ENVIRONMENTAL ASSESSMENT FOR WARRIOR IN TRANSITION UNIT COMPLEX AT FORT BELVOIR, VA

September 2009

Prepared for
Fort Belvoir, Virginia

Prepared by
The Louis Berger Group, Inc.
Washington, D.C.

ENVIRONMENTAL ASSESSMENT
WARRIOR IN TRANSITION UNIT COMPLEX
US ARMY GARRISON FORT BELVOIR, VIRGINIA

SEPTEMBER 2009

Reviewed by:

Patrick M. McLaughlin
Chief, Environmental Natural Resource Division

Recommended for Approval:

Bill Sanders
Director, Public Works

Approved By:

for **Jerry L. Blixt**
Colonel, US Army
Commanding

ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Department of Army

TITLE OF PROPOSED ACTION: Environmental Assessment for the Warrior in Transition Unit Complex at Fort Belvoir, Virginia

AFFECTED JURISDICTION: Fairfax County, Virginia

PREPARED BY: The Louis Berger Group, Inc., Washington, D.C.

APPROVED BY: Colonel Jerry L. Blixt, Commander, Fort Belvoir, Virginia

ABSTRACT: This environmental assessment (EA) considers the proposed implementation of the Warrior in Transition Unit Complex at Fort Belvoir, Virginia. The EA analyzes and documents the effects of the proposed action to construct and operate a Warrior in Transition Unit Complex north of 9th Street on the former South Post golf course. A No Action Alternative (No Build Alternative) is also evaluated to serve as a baseline against which the impacts of the proposed action are evaluated.

None of the predicted effects of the proposed action would result in significant impacts at Fort Belvoir. Moreover, mitigation would not be necessary to offset impacts, although a number of best management practices would be employed to reduce or minimize 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 of 1969 (NEPA).

REVIEW PERIOD: Interested parties were invited to review and comment on the EA and draft FNSI during a 30-day period. For further information, contact Bill Sanders, Director of Public Works at 703-806-3017.

The EA and draft FNSI were available for review on the Web at: http://www.belvoir.army.mil.

The EA and draft FNSI were also available for review at the following libraries:

Fort Belvoir Van Noy Library
5966 12th St., Building 1024
Fort Belvoir, VA 22060

John Marshall Branch
6209 Rose Hill Drive
Alexandria, VA 22310-6299

Kingstowne Branch
6500 Landsdowne Centre
Alexandria, VA 22315-5011

Lorton Branch
9520 Richmond Highway
Lorton, VA 22079-2124

Sherwood Regional Branch
2501 Sherwood Hall Lane
Alexandria, VA 22306-2799

City of Fairfax Regional Branch
10360 North Street
Fairfax, VA 22030-2514

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

ES.1 Introduction

This environmental assessment (EA) analyzes and documents environmental effects associated with the Army's proposed action at Fort Belvoir– implementation of the Warrior in Transition Unit Complex.

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (Title 42, U.S. Code [USC], 4321-4347) and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508), this EA was prepared concurrently with and integrated with environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S. Code [USC] 661 *et seq*.), the National Historic Preservation Act of 1966 (NHPA, 16 USC 470 *et seq*.), the Endangered Species Act of 1973 (ESA, 16 USC 1531 *et seq*.), and other environmental review laws (and their implementing regulations), and Executive Orders (EOs) outlined in Appendix A.

ES.2 Background and Setting

This EA identifies, documents, and evaluates the environmental effects of implementing a Warrior in Transition Unit Complex at Fort Belvoir. Environmental effects of this implementation would include those related to construction and operation of the proposed action. An interdisciplinary team has analyzed the proposed action in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action.

ES.3 Proposed Action

The Army's proposed action is to construct and operate a Warrior in Transition Unit Complex at Fort Belvoir. The proposed action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of battalion headquarters, two companies of Warriors in Transition and a Soldier and Family Assistance Center (SFAC) that would assist both soldiers housed at the Warrior in Transition Unit complex and additional recovering soldiers residing off post.

ES.4 Alternatives

No Action (No Build) Alternative

The No Action Alternative serves as a baseline against which the impacts of the proposed action and alternatives can be evaluated. CEQ regulations require inclusion of the No Action (No Build) Alternative for this EA.

Proposed Action Alternative

The proposed action is to site the Warrior in Transition Unit Complex at the 9th Street Site. The new Warrior in Transition Unit Complex would be located on South Post at a 16.6-acre site located on the corner of Belvoir Road and 9th Street. Siting of the new Warrior in Transition Unit Complex would co-locate its facilities with the new Community Hospital, where Warriors in Transition would receive follow on medical appointments and care, and have use of its dining facilities.

ES.5 Environmental and Socioeconomic Consequences

The proposed action would involve the construction and operation of the Warrior in Transition Unit Complex at Fort Belvoir. Table ES-1 presents the proposed action and the No Action alternatives and their potential impacts to the natural and human environments.

In summary, construction and operation of the proposed Warrior in Transition Unit Complex under the proposed action would be expected to provide the needed facilities to support the wounded soldiers who will be receiving care at the Community Hospital or other area medical facilities at Fort Belvoir. No significant impacts would be expected to the natural and human environment. There are potential minor short term construction impacts that include noise, traffic, any soil erosion not fully managed by construction BMPs, and surface water impacts from runoff carrying pollutants not fully avoided by BMPs. There are also moderate long term impacts from increased traffic.

Table ES-2: Summary of Effects of the Proposed Action and the No Action Alternative

Resource	Proposed Action	No Action Alternative
Land Use Plans and Coastal Zone Management	Compatible with designated land use; no impacts are expected. Consistent with enforceable provisions of the Virginia Coastal Zone Management Program.	No impacts
Transportation and Traffic	During the a.m. peak hour and p.m. peak hour, the proposed project would adversely affect one intersection: the Belvoir Road/Surveyor Road intersection. Additional traffic improvement measures may be necessary at one intersection if all traffic projected by 2015 occurs. These measures could include adding a traffic circle or a signal. Alternatively, appointments or reporting/ dismissal times for some at the Warrior in Transition Unit Complex could be adjusted to avoid peak hours. The proposed project would not adversely affect the other intersections analyzed, including 9th Street/Gunston Road and 9th Street/Belvoir Road intersections. These intersections would be operating at acceptable LOS or at current LOS. Construction traffic averages less than 6-percent of construction traffic at Fort Belvoir during period and is not a significant impact.	No impacts result from the proposed action; however, projected traffic from other future actions result in two intersections operating at Level of Service (LOS) E and three intersections operating at LOS F during the a.m. peak hour without the proposed project. One intersection is projected to operate at LOS E and four intersections are projected to operate at LOS F during the p.m. peak hour without the proposed project.

Resource	Proposed Action	No Action Alternative
Air Quality	Air pollutant emissions are below *de minimis* levels for general conformity. Minor modifications to Title V air permit would occur. During construction, the restrictions outlined in the BRAC Air Emissions Construction Performance Plan would be implemented. Record of Non-Applicability is in Appendix D.	No impacts
Noise	Temporary minor impacts from noise during demolition and construction activities. Noise from operations would be negligible as operation activities of the Warrior in Transition Unit Complex would not be audible from outside of the facilities to other installation users in the area	No impacts
Soils and Topography	Leveling and grading result in minor impacts to soils or topographic conditions. Grading, leveling and excavation of soil would have the potential for sediment and construction contaminants to be carried into the nearby stream, and then to Accotink Bay. Removal of vegetation could increase the percent of rainfall that runs off; peak flows and velocities could be increased if not controlled to cause erosion of the stream banks. Required soil erosion and sediment control plan would insure soils impacts are temporary and minor.	No impacts

Resource	Proposed Action	No Action Alternative
Surface Water, Water Quality, and Floodplains	Minor impacts to surface water; added impervious surface has potential to increase runoff, decrease infiltration to the groundwater, and to carry contaminants from the hard surfaces into the stream and on to the Accotink Bay. Plans for stormwater management, stormwater pollution prevention, and sediment and erosion control will mitigate effects to surface water. Minor impacts to water quality; implementation of LID and other BMPs will offset infiltration losses. Project is not located in floodplains and will have no effect.	No impacts.
Wetlands and Chesapeake Bay Preservation Areas	No direct impacts to wetlands and associated Resource Protection Areas (RPAs), with the possible exception of the stormwater outfall site; siting of new facilities would avoid wetlands. Increase in impervious surfaces could reduce groundwater infiltration on the site. Implementation of minimum LEED Silver rating, sustainable design and LID strategies would minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off. If outfall encroaches on wetland, permit would be obtained that would ensure effects are minimized.	No impacts

Resource	Proposed Action	No Action Alternative
Upland Vegetation and Wildlife	Site is partially developed and contains semi-improved grounds; including landscape urban trees, shrubs, and maintained lawn of the former South Post golf course. Tree replacement of 2:1 for trees four inches in diameter or more. Minor impacts to vegetation and wildlife would occur. No impacts to T&E species are expected.	No impacts
Historic, Cultural, and Architectural Resources	*No adverse effect* under Section 106 of the National Historic Preservation Act. No cultural resources, including archaeological sites, are present at the proposed site. Planned building height of no more than four stories would not be visible or affect the setting of any historic property inside or outside the boundaries of the installation.	No impacts
Socioeconomics	Minor positive effects to the economy would result from construction expenditures. No adverse environmental justice effects are expected.	No impacts
Community Facilities and Services	Negligible increase in demand for housing or social services are expected; minimal impacts to community facilities and services.	No impacts

Resource	Proposed Action	No Action Alternative
Infrastructure and Utilities	Minor increase to overall demand for potable water and on-going water system upgrades in area ensure minimal impact. Small requirement and provision for conveyance to Hospital system ensure minimal impact to sanitary sewers. Project adds retention and BMPs to ensure minor impacts to stormwater management. Small demand for gas and electricity has minimal impact; steam plant capacity or natural gas supply, if selected, is adequate for heating requirements. Telecommunications in vicinity is adequate and easily extended to serve site. Relatively small amounts of municipal solid waste can be handled by existing disposal and collection.	No impacts.
Hazardous Substances	Minor use in construction and storage for building/land maintenance; no impact on use and storage of hazardous substances. No impact: small amounts disposed of in accordance with regulations. No site clean-up is required.	No impacts.

ES.7 Mitigation Responsibility and Permit Requirement

There are no expected impacts that would require mitigation to avoid being considered significant. However, there are a number of measures, termed best management practices (BMPs) that would be employed where appropriate to reduce or minimize impacts. The actions discussed below would be employed to minimize potential adverse impacts.

- Stormwater control features for the project would be designed to insure peak runoff flows do not exceed and potentially are less than existing peak flows from the site.
- Soil samples at the Warrior in Transition Unit Complex site would be taken if suspected contaminated soils are found and contaminated soils would be disposed of off-base by a qualified contractor in accordance with applicable federal and state laws and regulations.
- The Construction Performance Plan (CPP) for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia outlines policies and procedures for complying with emissions reduction requirements and air quality laws of Virginia during the period of construction for BRAC and related activities at Fort Belvoir. CPP restrictions include design and construction standards for equipment and vehicles that reduce air emissions through use restrictions on critical ozone days, diesel oxidation catalysts (DOCs), ultra-low sulfur diesel fuel (ULSD), idling restrictions, and cleaner vehicle options. During construction of the Warrior in Transition Unit Complex, the restrictions outlined in the CPP would be implemented to help reduce cumulative impacts to air.
- Fugitive dust would be minimized during construction by control methods such as using water for dust control; covering open equipment for conveying materials; and promptly removing spilled or tracked dirt or other materials from paved streets or dried sediments resulting from soil erosion.
- Tree replacement at a 2:1 ratio would occur for every tree 4 inches or greater in diameter removed during construction. Replacement trees will be 2 inches to 2 ½ inches in diameter and consistent with the tree species removed.
- Hazardous wastes that are generated by the project would be disposed of in accordance with applicable federal and state laws and regulations.
- Additional traffic improvement measures may be necessary at one intersection if all traffic projected by 2015 occurs. These measures could include adding a traffic circle or a signal. Alternatively, appointments or reporting/ dismissal times for some at the Warrior in Transition Unit Complex could be adjusted to avoid peak hours.
- To meet the challenge of sustainability the project has already identified actions to be included in the proposed project design, construction and operation. Collecting stormwater for irrigation and extending existing and planned sidewalk systems through site with enhanced landscaping as appropriate are identified sustainable elements. The current requirements include designing the building to achieve energy consumption of 30% below a baseline building, use of Energy Star or FEMP designated products, providing at least 30% of hot water heating requirements through the use of solar heating; providing waterless urinals in men's restrooms and dual flush technology in women's restrooms; and diverting as a minimum 50% of non-hazardous construction and demolition debris from landfill disposal. The use of High Performance and Sustainable Building, Low Impact Building, LEED strategies, and requirements of the Energy Policy Act of 2005 ("EPACT 2005;" Pub. L. 109-58) during the design process will further refine these requirements and include additional sustainable strategies in the final project.

The construction contractor is responsible for providing permit applications and other information needed for Fort Belvoir to obtain the applicable permit (local, state and federal) required for design and construction of all site features and utilities related to the Warrior in Transition Unit Complex that is within the designated construction limits, as well as all the permitting fees. The Garrison Commander is the holder of all permits for Fort Belvoir; the Directorate of Public Works coordinates all contacts with relevant regulators for permitting actions. Permits or concurrences that could be required include, but not limited to:

- Air Quality Permit (Title V) modification;
- National Pollution Discharge Elimination System (NPDES) General Permit;
- Erosion and Sedimentation Control Permit ;
- Stormwater Management Permit;
- The Notice of Intent (NOI) for Stormwater Runoff from Construction Activities, which includes stormwater pollution prevention plan;
- Digging Permit;
- Sanitary Permit;
- Water Permit;
- Wetland Permit (if stormwater features intrude into wetlands);
- State Historic Preservation Office concurrence;
- National Capital Planning Commission review;
- Hot –Work Permit;
- Equipment List;
- Crane Registration;
- Fuel Storage Permit; and
- Permits for Road Closures, After-Hours Work or Weekend Work.

ES.8 Conclusion

The implementation of the Warrior in Transition Unit Complex, as proposed, is not expected to result in significant adverse impacts on the environment; therefore, preparation of an Environmental Impact Statement (EIS) is not required.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

ES EXECUTIVE SUMMARY ES-1
ES.1 Introduction 1
ES.2 Background and Setting 1
ES.3 Proposed Action 1
ES.4 Alternatives 1
ES.5 Environmental and Socioeconomic Consequences 2
ES.7 Mitigation Responsibility and Permit Requirement 8
1.0 PURPOSE AND NEED FOR THE PROJECT 3
1.1 What is the purpose of the project? 3
1.2 Why does the Army need a Warrior in Transition Unit Complex at Fort Belvoir? 3
2.0 DESCRIPTION OF THE PROPOSED ACTION & ALTERNATIVES 5
2.1 What is the Army's proposed action? 5
2.2 What would the Warrior in Transition Unit Complex include? 5
2.3 Why is the Warrior in Transition Unit Complex being located at Fort Belvoir? 6
2.4 What are the criteria for the proposed construction? 8
2.5 What are the plans for the Proposed Project Site? 8
2.6 How would the project affect neighboring properties? 10
2.7 What does the Army need to do to construct the Warrior in Transition Unit Complex facilities? 10
2.8 What would be involved in the operation of the Warrior in Transition Unit Complex? 10
2.9 When would the Warrior in Transition Unit Complex be built, and how long would it take? 10
2.10 Why do we consider a "No Action/No Build" Alternative? 11
2.11 What criteria were used to select the proposed site? 11
2.12 Did environmental factors affect the selection of sites or project designs? 11
2.13 What other alternatives were considered for the Warrior in Transition Unit Complex, but were dismissed? 11
3.0 ENVIRONMENTAL IMPACTS: A COMPARISON BETWEEN ALTERNATIVES 15
3.1 Land Use, Plans, and Coastal Zone Management 15
3.1.1 What is our study area for this analysis? 15
3.1.2 What are the current land uses in the study area? 15
3.1.3 What are the current uses at and next to the proposed project site? 15
3.1.4 What comprehensive plan currently guides land use decisions at Fort Belvoir? 16
3.1.5 What other land use planning standards or restrictions apply? 16
3.1.6 How would the project affect land uses at the proposed project site? 17
3.1.7 Is the proposed use consistent with the Fort Belvoir Real Property Master Plan (RPMP) designated land uses at the site? 17
3.1.8 Is the proposed use consistent with the National Capital Planning Commission (NCPC) Comprehensive Plan? 17
3.1.9 Is the proposed use consistent with the Coastal Resources Management Plan policies? 17
3.1.10 How would project construction affect land uses of other properties in the immediate vicinity? 18
3.1.11 What does Fort Belvoir plan to do to avoid or minimize negative effects? 18
3.1.12 What effect would the No Action Alternative have on land use at or next to Fort Belvoir? 18
3.2 Transportation and Traffic 18
3.2.1 What is the current traffic situation? 18
3.2.2 Are there safety concerns in the study area? 19

