRAC traffic at Fort Belvoir, and under Alternative A, no change in the number of post-BRAC permanent personnel would occur. The proposed BRAC 5/132 action, however, could temporarily place up to approximately

2,000 personnel on the installation while the outgoing personnel whom the BRAC 5/132 personnel are analyzed in the EIS to replace would still be on Fort Belvoir. That overlap in personnel could last for up to 6 months, but not beyond September 2011. Some groups identified and analyzed in the EIS (e.g., the staff of the new hospital) are not anticipated to be at full capacity during the overlap period. The number of vehicles and associated trips, and the LOS for all intersections and roadway segments would be expected to remain below the levels outlined in the EIS. The effects of the overlap of personnel would be expected to be short-term and minor.

Operational Traffic. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) identifies, evaluates, and documents the effects on the transportation system at Fort Belvoir and surrounding areas that would result from implementing the realignment actions mandated by the BRAC Commission. All personnel associated with the BRAC 5 and 132 recommendations are included in the Preferred Alternative of the EIS. In that EIS, those groups were identified as *PEO EIS* and *Army Lease*.

The EIS concluded that the BRAC action would be expected to have significant effects on the transportation system and that the effects of each alternative would vary because of the siting of each of the agencies affected by the BRAC action. The ROD, dated August 7, 2007 (USACE 2007b), approved the Preferred Alternative of the EIS, including all personnel associated with the BRAC 5 and 132 recommendations. Therefore, additional transportation analysis of the incoming personnel's effects on regional and local roadways is not necessary, and was not performed in support of this EA. Parking for each site would be provided on the site or remotely on Fort Belvoir, and would be adequate for incoming BRAC 5/132 personnel.

In planning for the incoming BRAC 5/132 personnel and facilities, Fort Belvoir would comply with the traffic demand management commitments outlined in the EIS, such as limiting parking capacity for each relocatable building to 65 percent of the total personnel working at the facility, thus limiting the number of personal operating vehicles entering the installation.

Construction Traffic. Traffic would increase from the delivery of equipment, materials, and components of the relocatable structures, debris removal, and construction worker commutes. Traffic heading to and from the primary construction sites would enter Fort Belvoir primarily through Tulley Gate at Route 1 and Pohick Road, and Kingman Gate at the Fairfax County Parkway and Kingman Road because they are the most accessible. Once on-post, construction personnel would primarily use Pohick, Theote, Kingman, and Gunston roads to reach the proposed sites (Table 4.11-1). Approximately 1,552 additional heavy truck trips would be expected Alternative A implementation, which would equate to 13 to 26 trucks per day over a 2- to 4-month period (Table 4.11-2). That additional traffic would be minute compared to the 14,000 vehicles processed daily at Tulley and Kingman gates, or to any off-post roadway segment. The local roadway infrastructure, however, is already strained by other on-post activities and would be further stressed by such traffic increases.

Traffic to and from the buildings that would be renovated would be less than that going to the construction sites, and distributed over a wider area. Traffic for building renovations would consist of material deliveries, debris removal, and worker commutes. Traffic accessing Buildings 815 and 805 would enter Fort Belvoir primarily through Pence Gate and proceed down Belvoir Road. All other traffic accessing the remaining buildings that would be renovated would enter Fort Belvoir primarily through Tulley Gate, and proceed up or down Gunston Road depending on the final destination. Using Gunston Road would be problematic because it would be under construction during the same timeframe when Alternative A would be implemented. These

Table 4.11-1
Supporting transportation network for primary relocatable sites

Primary site	Primary gate	Primary route	Roadway providing direct access
RV lot	Tulley	Pohick to Theote Road to 16th Street to Dalrymple Road	Dalrymple Road Theote Road
RCI lot	Tulley	Pohick to Theote Road to 16th Street	16th Street Theote Road
Goethals Road	Kingman	Kingman Road to Gunston Road	Goethals Road Gunston Road
Lewis West	Kingman	Kingman Road to Woodlawn	Woodlawn Road
AMC	Tulley	Pohick to Gunston Road	Gunston Road 3rd and 4th Streets
DAAF	Kingman	Kingman Road to Farrar Drive	Sanjer Drive
Town Center	Tulley	Pohick to Theote Road to 16th Street to Dalrymple Road	15th Street Theote Road
Gerber West	Tulley	Pohick to Gunston Road to Warren Road	Warren Road
Tompkins Basin	Tulley	Pohick to Theote Road to Warren Road	Warren Road

Table 4.11-2
Estimate number of heavy trucks associated with each alternative

Alternative	Total building size	Concrete volume	Concrete trucks	Trucks delivering relocatables	Space renovated	Debris disposal trucks	Deliveries	Total heavy trucks
A	460,000	8,519	852	460	600,000	120	120	**1,552**
B	150,000	2,778	278	150	600,000	120	120	**668**
C					737,000	147	147	**295**

effects would be minor under NEPA, however, because the construction activities would last for a limited time period and their effects would be confined primarily to on-post areas.

4.11.2.2 Alternative B

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative B. As with Alternative A, such effects would be attributable to additional construction vehicles, construction worker commutes, and the potential for short-term overlap in incoming and outgoing personnel on the installation.

Operational Traffic. No change in the number of permanent personnel at Fort Belvoir is associated with Alternative B. Additional transportation analysis of the incoming personnel's effects on regional and local roadways is not necessary, and was not performed, in support of this EA. Parking for each site is discussed in Section 2.2., and would be adequate for incoming BRAC 5/132 personnel. As with Alternative A, an overlap of up to 2,000 personnel could last for up to 6 months. Such effects would be short-term and minor.

Construction Traffic. The types of construction traffic would be the same as those discussed for Alternative A, but the amount of traffic would be much less than that associated with Alternative A because only four primary sites would be used. Traffic heading to and from the primary construction sites and Building 767 would enter Fort Belvoir primarily through Tulley Gate because it is the most accessible to the sites that would be used under Alternative B. Once on-post, construction personnel would primarily use Pohick, Theote, and Gunston roads to reach the proposed sites (Table 4.11-2). As with Alternative A, most of the traffic accessing the buildings that would be renovated would enter Fort Belvoir primarily through Tulley Gate, and proceed up or down Gunston Road depending on its destination.

Approximately 668 additional heavy truck trips would be expected from implementing Alternative B, which would equate to 6 to 11 trucks per day over a 2- to 4-month period (Table 4.11-2). That additional traffic would be minute compared to the 9,000 vehicles processed daily at Tulley Gate, or to any off-post roadway segment. These effects would be minor under NEPA, however, because the construction activities would last for a limited time period and their effects would be confined primarily to on-post areas.

4.11.2.3 Alternative C

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative C. As with Alternative A, such effects would be attributable to additional construction vehicles, construction worker commutes, and the potential for short-term overlap in incoming and outgoing personnel on the installation.

Operational Traffic. No change in the number of permanent personnel at Fort Belvoir is associated with Alternative C. The discussion above for Alternative B applies equally to Alternative C. As with Alternative A, an overlap of up to 2,000 personnel could last for up to 6 months, creating short-term minor adverse effects.

Construction Traffic. The types of construction traffic would be limited to that for building renovation and parking area construction. Notably, trailers with relocatable building sections would not be part of the traffic under Alternative C. The amount of traffic under Alternative C would be much less than that associated with Alternative A, and less than that under Alternative B. Traffic heading to and from Building 767 and the Museum Support Center would enter Fort Belvoir primarily through Tulley Gate and, once on-post, construction personnel would primarily use Pohick and Theote roads. As with Alternative A, most of the traffic accessing the buildings that would be renovated would enter Fort Belvoir primarily through Tulley Gate, and proceed up or down Gunston Road depending on its destination.

Approximately 295 additional heavy truck trips would be expected from implementing Alternative C, which would equate to 2 to 5 trucks per day over a 2- to 4-month period (Table 4.11-1). That additional traffic would be minute compared to the 9,000 vehicles processed daily at Tulley Gate, or to any off-post roadway segment. These effects would be minor under NEPA, however, because the construction activities would last for a limited time period and their effects would be confined primarily to on-post areas.

4.11.2.4 No Action Alternative

Under the No Action Alternative, the action would not be implemented and no construction activities would take place. Therefore, the changes in transportation resources otherwise expected from the activities would not occur.

4.11.3 Best Management Practices and Mitigation

Although the effects would be expected to be minor, contractors would route and schedule construction vehicle traffic to minimize conflicts with other traffic, and they would be required to confine staging areas for equipment and components of the relocatable buildings to secondary sites, Poe Road, and future parking areas.

4.12 UTILITIES

4.12.1 Affected Environment

Thorough discussions of the following utility systems on Fort Belvoir are provided in the 2007 Fort Belvoir BRAC EIS (USACE 2007a): potable water supply and distribution, sanitary sewage collection and treatment, electrical power, natural gas supply and distribution, steam, communications, and solid waste. The background discussions of the systems are incorporated into this EA by reference.

All utilities are available at all the primary sites, and no new utility service would be required at the secondary sites, along Poe Road, or at laydown areas. Outdoor lighting could be required at remote parking sites. All buildings to be renovated have full utility service. Laydown and sites that could be used for remote parking areas have all utilities available.

4.12.2 Environmental Consequences

4.12.2.1 Alternative A

Long-term minor adverse effects on landfill capacity would be expected from implementing Alternative A. No adverse effects on other utility systems would be expected from implementing Alternative A. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) accounts for all increases in utility service demands necessitated by the increased population at Fort Belvoir because of BRAC 2005. The EIS also accounts for the personnel that would relocate to Fort Belvoir under BRAC 5 and 132, and the utility systems demands created by them. Although personnel placed in relocatable buildings would be on Fort Belvoir for up to 6 months along with personnel occupying their final assignment locations, the increased number of personnel temporarily on Fort Belvoir during the overlap period would not exceed the total personnel increase and utility systems demand evaluated in the 2007 Fort Belvoir BRAC EIS. The EIS has an evaluation of the personnel increase on Fort Belvoir and the utility systems demands created by them.

The Lewis West site is the only primary site that might have inadequate utility availability. All utilities are available at the site, but a larger sewer line than what is at the site would have to be installed to accommodate the anticipated wastewater flow from a relocatable with up to 258 personnel. Also, system water pressure for potable water system and fire protection could be insufficient if an occupied relocatable building were added to the demand. System improvements already planned, however, would be expected to adequately address the pressure issue.

Renovating 19 buildings to provide space for incoming BRAC 5/132 personnel would generate solid waste that would be at least partially disposed of in regional landfills, reducing the capacity of the landfills. Table 4.12-1 provides an estimate of the maximum quantity of renovation debris that would be generated under the proposed action with the renovation of approximately 600,000 SF of interior building space under both Alternatives A and B.