3.2.3 What mass transit service is available in the study area? 21
3.2.4 How are future traffic volumes for the No Action Condition determined? 21
3.2.5 Would the No Action Condition cause any impacts to transportation and traffic? 21
3.2.6 How would the proposed project affect future traffic volumes? 22
3.2.7 How would the proposed project affect transit? 23
3.2.8 How will local surface streets operate in the future? 23
3.2.9 How would the proposed project affect bicycle and pedestrian facilities? 24
3.2.10 How would the proposed project affect transportation? 24
3.2.11 How would adverse effects be avoided or minimized during construction and operation of the Warrior in Transition Unit Complex? 25
3.3 Air Quality 25
3.3.1 What are the key considerations regarding air quality? 25
3.3.2 Who determines air pollution control policy in Northern Virginia or the Fort Belvoir vicinity? 26
3.3.3 What regulations govern air pollution sources in Virginia? 26
3.3.2 How is the air quality in this region? 27
3.3.3 How are air quality effects from the project evaluated? 27
3.3.4 How would the Warrior in Transition Unit Complex's construction and operation affect air quality? 28
3.3.5 Does the construction or operation of the Warrior in Transition Unit Complex require mitigation? 29
3.3.6 Would the No Action Alternative cause any impacts to air quality? 30
3.4 Noise 30
3.4.1 What standards apply to noise? 30
3.4.2 What is the current noise environment near the proposed Warrior in Transition Unit Complex site? 31
3.4.3 How would the Warrior in Transition Unit Complex's construction and operation affect the existing noise environment? 31
3.4.4 How would the project comply with existing noise regulations? 33
3.4.5 Does the construction or operation of the Warrior in Transition Unit Complex require mitigation? 33
3.4.6 Would the No Action Alternative cause any impacts to the noise environment? 33
3.5 Soils, Topography, and Geology 33
3.5.1 What is the study area for soils and topography? 33
3.5.2 What soils types are located in the study area? 33
3.5.3 What is the general topography of the study area? 34
3.5.4 What is the geology of the study area? 34
3.5.5 How would the construction of the Warrior in Transition Unit Complex affect soils, topography, and geology on the study area? 34
3.5.6 Are there appropriate mitigation measures that would be taken? 35
3.5.7 How would the No Action Alternative affect the soils and topography of the study area? 35
3.6 Surface Water, Water Quality, and Floodplains 35
3.6.1 What is the study area for analysis? 35
3.6.2 What surface water features occur in or near the study area? 36
3.6.3 What is the quality of surface water in the study area? 36
3.6.4 Do flood hazard or floodplain areas exist at the proposed project site? 36
3.6.5 Would the project affect floodplains? 36
3.6.6 Would the project affect surface or groundwater water or water quality? 38
3.6.7 What mitigation would be appropriate? 38
3.6.8 Would the No Action Alternative affect surface water, water quality, or floodplains in the study area? 39

3.7 Wetlands and Chesapeake Bay Preservation Areas 39
3.7.1 What is the study area for analysis? 40
3.7.2 What are the wetlands in the study area and what are their characteristics? 40
3.7.3 What functions do the wetlands in the study area provide? 40
3.7.4 How would the project affect wetlands and Chesapeake Bay Preservation Areas? 40
3.7.5 How would Fort Belvoir compensate for unavoidable negative effects on wetlands? 41
3.7.6 How would Fort Belvoir avoid or minimize adverse effects from construction? 41
3.7.7 How would the No Action Alternative affect wetlands? 41
3.8 Upland Vegetation and Wildlife 41
3.8.1 What is the study area and how was it determined? 41
3.8.2 What types of vegetation and wildlife habitat are found in the study area? 41
3.8.3 Which common wildlife species is known to live in the study area? 41
3.8.4 How are wildlife habitats connected within the study area? 42
3.8.5 Do any special status species occur in the study area? 42
3.8.6 What other wildlife resources/programs are important at Fort Belvoir? 43
3.8.7 Do any rare ecological communities occur in the study area? 43
3.8.8 How would the project affect upland vegetation? 44
3.8.9 How would the No Action Alternative affect upland vegetation? 44
3.8.10 How would the project affect wildlife? 44
3.8.11 How would the project affect Special Status Species? 44
3.8.12 How will we avoid or minimize adverse effects on vegetation and wildlife during construction? 45
3.8.13 Would Fort Belvoir mitigate any unavoidable negative effects? 45
3.8.14 How would the No Action Alternative affect wildlife, including Special Status Species? 46
3.9 Historic, Cultural, and Architectural Resources 46
3.9.1 What standards apply to effects on Cultural Resources? 46
3.9.2 What is the study area for this analysis? 47
3.9.3 Are any cultural resources located in the area of potential effects? 47
3.9.4 How would the project affect cultural resources? 48
3.9.5 Are there measures needed to avoid, minimize, or mitigate adverse effects to cultural resources? 48
3.9.6 How would the No Action Alternative affect cultural resources? 48
3.10 Socioeconomics 48
3.10.1 What is the study area for analysis? 48
3.10.2 Who lives within the study area? 49
3.10.3 Are there low income communities within the study area? 50
3.10.4 Would the project at the proposed site unfairly affect minority or low-income populations? 50
3.10.5 Are there children living in the study area? 51
3.10.6 Would the project at the proposed site disproportionately affect children? 51
3.10.7 Is there a high or low rate of unemployment within the study area? 51
3.10.8 Would the project increase or decrease area employment? 52
3.10.9 Would the No Action Alternative cause any impacts to socioeconomics in the study area? 52
3.11 Community Facilities and Services 52
3.11.1 What is the study area for the analysis? 52
3.11.2 What are the community facilities and services in the study area? 52
3.11.3 Who provides safety and security services in the study area? 52
3.11.4 What types of schools are operating in the study area? 53
3.11.5 How would the project affect these services? 53
3.11.6 What recreational facilities are available to Fort Belvoir workers and residents? 53

3.11.7 How would the Warrior in Transition Unit Complex affect these facilities? 54
3.11.8 Would the No Action Alternative cause any impacts to community facilities and services in the study area? 54
3.12 Infrastructure and Utilities 54
3.12.1 What is the study area for analyses? 54
3.12.2 How would potable water be supplied to the Warrior in Transition Unit Complex? 54
3.12.3 Is the proposed project site currently supplied with sufficient potable water? 54
3.12.4 How would sanitary sewer service be supplied to the Warrior in Transition Unit Complex? 55
3.12.5 Is the proposed project site supplied with sufficient sanitary sewer service? 55
3.12.6 What are the stormwater requirements for the Warrior in Transition Unit Complex? 56
3.12.7 Is the proposed project site supplied with sufficient stormwater management? 56
3.12.8 What are the natural gas requirements for the Warrior in Transition Unit Complex? 57
3.12.9 Is the proposed project site supplied with sufficient natural gas service? 57
3.12.10 What are the electricity requirements for the Warrior in Transition Unit Complex? 57
3.12.11 Is the proposed project site supplied with sufficient electricity service? 58
3.12.12 What are the requirements for steam in the Warrior in Transition Unit Complex? 58
3.12.13 Is the proposed project site supplied with sufficient steam service? 59
3.12.14 What are the communication requirements for the Warrior in Transition Unit Complex? 59
3.12.15 Is the proposed project site supplied with sufficient communication service? 59
3.12.16 What are the solid waste disposal requirements for the Warrior in Transition Unit Complex? 59
3.12.17 Is the proposed project site supplied with sufficient solid waste disposal service? 60
3.12.18 Would the No Action Alternative cause any impacts to infrastructure or utilities in the study area? 60
3.13 Hazardous Substances 60
3.13.1 What hazardous substances occur at the proposed project site? 60
3.13.2 How would the project affect the storage and use of hazardous substances? 61
3.13.3 What impacts on storage of hazardous substances would the construction activity generate? 61
3.13.4 How would the No Action Alternative affect the storage or use of hazardous substances? 61
3.14 Cumulative Impacts 61
3.14.1 What are cumulative impacts? 61
3.14.2 What is the study area for this analysis? 61
3.14.3 What other actions are reasonably foreseeable in the project area? 61
3.14.4 To what extent would construction and operation of the Warrior in Transition Unit Complex contribute to cumulative impacts? 62
3.14.5 Would the No Action Alternative contribute to cumulative impacts? 64
4.0 FINDINGS AND CONCLUSIONS 65
4.1 Unavoidable Adverse Impacts 65
4.2 Best Management Practices and Mitigation Measures 65
4.3 Permits 66
4.4 Conclusion 67
5.0 REFERENCES 73
6.0 LIST OF PREPARERS 77
7.0 DISTRIBUTION LIST 79
8.0 ACRONYMS AND ABBREVIATIONS 89

LIST OF TABLES

Table ES-2: Summary of Effects of the Proposed Action and the No Action Alternative ES-3
Table 2-1: Proposed Facilities for the Warrior in Transition Unit Complex 5
Table 2-2: Design Requirements for the Warrior in Transition Unit Complex facilities..... 8
Table 3-1: Existing (2008) Intersection LOS..... 19
Table 3-2: No Action - Intersection LOS..... 22
Table 3-3: No Action and Build Comparison Table (AM PEAK)..... 23
Table 3-4: 2015 No Action and Build Comparison Table (PM PEAK) 24
Table 3-5: National Ambient Air Quality Standards 25
Table 3-6: Significant Stationary Source Emissions in 2008 (Tons)..... 27
Table 3-7: Total Annual Emissions from the Proposed Action Using Building Boilers 28
Table 3-8: Total Annual Emissions from the Proposed Action Using the Steam Plant..... 29
Table 3-9: State Implementation Plan (SIP) Emission Inventories 29
Table 3-10: Common Sounds and Their Levels 30
Table 3-11: Typical Construction Noise Levels 32
Table 3-12: Soils Found at the 9th Street Site..... 34
Table 3-13: 303(d) Listed Waterbodies Downstream of Warrior in Transition Site 36
Table 3-14: Race and Ethnic Distribution for 2000 Census (Percent)..... 49
Table 3-15: 2007 Race and Ethnic Distribution Population Estimate (Percent)..... 49
Table 3-16: Median Income and Poverty Status for 1999 (2000 Census Data)..... 50
Table 3-17: Population Under 18 Years (2000)..... 51
Table 3-18: Population Under 18 Years (2007)..... 51
Table 3-19: Municipal Solid Waste at Warrior in Transition Unit Complex..... 59

LIST OF FIGURES

Figure 2-1: Regional Location of Fort Belvoir 7
Figure 2-2: Proposed Project Site at 9th Street 9
Figure 2-3: Alternative Sites..... 13
Figure 3-1: Fort Belvoir Intersections Evaluated for Level of Service..... 20
Figure 3-2: Water Resources in the Study Area..... 37

LIST OF APPENDICES

APPENDIX A: STATUTES AND EXECUTIVE ORDERS.
APPENDIX B: AGENCY COORDINATION
APPENDIX C: TRANSPORTATION ANALYSIS
APPENDIX D: AIR CONFORMITY APPLICABILITY ANALYSIS
APPENDIX E: ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL
APPENDIX F: AGENCY COMMENTS ON DRAFT EA

THIS PAGE INTENTIONALLY LEFT BLANK

INTRODUCTION

What is the purpose of this document?

This environmental assessment (EA) evaluates the impacts related to providing a Warrior in Transition Unit Complex at Fort Belvoir, Virginia. Actions include construction and operation of barracks to house 288 soldiers recovering from war injuries and supporting organizational and administrative facilities, including unit headquarters and a Soldier and Family Assistance Center (SFAC) to assist both soldiers housed in the barracks and additional recovering soldiers residing off post. This action adds needed facilities to support the injured soldiers' healing process and minimize the time required for them to transition back to active status or civilian life.

> The ***mission*** of a Warrior in Transition Unit is to provide an environment where injured soldiers can focus on recovery, thereby facilitating a soldier's smooth transition back to military duty or civilian life.
>
> The ***vision*** of Warrior in Transition Unit is to develop and implement an aesthetically pleasing campus of consolidated facilities that provide an environment of convenience and support, and promote healing, rehabilitation, and transition back to active military duty or to civilian life for the Warrior in Transition and his/ her family.

This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (Title 42, U.S. Code [USC], 4321-4370f), regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508) and CFR Chapter V Part 651 to inform decision makers and the public of the likely environmental consequences of the proposed action. The information presented within this document serves as the basis for deciding whether the implementation of the proposed action would result in a significant impact to the environment, require the preparation of an Environmental Impact Statement (EIS), or that no significant impacts would occur, and therefore a Finding of No Significant Impact (FNSI) would be appropriate.

This EA identifies, documents, and evaluates environmental effects of implementing the Warrior in Transition Unit Complex at Fort Belvoir. Environmental effects of this implementation include those related to construction and operation of the proposed action. An interdisciplinary team has analyzed the proposed action in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action.

Chapter 2 describes the proposed action and the No Action (No Build) Alternative. The natural conditions existing as of 2009 are considered to be the "baseline" conditions; traffic and utilities projected for the authorized 2005 Base Realignment and Closure (BRAC) projects, including the new Community Hospital, are also considered to be part of the baseline. Chapter 3, Environmental Impacts: A Comparison Between Alternatives, describes these baseline conditions. Chapter 3 also identifies the expected effects of the proposed action and the potential for cumulative impacts, with minimizing measures where appropriate. Chapter 4 presents the findings and conclusions.

A decision on whether to proceed with the proposed action rests on numerous factors such as mission requirements, availability of funding, and environmental considerations. In addressing environmental considerations, the Army is guided by relevant statutes (and their implementing regulations) and Executive Orders that establish standards and provide guidance on environmental and natural resources management and planning. Relevant statutes and Executive Orders are found in Appendix A.

In what ways is the public involved with the NEPA process?

The Army invites public participation in its NEPA process. Consideration of the views and information of all interested persons 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.

The EA will be circulated as a draft to interested federal, state, and local agencies to provide an opportunity for those agencies to comment. The Army will publish a Notice of Availability (NOA) in newspapers, announcing that the draft EA is available for public review, so that the public similarly has an opportunity to comment.

1.0 PURPOSE AND NEED FOR THE PROJECT

1.1 What is the purpose of the project?

The purpose of the project is to provide adequate facilities for soldiers being treated at the Fort Belvoir Community Hospital or other area medical facilities whose injuries require an extended recovery/transition period before the soldiers can be returned to their unit or released to civilian life. Providing quality care for the Nation's wounded warriors recovering from their war injuries has become a national priority and the Army has designed standard facilities within a standard organization with necessary medical and administrative assistance to carry out this important mission. Such facilities are referred to as a Warrior in Transition Unit Complex.

1.2 Why does the Army need a Warrior in Transition Unit Complex at Fort Belvoir?

Appropriate Warrior in Transition Unit facilities for soldiers who will receive care at the Fort Belvoir Community Hospital or other area medical facilities do not currently exist at Fort Belvoir. Fort Belvoir personnel and social service activities supporting soldiers and their families are located in at least five different buildings on post. This causes customers to travel to several different locations to receive required services and has a negative impact, especially on in-and out-processing soldiers. Three of the buildings currently in use are inadequate in configuration, as they were converted from other uses. Building 1001, which was constructed in 1945 is old and has inefficient HVAC and utilities systems that fail frequently. Space is inadequate to support required Army Community Services (ACS) programs, which includes services for wounded soldiers under the Warrior in Transition program. In order to provide customer-demanded programs, the ACS staff is currently using hallways and storage rooms for offices and administrative functions. This compromises client confidentiality and also poses safety and fire hazards as means of egress are restricted.

> A ***Warrior in Transition*** is a medical hold-over, active-duty medical extension, medical hold, and any other active-duty Soldier who requires a Medical Evaluation Board or has complex medical needs requiring six months or more of treatment or rehabilitation. Initial-Entry-Training (IET) Soldiers are eligible only if they require a Medical Evaluation Board or if deemed appropriate by the local Medical Command Commander and the IET Soldier's Commander (Army, No date).
>
> A Soldier's mission while assigned to a Warrior in Transition Unit is to heal. Soldiers assigned to a Warrior in Transition Unit may have work assignments in the unit, but such work may not take precedence over the Soldier's therapy and treatment. Unit Commanders must clear actions under the Uniform Code of Military Justice, other legal actions, investigations, property or hand receipt issues, and line-of-duty determinations before the Soldier's transfer to the Warrior in Transition Unit (Army, No date).

Adequate new facilities that meet current standards for the care of warriors in transition are needed at Fort Belvoir to implement this national priority to care for those injured in defending their country.

THIS PAGE INTENTIONALLY LEFT BLANK

2.0 DESCRIPTION OF THE PROPOSED ACTION & ALTERNATIVES

2.1 What is the Army's proposed action?

The Army's proposed action is to construct and operate a Warrior in Transition Unit Complex north of 9th Street on the former South Post golf course. The proposed action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of two companies of Warriors in Transition and a Soldier and Family Assistance Center (SFAC) that would assist both soldiers housed at the Warrior in Transition Unit complex and additional recovering soldiers residing off post.

2.2 What would the Warrior in Transition Unit Complex include?

The Warrior in Transition Unit Complex would be constructed using standard Warrior in Transition designs. The primary facilities are shown in table 2-1:

Table 2-1: Proposed Facilities for the Warrior in Transition Unit Complex

Facility	Approximate Size (square feet)	Description
Warrior in Transition Barracks	194,400 SF	• Two 4-story barracks • 144 two-person room modules (housing 288 persons total) each containing two bedrooms, two bathrooms, two closets, and a shared living room and kitchen including laundry appliances. • A lobby • multi-purpose room • public restrooms • storage • space for a charge of quarters (CQ) station in each barracks.
SFAC	15,000 SF	• One-story SFAC to provide information, guidance, and assistance in solving problems of a personal nature for military personnel and their dependents. • Provide assistance on career counseling, emergency leave, family advocacy, grant, handicapped children, housing, insurance, legal matters, loans, military separation, passports, personal financial management, retirement, social work services, transportation, and voting. • Space may be used as a Family Resource Center to serve as a nonreligious meeting point for spouses of deployed soldiers and/or a Women, Infant and Children (WIC) office.
Warrior in Transition Administration and Operations facility.	31,000 SF	• A combined company and battalion headquarters facility to provide office space for the unit leaders (battalion and company commanders, platoon sergeants, and squad leaders), offices for case managers and social workers, and other occupational specialties such as administration, communications and chaplain.