Table 4.12-1
Estimates of construction and demolition debris generated as a result of implementing the proposed action

Construction type	Admin area (SF)	C&D factor (lbs/SF)	Estimated waste (lbs)	Estimated waste (tons)
Construction	0	2.8[a]	0	0
Renovation – Alternatives A & B	600,000	20	12,000,000	6,000
Renovation – Alternative C	727,080	20	14,541,600	7,271
Demolition	0	115	0	0
Gross Total		N/A	12–14.5 million	6,000–7,271
Amount recycled (50%)	N/A	N/A	6–7.25 million	3,000–3,635
Net total C&D debris generated	N/A	N/A	6–7.25 million	3,000–3,635

Notes:
C&D = construction and demolition, lbs = pounds
[a] EPA estimate for nonresidential construction debris generation.

4.12.2.2 Alternative B

Long-term minor adverse effects on landfill capacity would be expected from implementing Alternative B. No adverse effects on other utility systems would be expected from implementing Alternative B. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) accounts for all increases in utility services necessitated by the increased population at Fort Belvoir because of BRAC 2005. The EIS also accounts for the personnel that would relocate to Fort Belvoir under BRAC 5 and 132.

The calculation of construction debris in Table 4.12-1 for Alternative B is the same as that for Alternative A because the alternative assumes renovation of the same 600,000 SF of existing building space as is considered under Alternative A.

4.12.2.3 Alternative C

Long-term minor adverse effects on landfill capacity would be expected from implementing Alternative C. No adverse effects on other utility systems would be expected from implementing Alternative C. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) accounts for all increases in utility services necessitated by the increased population at Fort Belvoir because of BRAC 2005. The EIS also accounts for the personnel that would relocate to Fort Belvoir under BRAC 5 and 132.

The construction debris calculation based on 727,080 SF of renovated space in Table 4.12-1 is for Alternative C. More interior space would be renovated under Alternative C than under the other alternatives. The effects would still be expected to be long-term minor adverse.

4.12.2.4 No Action Alternative

No effects on utility systems would be expected from implementation of the No Action Alternative. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) accounts for all utility system demand increases from personnel and operational increases at the installation. The effects on utility systems assessed in the EIS account for those that would occur under the No Action Alternative.

4.12.3 Best Management Practices and Mitigation

No BMPs or mitigation measures for utility systems would be required with the implementation of the proposed action. Contractors installing the relocatable buildings and performing building renovations would be encouraged, or required in contracts, to install low-flow fixtures as a water conservation measure.

4.13 HAZARDOUS AND TOXIC MATERIALS

Fort Belvoir manages hazardous substances and hazardous materials in compliance with programs regulated by EPA and VDEQ. Fort Belvoir must comply with applicable federal, state, and local regulations implementing federal statutory requirements, including Army regulations. Fort Belvoir's Environmental and Natural Resources Division (ENRD) is responsible for the installation's compliance with all applicable laws and regulations for the storage and use of hazardous substances and hazardous materials. For the purpose of this analysis, the terms *hazardous waste*, *hazardous materials*, and *toxic substances* include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act, RCRA, or the Toxic Substances Control Act. In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, might present substantial danger to public health or welfare or to the environment when released into the environment.

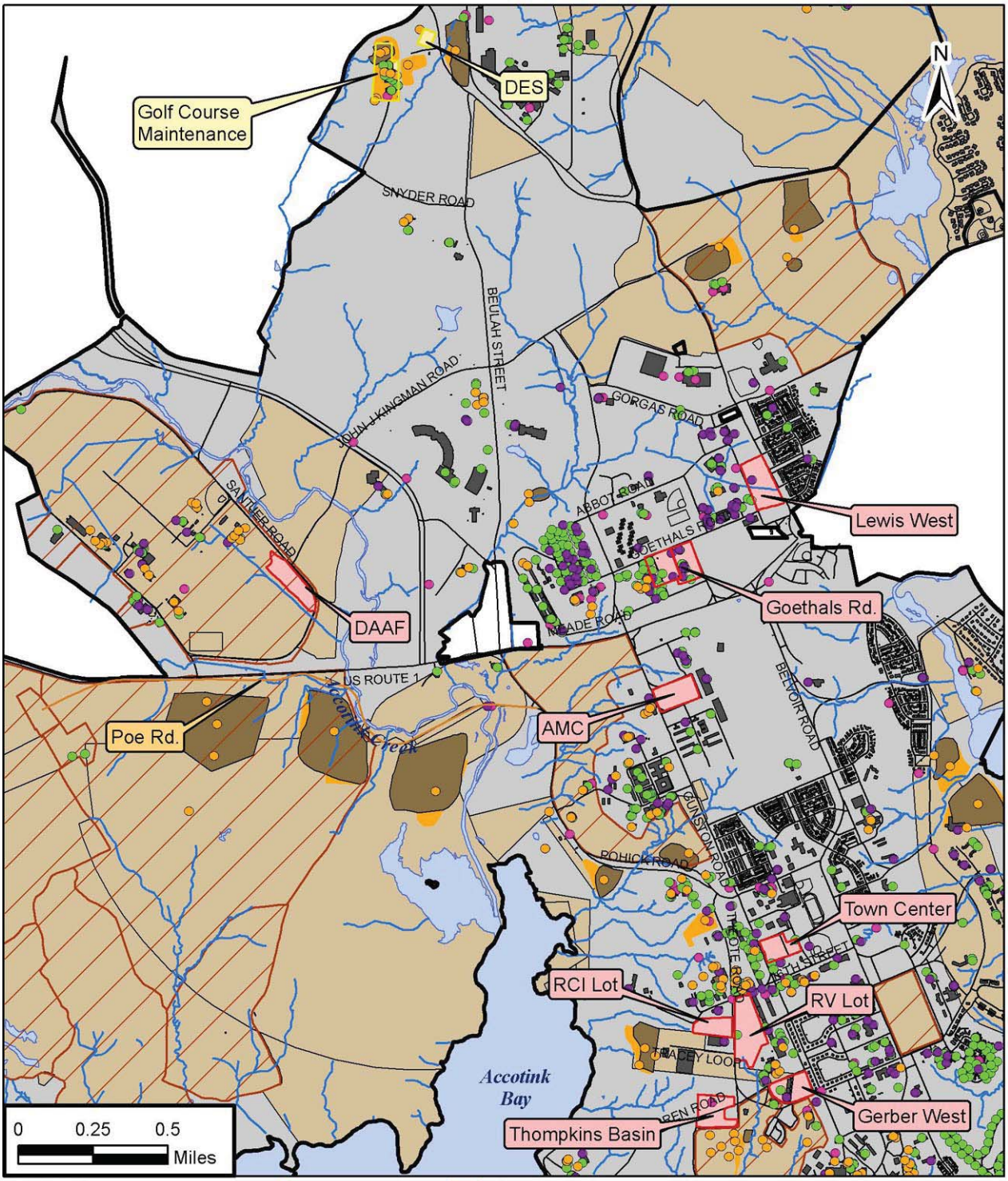
Figure 4-3 depicts the locations of the various sites associated with hazardous substances and materials and their proximity to the proposed sites evaluated in this EA.

4.13.1 Affected Environment

4.13.1.1 Primary Sites

RV Lot

Storage and Handling Areas. Fort Belvoir has approximately 117 active underground storage tanks (USTs), and approximately 162 active aboveground storage tanks (ASTs). VDEQ regulates many of the USTs and ASTs. The tanks contain substances such as heating oil, diesel fuel, motor gasoline, type 8 jet propellants, lubricants, and used oils. The locations of such tanks are referred to as petroleum storage areas (PSAs) and sites where there has been a release are called petroleum release sites (PRSs). Fort Belvoir ENRD's Petroleum Management Program manages all aspects of PSAs and PRSs, including scheduling operation and maintenance, compliance monitoring,



LEGEND

- Installation Boundary
- Primary Site
- Secondary Site
- Temporary Trailer Parking
- SWMU
- Restoration Site
- Fuel Tank
- PRS
- Former Landfill
- Training Area
- Former or Operational Training Range

Environmental Constraints

Figure 4-3

Source: Fort Belvoir GIS, 2009.

tank closure and removal, environmental investigations, remediation, management and reporting. Fort Belvoir manages its PSAs and PRSs under the VDEQ Petroleum Program (USACE 2007a).

A former PSA was on the western boundary of the RV lot. That UST, which has been removed, served an emergency generator (Fort Belvoir GIS 2009).

Hazardous Waste. Fort Belvoir has a RCRA Part B permit issued by VDEQ for the storage of hazardous waste. Fort Belvoir's RCRA/Waste Management Program is responsible for the storage, use, characterization, manifesting, remediation, and proper disposal of all hazardous waste generated at the installation. Fort Belvoir stores hazardous waste at Building 1495 and at four temporary (less than 90 days) hazardous waste accumulation sites. Several satellite accumulation areas are also on the Main Post (USACE 2007a).

No hazardous waste storage areas were identified on the RV lot (Fort Belvoir GIS 2009).

Solid Waste. The Main Post of Fort Belvoir has approximately 204 SWMUs at various stages of investigation and closure. SWMUs include sites such as landfills, wash racks, oil/water separators, petroleum waste storage areas, spent battery storage areas, and incinerators. Fort Belvoir manages the sites through its SWMU Program. The program manages remediation, corrective action, and closes sites. EPA is the lead agency, and VDEQ is a contributing agency in managing that program (USACE 2007a).

No SWMUs were identified on the RV lot (Fort Belvoir GIS 2009). According to ENRD, however, additional investigations to delineate the extent of contamination north of the RV lot are required. ENRD recommends avoiding digging or moving soil on the parcel.

Asbestos. Two categories are used to describe asbestos-containing material (ACM). *Friable ACM* is defined as any material containing more than 1 percent asbestos (as determined by polarized light microscopy) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. *Non-friable ACM* is material that contains more than 1 percent asbestos and does not meet the criteria for friable ACM. Fort Belvoir has an Asbestos Management Program and program manager. The program manager is responsible for all elements of the program including asbestos surveys and sampling, operation and maintenance, permitting, abatement design and oversight, compliance and restoration. Renovation projects on post must be evaluated for potential effects of asbestos (USACE 2007a).

No structures are on the RV lot; therefore, ACM would not be expected on the parcel.

Lead-based Paint. Similar to the Asbestos Management Program, Fort Belvoir also maintains a Lead Program. The program's manager is responsible for all elements of the program including paint inspections and sampling, risk assessments, operation and maintenance, permitting, lead abatement design and oversight, compliance, and restoration. When renovation projects are scheduled on post, an evaluation must be conducted to determine the presence of lead-based paint (LBP) (USACE 2007a).

No structures are on the RV lot; therefore, LBP would not be expected on the parcel.

Pesticides. Fort Belvoir has an Integrated Pesticide Management Plan (IPMP) that covers the storage and application of pesticides. The IPMP is performed in accordance with the U.S. Army's Integrated Pest Management techniques. The IPMP is intended to reduce the use of pesticides. On

the Main Post, pesticides are stored in industrial areas on the South Post and the North Post golf courses and are either DoD certified or certified by Virginia as *Commercial Applicators*. Eighty percent of the pesticides applied on Fort Belvoir are on the golf courses.

No known issues are associated with pesticide application on RV lot.

Ordnance. Fifteen training ranges are designated as operational on the Main Post. The ranges are identified on Figure 4-3 (USACE 2007a). While the locations of the training ranges are known, Fort Belvoir has been a military facility for more than 90 years and because of this, there is a risk of uncovering ordnance elsewhere on the installation. No heavy artillery, ordnance, or explosives are thought to have been used in the developed areas of the Main Post. Defense sites with MEC are managed under the installation's Military Munitions Response Program.

No active ranges or training areas are on the RV lot; however, a small area of a former range is at the southern end of the parcel. Lead contamination in soil is a potential issue at range areas.

Radon. According to EPA's Map of Radon Zones, the Main Post is in an area with the highest potential for radon. Radon testing for existing residential buildings was completed in 1991. Only three residential buildings exhibited any elevated radon levels (USACE 2007a).

RCI Lot

Storage and Handling Areas. A review of the Fort Belvoir geographic information system (GIS) database indicated that no PSAs or PRSs are on the RCI lot.

Hazardous Waste. No hazardous waste storage areas were identified on the RCI lot (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the RCI lot (Fort Belvoir GIS 2009). According to ENRD, however, additional investigations to delineate the extent of contamination to the north of the RCI lot are required. ENRD recommends avoiding digging or moving soil on the parcel.

Asbestos. No structures are on the RCI lot; therefore, ACM would not be expected on the parcel.

***Lead-based* Paint.** No structures are on the RCI lot; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the RCI lot.

Ordnance. No active ranges or training areas are on the RCI lot; part of a former range is at the southern end of the parcel. Lead contamination in soil is a potential issue at range areas (Fort Belvoir GIS 2009).

Radon. The description above for radon on the RV lot applies equally to the RCI lot.

Goethals Road Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that several PSAs were on the Goethals Road site. The PSAs consisted of USTs and ASTs that were used to fuel heat/hot water systems. According to Fort Belvoir GIS, several sites classified as restoration

sites are on the parcel. These sites are associated with heating oil USTs for buildings that were demolished in the mid to late 1990s.

Hazardous Waste. No hazardous waste storage areas were identified on the Goethals Road site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the Goethals Road site (Fort Belvoir GIS 2009). According to ENRD, contaminated soil has been identified west of the Goethals Road site. Groundwater effects will be evaluated during a Phase II study. While contamination is not expected to be a problem, the results of the study might require using engineering controls for underground utilities.

Asbestos. No structures are on the Goethals Road site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the Goethals Road site; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the Goethals Road site.

Ordnance. No ranges or training areas are on the Goethals Road site (Fort Belvoir GIS 2009).

Radon. The description for radon on the RV lot applies equally to the RCI lot.

Lewis West Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that no PSAs or PRSs are on the Lewis West site. According to Fort Belvoir GIS, however, a site classified as a restoration site is on the parcel. The site is the result of a fuel spill to the sanitary sewer in 1987. The site was cleaned and subsequently closed in 1996.

Hazardous Waste. No hazardous waste storage areas were identified on the Lewis West site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the Lewis West site (Fort Belvoir GIS 2009).

Asbestos. No structures are on the Lewis West site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the Lewis West site; therefore, LBP would not be expected on the parcel.

Pesticides. There are no known issues associated with pesticide application on the Lewis West site.

Ordnance. No ranges or training areas are on the Lewis West site (Fort Belvoir GIS 2009).

Radon. The description for radon on the RV lot applies equally to the RCI lot.

AMC Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that no PSAs or PRSs are on the AMC site.

Hazardous Waste. No hazardous waste storage areas were identified on the AMC site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the AMC site (Fort Belvoir GIS 2009).

Asbestos. No structures are on the AMC site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the RV lot; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the AMC site.

Ordnance. No ranges or training areas are on the AMC site (Fort Belvoir GIS 2009).

Radon. The description for radon on the RV lot applies equally to the RCI lot.

DAAF Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that no PSAs or PRSs are on the DAAF site.

Hazardous Waste. No hazardous waste storage areas were identified on the DAAF site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the DAAF site (Fort Belvoir GIS 2009). Per ENRD, a SWMU to the northwest was a fire training area site that consisted of a drainage ditch, an AST, a burn pit, an oil/water separator, a UST, and three piping systems that connected these components. The shallow, 50-foot long drainage ditch of native soil connected the oil/water separator discharge pipe to an unnamed stream. Areas of discoloration and staining were noted along the ditch. Soil sampling and remediation were conducted, and on September 30, 1999, Fort Belvoir received a letter from VDEQ accepting clean closure at the site.

Asbestos. No structures are on the DAAF site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the RV lot; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the DAAF site.

Ordnance. The DAAF site is within a training area (Fort Belvoir GIS 2009). Site clearing in preparation for installing a relocatable building would require MEC support, and it is possible that further MEC support would be required during the process of installing a building on the site.

Radon. The description for radon on the RV lot applies equally to the RCI lot.

Town Center Site

Storage and Handling Areas. A PSA was on the eastern boundary of the Town Center site. That AST has been removed and was used for heating (Fort Belvoir GIS 2009).

Hazardous Waste. No hazardous waste storage areas were identified on the Town Center site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the Town Center site (Fort Belvoir GIS 2009). ENRD indicates, however, that groundwater contamination detected west of the Town Center Site has not been delineated.

Asbestos. No structures are on the Town Center site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the RV lot; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the Town Center site.

Ordnance. No ranges or training areas are on the Town Center site (Fort Belvoir GIS 2009).

Radon. The description for radon on the RV lot applies equally to the RCI lot.

Gerber West Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that PSAs and a PRS are on the Gerber Village West site. A restoration site is also identified on the parcel. The PSAs include a AST and UST that served the former Building 631. The AST was removed when the building was demolished in 2005. The UST was removed in 1994. During the removal of the UST evidence of a release was detected, and in response affected soils were excavated and removed. A site characterization report prepared in response to the release recommends natural attenuation for the remaining contamination. VDEQ agreed and no further action on the site was required.

Building 630 has a 1,000-gallon heating oil UST that is no longer used. The UST is scheduled to be removed in the near future.

Hazardous Waste. No hazardous waste storage areas were identified on the Gerber Village West site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the Gerber Village West site (Fort Belvoir GIS 2009). According to ENRD, however, a PCB spill area and two coal storage areas where contamination had been detected are down gradient from the Gerber Village West site.

Asbestos. Buildings 629 and 630 are already slated for demolition. Demolition will be conducted in accordance with the installation's Asbestos Management Program and local and state regulations.

Lead-based Paint. Buildings 629 and 630 are already slated for demolition. Demolition will be conducted in accordance with the installation's Lead Program and local and state regulations.

Pesticides. No known issues are associated with pesticide application on the Gerber Village West site.

Ordnance. According to a historical records review and site inspection, the Gerber Village West site is within an area that was used as a small arms firing range. No MEC are suspected to be present; however, lead in soil was determined to be a parameter of concern. The reports recommend a remedial investigation/feasibility study. In July 2008, VDEQ concurred with the conclusions and recommendations. An operational range known as T17 abuts the parcel to the south.

Radon. The description for radon on the RV lot applies equally to the RCI lot.

Tompkins Basin Site

Storage and Handling Areas. A review of the Fort Belvoir GIS database indicated that no PSAs are on the Tompkins Basin site; however, a PRS is on the parcel.

Hazardous Waste. No hazardous waste storage areas were identified on the Tompkins Basin site (Fort Belvoir GIS 2009).

Solid Waste. No SWMUs were identified on the Tompkins Basin site (Fort Belvoir GIS 2009).

Asbestos. No structures are on the Tompkins Basin site; therefore, ACM would not be expected on the parcel.

Lead-based Paint. No structures are on the Tompkins Basin site; therefore, LBP would not be expected on the parcel.

Pesticides. No known issues are associated with pesticide application on the Tompkins Basin site.

Ordnance. The Tompkins Basin Site is south of an area that was used as a small arms firing range. No MEC are suspected to be present; however, site inspections determined that lead in soil is a parameter of concern. The portion of the site that is south of Warren Road is within an operational range known as T17.

Radon. The description for radon on the RV lot applies equally to the RCI lot.

4.13.1.2 Buildings to be Renovated

The buildings considered for renovation are detailed in Section 2.2.2 of this EA. These buildings are assumed to contain LBP and ACM until the Lead and Asbestos Program managers have evaluated the facilities or determined that on the basis of the date of construction that lead or asbestos would not be present. The Main Post is in an area with the highest potential for radon according to EPA. There is no indication that radon has been a concern in the proposed buildings.

4.13.1.3 Secondary Sites

Golf Course Maintenance Area. The golf course maintenance area has PSAs and PRSs. Many of the PSA have been closed. According to Fort Belvoir GIS the entire site is classified as a SWMU. Smaller SWMUs are also on the site. An abandon landfill is on the northern end of the parcel.

DES Lot. According to Fort Belvoir GIS, there are no environmental issues on the DES lot; several 55-gallon drums on the parcel are empty and are being stored for use on other environmental projects (Hudson, personal communication, 2009).

4.13.1.4 Parking and Construction Staging Sites

Laydown Areas 7, 8, 9 and 10. According to Fort Belvoir GIS, no operational constraints are within laydown areas 7 and 8; however, an operational range area abuts the northern boundary of site 7. Laydown areas 9 and 10 are within an operational range area known as T17 and a fuel tank was once on Site 10. That tank is permanently out of use. ENRD indicated that no concerns would be expected for the proposed use of those sites; however, it indicated that a historic PCB spill area and two former coal storage areas where contamination had been detected are down gradient from laydown areas 9 and 10.