In addition to the primary facilities mentioned in Table 2-1 above, the Warrior in Transition Unit Complex would include construction of new access roads to Warrior in Transition Unit Complex parking and the new Community Hospital via the new 6th Street and 9th Street. New parking for the Warrior in Transition Unit Complex would include 412 spaces (202 for barracks population, 36 for SFAC, 137 for

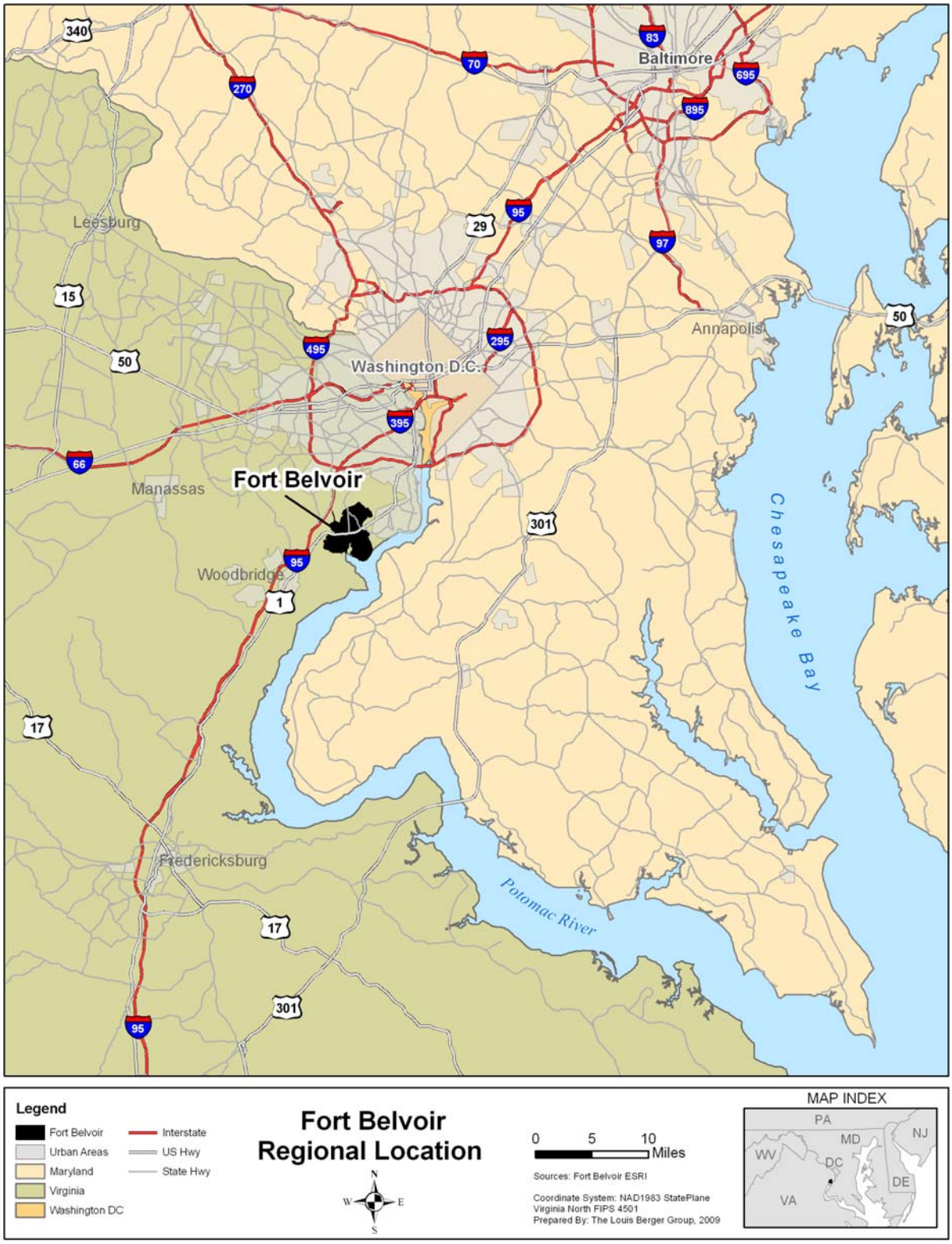
Administration, and 37 for off-site Warrior in Transition population), totaling approximately 4.0 acres of surface parking. Included in the 412 spaces are 29 visitor and 8 handicap spaces.

The project would incorporate sustainable design and construction principles. The final project would be required to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating. The construction effort and supporting facilities include site work, all necessary utilities, lighting, information systems, parking, sidewalks, roads, curbs and gutters, storm drainage, site accessories, landscaping, furnishings, and other site improvements. The facilities would be designed and constructed to meet Anti-terrorism/Force Protection (AT/FP) standards, to include minimum standoff distances, bollards, area lighting and barrier landscaping. Access for individuals with disabilities would be provided under the standards of the Architectural Barriers Act of 1968.

2.3 Why is the Warrior in Transition Unit Complex being located at Fort Belvoir?

Figure 2-1 shows the location of Fort Belvoir. Hospital facilities on Fort Belvoir, including the new Community Hospital, provide regional primary and secondary medical care to soldiers returning with injuries from service overseas, as well as from elsewhere. The medical care mission at Fort Belvoir includes absorbing the primary and secondary care mission previously provided by Walter Reed Army Medical Center (WRAMC). A percentage of these soldiers require long-term rehabilitation or care. There are currently no facilities on or in proximity to Fort Belvoir that can adequately provide the required services for the soldiers who require long-term rehabilitation or for their families.

Figure 2-1: Regional Location of Fort Belvoir



These new facilities at Fort Belvoir would provide soldiers who are Warriors in Transition, their Cadre Support Units, and family members adequate facilities from which to operate in order to maximize the soldiers healing process and minimize the time required for them to transition back to active status or civilian life.

2.4 What are the criteria for the proposed construction?

The proposed Warrior in Transition Unit Complex facilities would comply with standard military design requirements for a Warrior in Transition Unit Complex (Table 2-2). Additionally, the construction would meet standard building codes related to construction, life safety, fire protection, and Antiterrorism/Force Protection (AT/FP).

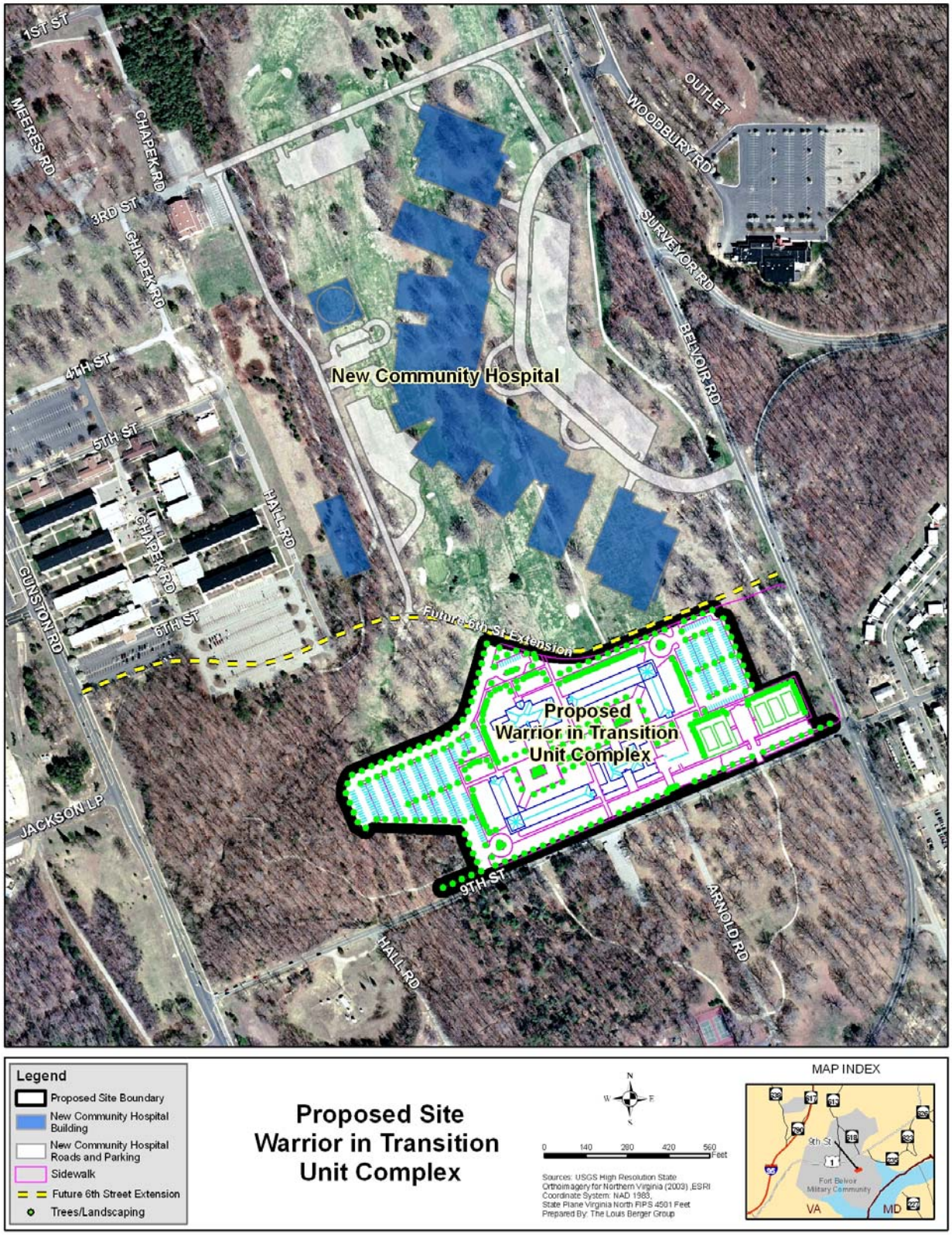
Table 2-2: Design Requirements for the Warrior in Transition Unit Complex facilities

Barracks	• Army Standard allows a max. of 750 Gross Square Feet(GSF) / person; Current Design/ Program ~ 675 GSF / person • Modular Dormitory Room Design Mandatory • Lobby and Multi-Purpose Room • Charge of Quarters (CQ) Desk, Elevators, & Support Facilities
SFAC	• Large SFAC= 15,000 GSF (~180'x 82', excluding playground) ▪ Child Activity Area ▪ Outdoor Playground ▪ Indoor Activity Area • Lobby & Support Areas ▪ Reception Area, Nourishment Center ▪ Multi-Purpose Room
Organization/Administrative Offices	Efficient circulation and privacy for case managers, specialists, and leaders
Parking	• 1 space for 70% of barracks population (202 spaces) • 36 spaces for a large SFAC (includes 3 handicap and 9 visitors) • 1 space per 30% of the off-site Warrior in Transition population (412 – 288 = 124 personnel = 37 spaces) • Admin: 137 spaces (includes 5 handicap and 20 visitors)

2.5 What are the plans for the Proposed Project Site?

The proposed action is to site the Warrior in Transition Unit Complex at the 9th Street Site. Under the proposed action, the new Warrior in Transition Unit Complex would be located on South Post at a 16.6-acre site on the corner of Belvoir Road and 9th Street. Siting of the new Warrior in Transition Unit Complex would co-locate the facilities with the new Community Hospital, where Warriors in Transition would receive follow on medical appointments and care, and have use of its dining facilities. The layout of the proposed project site is shown in Figure 2-2.

Figure 2-2: Proposed Project Site at 9th Street



2.6 How would the project affect neighboring properties?

The proposed project site is adjacent to the new Community Hospital (under construction) on the former South Post Golf Course, north of 9th Street. The project site is separated by a two-lane roadway that would provide access from the major Fort Belvoir circulation roads – Belvoir Road and Gunston Road – to the Community Hospital and Warrior in Transition Unit Complex. The project is compatible with the buildout of the former golf course, which is now devoted to medical care. Existing tennis courts will remain for use along with the existing Grill Restaurant located on the north side of 9th Street. Residential housing nearby includes Colyer across Belvoir Road and Herryford and Vernondale Villages across 9th Street from the site.

2.7 What does the Army need to do to construct the Warrior in Transition Unit Complex facilities?

The exact requirements of the facilities would depend on final design for the proposed action, but construction at the proposed site would require: clearing and grading to prepare the site; excavating and trenching to lay potable water, sanitary sewer, telephone, electric, and other utility lines; and construction of the buildings and other structures. Heavy machinery would be needed for the grading and construction, as well as heavy trucks to deliver machinery and construction materials, and to haul away debris and excess materials. Construction would require laying approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. The Army would need to remove approximately 0.4 acres of old road pavement at the proposed site in the former golf course area, and one building (the golf course maintenance building, Building 1493) to make way for Warrior in Transition Unit Complex facilities. Impacts of these actions are described and analyzed in Chapter 3

2.8 What would be involved in the operation of the Warrior in Transition Unit Complex?

Operation of the Warrior in Transition Unit Complex would include 288 soldiers residing at Warrior in Transition Barracks, an estimated 160 staff working at the SFAC or staffing the Administrative Facility, and 124 warriors residing off-post who will come into Fort Belvoir for formations and care several times each week from off-post.

The 160 people staffing the SFAC and Administrative Facility is a conservative estimate based on the proposed SF of the two buildings and used in the traffic analysis; however, Fort Belvoir planners estimate that the numbers would be closer to 24 people staffing the SFAC and 106 for the Administrative Facility. Employees to new parking would be 24 people/36 parking spaces (including 24 employees, 3 handicap and 9 visitors) for the SFAC and 106 people/137 parking spaces (106 employees, 5 handicap, and 20 visitors). The parking ratio for employees is 1:1.

These employees would commute to and from the site each day, as would a number of family members and other visitors. The Warrior in Transition Unit Complex would focus on the soldiers and their family, ensuring all administrative, medical, and rehabilitative care is efficiently provided in a quality environment either on site or in the adjacent Community Hospital.

2.9 When would the Warrior in Transition Unit Complex be built, and how long would it take?

Construction of the Warrior in Transition Unit Complex is scheduled to begin in early 2010. It will take approximately 15 months to complete construction of the facilities. Operation of the new facilities is expected in 2011.

2.10 Why do we consider a "No Action/No Build" Alternative?

The Council on Environmental Quality regulations requires inclusion of the No Action Alternative (also referred to as the No Build Alternative). This is because the No Action Alternative serves as a baseline against which the impacts of the proposed action and alternatives can be evaluated.

Under the No Action Alternative, Fort Belvoir would not implement the proposed action. The Warrior in Transition Unit Complex would not be constructed and the two companies and battalion headquarters of Warrior in Transition would use its current inventory of facilities. The No Action Alternative is evaluated in detail in this EA.

2.11 What criteria were used to select the proposed site?

A primary consideration in the site selection was to provide a location as close to the new Community Hospital as possible, to facilitate easy passage back and forth between the Warrior in Transition Unit Complex and the hospital for both medical care and potential use of the dining facilities. Safety was a major consideration as the need to cross a major thoroughfare was avoided. A second criterion was to avoid environmental resources to the maximum extent feasible, while meeting the mission requirements for the wounded warriors.

The proposed Warrior in Transition Unit Complex site was located near the new Community Hospital so that the facilities can support mission goals and objectives as efficiently and effectively as possible, while avoiding environmental resources.

2.12 Did environmental factors affect the selection of sites or project designs?

Environmental factors did affect the selection of the sites. Natural and man-mad constraints were factored into the project designs.