Buildings 704, 705 and 706. Buildings 704, 705 and 706 are going to be demolished under a separate action. Once demolished the sites could be used as a parking or construction staging as proposed. Demolition will be conducted in accordance with the installation's Asbestos and Lead Management Programs and local and state regulations. According to Fort Belvoir GIS two ASTs and one UST serve the heating and hot water needs for the buildings. An additional AST has been permanently closed. During demolition, the remaining UST and ASTs will be closed in accordance with installation and state regulations.

Poe Road. The proposed parking areas along Poe Road are within the northern most portion of an operational range and to the south are landfills that are in close proximity to the proposed parking/storage areas. The proposed Poe Road parking/storage area is also in close proximity to landfill sampling locations.

4.13.2 Environmental Consequences

4.13.2.1 Alternative A

***Storage and Handling Area*s.** No adverse effects on storage and handling areas would be expected from implementing Alternative A. If a spill or leak occurred during site preparation activities or while installing a relocatable building, the contractor would immediately notify ENRD and implement spill cleanup procedures and contact appropriate installation personnel. ENRD would then direct the contractor on how to contain the spill and how to dispose of any contaminated media. If an unknown UST or if evidence of a historical release is observed during ground-clearing operations, the contractor would stop work and contact appropriate installation personnel. Any construction of new storage facilities would be in accordance with applicable laws and regulations. While storage tanks are at the golf course maintenance area, relocating RVs and other equipment would not be expected to cause any adverse effects. Both the golf course maintenance area and the DES lot area are or have already been used for such storage purposes.

Hazardous Waste. No effects on hazardous waste would be expected. The installation has established procedures for managing and disposing of hazardous waste, which would include any soil containing a hazardous substance (e.g., lead) that was removed for installing a relocatable building. The relocatable buildings would be used for administrative purposes and no increases in using hazardous or toxic substances would be expected. Moving the RVs to the golf course maintenance area and the DES lot and staging the trailers on the proposed storage sites would not be expected to have any adverse effects.

Solid Waste Disposal. No adverse effects on solid waste would be expected on sites including those where there have been restoration activities or for sites that are in close proximity to other parcels that have been affected by contamination. According to ENRD, there are no concerns regarding use of the proposed primary sites with respect to the SWMUs on the RV lot, RCI lot, Gerber West site, or DAAF site. If groundwater, unknown USTs or evidence of contamination such as stained soil or odor is encountered the contractor would immediately stop work and notify appropriate installation personnel for appropriate management. Ground disturbance would be kept to a minimum and site workers would be required to work under the requirements of a project specific health and safety plan. While the secondary golf course maintenance area is classified as a SWMU, moving RVs to that area and the DES lot or using shoulders along installation roads for the temporary staging of relocatables would not be expected to have any adverse effects. The effects of solid waste generation from building renovation are discussed in Section 4.12.

Asbestos. Long-term minor beneficial effects would be expected if asbestos is present in buildings selected for renovation. Before initiating renovation activities, ENRD would evaluate the potential environmental effects of asbestos and, if present, would manage it in a manner consistent with applicable rules and regulations. No environmental or health effects would be expected during renovation activities. No adverse effects would be expected from using the secondary sites for storage only.

Lead-based Paint. Long-term minor beneficial effects would be expected if lead is present in buildings selected for renovation. Before initiating renovation activities, ENRD would evaluate the potential environmental effects of asbestos and, if present, would manage it in a manner consistent with applicable rules and regulations. No environmental or health effects would be expected during renovation activities. No adverse effects would be expected from using the secondary sites for storage only.

Pesticides. No adverse effects would be expected. Pesticide residues, including those from chlordane, that might be present in the soils of lawns and maintained areas are not considered a hazardous waste if they were applied for the intended use. Any pesticides applied to the sites would be from an approved products list and would be applied in accordance with local, state, and federal regulations.

Ordnance. No adverse effects would be expected from ordnance; however, because of the historical use of the installation ordnance could be found anywhere on post. Construction crews would likely participate in an ordnance awareness class on post before ground-disturbing activities. Contractors would be required to comply with pre-excavation procedures or requirements. In some cases, such as ground clearing activities at the DAAF site, MEC support would likely be required because the parcel is within an active training area.

Radon. No adverse effects from radon would be expected. The Main Post is, however, within an area classified as having a high potential for radon, and the potential for elevated radon should be evaluated during the design phase of the each relocatable building. Testing in residential areas on Fort Belvoir identified only three structures with elevated radon levels.

4.13.2.2 Alternative B

The effects of implementing Alternative B would be similar to those discussed above for Alternative A. No adverse effects would be expected on storage and handling areas, hazardous

waste, solid waste disposal, pesticides, ordnance, or radon. Long-term minor beneficial effects regarding LBP and ACM would be expected if the materials are present in buildings selected for renovation.

4.13.2.3 Alternative C

The effects of implementing Alternative C would be similar to those discussed above for Alternative A. No adverse effects would be expected on storage and handling areas, hazardous waste, solid waste disposal, pesticides, ordnance, or radon. Long-term minor beneficial effects regarding LBP and ACM would be expected if the materials are present in buildings selected for renovation.

4.13.2.4 No Action Alternative

No adverse effects from the use, storage, or disposal of hazardous and toxic substances would be expected from implementing the No Action Alternative. Under the No Action Alternative, the Army would not implement the proposed action.

4.13.3 Best Management Practices and Mitigation

General BMPs for the protection of the environment and human health from the potential hazards associated with hazardous and toxic materials and wastes would apply to construction and renovation activities conducted under the proposed action. Environmental and health risks are controlled by implementing existing programs, policies, regulations, and standard operating procedures. Measures to reduce the risk of harm to humans and the environment from hazardous substances and hazardous materials are included in such requirements. No mitigation measures for hazardous and toxic materials and wastes would be required with the implementation of the proposed action.

4.14 CUMULATIVE EFFECTS

Cumulative impacts are, "… the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7)

Army planners originally anticipated that implementing the BRAC 2005 agency and personnel realignments at Fort Belvoir would involve approximately 20 construction projects and 19,000 workers moving to Fort Belvoir within the 2008 to 2011 timeframe. The cumulative effects of the construction projects and influx of new workers were addressed in the 2007 Fort Belvoir BRAC EIS and ROD (USACE 2007a, 2007b). A recent decision on BRAC Recommendation 133 (involving various agencies in the Washington, D.C., area such as the Washington Headquarters Service) is instead sending 6,200 of those 19,000 workers to new office space being constructed at the Mark Center on Seminary Road in Alexandria, Virginia. The Mark Center is physically separated from Fort Belvoir by approximately 12 miles, but the property has been purchased by the Federal government and is a part of Ft Belvoir. The Mark Center construction has therefore reduced the cumulative short- and long-term effects anticipated in the 2007 Fort Belvoir BRAC EIS and ROD by approximately one-third. Eleven BRAC projects remain to be constructed on Fort Belvoir.

Another 48 non-BRAC projects are either programmed or in some stage of the planning process at Fort Belvoir. Of those, 27 involve office space or similar facilities, and 21 are being proposed by the Fort Belvoir MWR. The projects range from small-scale renovations of existing buildings to constructing large new structures and associated parking, utilities, and other infrastructure, or construction of parks, athletic fields, or other recreational facilities. The Fort Belvoir MWR also proposes constructing two new child development centers on the Main Post.

The extent to which the proposed action evaluated in this EA will contribute to the cumulative effects of all these projects needs to be put into perspective: the effects of the realignment of the 3,333 BRAC 5/132 workers to Fort Belvoir by September 15, 2011 were evaluated in the BRAC 2005 EIS and ROD. Nothing has changed in terms of the schedule for the workers to be realigned to Fort Belvoir—much of the proposed action is to provide temporary workspace at Fort Belvoir because not all permanent space allotted for the workers under the BRAC 2005 process will be ready by September 2011. The focus of this EA is therefore on the short-term effects associated with construction of relocatable buildings and the long-term effects on habitat from clearing, grading, pouring concrete slabs, and paving for parking.

Clearing, grading, installing footings and piers, and paving would adversely affect some habitat and natural resources, but as discussed previously in Section 4.8, those effects would be minor—the relocatable buildings would largely be constructed on land that has already been disturbed. The increase in pavement and other hard surfaces would contribute to additional stormwater runoff, but compliance with the applicable stormwater management regulations would minimize the effects of the additional stormwater on downstream areas. The Army is minimizing its cumulative long-term effects on habitat and other natural resources by reusing previously disturbed sites.

The short-term effects involve increases in vehicle traffic, air emissions, and noise associated with the construction activity, which would be occurring at the same time that a number of other BRAC and non-BRAC projects are under construction on Fort Belvoir. Construction of the relocatable buildings and their associated parking and utilities infrastructure would begin in Spring 2010 to be ready by September 15, 2011, when by law the BRAC 5/132 workers have to be in workspace at Fort Belvoir. To some extent, any project under construction on-post or immediately off-post during the same period is likely to contribute to increased traffic congestion, air emissions, and noise, but those projects in proximity to the proposed relocatable buildings and staging sites are of most concern.

The following BRAC 2005 projects would likely overlap in time and are in proximity to the proposed BRAC 5/132 primary and secondary sites:

- Widening of Gunston, Belvoir, and Pohick roads. The Army proposed to widen those roads from two to six lanes. Vehicles bringing in portions of relocatable buildings would use Gunston and Pohick roads to access many of the construction sites and the secondary (storage) areas. Real conflicts could arise if trailers with relocatable building parts are parked, even for very short times, along the sides of the roads while the roads are under construction, or if relocatable building trailers were stored on lots targeted as staging areas for the road construction. The proposed construction staging for the roadways is on the North Post near the Lieber Gate, just west of Gunston Road and north of Route 1. That site was briefly considered as a staging or secondary site for the BRAC 5/132 construction effort, but it was dropped.

- Reconstruction of the Lieber Gate, which is just south of the Goethals Road site. Both projects would be accessed from Gunston Road.
- Completion of the Belvoir Community Hospital and the new dental clinic, and the upgrade of 9th Street on the South Post just east of the AMC site. All three sites are accessed from Belvoir Road.