The proposed layout provides the required facilities cloistered as close as Anti-terrorism/Force Protection (AT/FP) allows to avoid sensitive natural resources. The concept also employs two barracks to keep the resulting structures at no more than four stories for scenic considerations. Natural resources thus avoided include:

- Resource Protection Areas (RPAs).
- Wetland Areas.
- Riparian areas with low impact development (LID) strategies employed for any development.
- Development on steep slopes.
- Partner-in-Flight (PIF) Areas

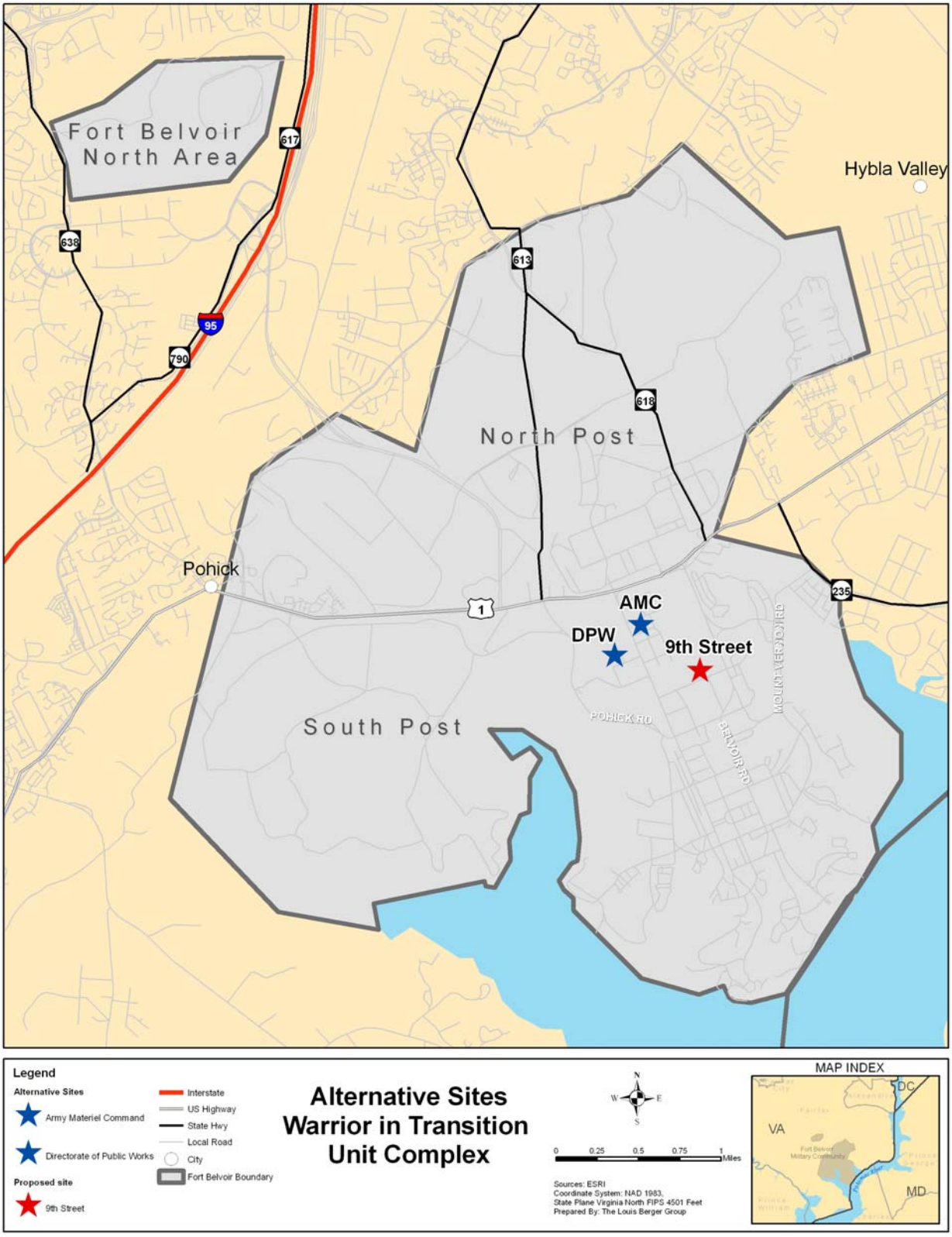
2.13 What other alternatives were considered for the Warrior in Transition Unit Complex, but were dismissed?

Other alternative sites were considered for the Warrior in Transition Unit Complex, including the Army Materiel Command (AMC) site and the Directorate of Public Works site, see Figure 2-3.

Army Materiel Command (AMC) Site – Under this alternative, the Warrior in Transition Unit Complex would be constructed in the open space located in front of the existing Army Materiel Command (AMC) Headquarters Building located between 3rd and 4th Street, on the east side of Gunston Road. This site was initially considered but dismissed. It is not as close to the Community Hospital as the proposed site; expansion for future growth is limited and it does not have adequate space without encroachment on sensitive natural resources.

Directorate of Public Works (DPW) site – This alternative site is the current location of the installation's Directorate of Public Works, Building 1442. It is located on the west side of Gunston Road, north of Jackson Loop Road. This site was dismissed as an alternative site due to its greater distance and the fact that pedestrians would have to cross over a major roadway (Gunston Road) in order to access the new Community Hospital from the Warrior in Transition Unit Complex.

Figure 2-3: Alternative Sites



THIS PAGE INTENTIONALLY LEFT BLANK

3.0 ENVIRONMENTAL IMPACTS: A COMPARISON BETWEEN ALTERNATIVES

Will the project have environmental impacts?

Yes, implementation of the proposed action would have environmental impacts related to construction and operation of the Warrior in Transition Unit Complex. This section describes the current environmental and socioeconomic conditions of the areas that would be affected should the proposed action be implemented and the analysis of potential effects arising from the implementation of the proposed action.

3.1 Land Use, Plans, and Coastal Zone Management

3.1.1 What is our study area for this analysis?

The study area for this analysis includes Fort Belvoir and the surrounding area of Fairfax County.

3.1.2 What are the current land uses in the study area?

Fort Belvoir is located in Fairfax County, Virginia, approximately 15 miles south of Washington D.C. The area around the installation is densely populated with predominantly urban land uses and residential development. Fairfax County is bordered by Arlington County and the City of Alexandria to the north, Prince William County to the south, the Potomac River to the east, and Loudoun County to the west.

The installation occupies approximately 8,600 acres and consists of five general areas – North Post (2,400 acres), South Post (2,720 acres), Southwest Area (1,900 acres), and Davison Army Airfield (740 acres) – together known as Main Post – and the Fort Belvoir North Area (formerly known as the Engineer Proving Ground) (807 acres) (USACE, 2007a). The South Post is the most developed portion of the installation, and houses the garrison headquarters, administrative facilities, warehouses, housing areas, and new community medical facility.

Current land use designations on post include airfield, community, industrial, professional/institutional, residential, training, and troop (USACE, 2007a). In support of its mission, the Fort Belvoir 1993 land use plan was updated and land uses on the installation re-designated to fewer but broader land use categories that encompass compatible land uses (USACE, 2007a). The land use update to align with Army Regulation 210-20, which mandates changes to the land use categories in installation Real Property Master Plans (RPMPs) was completed in the 2007 *Final Environmental Impact Statement (FEIS) for Implementation of the 2005 Base Realignment and Closure Recommendations and Related Army Actions at Fort Belvoir, Virginia* (USACE, 2007a). The 1993 land use categories included administration & education, airfield, community facility, environmentally sensitive, family housing, industrial, medical, training ranges, supply storage & maintenance, research & development, outdoor recreation, and troop housing (USACE, 2007a).

3.1.3 What are the current uses at and next to the proposed project site?

The proposed site for the Warrior in Transition Unit Complex is at the intersection of Belvoir Road and 9th Street on South Post in an area currently designated as community. The planned future land use of this site under the updated land use plan is professional/institution (USACE, 2007a).

Current land uses in areas adjacent to the proposed project site include community, residential, (Herryford, Colyer, and Vernondale Villages) and professional/institutional (USACE, 2007a).

3.1.4 What comprehensive plan currently guides land use decisions at Fort Belvoir?

Land use development on Fort Belvoir is guided by the 1993 land use plan and a 2002 update of the installation's RPMP. The 1993 land use plan consists of four elements: the RPMP Long Range Component (LRC) – 1993; the RPMP Short Range Component 1993-2000; a Capital Investment Strategy; and a Mobilization Mission Planning Component. The 1993 Real Property Master Plan was revised in 2002 to include the Regional Community Support Center Subarea Development Plan, which addressed the addition of the Regional Community Support Center on Lower North Post. The 2002 Subarea Plan recommended the relocation of the Dewitt Hospital to the Regional Community Support Center, the expansion of the Post Exchange, and the development of a chapel (USACE, 2007a).

In response to the 2005 Base Realignment and Closure (BRAC) actions, as recommended by the Base Closure and Realignment Commission, the Army updated the Fort Belvoir RPMP – LRC to comply with AR 210-20, *Real Property Master Planning for Army Installations*. The BRAC realignment actions involved construction and renovation actions to accommodate relocating units, agencies, and activities (USACE, 2007a). The 2007 *Final Environmental Impact Statement (FEIS) for Implementation of the 2005 Base Realignment and Closure Recommendations and Related Army Actions at Fort Belvoir, Virginia* (USACE, 2007a) addressed the BRAC realignment actions at Fort Belvoir and the updates to the installation's RPMP – LRC.

3.1.5 What other land use planning standards or restrictions apply?

Fort Belvoir is a federal agency within the jurisdiction of the National Capital Region. Fort Belvoir land use planning actions are subject to review by the National Capital Planning Commission (NCPC). Fort Belvoir is also subject to the provisions of the Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451 et seq), as amended through the Coastal Zone Protection Act of 1996, which requires federal agencies to review its actions for impacts on coastal resources and for consistency with the enforceable provisions of the state's Coastal Resources Management Program.

National Capital Planning Commission (NCPC)

The NCPC provides planning guidance for federal land and building in the National Capital Region through its document: *Comprehensive Plan for the National Capital: Federal Elements (NCPC, 2004)*. The three guiding principles of the *Comprehensive Plan for the National Capital: Federal Elements* are:

1. accommodating federal and national capital activities, while accounting for the changing impact of the federal government in the region;
2. reinforcing smarter, more coordinated growth and sustainable development principles; and
3. supporting coordination with local and regional governments in the National Capital Region to promote mutual planning and development objectives (NCPC, 2004).

> The ***National Capital Region*** includes Washington D.C., Montgomery and Prince George's Counties, Maryland, and Arlington, Fairfax, Loudoun, Prince William Counties, and the City of Alexandria, Falls Church, and Manassas, Virginia

When planning federal projects, the federal agency should consider, as applicable, the seven Federal Elements outlined under the Comprehensive Plan – Federal Workplace: Location, Impact, and the Community; Foreign Missions and International Organizations; Transportation; Parks and Open Space; Federal Environment; Preservation and Historic Features; and Visitors (NCPC, 2004).

The proposed Warrior in Transition Unit Complex will be evaluated against all Federal Elements of the Comprehensive Plan for the National Capital in particular the Federal Workplace, the Transportation, and the Federal Environment Elements. The Federal Workplace Element covers policies that address Locating Federal Workplaces and Development of Workplaces with Communities. In conjunction with the Federal Workplace Element, the Transportation Element focuses on maximizing federal employees' and facilities' access to the region's extensive transit system. The Federal Environment element provides an overall

framework from which the Commission and others can evaluate the environmental implications of federal projects, and facilitate coordinated management of environmental resources among. (NCPC, 2004).

Coastal Zone Management

Virginia's Coastal Resources Management Program (VCRMP) is a network of existing state laws and policies through which the state manages impacts to coastal primary sand dunes, wetlands, submerged lands, fisheries, and coastal lands. In addition, the state evaluates and, where applicable, regulates potential air, water, and shoreline sanitation impacts associated with a proposed action.

Pursuant to Section 307 of CZMA, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930, the Army has submitted a Federal Consistency Determination for the proposed construction of the Warrior in Transition Unit Complex at Fort Belvoir to the Virginia Department of Environmental Quality (VDEQ), the lead agency for Virginia's Coastal Resources Management Program for evaluation (Federal Consistency Determination, Appendix B).

3.1.6 How would the project affect land uses at the proposed project site?

Implementation of the Warrior in Transition Unit Complex project would result in minor impacts to land use at Fort Belvoir. The former South Post golf course is now devoted to medical care, as directed under the updated RPMP, with construction of the new Community Hospital and siting of the proposed Warrior in Transition Unit Complex. The Army would clear approximately 16 acres of the former golf course and demolish the golf course maintenance building to make room for the Warrior in Transition Unit Complex. Golfers will still be able to utilize the golf course on North Post.

3.1.7 Is the proposed use consistent with the Fort Belvoir Real Property Master Plan (RPMP) designated land uses at the site?

Implementation of the Warrior in Transition Unit Complex at the proposed site on 9th Street is consistent with the Fort Belvoir RPMP and its planned designated land use for the site. The planned land use for this area is professional/institutional. Furthermore, the 9th Street site collocates the development of the Warrior in Transition Unit Complex with the new Community Hospital, where Warriors in Transition would receive follow on medical appointments and care, and have use of its dining facilities.

3.1.8 Is the proposed use consistent with the National Capital Planning Commission (NCPC) Comprehensive Plan?

The proposed action is consistent with the NCPC Comprehensive Plan. Locating the Warrior in Transition Unit Complex on Fort Belvoir is consistent with the special training land use type designation identified under Regional Distribution of Federal Workplaces outlined in Locating Federal Workplaces.

Additionally, the proposed action to construct the Warrior in Transition Unit Complex would adhere to policies regarding building and development codes, energy efficiency, working environment, and physical security. The new complex would incorporate sustainable design and construction to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating. Security measures would meet Anti-terrorism/Force Protection (AT/FP) requirements identified in Fort Belvoir's Installation Design Guide (PBS&J, 2007).

3.1.9 Is the proposed use consistent with the Coastal Resources Management Plan policies?

Yes, the proposed Warrior in Transition Unit Complex would be consistent with Virginia's Coastal Resources Management Policies. A Federal Consistency Determination was submitted to VDEQ, Virginia's Coastal Resources Management Program, to gain VDEQ's concurrence that implementation of the Warrior in Transition Unit Complex at the proposed site at 9th Street is consistent with the enforceable provisions of the State's coastal zone program. VDEQ concurred with the Army's consistency determination that the proposed activity would have no effect on the following enforceable policies: fisheries management, subaqueous lands management, dunes management, point source pollution control,

and shoreline sanitation. Complete results of this coordination, including recommendations from VDEQ, which will be followed by Fort Belvoir, are found in Appendix B.

3.1.10 How would project construction affect land uses of other properties in the immediate vicinity?

Construction of the Warrior in Transition Unit Complex would not have impacts to other properties in the immediate vicinity. All components of the proposed action are slated to take place within the limits of the proposed site at 9th Street and would not affect adjacent lands.

Additionally, no impacts would be expected to lands adjacent to Fort Belvoir in Fairfax County. All components of the proposed project are slated to take place on Fort Belvoir proper and therefore would not affect adjacent lands.

3.1.11 What does Fort Belvoir plan to do to avoid or minimize negative effects?

No impacts to land use are expected as a result of implementation of the proposed action; therefore, no mitigation measures would be necessary. However, even though adjacent land uses are compatible, Fort Belvoir has limited the proposed building height to four stories to transition between housing community and the hospital complex. Landscaping transitional buffer on the housing community side is also proposed between these land uses.

3.1.12 What effect would the No Action Alternative have on land use at or next to Fort Belvoir?

No adverse effects would be expected to land use as a result of the No Action Alternative. Under the No Action Alternative, Fort Belvoir would not construct the proposed Warrior in Transition Unit Complex; however, on-post land uses would still be re-designated as part of the future land use plan updates. The Warrior in Transition Unit presently assigned to Fort Belvoir would continue to utilize existing facilities.

3.2 Transportation and Traffic

3.2.1 What is the current traffic situation?

A total of 13 intersections were included as part of the study area traffic network. Three of these intersections do not currently exist and would only be analyzed for future conditions. Therefore, detailed capacity analyses were conducted at the remaining 10 key intersections during daily weekday a.m. and p.m. peak operating conditions for the Existing Conditions in 2008. Capacity analysis for all conditions analyzed in the EA (Existing, No Action, and Build) was conducted using the *Synchro* software package. Level of service (LOS) for signalized and unsignalized intersections is based upon delays as shown in the charts to the right. LOS A-D is normally considered acceptable. LOS E is marginal to unacceptable and LOS F is unacceptable.

Signalized LOS	Control Delay per Vehicle (Seconds Per Vehicle)
A	≤ 10
B	> 10 to 20
C	> 20 to 35
D	> 35 to 55
E	> 55 to 80
F	> 80

Source: HCM, 2000.

Unsignalized LOS	Control Delay per Vehicle (Seconds Per Vehicle)
A	≤ 10
B	>10 to 15
C	>15 to 25
D	>25 to 35
E	>35 to 50
F	>50

Source: HCM, 2000.

The results of the capacity analyses for the weekday a.m. and p.m. peak hours for the Existing Conditions are summarized in Table 3-1, with the corresponding intersections displayed in Figure 3-1. Based upon the results, most intersections operate at an acceptable Level of Service (LOS) D or better during the weekday a.m. and p.m. peak hours. Four intersections operate at LOS F during the a.m. peak hour and three intersections operate at LOS F during the p.m. peak hour.