Other Fort Belvoir projects that are programmed, likely would overlap in time, and are in proximity to the sites proposed for relocatable buildings or staging areas include the following:

- Repairs to Building 5034 on South Post and a nearby lot being used as a laydown area by the contractor constructing the RCI housing on post. These parcels are off Theote Road, west and south of the RV and RCI lots.
- Construction of the South Post Fire Station and Emergency Services Center, both near the intersection of Gunston Road and 16th Street.
- Construction of a pet care facility and an addition to the existing veterinarian clinic.
- The upgrades to the McRee Barracks and the construction of the DC National Guard Training Area, which have been programmed for sites on either side of Gunston Road on the North Post, in the vicinity of the Goethals Road site. All sites are accessed from Gunston Road.
- Construction of a facility for the OSEG, which would be constructed on the lot to the west of the proposed Lewis West site.
- Construction of the National Museum of the Army (NMUSA) and the construction of several new holes for the North Post Golf course to replace holes lost by construction of the NMUSA. A portion of the golf course is one of the alternative sites being considered for the NMUSA. If the site is selected, construction of the NMUSA would entail constructing six new golf course holes (USACE 2008). The new holes would be constructed south of the existing golf course maintenance facilities and DES lot secondary sites. The golf course, golf course maintenance facilities, and the DES lot are all accessed from John J. Kingman Road and Beulah Street. (The NMUSA site itself would be accessed by a new entrance from the Fairfax County Parkway.) The John J. Kingman Road/Fairfax County Parkway intersection already experiences LOS problems, and will be upgraded in the future by either Fairfax County or the Virginia Department of Transportation. However, the upgrade is not likely to happen in a timeframe that would alleviate (or worsen) cumulative effects from the proposed action and other projects.

The Fairfax County Land Development Services Website (Fairfax County Virginia 2009) identifies several proposed projects near Route 1 or other roadways servicing Fort Belvoir, as well. Plans or rezoning applications have been approved or are in process for the following:

- A motor freight terminal, storage yard, school, and major vehicle service center at Lockport Place, just south of Fort Belvoir, off Route 1 in the Pohick Industrial Park.
- An office/industrial park near the Fort Belvoir northwest corner, in the northwest quadrant of the intersection of Telegraph Road and the Fairfax County Parkway.
- A Comfort Inn hotel just north of Fort Belvoir at the corner of Route 1 and Mount Vernon Avenue.

- A new church just north of Fort Belvoir at the corner of Route 1 and Birch Crest Way.

Dates for proposed construction are not available. If construction of those projects coincides with construction of the various projects on Fort Belvoir, it could contribute to cumulative effects on traffic, air quality, and noise levels.

The cumulative effects generated by the proposed action would nevertheless be short term and minor. While associated construction traffic could occur on Fort Belvoir concurrently with these other projects, and contribute to traffic delays and the possible rerouting of traffic, no long-term increase in personnel or traffic would be expected (Section 4.11, Transportation). The workers are already scheduled to be working on the post by September 15, 2011.

No long-term cumulative effects would be expected on transportation resources. The size and scope of the changes in the transportation systems associated with all the alternatives would be extremely small when compared to other planned transportation-related projects in the region.

As addressed in Section 4.4 (Air Quality), effects of all past, present, and reasonably foreseeable significant stationary, area, and mobile emission sources are addressed in the SIP. The emissions generated by the BRAC 5/132 action would be below the Clean Air Act conformity thresholds and would not be regionally significant. The Army would implement the same restrictions as outlined in the BRAC 2005 *Construction Performance Plan for the Reduction of Air Emissions.* The Army would also extend the mitigation measures outlined in the *Final General Conformity Determination (GCD)* for the 2005 BRAC to this project.

As addressed in Section 4.5 (Noise), the BRAC 5/132 action would be expected to have negligible ongoing or cumulative effects on the noise environment. The construction activity would be limited to normal business hours and Saturdays so that any increase in noise levels would be less likely to disturb either area residents or travelers on Route 1. The past, current, and reasonably foreseeable noise environment near the proposed sites is already dominated by vehicle noise on adjacent roadways and aircraft noise from Davison Army Airfield.

Though the cumulative effects associated with the any of the alternatives would be minor or negligible, Alternative A would be expected to have the greatest effects because it would result in the most new construction activity, and Alternative B would be expected to have less effects because it would result in less new construction activity. New construction would require the transport of relocatable building units over area roadways. Renovation activities would generate some construction delivery traffic, but the traffic would be less than that needed to move the relocatable buildings into place. Alternative A would require construction activity at all nine primary sites and storage at both secondary sites. Alternative B would result in less new construction and therefore fewer delivery vehicles over area roadways, and likely generate the least degree of cumulative effects.

4.15 MITIGATION MEASURES

No mitigation measures for effects on land use; aesthetics; water resources; biological resources; geology, soils, and topography; socioeconomic resources; utility systems; or hazardous and toxic substances would be required. Mitigation measures agreed to in the ROD for the 2007 Fort Belvoir BRAC EIS for potential effects on air quality, noise, and cultural resources are included below. BMPs that would be implemented for resource protection are included with the discussions of each respective resource area in Section 4.

4.15.1 Air Quality

To ensure compliance with the Coastal Zone Management Act requirements, the Army would implement mitigation measures to reduce air quality effects. These mitigation measures were established to reduce the emissions associated with the overall BRAC action at Fort Belvoir to a level where they could reasonably be accounted for in the SIP. The measures are detailed in a Construction Performance Plan provided in the *Construction Performance Plan for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* that is Attachment 1 of the ROD (USACE 2007b) and would include the following:

- Limiting construction on Code Orange, Red, and Purple ozone days
- Limiting the use of off-road trucks on the project site
- Requiring all off-road diesel equipment not meeting Tier 2 or better standards be retrofitted with emission control devices
- Implementing anti-idling restrictions for both on-road and off-road vehicles and equipment
- Using ultra-low sulfur diesel, alternate fuels, or fuel additives
- Meeting new engine standards for off-road vehicles

4.15.2 Noise

The Lewis West and Goethals Road sites are within one-half mile of the Friends Meetinghouse, the Woodlawn Baptist Church, or both. The PA with the Virginia SHPO and consulting parties outlines measures to avoid adverse noise effects during BRAC-related construction. As outlined in the PA, if those sites are selected, Fort Belvoir would establish a POC to receive and respond to any noise complaints. That POC would be an individual with the authority to curtail construction activities to reduce the amount of noise produced. In addition, construction would not occur on Sundays within one-half mile of the Woodlawn Historic District without consulting with the affected parties.

4.15.3 Cultural Resources

From a review of the BRAC EIS, Fort Belvoir's CRM has determined that foreseeable cumulative effects of the proposed undertaking, particularly increased traffic would not be expected to have an adverse effect on historic properties. The CRM has determined that county zoning restrictions provide protection of historic properties adjacent to Fort Belvoir from the adverse cumulative effects as a result of off-post development. Any unforeseen cumulative development on-post would be subject to NHPA compliance.

Mitigation measures stipulated by the PA to be incorporated into BRAC development plans at Fort Belvoir include the following:

- Fort Belvoir will reduce, avoid or minimize adverse effects on the viewshed of the Woodlawn Historic District and the contributing elements therein through measures identified in the PA.
- Fort Belvoir will avoid and minimize adverse effects on the Fort Belvoir Historic District and its viewshed through measures identified in the PA.

- Fort Belvoir will avoid and minimize the adverse effects on historic properties from the introduction of ambient light to the atmosphere due to the BRAC action.
- Fort Belvoir will avoid and minimize adverse auditory effects from the BRAC Action through measures identified in the PA.
- Fort Belvoir will ensure that contracts for BRAC activities involving ground disturbance or construction contain the provisions for the treatment of post-review discoveries identified in the PA.
- Fort Belvoir will notify and consult with the SHPO regarding the treatment of the post-review discovery and the disposition of any artifacts.
- Fort Belvoir will determine the need for any archeological surveys before beginning any new construction in consultation with the signatories to the PA.
- Fort Belvoir will apply design review procedures to new BRAC construction projects to permit their review for effects on cultural resources.

SECTION 5.0
CONCLUSIONS

5.1 Introduction

This EA evaluates the potential environmental and socioeconomic effects of realigning the units, agencies, and activities known as BRAC 5 and BRAC 132. Relative to Fort Belvoir, BRAC 5 requires the relocation and realignment of activities and offices into a consolidated Program Executive Office, Enterprise Information Systems at Fort Belvoir, Virginia. BRAC 132 requires the relocation of various agencies, activities, and units—including USALSA and AAA—from various leased facilities in the National Capital Region to Fort Belvoir.

The EA evaluates potential effects on land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances.

Evaluation of the alternatives indicates that the natural and human environments at Fort Belvoir and in the ROI would not be significantly affected from implementing the proposed action. The predicted consequences on resource areas are described briefly below. Table 5-1 provides a summary and comparison of the consequences of the implementing each of the alternatives considered.

5.2 Alternative A: 460,000 SF of Relocatable Buildings

5.2.1 Land Use

No adverse effects on land use would be expected from implementing Alternative A. The land use designations of most of the sites under consideration for relocatable buildings are compatible with the intended use. In those cases where the land use designation is not specifically compatible with the intended use—the southern portion of the RV lot, Town Center site, and Tompkins Basin site are designated for Community land use, and the DAAF site is within the boundaries of an Army airfield—the current use of those properties (RV storage and vacant land) and their surroundings are compatible with the intended use under the proposed action.

Intermittent aircraft and rotorcraft noise from Davison Army Airfield would be expected at the DAAF site, though placement of a relocatable building at the DAAF site would not interfere with airfield operations as long as height restrictions applicable to the Transitional Surface within which the DAAF site sits are adhered to during site planning and relocatable building installation. Potential noise effects on tenants in a relocatable on the DAAF site are discussed further in Section 4.5.2.1.