Table 3-1: Existing (2008) Intersection LOS

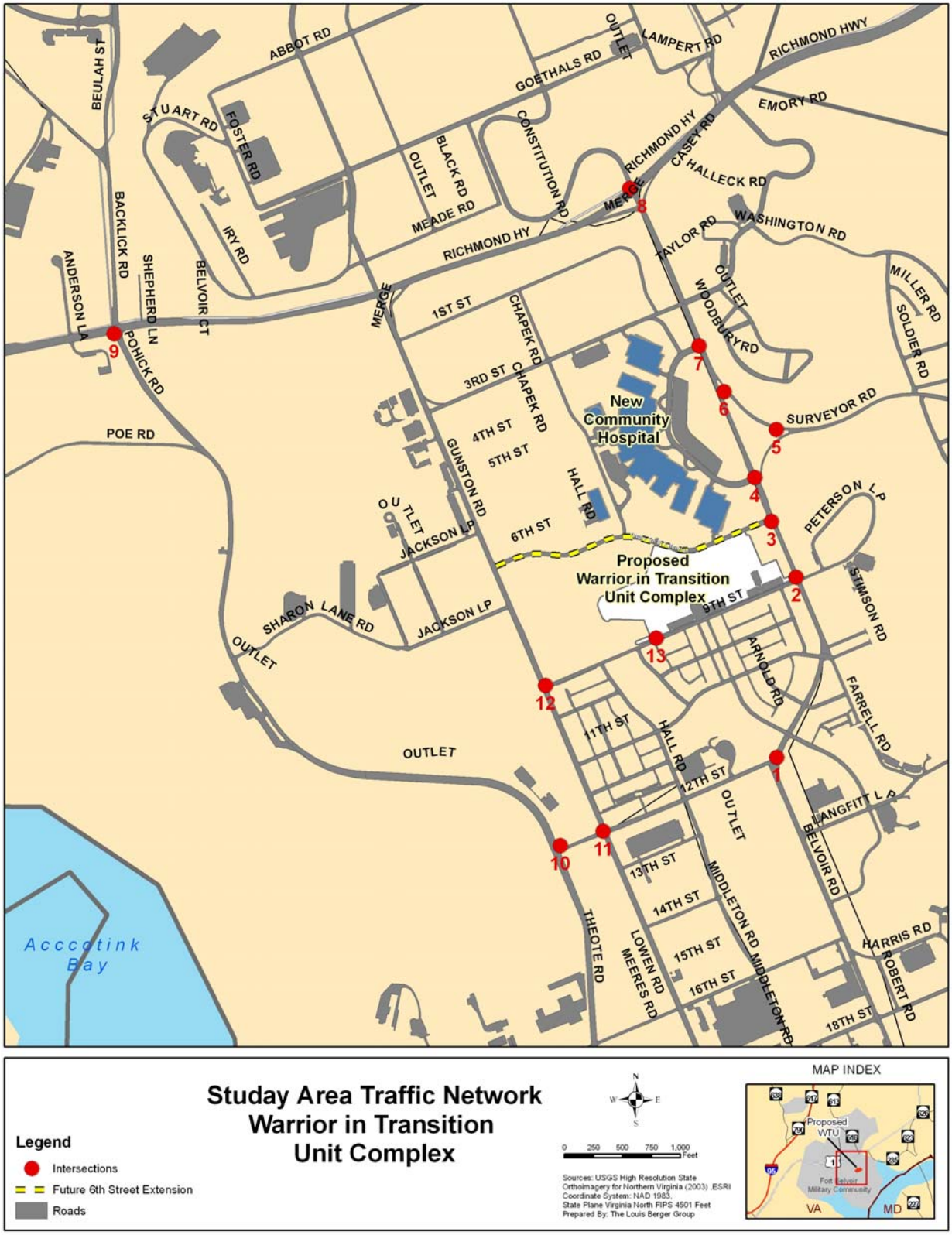
Intersection	Intersection	Type	Existing Conditions	
			AM Peak LOS (seconds delay)	PM Peak LOS (seconds delay)
1	12th Street & Belvoir Road.	Signalized	B	C
2	Belvoir Road & 9th Street	Signalized	F (420.9)	F (154.6)
3	Belvoir Road & 6th Street	Unsignalized	N/A	N/A
4	Belvoir Road & Hospital Drive	N/A	N/A	N/A
5	Surveyor Road Triangle	Unsignalized	A	A
6	Belvoir Road & Surveyor Road	Unsignalized	D	C
7	Belvoir Road & Dental Clinic	N/A	N/A	N/A
8	Belvoir Road & Richmond Hwy (Rte 1)	Signalized	F (103.0)	F (92.6)
9	Pohick Road & Richmond Hwy (Rte 1)	Signalized	F (118.3)	F (268.0)
10	Pohick Road & Theote Road	Signalized	B	B
11	Gunston Road & 12th Street	Signalized	D	D
12	Gunston Road & 9th Street	Signalized	F (637.0)	C
13	9th Street & WTU Drive	N/A	N/A	N/A

Notes: Source LBG 2009 Analysis, with data provided by PBS&J; seconds of delay is provided for LOS E and F
N/A – Intersection currently does not exist

3.2.2 Are there safety concerns in the study area?

A primary consideration in the site selection was to provide a location as close to the new Community Hospital as possible. This would facilitate easy passage back and forth between the Warrior in Transition Unit Complex and the hospital for both medical care and potential use of the dining facilities. Avoiding the need for warriors to cross a major thoroughfare to access the Community Hospital was also a major objective for reasons of both safety and convenience for the warriors. It is not anticipated that traffic volumes would be very high on 6th Street between Gunston Road and Belvoir Road, which would be the street that would be crossed by pedestrians walking between the Warrior in Transition Unit Complex and the hospital. A signalized pedestrian crossing across 6th Street between the Warrior in Transition Unit Complex and the hospital will be constructed.

Figure 3-1: Fort Belvoir Intersections Evaluated for Level of Service



3.2.3 What mass transit service is available in the study area?

Rail stations are not located in the immediate vicinity of the proposed Warrior in Transition Unit Complex site. The closest Washington D.C. Metro rail station to the proposed project is the Franconia-Springfield station, which is located approximately 7 miles to the northwest near the Fairfax County Parkway/I-95 interchange. This station is served by the Metro Blue Line and the Fredericksburg Branch of the Virginia Railway Express (VRE) regional commuter railroad. Located along Route 1 approximately 8 miles northeast of the project, the Huntington Station is served by the Metro Yellow Line. The Eisenhower Avenue Station is located along Route 241 approximately 9 miles northeast of the project. This station is also served by the Metro Yellow Line. The King Street Station in Old Town Alexandria is located approximately 10 miles northeast of the project. This station is served by the Manassas Branch and Fredericksburg Branch of the VRE and the Metro Blue and Yellow Lines. The closest VRE station to the proposed project is the Lorton VRE Station, located slightly more than 4 miles by roadway to the west near the intersection of I-95 and Lorton Road.

The Richmond Highway Express (REX) bus route operates between Fort Belvoir and Alexandria serving the project site. This route enters Fort Belvoir through the Pence Gate where passenger IDs are checked by a Fort Belvoir guard before the bus is allowed to enter the post. This route serves most of the South Post including stops on Belvoir Road, 16th Street, and Gunston Road. The REX serves both the Huntington and the King Street Metro Stations along its route. Fairfax County also operates a Fairfax Connector Bus Route, Richmond Highway Line 171 that passes by the Pence Gate on its route operated between the Huntington Station and the Franconia-Springfield Station.

3.2.4 How are future traffic volumes for the No Action Condition determined?

In order to project the future 2011 No Action Condition a.m. and p.m. peak hour traffic volumes, the 2008 Existing Condition a.m. and p.m. traffic volumes were increased by the trips generated by background projects considered in the study area in the future as part of the Fort Belvoir Transportation Management Plan. The projects used are listed in Appendix C. Although the site is expected to open in 2011, background projects contemplated in the *Fort Belvoir Transportation Management Plan* projected to 2015 were used to develop the 2011 No Action Condition traffic volumes. Since it is unclear at this point which of these 33 projects would be on line in 2011, a conservative approach for the analysis was used and all projects were included in the analysis for 2011.

3.2.5 Would the No Action Condition cause any impacts to transportation and traffic?

Detailed capacity analyses were conducted at the 13 key intersections during weekday a.m. and p.m. peak operating conditions for the No Action Alternative. In order to project future 2011 No Action Condition a.m. and p.m. peak hour traffic volumes, the 2008 Existing Condition a.m. and p.m. traffic volumes were increased by the trips generated by background projects considered in the study area in the future as part of the *Fort Belvoir Transportation Management Plan*. In addition, several Future Fort Belvoir roadway improvement projects are included in the analysis:

- Widening of Gunston Road from one lane to two lanes in each direction between 12th Street and John J. Kingman Road
- Widening of Belvoir Road from one lane to two lanes in each direction between Route 1 and 12th Street
- Widening of Pohick Road from one lane to two lanes in each direction between Route 1 and 12th Street

The results of the capacity analyses for the weekday a.m. and p.m. peak hours for the No Action Alternative (2011) are summarized in Table 3-2. Based upon the results, two intersections are projected to operate at LOS E and three intersections are projected to operate at LOS F during the a.m. peak hour

without the proposed project. In addition, one intersection is projected to operate at LOS E and four intersections are projected to operate at LOS F during the p.m. peak hour without the proposed project.

Table 3-2: No Action - Intersection LOS

Intersection	Intersection	Type	No Action AM Peak LOS (seconds delay)	No Action PM Peak LOS (seconds delay)
1	12th Street & Belvoir Road.	Signalized	B	E (70.0)
2	Belvoir Road & 9th Street	Signalized	A	B
3	Belvoir Road & 6th Street	Unsignalized	D	D
4	Belvoir Road & Hospital Drive	Signalized	A	B
5	Surveyor Road Triangle	Unsignalized	A	A
6	Belvoir Road & Surveyor Road	Unsignalized	E (48.0)	F (166.0)
7	Belvoir Road & Dental Clinic	Signalized	A	A
8	Belvoir Road & Richmond Hwy (Rte 1)	Signalized	F (110.2)	F (87.7)
9	Pohick Road & Richmond Hwy (Rte 1)	Signalized	F (207.7)	F (336.5)
10	Pohick Road & Theote Road	Signalized	E (68.7)	C
11	Gunston Road & 12th Street	Signalized	F (190.7)	F (296.9)
12	Gunston Road & 9th Street	Signalized	B	B
13	9th Street & WTU Drive	Unsignalized	A	A

Notes: Source LBG 2009 Analysis, with data provided by PBS&J; delay value provided for LOS E and F

3.2.6 How would the proposed project affect future traffic volumes?

The existing Warrior in Transition Unit Complex is located to the east off of Belvoir Road to the south of 12th Street and the current SFAC is located further to the south on Belvoir Road. A total of 71 persons currently travel to the post during the a.m. peak hour and depart during the p.m. peak hour, based on assumptions presented in Appendix C.

For the proposed project, the Warrior in Transition Unit and SFAC would be combined into one site just to the south of the new Community Hospital between 9th Street, Belvoir Road, 6th Street, and Gunston Road. It is estimated that the facility would accommodate 412 warriors with 288 to be housed in the barracks and 124 would live off-post. A total of 238 persons are projected to travel to the post during the a.m. peak hour and depart during the p.m. peak hour based on the assumptions presented in Appendix C. Therefore, a net addition of 167 vehicles is projected to travel to the post during the a.m. peak hour and depart during the p.m. peak hour (238 persons projected less the 71 current persons).

Vehicles generated by the proposed action were assigned to the 13 key intersections in the study area based on the assignment for this facility used in the *Fort Belvoir Transportation Management Plan.* It is anticipated that vehicles would enter the site from both 6th and 9th Streets. The 71 current vehicles traveling to and from the Warrior in Transition Unit and SFAC sites south of 12th Street were reassigned to the proposed site. Appendix C provides maps that show the numbers of vehicles turning or passing through each of these intersections during a.m. and p.m. peak hours for the existing condition, no build condition (existing plus traffic from future projects excluding the proposed action), trips generated by the proposed action, and the resulting build condition (no build plus trip generation).

Construction traffic has also been estimated. During the projected 15-month construction period, daily commuting construction workers range between 40 and 75 each weekday; however, they would generally be expected to arrive and depart at other than peak hours. Between 25 and 50 daily construction vehicles would also be expected, but these would be spread through the day. Therefore, the analysis of peak hour commuter traffic during operation of the Warrior in Transition Unit Complex represents the more severe condition for assessing traffic impacts.

3.2.7 How would the proposed project affect transit?

It is anticipated that the Proposed Action would marginally increase transit ridership and would not have a material effect on transit operations in the area. In addition, the facility or traffic generated by the Proposed Action would not affect transit operations.

3.2.8 How will local surface streets operate in the future?

Detailed capacity analyses to determine Level of Service (LOS) were conducted at the 13 key intersections (shown in Figure 3-1) during weekday a.m. and p.m. peak operating hours. LOS A-D is normally considered acceptable. LOS E is marginal to unacceptable and LOS F is unacceptable. The results of the capacity analyses for the weekday a.m. and p.m. peak hours for the 2011 Build Condition are summarized in Tables 3-3 and 3-4, respectively, and compared to the No Action Condition previously presented in Table 3-2.

Table 3-3: No Action and Build Comparison Table (AM PEAK)

Intersection	Intersection	Type	No Action	Build
			AM Peak LOS (seconds delay)	AM Peak LOS (seconds delay)
1	12th Street & Belvoir Road.	Signalized	B	B
2	Belvoir Road & 9th Street	Signalized	A	A
3	Belvoir Road & 6th Street	Unsignalized	D	E (40.0)
4	Belvoir Road & Hospital Drive	Signalized	A	A
5	Surveyor Road Triangle	Unsignalized	A	A
6	Belvoir Road & Surveyor Road	Unsignalized	E (48.0)	F (69.0)
7	Belvoir Road & Dental Clinic	Signalized	A	A
8	Belvoir Road & Richmond Hwy (Rte 1)	Signalized	F (110.2)	F (115.2)
9	Pohick Road & Richmond Hwy (Rte 1)	Signalized	F (207.7)	F (218.0)
10	Pohick Road & Theote Road	Signalized	E (68.7)	E (76.3)
11	Gunston Road & 12th Street	Signalized	F (190.7)	F (187.1)
12	Gunston Road & 9th Street	Signalized	B	B
13	9th Street & WTU Drive	Unsignalized	A	A

Notes: Source LBG 2009 Analysis, with data provided by PBS&J; delay value provided for LOS E and F, impacted intersections are highlighted. Subsequent to analysis, decision was made to widen 9th Street. LOS results for unimproved 9th Street were acceptable; widening would likely improve results.

Table 3-4: 2015 No Action and Build Comparison Table (PM PEAK)

Intersection	Intersection	Type	No Action	Build
			PM Peak LOS (seconds delay)	PM Peak LOS (seconds delay)
1	12th Street & Belvoir Road.	Signalized	E (70.0)	E (72.7)
2	Belvoir Road & 9th Street	Signalized	B	B
3	Belvoir Road & 6th Street	Unsignalized	D	D
4	Belvoir Road & Hospital Drive	Signalized	B	B
5	Surveyor Road Triangle	Unsignalized	A	A
6	Belvoir Road & Surveyor Road	Unsignalized	F (166.0)	F (221.0)
7	Belvoir Road & Dental Clinic	Signalized	A	A
8	Belvoir Road & Richmond Hwy (Rte 1)	Signalized	F (87.7)	F (99.7)
9	Pohick Road & Richmond Hwy (Rte 1)	Signalized	F (336.5)	F (344.6)
10	Pohick Road & Theote Road	Signalized	C	C
11	Gunston Road & 12th Street	Signalized	F (296.9)	F (302.1)
12	Gunston Road & 9th Street	Signalized	B	C
13	9th Street & WTU Drive	Unsignalized	A	A

Notes: Source LBG 2009 Analysis, with data provided by PBS&J; delay value provided for LOS E and F, impacted intersections are highlighted. Subsequent to analysis, decision was made to widen 9th Street. LOS results for unimproved 9th Street were acceptable; widening would likely improve results.

During the a.m. peak hour, the proposed project would affect one intersection. The unsignalized Belvoir Road and Surveyor Road intersection would be adversely affected because of the projected increase in eastbound left turn movements from Surveyor Road conflicting with the projected increase in southbound through traffic. Although the unsignalized intersection at Belvoir Road and 6th Street level of service degrades from "D" to "E", the increase in delay is only 8.5 seconds, an effect considered to be minor.

During the p.m. peak hour, eastbound unsignalized left turn movements onto Belvoir Road from Surveyor Road would be adversely affected because of the projected increase in northbound and southbound volumes on Belvoir Road.

3.2.9 How would the proposed project affect bicycle and pedestrian facilities?

The selection of the Warrior in Transition Unit Complex site was to provide a location that would facilitate pedestrian movement between the hospital and the site for both medical care and potential use of the dining facilities. It is not anticipated that any increases in traffic volumes in the study area attributable to the proposed project would affect how pedestrians currently cross area roadways or use bicycles on area roadways. Therefore, it is not anticipated that the proposed action would adversely affect existing bicycle and pedestrian facilities.

3.2.10 How would the proposed project affect transportation?

Based upon the analysis, it is anticipated that the Proposed Action would adversely affect one intersection during the a.m. peak hour and p.m. peak hour. It is not anticipated that the Proposed Action would adversely affect transit operations in the area. Nor is it anticipated that the Proposed Action would adversely affect bicycle and pedestrian facilities.

3.2.11 How would adverse effects be avoided or minimized during construction and operation of the Warrior in Transition Unit Complex?

It is anticipated that the construction of the Proposed Project would be completed by 2011. No significant effects on traffic would be expected during the construction of the proposed facility. However, some short-term adverse impacts could occur depending on the measures taken to manage disruptions, such as requiring most of the construction vehicles delivering materials to do so outside peak traffic hours and designating sufficient parking and storage space for construction related vehicles and materials. As discussed further in Section 3.14.4, the construction traffic for this project averages less than 6 percent of overall construction traffic during the construction period; all construction traffic would follow special routing and management procedures during this period as well. Therefore, construction related traffic for the Warrior in Transition Unit complex is not expected to be significant. The Virginia Department of Transportation reviewed the project as part of Virginia's Federal Consistency Determination. VDOT indicated that the proposed facility will have minimal impact on the existing and future roadway networks (see Appendix F).

The traffic impacts identified during the a.m. and p.m. peak hours at the unsignalized Belvoir Road and Surveyor Road intersection could be reduced by the installation of a traffic signal or traffic circle (roundabout).

3.3 Air Quality

In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the USEPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for seven criteria pollutants. Air Quality Control Regions (AQCRs) in violation of the NAAQS are referred to as nonattainment areas. For some pollutants, nonattainment status is further categorized as marginal, moderate, serious, severe, or extreme based on the severity of the pollution problem.

3.3.1 What are the key considerations regarding air quality?

Under the NAAQS, primary and secondary standards are designated for each pollutant. Primary standards are designed to protect sensitive populations within the public, such as children and the elderly, from adverse health effects due to exposure to the pollutant. Secondary standards are designed to protect the environment, both natural and manmade, from known adverse effects from a pollutant. Virginia's standards for all criteria pollutants are identical to the federal standards with the exception of the 24-hour standard for $PM_{2.5}$, which Virginia has not yet revised to reflect a 2008 revision to the NAAQS.

> The ***Criteria Pollutants*** are: carbon monoxide (CO), sulfur dioxide (SO_2), particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}) and particles with a diameter less than or equal to nominal 2.5 micrometers ($PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb).

Table 3-5 provides the standards set forth by the USEPA.

Table 3-5: National Ambient Air Quality Standards

Pollutant	Primary	Secondary
Carbon Monoxide (CO)		
1-hour Average	35 ppm	--
8-hour Average	9 ppm	--
Sulfur Dioxide (SO_2)		
3-hour Average	--	1300 µg/m^3
24-hour Average	0.14 ppm	--

Pollutant	Primary	Secondary
Annual Arithmetic Mean	0.03 ppm	--
Particulates (PM_{10})		
24-hour	150 µg/ m^3	--
Particulates ($PM_{2.5}$)*		
24-hour	35 µg/ m^3	--
Annual Geometric Mean	15 µg/ m^3	15 µg/m^3
Ozone (O_3)		
8-hour Average**	0.075 ppm	0.075 ppm
Nitrogen Dioxide (NO_2)		
Annual Arithmetic Mean	100 µg/ m^3	100 µg/ m^3
Lead (Pb)		
Quarterly Average	1.5 µg/ m^3	1.5 µg/ m^3

ppm = parts per million; µg/m^3 = micrograms per cubic meter
Annual Standards never to be exceeded; short-standards not to be exceeded more than once a year.
*: Standards attained when the highest 99th percentile of 24-hour concentration over 3 years is below 35 µg/m3
**: Standards attained when the 3-year average of 4th-highest maximum 8-hour concentration is below 0.075 ppm
Source: USEPA, 2009a

3.3.2 Who determines air pollution control policy in Northern Virginia or the Fort Belvoir vicinity?

Fort Belvoir is in the National Capital Interstate Air Quality Control Region. The organizations that determine air pollution control policy in the National Capital Interstate Air Quality Control Region include: the Metropolitan Washington Council of Governments (MWCOG), the Interstate Air Quality Council (IAQC), the Ozone Transport Commission (OTC), and the Virginia Department of Environmental Quality (VDEQ) Division of Air Quality, and the Virginia Air Pollution Control Board.

VDEQ's Division of Air Quality is responsible for carrying out the mandates of the Virginia Air Pollution Control Law as well as meeting Virginia's federal air quality obligations. The Division of Air Quality develops and implements regulations, policy, and guidance and has established programs for ambient air monitoring and regulatory enforcement.

The following regulations will be of particular concern during the construction phase: 9 VAC 5-40 Article 1, Visible Emissions and Fugitive Dust/Emissions; 9 VAC 5-40 Article 39, Emissions Standards for Asphalt Paving Operations; 9 VAC 5-40 Article 40, Open Burning; and 9 VAC 5-40 Article 49, Emission Standards for Architectural and Industrial Maintenance Coatings.

3.3.3 What regulations govern air pollution sources in Virginia?

VDEQ administers a program for permitting the construction and operation of new, existing, and modified stationary sources of air emissions in Virginia. Air permitting is required for many industries and facilities that emit regulated pollutants. VDEQ sets permit rules and standards for emissions sources on the basis of the age and size of the emitting units, attainment status of the region where the source is located, dates of equipment installation and/or modification, and type and quantities of pollutants emitted.

As a major source for stationary emissions, Fort Belvoir operates under a Title V permit. The current installation-wide Title V permit had an expiration date of March 21, 2008, but because Fort Belvoir submitted a renewal application by the regulatory deadline, the current permit shall not expire until VDEQ either issues or denies a renewal permit. All terms and conditions of the Title V permit issued on March 21, 2003 remain in effect. The installation is required to submit a comprehensive emission statement annually. Annual emissions from significant stationary sources in 2008 are in Table 3-6.

A ***Title V permit*** is issued for major stationary sources. A major stationary source is defined as any stationary source that:

- Has the potential to emit (PTE) 100 tons per year (tpy) of any criteria pollutant,
- Emits or has the PTE more than 10 tpy of any hazardous air pollutant (HAP) or 25 tpy of a combination of HAPs,
- Is located in ozone nonattainment areas with a PTE of NOx or VOC of 50 tpy in serious nonattainment areas, 25 tpy in severe nonattainment areas, and 10 tpy in extreme nonattainment areas, or
- Is located in the Ozone Transport Region and has the PTE of 50 tpy.

Table 3-6: Significant Stationary Source Emissions in 2008 (Tons)

SO_2	CO	PM_{10}	$PM_{2.5}$	NOx	VOC
20.06	22.74	2.27	2.21	43.80	2.93

3.3.2 How is the air quality in this region?

Fort Belvoir and Fairfax County are within the Washington, D.C. airshed (Air-quality Control Region 47). Air-quality Control Region (AQCR) 47 is in moderate nonattainment for the criteria pollutant ozone under the 8-hour ozone standard, and in nonattainment for $PM_{2.5}$. The airshed is in attainment for all other pollutants. The NAAQS for all criteria pollutants were previously presented in Table 3-5: National Ambient Air Quality Standards.

AQCR 47 consists of: Washington, D.C., Calvert, Charles, Frederick, Montgomery, and Prince George's Counties in Maryland, the cities of Alexandria, Fairfax, and Manassas Park, Falls Church, and Manassas in Virginia and Arlington, Fairfax, Loudoun, and Prince William Counties in Virginia.

3.3.3 How are air quality effects from the project evaluated?

General Conformity Applicability Analysis

Federal actions located in nonattainment areas are required to demonstrate compliance with the General Conformity Rule established in 40 CFR Part 93 *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant nonattainment area designations. Projects where annual emissions are expected to be below the *de minimis* levels are not subject to the Rule. Projects with annual emissions that are expected to be at or above the *de minimis* levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to emissions that can occur during the construction and operational phases of the action.

AQCR 47 is in nonattainment for ozone and $PM_{2.5}$; therefore, a General Conformity Rule applicability analysis to evaluate any impact to air quality is required. A summary of the analysis results is available within the body of this EA while detail of the methodology and calculations can be found in Appendix D. Emissions have been estimated for the ozone precursor pollutants nitrogen oxides (NO_x) and volatile organic compounds (VOC), and $PM_{2.5}$. Annual emissions for these compounds were estimated for each of the project actions (construction and operation) and compared to the *de minimis* levels established in the Rule. The *de minimis* level for moderate ozone nonattainment areas is 100 tons per year (TPY) for

NO_x and 50 TPY for VOC. Sources of NO_x and VOC associated with the proposed project would include emissions from demolition and construction equipment, commuter vehicles, painting and sealing of building surfaces and parking spaces (VOC only), and stationary units (boilers).

On July 11, 2006 USEPA established *de minimis* levels for $PM_{2.5}$. The final rule established 100 TPY as the *de minimis* emission level for directly emitted $PM_{2.5}$ and each of the precursors that form it (sulfur dioxide [SO_2], NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor, meaning that if an action's direct or indirect emissions of $PM_{2.5}$, SO_2, NO_x, VOC, and ammonia cumulatively exceed 100 TPY, but the emissions of no single precursor exceeds 100 TPY, General Conformity determination would not be required. Neither the USEPA nor Virginia have found VOC or ammonia to be a significant precursor of $PM_{2.5}$ in AQCR 47; therefore VOC and ammonia are not required to be evaluated for $PM_{2.5}$ under the Rule. Ammonia is not further addressed by this EA (VOC is addressed as an ozone precursor).

Regional Significance

In addition to evaluation of air emissions against *de minimis* levels, air emissions are also evaluated for regional significance. A Federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a General Conformity Determination if the direct and indirect emissions from the action exceed ten-percent of the total emissions inventory for a particular criteria pollutant in a nonattainment or maintenance area. If the emissions exceed this ten-percent threshold, the Federal action is considered to be a "regionally significant" activity, and thus, the General Conformity Rules apply.

3.3.4 How would the Warrior in Transition Unit Complex's construction and operation affect air quality?

A General Conformity Applicability Analysis was performed for the proposed action, which estimated the level of potential air emissions (NO_x, VOC, SO_2, and $PM_{2.5}$). Appendix D contains a detailed description of the assumptions and methodology used to estimate the potential emissions for the construction and operational phases. The proposed Warrior in Transition Unit Complex will either be heated by Fort Belvoir's steam plant or by small individual boilers.

Construction related emissions related to the Warrior in Transition Unit Complex would be temporary and only occur during the construction period; however, a conservative approach was initially employed in the applicability analysis to assure that construction scheduling would not result in higher levels of emissions than predicted. The analysis assumed that the construction emissions for all of the buildings would occur concurrently over the same one-year period.

Emissions from construction and operations are shown in Tables 3-7 and 3-8. There are two sets of values for operations because the analysis for the space heating emissions has been conducted for two different assumptions: 1) that heat will be provided by individual building boilers and 2) heat would be provided by the steam plant. Domestic water heating would be provided by building boilers in each case.

Table 3-7 provides estimated annual emissions when the Warrior in Transition Unit Complex is heated by individual building boilers and Table 3-8 provides emissions estimated for the case that the steam plant provides the space heat.

Table 3-7: Total Annual Emissions from the Proposed Action Using Building Boilers

Activity	Total Annual Emissions –TPY			
	NOx	**VOC**	**$PM_{2.5}$**	**SO_2**
***de minimis* levels**	**100**	**50**	**100**	**100**
Construction	5.444	4.619	0.435	0.712
Full Operation	2.186	2.770	0.068	0.018

Table 3-8: Total Annual Emissions from the Proposed Action Using the Steam Plant

Activity	Total Annual Emissions –TPY			
	NOx	VOC	$PM_{2.5}$	SO_2
***de minimis* levels**	**100**	**50**	**100**	**100**
Construction	5.444	4.619	0.435	0.712
Full Operation	2.051	2.877	0.140	2.271

Air emissions were also evaluated to determine regional significance. The *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan for Fine Particle Standard* (MWCOG, 2008) and the *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan for 8-Hour Ozone* (MWCOG, 2007) sets forth daily target levels for nonattainment pollutants within the Washington Metropolitan nonattainment region. Annual and daily emission inventories for each of the pollutants are shown in Table 3-9.

Table 3-9: State Implementation Plan (SIP) Emission Inventories

Source of Emissions	$PM_{2.5}$ 2009 Emission Inventory (TPY)		Ozone 2009 Emission Inventory (TPD)	
	$PM_{2.5}$	SO_2	NOx	VOCs
Point	4,650	215,827	113	14
Area	15,379	14,250	27	179
Non-Road	2,226	1,303	75	88
On-Road	1,108	518	146	66

Emissions resulting from the construction and operation of the Warrior in Transition Unit Complex would not exceed ten-percent of the emission inventories.

The conclusion is that air quality impacts would not be significant on either a local or regional level from the construction and operation of the Warrior in Transition Unit Complex. Annual construction and operations emissions are well below *de minimis* levels and are also not regionally significant for the pollutants of concern.

It is also likely the only permitting action required as a result of the construction of the Warrior in Transition Unit Complex would be a minor modification to Fort Belvoir's Title V air permit.

3.3.5 Does the construction or operation of the Warrior in Transition Unit Complex require mitigation?

Although project emissions are not expected to be significant when looked at in isolation, it should be remembered that the Warrior in Transition Unit Complex is being constructed in the same time frame as numerous BRAC-related construction projects. The BRAC construction did exceed General Conformity *de minimis* emission levels. In order to mitigate the cumulative impact of the Warrior in Transition Unit Complex construction emissions, the project will implement the same restrictions as outlined 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" (CPP) 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. These restrictions include design and construction standards for equipment and vehicles that reduce air emissions through use restrictions on critical ozone days, diesel oxidation catalysts (DOCs), ultra-low sulfur diesel fuel (ULSD), idling restrictions, and cleaner vehicle options.

During construction activities, fugitive dust would be minimized during construction by control methods outlined in 9 VAC5-130 *et seq*. of the *Regulations for the Control and Abatement of Air Pollution*. These

precautions could include methods such as using water for dust control; covering open equipment for conveying materials; and promptly removing spilled or tracked dirt or other materials from paved streets or dried sediments resulting from soil erosion. Open burning is not anticipated; however, any changes would meet the state requirements and Fort Belvoir would obtain all necessary permits.

In order to mitigate operational phase emissions of air pollution the Warrior in Transition Unit Complex project may select heating equipment for the buildings that employ low-NOx controls.

3.3.6 Would the No Action Alternative cause any impacts to air quality?

Under the No Action Alternative, the Warrior in Transition Unit Complex would not be implemented and the current land use would remain unchanged on the site. No additional emissions would be generated from the site, and as a result, there would be no impacts to air quality.

3.4 Noise

Noise is sound that can interfere with hearing, concentration, or sleep. Some major sources of noise are transportation vehicles, heavy equipment, machinery, and appliances.

The standard measurement unit of noise is the decibel (dB), which represents the acoustical energy present and is an indication of the loudness or intensity of the noise. Noise levels are measured in A-weighted decibels (dBA), a logarithmic scale that approaches the sensitivity of the human ear across the frequency spectrum. Therefore, the dBA accounts for the varying sensitivity of the human ear by measuring sounds the way a human ear would perceive it. The dBA measurement is used to indicate damage to hearing based on noise levels, and is the basis for federal noise standards. A 3-dB increase is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. A 5-dB change in sound is readily noticeable, and a 10-dB change in sound almost doubles the loudness (FHWA, 1995). Table 3-10 illustrates common sounds and their noise level.

Table 3-10: Common Sounds and Their Levels

Outdoor	Sound Level (dBA)	Indoor
Jet craft at 50 feet	110	N/A
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: USACE, 2007a: Harris, 1998

Because noise may be more objectionable at certain times, a measure known as Day-Night Average Sound Level (Ldn) has been developed. The Ldn is a 24-hour average sound level recommendation that includes a penalty (of 10 dB) to sound levels during the night (10 pm to 7 am). This measurement is often used to determine acceptable noise levels and is endorsed by agencies such as the USEPA, the Federal Highway Administration (FHWA), the Federal Aviation Administration (FAA), the U.S. Department of Housing and Urban Development (HUD), the Occupational Safety and Health Administration (OSHA), and the Department of Defense.

3.4.1 What standards apply to noise?

The Noise Control Act of 1972, 42 USC 4901 et seq. was enacted to establish noise control standards and to regulate noise emissions from commercial products such as transportation and construction equipment. In 1981, the USEPA concluded that noise issues were best handled at the state or local government level

and in the early 1980s the primary responsibility of regulating noise was transferred to the state and local governments.

Provisions for noise levels in Fairfax County are outlined in Chapter 18 of the Fairfax County Code of Ordinances. The maximum permissible sound levels for the County are 55 dBA in residential areas, 60 dBA in commercial areas, and 72 dBA in industrial areas (Section 108-4-4, Fairfax County Code of Ordinances). Noise generated from construction and demolition activities are exempt from the Fairfax County ordinance between 7:00 AM and 9:00 PM.

The Army noise policy for operation noise is outline in Chapter 14 of AR 200-1, *Environmental Protection and Enhancement*.

OSHA has developed a noise exposure standard in the workplace of 90 dBA for the duration of an 8-hour period, with a maximum of 140 dBA for impulsive noise, such as a siren or gunshot.

3.4.2 What is the current noise environment near the proposed Warrior in Transition Unit Complex site?

Existing sources of noise in the vicinity of the proposed Warrior in Transition Unit Complex site include transportation (roadway traffic and overhead aircraft), maintenance equipment, natural sounds, and construction operations for the new Community Hospital. Several administration buildings, the Dewitt Hospital, the Community Hospital (under construction), and the on-post housing units of Herryford, Colyer, and Vernondale Villages are located within 1,000 feet of the proposed project site.

3.4.3 How would the Warrior in Transition Unit Complex's construction and operation affect the existing noise environment?

Temporary and minor noise impacts would be expected to occur for the duration of construction for the Warrior in Transition Unit Complex. The nearest inhabited buildings to the proposed Warrior in Transition Unit Complex site are the housing units in the Colyer and Vernondale Villages.

Construction activities would involve the use of heavy equipment such as backhoes and trucks. These activities typically generate a noise level of 80 dBA at 50 feet from the source. Typical construction equipment noise levels are provided in Table 3-11. As a general rule for estimating noise emissions, sound from a stationary source will diminish approximately 6 dBA with each doubling of distance. For example, if a noise from a source reaches 75 dBA at 25 feet, it will be 69 dBA at 50 feet and 63 dBA at 100 feet, and so on (Montgomery County, 2007).

Construction, renovation and demolition activities would generate noise levels associated with the equipment that is deployed on the project. Table 3-11 shows that the hourly equivalent noise levels for demolition, earthwork, and structures, all of which would occur at the project site, are 88-89 dBA at 15 meters/50 feet from typical construction activities and equipment. These impacts would be typical of what would be experienced in the vicinity of construction areas; however, the impacts would be temporary, and would end when construction is complete.