Long-term minor adverse effects on land cover would result from implementing Alternative A. Though no land use conflicts would result from implementing the alternative, substantial land cover changes would result from installing a relocatable building on the DAAF site or the Lewis West site, and some mature trees would probably be lost if a relocatable was installed on either

Table 5-1
Summary of potential environmental and socioeconomic consequences

Environmental and Socioeconomic Effects				
Resource area	**Alternative A (460,000 SF of relocatables)**	**Alternative B (150,000 SF of relocatables)**	**Alternative C (Warehouse buildings)**	**No Action Alternative**
Land use	No adverse effects on land use; LT minor adverse on land cover at DAAF, AMC, Lewis West, & Town Center sites	No adverse effects	No adverse effects	No effects
Aesthetics and visual resources	LT minor adverse at Lewis West & AMC sites; LT minor beneficial at Gerber West and Tompkins Basin	LT minor beneficial effects at Gerber West and Tompkins Basin/	No effects	No effects
Air quality	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Noise	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Geology and soils				
• Geology/topography	No adverse effects	No adverse effects	No adverse effects	No effects
• Soils	ST minor adverse	ST minor adverse	ST minor adverse	No effects
• Prime farmland soils	No adverse effects	No adverse effects	No adverse effects	No effects
Water resources				
• Surface waters	ST & LT minor adverse	ST & LT minor adverse	ST & LT minor adverse	No effects
• Groundwater	ST & LT minor adverse	ST & LT minor adverse	ST & LT minor adverse	No effects
• Floodplains	No adverse effects	No adverse effects	No adverse effects	No effects
• Coastal zone	No adverse effects	No adverse effects	No adverse effects	No effects
Biological resources				
• Vegetation	LT minor adverse	No adverse effects	No adverse effects	No effects
• Wildlife	LT minor adverse	No adverse effects	No adverse effects	No effects
• Sensitive species	No adverse effects	No adverse effects	No adverse effects	No effects
• Wetlands	No adverse effects	No adverse effects	No adverse effects	No effects
Cultural resources	ST minor adverse	ST minor adverse/	No effects	No effects
Socioeconomics				
• Economic development	ST minor beneficial	ST minor beneficial	ST minor beneficial	No effects
• Population	No adverse effects	No adverse effects	No adverse effects	No effects
• Housing	No adverse effects	No adverse effects	No adverse effects	No effects
• Quality of life	No adverse effects	No adverse effects	No adverse effects	No effects
• Environmental justice	No adverse effects	No adverse effects	No adverse effects	No effects
• Protection of children	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Transportation	ST minor adverse	ST minor adverse	ST minor adverse	No effects
Utilities	LT minor adverse on landfill capacity	LT minor adverse on landfill capacity	LT minor adverse on landfill capacity	No effects
Hazardous and toxic substances	LT minor beneficial on ACM & LBP	LT minor beneficial on ACM & LBP	LT minor beneficial on ACM & LBP	No effects

Note: LT = long term, ST = short term

the AMC site or the Town Center site. Installation of relocatables at other sites would not adversely affect land cover.

No adverse effects on land use or land use conflicts would result from use of the secondary sites for RV storage, from using Poe Road for trailer parking, or from using laydown areas. Numerous RVs are already stored at the golf course maintenance area, the DES lot was previously used as a temporary vehicle storage lot, parking trailers along Poe Road would not conflict with other uses in the Southwest Area, and use of laydown areas for construction staging or remote parking would be compatible with existing uses of those areas.

No adverse effects on land use would result from renovating buildings and using them for BRAC 5/132 tenants. Though the buildings would be occupied by new tenants, the buildings are preexisting and a change in occupancy would not have an effect on land use or land cover.

5.2.2 Aesthetics and Visual Resources

Long-term minor adverse and beneficial effects on aesthetics would result from implementing Alternative A. Most of the proposed primary and secondary sites are not within the viewsheds of areas with sensitive land uses. Exceptions include the family housing area east of the Lewis West site, the Friends Meetinghouse south of the Lewis West site, and the family housing area east of the Gerber West site. A relocatable building on the Lewis West site would change the existing view of an undeveloped, vegetated area to one of a large relocatable building with associated parking. Relocatable buildings and the construction phases would visually degrade the views from the housing.

While the uses surrounding the AMC site are not aesthetically sensitive, the site itself is attractive with its maintained lawn and mature trees, and the aesthetic quality of the site and views of the site from the surrounding facilities would be degraded by removal of the trees and the construction and presence of a relocatable building on the site.

Use of the Gerber West or Tompkins Basin sites for relocatable buildings or remote parking would improve the aesthetics of the sites by upgrading them from bare-soil sites and old warehouse-type structures surrounded by degraded parking and grounds to modern structures with new parking areas and landscaping. Use of laydown areas for construction material storage would temporarily degrade aesthetics, but would not create a long-term adverse effect.

No adverse effects on aesthetics would result from use of the DAAF site for a relocatable building, the golf course maintenance area or the DES lot for RV storage, or Poe Road for trailer parking because the sites are in locations where they are not normally seen from their surroundings.

No effects on aesthetics would result from renovation of the interiors of existing buildings.

5.2.3 Air Quality

Short-term minor adverse effects on air quality would be expected from implementing Alternative A. Increases in emissions would be less than the applicability thresholds under the general conformity rules, and would not violate federal, state, or local air regulations.

Implementing Alternative A would affect air quality primarily from introducing new on-road and non-road emission sources during the construction of the relocatable structures and renovation of buildings. All direct and indirect emissions associated with Alternative A were estimated. Emission estimates included construction equipment, heavy trucks, paving activities, and construction worker commutes. Construction of the relocatables, renovation of existing structures, and clearing and paving of the surface parking areas were accounted for. There are no operational emissions associated with Alternative A.

5.2.4 Noise

Short-term minor adverse effects on the noise environment would be expected with the implementation of Alternative A. The effects would be primarily due to heavy equipment noise during construction and renovation activities. The effects would be somewhat confined to areas near the primary sites used for relocatable buildings and the buildings being renovated.

The RCI lot, AMC site, DAAF site, Town Center site, and Tompkins Basin site do not have noise sensitive areas within 1,000 feet. Therefore, construction noise at these sites would have negligible effects. Construction noise would have short-term minor adverse effects on all sensitive receptors, including residences, within 1,000 of the remaining locations. No long-term increases in the overall noise environment would be expected with Alternative A.

Due to the proximity of Davison Army Airfield to the DAAF site, intermittent aircraft and rotorcraft noise should be expected. Tenants would experience brief and transient acoustical events. These events could be loud enough to intermittently interfere with speech both inside and outside of the building. Land use for this site is not normally recommended for the permanent location of office space or administrative facilities.

The Lewis West and Goethals Road sites are within one-half mile of the Friends Meetinghouse, the Woodlawn Baptist Church, or both. The PA with the Virginia SHPO and consulting parties outlines measures to avoid adverse noise impacts during BRAC related construction. As outlined in the PA, if these sites are selected, Fort Belvoir would establish a POC to receive and respond to any noise complaints. That POC would be an individual with the authority to curtail construction activities in order to reduce the amount of noise produced. In addition, construction would not occur on Sundays within one-half mile of the Woodlawn Historic District without consultation with the affected consulting parties.

No long-term increases in the overall noise environment (e.g., L_{eq}, DNL) would be expected with the implementation of Alternative A. No military training activities, use of weaponry, demolitions, or aircraft operations would occur. Therefore, no changes in the existing noise environment associated with these sources would be expected.

5.2.5 Geology and Soils

Short-term minor adverse effects on soils would be expected from implementing Alternative A. Preparation of site(s) for the installation of relocatable buildings, construction staging, or remote parking could cause a minor loss of soil from the sites. Any losses would be minimized by the use of BMPs and development of a site-specific sediment and erosion control plan, if determined to be necessary. No effects on soils would be expected after construction activities were complete. No adverse effects on geology or topography would be expected. The renovation and use of

existing buildings, the use of secondary sites, and use of Poe Road and laydown areas would not have adverse effects on geology, soils, or topography.

5.2.6 Water Resources

Short-term minor adverse effects on surface waters and groundwater resources would be expected under Alternative A. Land disturbance associated with site preparation and staging for construction could increase soil erosion and runoff of sediment and other pollutants. The effects would be minimized by using construction-specific best management practices to control stormwater runoff and by implementing site-specific sediment and erosion control plans during site preparation and construction. Riparian buffer areas on the Lewis West site, the DAAF site, and along Poe Road would be avoided to the maximum extent practicable. Activities would comply with all applicable federal, state, and Army requirements to reduce the effects of land disturbance activities on nearby water resources and minimize potential detrimental effects through effective stormwater planning.

Long-term minor adverse effects on water resources would result from removal of vegetated cover and increases in impervious surface area, most notably from clearing the wooded DAAF site, and from tree removal and site preparation necessary at the AMC and Lewis West sites. Some tree removal also would be associated with use of the Town Center site. Impervious surface area would be increased at all sites used for relocatable buildings or parking facilities, with the possible exception of the Gerber West site, which already has two buildings and a parking area, and the sites proposed for remote parking facilities, which have buildings on them. Use of the nine proposed primary sites under Alternative A would result in the greatest amount of overall increase in impervious cover, but the impacts on the affected watersheds would be expected to be minor because the sites are not co-located on Fort Belvoir and, where necessary, stormwater from the construction sites would be controlled in accordance with a Virginia Stormwater Management Program permit. No effects on floodplains would be expected.

No effects on the Chesapeake Bay or the Virginia CZM program would be expected. Site preparation, construction, staging, temporary storage, and other activities associated with the proposed action would occur in a manner consistent with the Virginia CZM program enforceable policies to the maximum extent practicable.

Renovation of existing buildings and the use of the two secondary sites for storage of RVs would not be expected to affect water resources.

Short-term minor adverse effects on water resources would be expected from using Poe Road for trailer parking. Some contaminants from the trailers and small amounts of soil and road debris would be expected to reach surface waters along Poe Road with the passage of up to 233 large trailers. Poe Road would be used only temporarily for trailer storage, however, and no long-term effects on surface waters or groundwater would be expected.

5.2.7 Biological Resources

Long-term minor adverse effects on vegetation and wildlife would result from the loss of trees on the AMC, Lewis West, and Town Center sites, and from the reduction in wooded area at the DAAF site. No adverse effects on sensitive species or wetlands would be expected. If wetlands were found on the DAAF site, they would be avoided through site planning or impacts on them

would be mitigated. The North American wood turtle is rare on Fort Belvoir and is associated with riparian areas, so it is doubtful that it would be found on or use the woods of the DAAF site. Trees lost due to construction would be replaced in accordance with the installation's tree replacement policy.

Stormwater protection measures sufficient to adequately protect the habitat of the Northern Virginia Well Amphipod and Laura's clubtail would be required on the Gerber West and Tompkins Basin sites and on laydown areas. Runoff from parking areas and all impervious surfaces on the sites would have to be adequately captured and treated with stormwater management measures.

5.2.8 Cultural Resources

No adverse effects on cultural resources would be expected from implementing Alternative A. Fort Belvoir has surveyed the sites proposed for relocatable buildings for historic resources and determined that no archaeological or architectural resources are present. In compliance with Section VII of the PA, any post review discoveries of archaeological sites or materials would be treated in compliance with best practices and regulatory frameworks including stopping work, contacting authorities, developing case-specific impact minimization strategies, and the proper handling and housing of associated collections.

No adverse visual effects on cultural resources would be expected from implementing Alternative A because the buildings installed under the proposed action would be limited in height, vegetative screening and visual buffers between the proposed sites and historic properties would be maintained, open space would be retained to the greatest extent possible, and the introduction of ambient light to the environment would be minimized.

No adverse effects on historic buildings from implementing Alternative A would be expected because all the involved buildings that are at least 50 years old have been evaluated for eligibility for the NRHP, and Fort Belvoir would comply with applicable provisions of the PA for the protection of the National Register-eligible Fort Belvoir Historic District.