Table 3-11: Typical Construction Noise Levels

No of Items	Equipment Type	Maximum Equipment Noise Level at 15 m, (50 feet) dBA	Hourly Equivalent Noise Levels at 15 m (50 feet), dBA[1]	Hourly Equivalent Noise Levels at 30 m (100 feet), dBA[1]
Clear and Grub				
1	Excavator	81	78	72
1	Backhoe	78	75	69
4	Heavy Dump Trucks	76	73	67
		Overall L_{eq} (h)	**83**	**77**
Pavement Demolition				
1	Front Loader	79	76	70
1	Hoe Ram	90	87	81
4	Heavy Dump Trucks	76	73	67
		Overall L_{eq} (h)	**88**	**82**
Retaining walls				
1	Backhoe	78	75	69
1	Concrete Pump	81	78	72
1	Compressor	78	75	69
3	Ready Mix Trucks	79	76	70
4	Heavy Dump Trucks	76	73	67
2	Flatbed Truck	75	72	66
		Overall L_{eq} (h)	**86**	**80**
Paving				
1	Grader	85	82	76
1	Water Truck	76	73	67
1	Vibratory Roller	80	77	71
1	Compactor	80	77	71
1	Concrete Pump	81	78	72
3	Ready Mix Trucks	79	76	70
1	Asphalt Paver	77	74	68
1	Asphalt Roller	80	77	71
1	Sweeper	79	76	70
4	Heavy Dump Trucks	76	73	67
2	Flatbed Truck	75	72	66
		Overall L_{eq} (h)	**89**	**83**

No of Items	Equipment Type	Maximum Equipment Noise Level at 15 m (50 feet), dBA	Hourly Equivalent Noise Levels at 15 m (50 feet), dBA[1]	Hourly Equivalent Noise Levels at 30 m (100 feet), dBA[1]
Earthwork				
1	Excavator	81	78	72
1	Backhoe	78	75	69
1	Front Loader	79	76	70
1	Dozer	82	79	73
1	Trencher	80	77	71
4	Heavy Dump Trucks	76	73	67
		Overall L_{eq} (h)	**86**	**80**
Structures				
1	Backhoe	78	75	69
1	Compactor	80	77	71
1	Crane	81	78	72
1	Concrete Pump	81	78	72
1	Compressor	78	75	69
1	Bridge Deck Paver	77	74	68
2	Flatbed Truck	75	72	66
4	Heavy Dump Trucks	76	73	67
3	Ready Mix Trucks	79	76	70
		Overall L_{eq} (h)	**88**	**82**
Miscellaneous				
1	Front Loader	79	76	70
1	Dozer	82	79	73
2	Heavy Dump Trucks	76	73	67
		Overall L_{eq} (h)	**82**	**76**

Notes: Calculated construction noise levels assume that all equipment operates for six hours per eight hour day and that all equipment is operated at full load 70 percent of the time. Predicted noise levels are from the center of the construction activity.
Source: Federal Highway Administration RCNM 1.0 User Guide, Jan. 2006 (USDOT, 2006).

Noise generated during construction activities would disturb and displace the wildlife that inhabits the immediate area. However, the impacts are not anticipated to be significant as the construction noise levels would be temporary in nature and most of the wildlife, particularly birds, would be expected to relocate to adjacent areas.

The increase in concentration of commuters to this part of the installation would entail a negligible increase in vehicle noise. Operation activities of the Warrior in Transition Unit Complex would occur internally in the facilities and would not be audible from outside of the buildings. Therefore, noise impacts to other installation users are anticipated to be minor from the operation activities of the proposed Warrior in Transition Unit Complex.

3.4.4 How would the project comply with existing noise regulations?

Under the Fairfax County Noise Ordinance, the maximum permissible sound levels for the County are 55 dBA in residential areas, 60 dBA in commercial areas, and 72 dBA in industrial areas; however, noise generated from construction and demolition activities are exempt from the noise ordinance between 7:00 AM and 9:00 PM. Since construction activities would be limited to normal work hours, the project would be consistent with the Fairfax County Noise Ordinance.

Construction personnel would comply with OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52), including construction worker hearing protection when required.

3.4.5 Does the construction or operation of the Warrior in Transition Unit Complex require mitigation?

Noise impacts during the construction phase would be reduced using Best Management Practices, such as confining construction activities that produce loud noise to normal working hours and employing noise-controlled construction equipment to the extent possible. Arrival of heavy equipment and materials would utilize a designated truck route and generally occur during normal work hours and avoid disturbing the residences on post and surrounding land uses.

3.4.6 Would the No Action Alternative cause any impacts to the noise environment?

Implementation of the No Action Alternative would not change the noise levels at Fort Belvoir. No impacts related to noise would be expected.

3.5 Soils, Topography, and Geology

3.5.1 What is the study area for soils and topography?

The study area for soils and topography includes the areas within the boundaries of the proposed project site on 9th Street. The study area for geology is the area of Main Post, where the proposed project would be sited.

3.5.2 What soils types are located in the study area?

Soils on the Main Post were surveyed by the Natural Resource Conservation Service (NRCS, formerly known as the Soil Conservation Service [SCS]), in 1982. The soil survey identified 19 named soil series within Fort Belvoir. This information has since been incorporated into the installation's Geographic Information System (GIS).

Soil types located at the 9th Street site are Beltsville silt loam, Matapeake silt loam, and Dumfries sandy loam. Descriptions of the soil series are shown in Table 3-12, including drainage and problem classes, high erodibility, and flooding. There are three problem classes, A through C, with class A having the most severe and significant unfavorable conditions for development, and classes B and C having lesser issues. Problem class "A" is soils with unstable slopes, land slippage, high shrink-swell clays, poor foundation support, and high water table. Problem Class "B" is attributed to soils with wetness and

drainage problems that can be addressed through design and construction. Problem Class "C" includes soils that have few problems and are not considered problematic for foundations.

Table 3-12: Soils Found at the 9th Street Site

Soil Series	Problem Class	Drainage Class	High Erodibility	Flooding	Hydric
Beltsville silt loam	B	Moderately well drained	Yes	No	No
Matapeake silt loam	C	Well drained	Yes	No	No
Dumfries sandy loam	A	Well drained	No	No	No

Source: Fort Belvoir, 2001a; USACE, 2007a.

Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. None of the soils found within the project site at 9th Street are listed as hydric (Fort Belvoir, 2001a).

3.5.3 What is the general topography of the study area?

The topography at the 9th Street site slopes gently from northeast to southwest, with elevations ranging from 130 feet to almost 0 feet above mean sea level (msl). The topography slopes to the southwest of the 9th Street site toward Accotink Bay.

3.5.4 What is the geology of the study area?

Fort Belvoir's Main Post is located below the fall line within the high and low Coastal Plain Terraces of the Coastal Plan Physiographic Province. There are several geologic formation associated with the Coastal Plain Physiographic Province, including the Potomac Formation, Bacons Castle Formation, Shirley Formation, and Alluvium and Pliocene sand and gravel (USACE, 2007a). This Physiographic Province consists of unconsolidated sand, silt, and clay, underlain by residual soil and weathered crystalline rocks (USACE, 2007a).

3.5.5 How would the construction of the Warrior in Transition Unit Complex affect soils, topography, and geology on the study area?

Impacts to soils would be expected to be minor. Development of the Warrior in Transition Unit Complex would directly impact soils as a result of construction and demolition activities (i.e. grading, excavation, placement of fill, compaction, mixing, and augmentation) on approximately 16.6 acres of the former South Post golf course. Heavy machinery would be used to remove the vegetative cover to prepare open sites for construction of the proposed Warrior in Transition Unit Complex facilities and for digging trenches for utility lines. As a result, soils would be compacted, soil layers structure would be disturbed and modified, and soils would be exposed, increasing the overall potential for erosion. Soil productivity (i.e. the capacity of the soil to produce vegetative biomass) would decline in areas disturbed and be completely eliminated from those areas within the footprint of the buildings and parking facilities.

Impacts to topography would be expected to be minor. The 9th Street site is located on the former South Post golf course; topography on the site is suitable for development. Construction of the Warrior in Transition Unit Complex at this site would require minor leveling and grading for site preparation. Alteration of the existing topography would occur as a result of grading and associated cut and fill activities necessary to accommodate the Warrior in Transition Unit Complex. Cut and borrow sites are not available on the installation; therefore, if fill material is required, it would be obtained off-site. Any excessive soil would be removed from the installation.

Site preparation would provide positive drainage for the site. Finish grades would slope down and away from the buildings at a minimum of five-percent slope for the first ten feet. Drainage would be directed away from the building to catch basins, curb and gutter, or road ditches. Existing swales would be

avoided to the extent possible. Where possible, parking areas would be graded to direct stormwater to the curb and gutters and not down the center of the parking area.

Impacts to geology would be minor. The terrain of the project area is generally flat and would require minor leveling and grading for site preparation. The geology of the area would remain unchanged; and as a result, no significant impacts to the general geologic character of the site would occur.

3.5.6 Are there appropriate mitigation measures that would be taken?

Adverse impacts to soils occurring from demolition and construction activities would be minimized with the use of proper construction management and planning. Prior to construction of the proposed Warrior in Transition Unit Complex, the construction contractor would prepare a soil erosion and sediment control plan (SESCP) and submit it to Fort Belvoir for approval. The Erosion and Sediment Control design and construction plans must comply with the Fairfax County Facilities Manual, the Virginia Erosion and Sediment Control Handbook, and the Fort Belvoir Small Municipal Separate Storm Sewer System (MS4) Permit. When satisfied with the plan, Fort Belvoir would approve it and issue an erosion and sediment control permit to the contractor. Erosion controls would be implemented prior to the start, and during construction, with periodic compliance inspections conducted by Fort Belvoir. The plan is required to support Virginia stormwater permit requirements further described in Section 3.6.7.

The site-specific plan would provide mitigation measures and best management practices (BMPs) aimed at minimizing soil erosion and runoff from construction projects. BMPs could include, but are not limited to, erosion control matting, silt fencing, storm drain outlet protection, construction entrances, temporary and permanent seeding, and the application of mulch. Virginia's Erosion and Sediment Control Law and Regulations (VESCL&R) (4VAC30-50) require SESCPs for projects that disturb more than 10,000 square feet and EO 13148 (*Greening the Government Through Leadership in Environmental Management*) requires any activity that may result in the discharge or runoff of pollutants to comply with State's requirements respecting the control and abatement of water pollution. Additionally, land-disturbance activities that result in the land-disturbance of greater than 2,500 square feet on lands analogous to Chesapeake Bay Preservation Areas would be regulated by VESCL&R.

A temporary stone construction entrance would be constructed at points where vehicular traffic leaves the construction site to an existing paved road or drive. The temporary stone construction entrance would be the full width of the entrance/exit area, contain a wash rack, and be a minimum length of 75 feet. The temporary stone construction entrance would be maintained in a condition which would prevent tracking or flow of sediment onto adjacent roads. Any sediment that is tracked onto adjacent roads would be removed at the end of each day.

In addition, after construction, areas disturbed outside of the footprints of the new construction would be aerated and reseeded, replanted, and the topsoil would be replaced to a minimum depth of 4 inches in all unpaved areas immediately after the completion of finish grading. Topsoil would be seeded and protected from erosion until vegetation is established.

3.5.7 How would the No Action Alternative affect the soils and topography of the study area?

Under the No Action Alternative, the Warrior in Transition Complex Unit would not be constructed and there would be no impacts to soils, topography, or geology at the proposed project site at 9th Street.

3.6 Surface Water, Water Quality, and Floodplains

3.6.1 What is the study area for analysis?

The study area for water resources is the immediate drainage area surrounding the Warrior in Transition Unit Complex that would receive surface water runoff from rain events, and the receiving waters into which this area drains.

3.6.2 What surface water features occur in or near the study area?

The Warrior in Transition Unit Complex would be sited upon approximately 16.6 acres that drain to the west into a perennial stream system that will also receive drainage from the new Community Hospital site to the north. This stream system includes a Resource Protection Area (RPA). RPAs are designated to protect the stream and generally include major floodplains, riparian areas, and vegetated lands within 100 feet of tidal and nontidal wetlands, tidal shores, and perennial streams. The streams flow west to discharge into Accotink Bay, a 604-acre body of water that then joins with Pohick Bay to form Gunston Cove. This Cove joins the Potomac River along the southeastern tip of Fort Belvoir's South Post (See Figure 3-2).

3.6.3 What is the quality of surface water in the study area?

Section 303(d) of the Clean Water Act (CWA) requires states to identify and develop a list of waterbodies that are impaired and for which technology-based and other required controls have not resulted in attainment of water quality standards. One waterbody immediately downstream of the Warrior in Transition Unit Complex, Accotink Bay as described in Table 3-13, is listed on Virginia's 2008 303(d) list of impaired waters (VDEQ, 2008). To date, there are no numeric water quality data available for the perennial stream channels that are immediately adjacent to and will receive the drainage from the Warrior in Transition Unit Complex.

Table 3-13: 303(d) Listed Waterbodies Downstream of Warrior in Transition Site

303(d) Listed Waterbody	Extent	Use Impaired	Impairment Cause (Initial List Date)
Accotink Bay	Tidal waters of Accotink Creek until confluence with tidal waters of Pohick Bay/Gunston Cove	Fish Consumption, Aquatic Life, Shallow Water submerged Aquatic Vegetation	Fish Tissue –PCBs (2002)

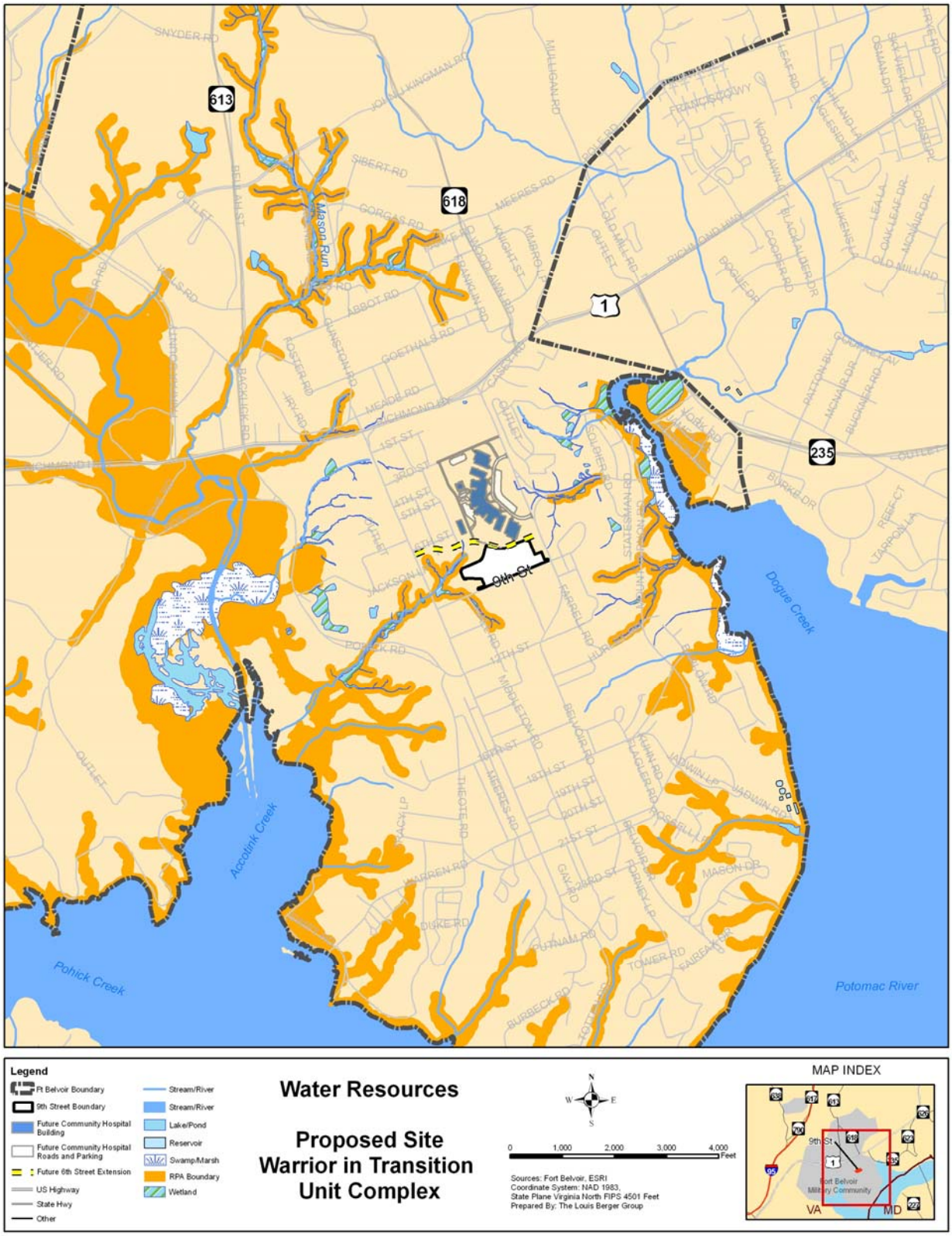
3.6.4 Do flood hazard or floodplain areas exist at the proposed project site?

The Federal Emergency Management Agency (FEMA) floodplain maps show there are no 100-year flood hazard areas located within the boundaries of the Warrior in Transition Unit Complex.

3.6.5 Would the project affect floodplains?

Under Executive Order (EO) 11988, Floodplain Management (May 24, 1977), federal actions should avoid floodplains if feasible. This is to avoid potential flood damage to the structures and to avoid creating barriers that could raise flood levels downstream. As there are no floodplains within the boundaries of the Warrior in Transition Unit Complex, the project complies with EO 11988 and will not affect floodplains.

Figure 3-2: Water Resources in the Study Area



3.6.6 Would the project affect surface or groundwater water or water quality?

Construction of the facilities for the Warrior in Transition Unit Complex will include grading, leveling and excavation of soil with the potential for sediment and construction contaminants to be carried into the nearby stream, and ultimately to Accotink Bay. To the extent that the construction removes vegetation and increases the percent of rainfall that runs off, peak flows and velocities could be increased if not controlled to cause erosion of the stream banks. The completion of the Warrior in Transition Unit Complex will increase the amount of impervious surface area by approximately 8 acres. This added impervious surface has the potential to increase runoff, decrease infiltration to the groundwater, and to carry contaminants from the hard surfaces into the stream and on to the Accotink Bay. Likewise, this runoff, without management, would have increased peak flows and velocities with resultant erosion of the downstream banks.