5.2.9 Socioeconomics

Short-term minor beneficial effects on the economic environment would be expected from implementing Alternative A. The expenditures associated with construction of the relocatable buildings and renovation of existing buildings on Fort Belvoir would generate jobs in the construction industry and increases in local spending and income. The economic benefits would be short-term, lasting only for the duration of the construction and renovation period. The increase in sales volume, income, and employment would fall within historical fluctuations (i.e., within the RTV range) and be considered minor.

No effects on demographics; housing; quality of life issues; schools, services, shops, or recreation; or environmental justice would be expected. This EA's proposed action to construct relocatable buildings as well as renovate existing buildings on Fort Belvoir would not affect any of these socioeconomic factors.

Short-term minor adverse effects on the protection of children would be expected if Alternative A was implemented. Of the proposed primary sites, the Lewis West and Gerber West sites are

adjacent to areas where children might be present, such as residential areas. Construction activity could pose an increased safety risk because construction sites can be enticing to children.

5.2.10 Transportation

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative A. These effects would be due to additional construction vehicles, construction worker commutes, and an increase in installation personnel commutes lasting for up to 6 months while both the incoming BRAC 5/132 personnel and the outgoing BRAC personnel are both on the installation. No change in the number of permanent personnel at Fort Belvoir is associated with Alternative A.

Traffic would increase from the delivery of equipment, concrete, materials and components of the relocatable structures, debris removal, and construction worker commutes. Traffic heading to and from the primary construction sites would enter Fort Belvoir primarily through Tulley Gate at Route 1 and Pohick Road, and Kingman Gate at the Fairfax County Parkway and Kingman Road, as they are the most accessible. Traffic to and from the buildings that would be renovated would be less than that going to the construction sites, and distributed over a wider area. Given the short-term nature of proposed construction activities and that effects would be confined primarily to on-post areas, these effects would be minor under NEPA.

5.2.11 Utilities

Long-term minor adverse effects on landfill capacity would result from implementing Alternative A. Renovation of 19 buildings to provide space for incoming BRAC 5/132 personnel would generate solid waste that would be at least partially disposed of in regional landfills, reducing the capacity of the landfills. No adverse effects on other utility systems would be expected from implementing Alternative A. Installation of a relocatable building on the Lewis West site could require that a larger sewer line than that which is currently on the site be installed to accommodate the anticipated wastewater flow from a relocatable with up to 258 personnel. Also, increased system water pressure for potable water system and fire protection at the site could be required.

All increases in utility services necessitated by the increased population at Fort Belvoir because of BRAC 2005 are accounted for in the 2007 Fort Belvoir BRAC EIS (USACE 2007a). The personnel that would relocate to Fort Belvoir under BRAC 5 and BRAC 132 are accounted for in the EIS.

5.2.12 Hazardous and Toxic Substances

No adverse effects on storage and handling areas, hazardous wastes, solid waste disposal, pesticides, ordnance, or radon would be expected from the implementation of Alternative A. In the event that a spill or leak occurred during site preparation activities or during the installation of relocatable buildings, the contractor would immediately notify ENRD and implement spill cleanup procedures. Any construction of new storage facilities would be in accordance with applicable laws and regulations.

Long-term minor beneficial effects on ACM and LBP would be expected if the substances are present in buildings selected for renovation. Before initiating renovation activities, the potential

environmental effects of ACM and LBP would be evaluated, and if present they would be managed in a manner consistent with applicable rules and regulations. No environmental or health effects would be expected during renovation activities. No adverse effects would be expected on the secondary sites since these site are proposed for storage only.

5.3 Alternative B: 150,000 SF of Relocatable Buildings

5.3.1 Land Use

No adverse effects on land use would be expected if Alternative B was implemented. No adverse effects on land use would result from installing relocatable buildings on the RV lot, RCI lot, Gerber West site, and Tompkins Basin sites, from interior building renovations, or from the use of the sites of Buildings 705 and 706 for personnel parking.

5.3.2 Aesthetics and Visual Resources

No adverse effects or long-term minor beneficial effects on aesthetics would result from implementing Alternative B. No adverse effects on aesthetics would result from using the RV lot or the RCI lot for relocatable buildings. Use of the Gerber West and Tompkins Basin sites for relocatable buildings could marginally improve the aesthetics of the sites. No adverse effects on aesthetics would result from building renovations or the use of the sites of Buildings 705 and 706 for parking areas.

5.3.3 Air Quality

Short-term minor adverse effects on air quality would be expected from implementing Alternative B. Increases in emissions, however, would be *de minimis*, and are not be expected to contribute to a violation of any federal, state, or local air quality regulations. The types of emission sources would be the same as those discussed for Alternative A and total emissions would be less than those for Alternative A.

5.3.4 Noise

Short-term minor adverse effects on the noise environment would be expected under Alternative B. The effects would be similar in nature but less than those outlined in Alternative B. The effects would be confined to areas near the RV lot, the RCI lot, and the Gerber West and Tompkins Basin sites, and sites of building renovation.

The RCI lot and Tompkins Basin site do not have noise sensitive areas within 1,000 feet. Therefore, construction noise at the site would have negligible effects. Construction noise would have short-term minor adverse effects on all residences within 1,000 feet of the RV lot and Gerber West site. BMPs would be similar to those outlined under Alternative A. No long-term increases in the overall noise environment would be expected with Alternative B.

Sites associated with Alternative B are further than one-half mile from the Friends Meetinghouse, the Woodlawn Baptist Church, and the Woodlawn Historic District. Measures outlined in the PA to reduce noise during BRAC construction would not apply. Noise from Davison Army Airfield would not be a concern with Alternative B.

5.3.5 Geology and Soils

Short-term minor adverse effects on soils would be expected from implementing Alternative B. No adverse effects on geology or topography would be expected. The effects of implementing Alternative B would be similar to those discussed above for Alternative A, though less soil disturbance would be expected to occur under Alternative B.

5.3.6 Water Resources

Short- and long-term minor adverse effects on surface waters and groundwater resources would be expected. Effects would be similar to those described for Alternative A, but to a lesser degree because fewer of the proposed primary sites would be used and no use of Poe Road for trailer storage would occur. No effects would be expected from renovation of existing buildings, from use of the two secondary sites for storage, or from parking use of laydown areas and the sites of buildings to be demolished.

5.3.7 Biological Resources

No adverse effects on vegetation or wildlife would result from implementation of Alternative B. The four sites that would be used for relocatable buildings under the alternative are not vegetated and do not provide important habitat for wildlife. No adverse effects on sensitive species or wetlands would be expected.

5.3.8 Cultural Resources

No adverse effects on cultural resources would be expected from implementing Alternative B. No primary sites used under Alternative B would affect the Woodlawn Historic District. Under Alternative B, use of the Gerber West site only could have an effect on the Fort Belvoir Historic District, but no adverse effect on the historic district would be expected because the height of a relocatable building on the site would be limited and vegetative screening would be provided. Poe Road would not be used for temporary trailer parking under the alternative, so there would be no potential for effects on the potentially NRHP-eligible archaeological sites in the vicinity of the road.

5.3.9 Socioeconomics

Short-term minor beneficial economic effects on economic development would be expected, as described above in the discussion of Alternative A. No effects on demographics, housing, quality of life, or environmental justice would be expected. Short-term minor adverse effects on protection of children would be expected because of the proximity of family housing areas to construction sites. Construction activity could pose an increased safety risk because construction sites can be enticing to children.

5.3.10 Transportation

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative B. As with Alternative A, these effects would be contributable to additional construction vehicles, construction worker commutes, and the potential for short-term overlap in incoming and outgoing personnel on the installation.

5.3.11 Utilities

Long-term minor adverse effects on landfill capacity would result from implementing Alternative B. No adverse effects on other utility systems would be expected from implementing Alternative B. All increases in utility services necessitated by the increased population at Fort Belvoir because of BRAC 2005 are accounted for in the 2007 Fort Belvoir BRAC EIS. The personnel that would relocate to Fort Belvoir under BRAC 5 and BRAC 132 are accounted for in the EIS.

5.3.12 Hazardous and Toxic Substances

The effects of implementing Alternative B would be similar to those discussed above for Alternative A. No adverse effects would be expected on storage and handling areas, hazardous waste, solid waste disposal, pesticides, ordnance, or radon. Long-term minor beneficial effects on LBP and ACM would be expected if the materials are present in buildings selected for renovation.

5.4 Alternative C: Warehouse Buildings

5.4.1 Land Use

No adverse effects on land use would be expected if Alternative C was implemented. No adverse effects on land use would be expected from building renovations, or from converting one or more of the proposed areas near Building 767 and the Museum Support Center into sites for personnel parking.

5.4.2 Aesthetics and Visual Resources

No adverse effects on aesthetics would be expected from implementing Alternative C. Other than interior renovations to existing buildings on Fort Belvoir, the only change that would occur under Alternative C would be a conversion of one or more sites near Building 767 and the Museum Support Center to parking areas. The areas proposed for parking are in industrial and institutional areas of the installation and contain RV storage, parking, and warehouse buildings, construction materials, or are bare ground. Converting the areas to parking would not adversely affect the aesthetics of the surroundings.

5.4.3 Air Quality

Short-term minor adverse effects on air quality would be expected from implementing Alternative C. Increases in emissions, however, would be *de minimis* and would not be expected to contribute to a violation of any federal, state, or local air quality regulations. The types of emission sources would be the same as those discussed for Alternative A and total emissions would be less than those for Alternative A.

5.4.4 Noise

Short-term minor adverse effects on the noise environment would be expected from implementing Alternative C. The effects would be primarily from the creation of parking lots near Building 767 and the Museum Support Center. The areas proposed for personnel parking near Building 767 and the Museum Support Center do not have NSAs within 1,000 feet.

Therefore, construction noise at the site would be expected to have negligible effects. Construction noise would have short-term minor adverse effects on all residences within 1,000 feet of any area used for personnel parking. BMPs would be similar to those outlined under Alternative A. No long-term increases in the overall noise environment would be expected with Alternative C.

Sites associated with Alternative C are farther than one-half mile from the Friends Meetinghouse, the Woodlawn Baptist Church, and the Woodlawn Historic District. Measures outlined in the PA to reduce noise during BRAC construction would not apply. Noise from Davison Army Airfield would not be a concern with Alternative C.

5.4.5 Geology and Soils

Short-term minor adverse effects on soils would be expected from implementing Alternative C. No adverse effects on geology or topography would be expected. The effects of implementing Alternative C would be similar to those discussed above for Alternative A, although less soil disturbance would be expected to occur under Alternative C because soil disturbance would result from only parking lot construction.

5.4.6 Water Resources

Minor adverse effects on surface waters and groundwater resources would be expected if Alternative C was implemented. Effects would be similar to those described for Alternative A but to a lesser degree because no relocatable buildings would be constructed and there would be no use of Poe Road for trailer storage. No effects would be expected from renovating existing buildings or from using the two secondary sites for storage. Parking areas constructed for personnel in the Museum Support Center and Building 767 would be provided with stormwater control measures in accordance with a Virginia Stormwater Management Program permit.

5.4.7 Biological Resources

No adverse effects on vegetation or wildlife would be expected from implementing Alternative C. The sites proposed for use as parking areas for the Museum Support Center and Buildings 767 are previously disturbed, unvegetated areas. Building renovations would not affect biological resources.

5.4.8 Cultural Resources

No adverse effects on cultural resources would be expected from implementing Alternative C. No sites proposed to be used under Alternative C would affect the Woodlawn Historic District. Under Alternative C, use of the Gerber West site as a parking area only could have an effect on the Fort Belvoir Historic District. The reasoning provided above for no adverse effect for using the Gerber West site, secondary sites, and buildings under Alternative A are valid for their use under Alternative C. Poe Road would not be used for temporary trailer parking under the alternative, so there would be no potential for effects on the potentially NRHP-eligible archaeological sites in the vicinity of the road. All precautions and adherences to the provisions of the PA, as discussed above, would apply equally to implementing Alternative C.

5.4.9 Socioeconomics

Short-term minor beneficial economic effects and short-term minor adverse effects on protection of children would be expected if Alternative C was implemented. The discussions above of the individual aspects of socioeconomics for Alternative B apply equally to Alternative C.

5.4.10 Transportation

Short-term minor adverse effects on transportation resources would be expected from implementing Alternative C. As with Alternative A, such effects would be attributable to additional construction vehicles, construction worker commutes, and the potential for short-term overlap in incoming and outgoing personnel on the installation.

5.4.11 Utilities

Long-term minor adverse effects on landfill capacity would be expected from implementing Alternative C. No adverse effects on other utility systems would be expected from implementing Alternative C. The 2007 Fort Belvoir BRAC EIS (USACE 2007a) accounts for all increases in utility services necessitated by the increased population at Fort Belvoir because of BRAC 2005. The EIS also accounts for the personnel that would relocate to Fort Belvoir under BRAC 5 and 132.

5.4.12 Hazardous and Toxic Substances

The effects of implementing Alternative C would be similar to those discussed above for Alternative A. No adverse effects would be expected on storage and handling areas, hazardous waste, solid waste disposal, pesticides, ordnance, or radon. Long-term minor beneficial effects regarding LBP and ACM would be expected if the materials are present in buildings selected for renovation.

5.5 No Action Alternative

No effects on any resource would result from implementing the No Action Alternative. Under the No Action Alternative, the Army would not implement the proposed action. No land would be acquired, no facilities would be constructed, and no units would relocate from other facilities. The units proposed for relocation under the proposed action would continue to operate from their current facilities.

5.6 Cumulative Effects Summary

Army planners originally anticipated that implementation of the BRAC 2005 agency and personnel realignments at Fort Belvoir would involve approximately 20 construction projects and 19,000 workers moving to Fort Belvoir within the 2008 to 2011 timeframe. The cumulative impacts of the construction projects and influx of new workers were addressed in the 2007 Fort Belvoir BRAC EIS and ROD (USACE 2007a, USACE 2007b). The cumulative effects generated by the proposed action would be short term and minor. While associated construction traffic may occur on Fort Belvoir concurrently with other projects, and contribute to traffic delays and the possible rerouting of traffic, there would be no long-term increase in personnel or traffic. There

would be no long-term cumulative effects on transportation resources. The size and scope of the changes in the transportation systems associated with all the alternatives would be extremely small when compared to other planned transportation related projects in the region.

Though the cumulative impacts associated with Alternatives A and B would be minor or negligible, Alternative A would have the greatest impact because it would result in the most new construction activity, and Alternative B would have less impact because it would result in less new construction activity.

5.7 Mitigation Summary

No mitigation measures for impacts on land use; aesthetics; water resources; biological resources; geology, soils, and topography; socioeconomic resources; utility systems; or hazardous and toxic substances would be required. Mitigation measures agreed to in the ROD for the 2007 Fort Belvoir BRAC EIS for potential impacts on air quality, noise, and cultural resources are included below. BMPs that would be implemented for resource protection are included with the discussions of each respective resource area in Section 4 of the EA.

5.7.1 Air Quality

To ensure compliance with the Coastal Zone Management Requirements, the Army would implement mitigation measures to reduce air quality impacts. These mitigation measures were established to reduce the emissions associated with the overall BRAC action at Fort Belvoir to a level where they could reasonably be accounted for in the SIP. The measures are detailed in a CPP provided in the *Construction Performance Plan for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* that is Attachment 1 of the *Record of Decision for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia* (USACE 2007b) and would include the following:

- Limiting construction on Code Orange, Red, and Purple ozone days
- Limiting the use of off-road trucks on the project site
- Requiring all off-road diesel equipment not meeting Tier 2 or better standards be retrofitted with emission control devices
- Implementing anti-idling restrictions for both on-road and off-road vehicles and equipment
- Using ultra-low sulfur diesel, alternate fuels, or fuel additives
- Meeting new engine standards for off-road vehicles

5.7.2 Noise

The Lewis West and Goethals Road sites are within one-half mile of the Friends Meetinghouse, the Woodlawn Baptist Church, or both. The PA with the Virginia SHPO and consulting parties outlines measures to avoid adverse noise impacts during BRAC related construction. As outlined in the PA, if these sites are selected, Fort Belvoir would establish a POC to receive and respond to any noise complaints. That POC would be an individual with the authority to curtail construction activities in order to reduce the amount of noise produced. In addition, construction would not

occur on Sundays within one-half mile of the Woodlawn Historic District without consultation with the affected consulting parties.

5.7.3 Cultural Resources

Mitigation measures stipulated by the PA to be incorporated into BRAC development plans at Fort Belvoir, include the following:

- Fort Belvoir will reduce, avoid or minimize adverse effects to the viewshed of the Woodlawn Historic District and the contributing elements therein through measures identified in the PA.
- Fort Belvoir will avoid and minimize adverse effects to the Fort Belvoir Historic District and its viewshed through measures identified in the PA.
- Fort Belvoir will avoid and minimize the adverse effects to historic properties from the introduction of ambient light to the atmosphere due to the BRAC action.
- Fort Belvoir shall avoid and minimize adverse auditory effects from the BRAC Action through measures identified in the PA.
- Fort Belvoir will ensure that contracts for BRAC activities involving ground disturbance and/or construction contain the provisions for the treatment of post review discoveries identified in the PA.
- Fort Belvoir will notify and consult with the SHPO regarding the treatment of the post-review discovery and the disposition of any artifacts.
- Fort Belvoir will determine the need for any archeological surveys before commencing any new construction in consultation with the signatories to the PA.
- Fort Belvoir will apply design review procedures to new BRAC construction projects to permit their review for effects on cultural resources.

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ACRONYMS AND ABBREVIATIONS

AAA	U.S. Army Audit Agency
AAFES	Army and Air Force Exchange Service
ACM	Asbestos-containing material
ACO	Administrative Contracting Officers
A.M. or a.m.	Ante meridiem (i.e., before noon)
AMC	Army Materiel Command
AQCR	Air-quality control region
AQCR 47	National Capital Interstate air-quality control region
AST	Aboveground storage tank
BMP	Best management practice
BNA	Fort Belvoir North Area
BRAC	Base Realignment and Closure
BRAC 132	BRAC Commission Recommendation Number 132
BRAC 5	BRAC Commission Recommendation Number 5
C&D	Construction and demolition (debris)
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
CO	Carbon monoxide
CO_2	Carbon dioxide
CPP	Construction Performance Plan
CZMA	Coastal Zone Management Act
DAAF	Davison Army Airfield
dB	Decibel
dBA	A-weighted decibel
de minimis	Of minimal importance
DES	Directorate of Emergency Services
DNL	Day-night Sound Level
DOC	Diesel oxidation catalyst
DoD	Department of Defense
DPW	Directorate of Public Works
EA	Environmental assessment
EIFS	Economic Impact Forecast System
EIS	Environmental impact statement
ENRD	Environmental and Natural Resources Division
EPA	U.S. Environmental Protection Agency (also see USEPA)
EO	Executive Order
FNSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GCD	General Conformity Determination
GCR	General Conformity Rule
GIS	Geographic information system
HEC	Humphreys Engineer Center
HP	Horsepower
Hz	Hertz
I	Interstate
INRMP	Integrated Natural Resources Management Plan
IPMP	Integrated Pesticide Management Plan

lb	Pound
LBP	Lead-based paint
L_{eq}	Equivalent sound level
LOS	Level of Service
MD	Maryland
MEC	Munitions and explosives of concern
MMRP	Military Munitions Response Program
MS4	Municipal Sanitary Storm Sewer System
MSAT	Mobile source air toxic
MWCOG	Metropolitan Washington Council of Governments
MWR	Division of Morale, Welfare, and Recreation
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NMUSA	National Museum of the Army
NOA	Notice of Availability
NO_x	Nitrous oxides
NPDES	National Pollutant Discharge Elimination System
NSA	Noise sensitive area
O_3	Ozone
OCAR	Office of the Chief of Army Reserve
OSEG	Operational Security Evaluation Group
OSHA	Occupational Safety and Health Administration
OTR	Ozone transport region
PA	Programmatic Agreement
PCB	Polychlorinated biphenyls
PEO EIS	Program Executive Office, Enterprise Information Systems
P.M. or p.m.	Post meridiem (i.e., after noon)
PM	Particulate matter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PM_{10}	Particulate matter less than 10 microns in diameter
POC	Point of contact
ppm	Parts per million
PRS	Petroleum release site
PSA	Petroleum storage area
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROI	Region of influence
RONA	Record of Non-Applicability
RPA	Resource protection area
RTV	Rational threshold value
RV	Recreational vehicle
SF	Square feet
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TBD	To be determined
TBT	Tributyltin

tpy	Tons per year
$\mu g/m^3$	Micrograms per meter cubed
ULSD	Ultra-low sulfur diesel fuel
USACE	U.S. Army Corps of Engineers
USALSA	U.S. Army Legal Services Agency
USEPA	U.S. Environmental Protection Agency (also see EPA)
U.S.C.	United States Code
UST	Underground storage tank
VA	Virginia
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VOC	Volatile organic compound
VPDES	Virginia Pollutant Discharge Elimination System