However, as discussed below, the project will be constructed with an approved stormwater management plan and both an erosion and sediment control plan and stormwater pollution prevention plan during construction as well as for operation of the site after construction. These are intended to ensure adverse effects are not significant.

3.6.7 What mitigation would be appropriate?

Fort Belvoir has a general stormwater permit and is classified as a small municipal separate storm sewer system (MS4) discharger under applicable stormwater regulations. Under the applicable regulations, any construction activity such as clearing, grading, and excavation, that is greater than 2,500 square feet (SF) requires a Virginia Stormwater Management Permit. Stormwater management would be consistent with water quality protection provisions of the Virginia Stormwater Management Program (VSMP) Permit Regulations, 4VAC50-60-10. The application for this permit through Fort Belvoir must include an approved stormwater pollution prevention plan (SWPPP) and an approved soil erosion and sediment control plan (SESCP) that complies with the requirements of the *Virginia Erosion and Sediment Control Handbook*, Third Edition, 1992.

Virginia's Storm Water Management (SWM) Regulations specify evaluating storm water runoff using 2-year or 1-year storm event data in order to assess potential erosion problems and channel adequacy. These regulations also include the requirement for an adequate outfall analysis or use of 1-year, 24-hour extended detention to protect receiving waters. Increased volume might translate to flooding where the stream channel is not adequate to contain the flow. During the 10-year 24-hour storm event, an increase in volume increases the potential for bank overtopping and flooding. Virginia's Erosion and Sediment Control Regulations (4VAC50-30-40.19) and SWM Regulations (4VAC3-20-81) require that: "downstream channels and properties be protected from erosion and damage due to increases in volume, velocity and peak flow rate."

State and Federal design manuals that address proper stormwater management design techniques will be followed in achieving the final design for the stormwater management system. These include:

- The Fairfax County Facilities Manual,
- Virginia Stormwater Management Handbook.
- Low Impact Development Design Strategies:
  - An Integrated Design Approach, United States Environmental Protection Agency, Office of Water, EPA 841-B-00-003 dated June 1999, as amended;
  - Low Impact Development Hydrologic Analysis, United States Environmental Protection Agency, Office of Water, EPA 841-B-00-002 dated June 1999, as amended.

LID management practices seek to minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and control storm water runoff as close to the source as feasible. Typical measures include:

- Disconnect imperviousness so that smaller impervious areas drain to pervious, generally vegetated, area;
- Use permeable pavers for walkways and low-traffic area;
- Capture runoff close to the source through the use of rain barrels, bioretention basins, pocket wetlands, grassed swales, flow spreaders and other BMPs that retain the storm water runoff from smaller, more frequent storms, thus reducing the size of regional stormwater BMPs, detention or retention storm water ponds;
- Site-specific controls, such as linear sand filters or biofilters for water quality management of hot spot areas such as parking lots.

Because of this, site-specific BMPs or mitigation measures would be required for the Warrior in Transition Unit Complex site, incorporating strategies that would include a combination of structural and non-structural Best Management Practices (BMP's) appropriate for the site, including consideration of Low Impact Development (LID), Leadership in Energy and Environmental Design and Sustainable Design strategies. A watershed-based approach would be implemented to evaluate upstream and downstream concerns and mitigate possible effects. Stormwater retention on site would be designed by considering features such as a detention pond, in-ground infiltration systems, biorention areas, and sand filters or infiltration galleys below the parking lot areas. The design would include adequate long-term operation and maintenance of BMP's and water quality protection would be considered in accordance with the Federal Clean Water Act and all applicable state and local codes.

The SWPPP and SESCP, which use BMP's for erosion and sediment control, will also be developed as noted previously in accordance with the Fairfax County Facilities Manual, the Virginia Erosion and Sediment Control Handbook, and the Fort Belvoir MS4 Permit. BMPs such as prompt stabilization of exposed soil, silt fences, sediment traps, storm drain inlet filters, and sediment basins where practicable, to minimize erosion and sedimentation until the site has stabilized would be considered. Stormwater discharges would be regularly inspected to ensure that the BMP's (such as LID management practices) are controlling the discharge of pollutants to the maximum extent practical and are meeting water quality standards.

Site work will not start until all three plans discussed above have been approved by Fort Belvoir, and inspections will occur as the project progresses to ensure compliance.

3.6.8 Would the No Action Alternative affect surface water, water quality, or floodplains in the study area?

The No Action Alternative would not change current conditions regarding surface water, water quality, or floodplains and would therefore have no effect.

3.7 Wetlands and Chesapeake Bay Preservation Areas

Development in jurisdictional wetlands and streams is regulated by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act as implemented in regulations contained in 33 CFR, Parts 320-330. Impacts to state waters, including wetlands, is regulated by the Virginia Water Protection Permit Program (Virginia Administrative Code 9 VAC 25-210-10 et seq. Virginia Water Protection Permit Program Regulation), which serves as Virginia's 401 Water Quality Certification Program for Federal Section 404 Permits.

The Chesapeake Bay is the nation's largest estuary. The Bay, its tributaries, wetlands, and forests provide important habitat and food for a wide range of wildlife. The Chesapeake Bay watershed covers 64,000 square miles and encompasses parts of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia, and the entire District of Columbia (Chesapeake Bay Program 2008).

Virginia's Chesapeake Bay Preservation Act (CBPA), Virginia Code 10.1-2100 et seq. and its

implementing Chesapeake Bay Preservation Area Designation and Management Regulations, 9 VAC 10-20-10 et seq., protect certain lands, designated as Chesapeake Bay Preservation Areas, which if improperly developed could result in substantial damage to the water quality of the Chesapeake Bay and its tributaries. Projects that occur on lands that are protected under the CBPA must be consistent with the Act and may be subject to the performance criteria for Resource Protection Areas (as specified in 5 9 VAC 10-20-130 of the Regulations) and the general performance criteria for all Chesapeake Bay Preservation Areas (in 3 9 VAC 10-20-120 of the Regulations. Under the CBPA, Fairfax County adopted a Chesapeake Bay Preservation Ordinance that designates Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) within in the county.

RPAs are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform. RPAs include tidal wetlands, tidal shores, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, and a minimum 100-foot buffer landward of the previous RPA components, riparian areas, and major floodplains (Fort Belvoir, 2001a). All lands not designated as RPAs in Fairfax County are classified as RMAs.

3.7.1 What is the study area for analysis?

The study area for wetlands, Chesapeake Bay Preservation Areas, and riparian areas include the areas within and adjacent to the boundaries of the proposed Warrior in Transition Unit Complex site.

3.7.2 What are the wetlands in the study area and what are their characteristics?

A RPA and wetlands are located adjacent to the west side of the 9th Street site (See Figure 3-2). The 2007 Resource Protection Area Determination for the South Post BRAC Study Area (WSSI, 2007) determined the flow regime and the limits of the RPA that is adjacent to the 9th Street site. The results of the survey showed that the limits of the field verified RPA are more extensive than the limits of the RPA mapped by Fairfax County and less extensive than the limits of the RPA mapped by the Fort Belvoir GIS Department. This RPA is associated with two unnamed tributaries (with perennial flow) to Accotink Bay, one mapped by Fairfax County and another unmapped. Both tributaries are the core components of the RPA and flow into a wetland that is contiguous and connected by surface flow to a downslope, off-site water body (WSSI, 2007a).

Characteristics of wetlands

- The dominant vegetation consists of species capable of growing in water or on substrate that is at least periodically deficient in oxygen as a result of the presence of water.
- Soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation.
- The area is inundated permanently or periodically, or the soil is saturated to the surface for sufficient duration during the growing season to support hydrophytic vegetation.

3.7.3 What functions do the wetlands in the study area provide?

Wetlands perform a variety of functions important to maintaining the quality of natural and cultural resources on Department of Defense lands, and to supporting the military mission and quality of life for soldiers (Fort Belvoir, 2001a). Wetlands located within the study area, as well as wetlands located on the rest of the installation, serve as habitat for fish and wildlife and wetland-dependant plant communities, protect against erosion, improve water quality, provide stormwater and flood water management, and provide aesthetic value.

3.7.4 How would the project affect wetlands and Chesapeake Bay Preservation Areas?

Wetlands and the associated RPAs are outside the boundaries of the Warrior in Transition Unit Complex at the 9th Street site. Preliminary site design has the project footprint avoiding the wetland located to the west. However, the stormwater management system has not been designed; the outfall for this system could be placed in a channel that is considered a wetland. In addition, during construction, vegetation

would be removed and soils exposed, creating an increased potential for erosion and/or transport of surface pollutants into adjacent water bodies. Low Impact Development (LID) strategies would be used for the development of the site in order to minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off.

3.7.5 How would Fort Belvoir compensate for unavoidable negative effects on wetlands?

Final design of the Warrior in Transition Unit Complex's stormwater detention system outfall has not been completed. The Fort Belvoir BRAC/South Post Hospital Jurisdictional Determination (NAB 2007-1430-M15, May 21, 2007) established a 100 feet buffer for the hospital stream restoration as part of the permitting action. The design of the stream restoration accommodates needs of both the hospital and Warrior in Transition Unit and no encroachment or direct impacts to wetlands or resource protection areas is anticipated. Requirements of the issued permits will be complied with to ensure that impacts are not significant.

3.7.6 How would Fort Belvoir avoid or minimize adverse effects from construction?

Prior to construction of the proposed Warrior in Transition Unit Complex, Fort Belvoir would prepare a stormwater management plan, supported by a stormwater pollution prevention plan, and a soil erosion and sediment control plan, that would provide mitigation measures and best management practices aimed at minimizing soil erosion and runoff from construction projects. Low impact development strategies would be used for the development of the site.

3.7.7 How would the No Action Alternative affect wetlands?

Under the No Action Alternative, the Warrior in Transition Unit Complex would not be constructed and there would be no impacts to wetlands.

3.8 Upland Vegetation and Wildlife

3.8.1 What is the study area and how was it determined?

The study area for upland vegetation and wildlife includes the areas within the boundaries of the proposed project site on 9th Street. The study area was determined to be the areas that could potentially be impacted by the implementation of the Warrior in Transition Unit Complex.

3.8.2 What types of vegetation and wildlife habitat are found in the study area?

Vegetation found within the project site is characteristic of semi-improved grounds on the installation; including landscape urban trees, shrubs, and maintained lawn that was once part of the former South Post golf course. An urban forest inventory was completed for the installation in 2000, which provides locations, species, and sizes of urban trees on the installation (Fort Belvoir, 2001a). Tree species found within the project site are composed mainly of white oak (*Quercus alba*), red oak (*Q. rubra*), chestnut oak (*Q. prinus*), and American beech (*Fagus grandifolia*) (Fort Belvoir, 2008a). Maintained lawn consists of tall fescue (*Festuca elatior*) and Kentucky bluegrass (*Festuca arundinacea*) (Fort Belvoir, 2001a). Adjacent to the west side of the project site is a forested area previously disturbed that is now in the early successional stages, with a mix of grass with shrub/scrub woody vegetation.

Wildlife habitat found within the project site consists of semi-improved grounds with landscaped trees and maintained lawn areas. Adjacent to the west side of the project site is a Partner-in-Flight (PIF) Area. This area is characterized as in a transitional and early successional stage of vegetation, and provides valuable habitat for the Scarlet Tanager (*Piranga olivacea*).

3.8.3 Which common wildlife species is known to live in the study area?

Wildlife species found on the project site are typical of those found in urban areas. White-tail deer (*Odocoilus virginiana*) and woodchuck (*Marmota monax*) occur throughout the installation. Other

mammals include gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), house mouse (*Mus musculus*), and red fox (*Vulpes vulpes*). Bird species include the Scarlet Tanager and migratory and non-migratory bird species.

3.8.4 How are wildlife habitats connected within the study area?

Fort Belvoir has a designated Forest and Wildlife Corridor covering approximately 740 acres to protect forested wildlife habitat and to preserve an important wildlife migratory corridor through the installation. This corridor connects the Huntley Meadows County Park just north of the installation to the Jackson Miles Abbott Wetland Refuge (JMAWR) on the North Post. The corridor continues through the installation to the Accotink Bay Wildlife Refuge (ABWR) on the South Post and on to the Mason Neck State Park and the Potomac River National Wildlife Refuge Complex south of the installation (Fort Belvoir, 2001a).

The proposed site for the Warrior in Transition Unit Complex is not located within the Forest and Wildlife Corridor, but to the south of it.

3.8.5 Do any special status species occur in the study area?

Fort Belvoir supports potential habitat for the federally listed small whorled pogonia (*Isotria meloides*) and habitat for the recently-delisted bald eagle (*Haliaeetus leucocephalus*). The wood turtle (*Clemmys insculpta*) and the Northern Virginia Well Amphipod (*Stygobromus phreaticus*) are the state-listed threatened species known to inhabit Fort Belvoir. Much of the installation's bald eagle habitat is contained within the Accotink Bay Wildlife Refuge, though there is also a bald eagle nest to the east, along Dogue Creek. The shoreline along Gunston Cove is bald eagle foraging area. Some of the wood turtle habitat is included within the installation's two refuges and the Fort Belvoir Forest and Wildlife Corridor (Fort Belvoir, 2001a).

> ***Endangered Species Act of 1973 (ESA)*** requires federal agencies that fund, authorize, or carry out an action to ensure that their action is not likely to jeopardize the continued existence of any endangered or threatened species (animal and plant species) or result in the destruction or adverse modification of designated critical habitat.
>
> ***Special Status Species*** include species listed under the ESA as endangered, threatened, proposed endangered, proposed threatened,, candidate, and species of special concern; and species listed by the Virginia Department of Conservation and Recreation as endangered, threatened, or rare.

A survey for the small whorled pogonia was conducted on 6 June and 3 July 2007 found potential habitat for the species to exist nearby the 9th Street site. Medium-quality habitat was found in two areas within the adjacent forested area; in the southwestern quadrant along both sides of the ravine at the stream crossing with 9th Street and in the northeastern quadrant. However, during the survey no individuals were found (WSSI, 2007b). No surveys for the wood turtle were conducted at the proposed Warrior in Transition Unit Complex site because habitat for the species does not exist on-site (Vega, 2008). Additionally, the proposed Warrior in Transition Unit Complex site does not contain potential habitat for this species (Royal, 2009). The closest active bald eagle nest is located on the shore of Dogue Creek (Fort Belvoir, 2008b).

The Fort Belvoir Natural Heritage Inventories conducted by the Virginia Department of Conservation and Recreation – Division of Natural Heritage (VDCR-DNH) identified seven Virginia state rare animal species and four Virginia state rare plant species on the installation. The inventory also identified 16 state watchlist animal species and three state watchlist plant species on Fort Belvoir (Fort Belvoir, 2001a).

Informal correspondence requesting additional information on threatened or endangered species with the potential to occur in the vicinity of the proposed project area at 9th Street is in process with the U.S. Fish and Wildlife Service (USFWS, Gloucester Virginia Field Office) and the Virginia Department of Game and Inland Fisheries (VDGIF), and has been completed with the Virginia Department of Conservation

and Recreation – Division of Natural Heritage (VDCR-DNH). VDCR-DNH data shows the presence of natural heritage resources in the project area. However, due to the scope of activities and the distance from the resources, it is not anticipated that implementation of the Warrior in Transition Unit Complex will adversely affect these natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the VDCR, the VDCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. It was determined that the proposed activity will not affect any documented state-listed plants or insects.

3.8.6 What other wildlife resources/programs are important at Fort Belvoir?

As part of natural resources management on Fort Belvoir, the installation's wildlife program has been setting aside large blocks of special natural area for conservation. Fort Belvoir has four designated Special Natural Areas that are managed with the primary emphasis on conservation – the Accotink Bay Wildlife Refuge (1,479.5 acres), the Jackson Miles Abbott Wetland Refuge (233.5 acres), the T-17 Ravine Conservation Site (69.4 acres), and the Fort Belvoir Forest and Wildlife Corridor (742 acres) (Fort Belvoir, 2001a; Fort Belvoir, 2008b). These designated areas comprise approximately 2,525 acres of the installation.

The Accotink Bay Wildlife Refuge includes all of the tidal marsh wetlands associated with Accotink and Pohick Bays. The Jackson Miles Abbott Wetland Refuge is located along Dogue Creek in the northeastern part of the installation. These two refuge areas total 1,506 acres and were established to protect sensitive wetlands and wildlife habitats and provide opportunities for bird watching. The T-17 Ravine Conservation Site is located along Gunston Cove and was established as a refuge for the Northern Virginia Well Amphipod. The Fort Belvoir Forest Wildlife Corridor connects the Huntley Meadows County Park just north of the installation to the Jackson Miles Abbott Wetland Refuge on the North Post. The corridor continues through the installation to the Accotink Bay Wildlife Refuge (ABWR) on the South Post and connects to the Mason Neck State Park and the Potomac River National Wildlife Refuge Complex south of the installation. This corridor was established to protect forested wildlife habitat and to preserve an important wildlife migratory corridor through the installation. These designated conservation areas, which also include areas of steep slopes and wetlands, are considered environmentally constrained to development. This designation has been effective at safeguarding valuable wildlife habitat from loss to development (Fort Belvoir, 2001a). None of the Special Natural Areas exist within the area of the proposed site for the Warrior in Transition Unit Complex.

Fort Belvoir and the Department of Defense are partners in promoting and supporting the Partners in Flight (PIF) Program. PIF is a partnership of federal and state agencies, industry, non-governmental organizations, and many others, with the goal of conserving North American birds (Ruth, 2006). The PIF Program strives to address the problems facing neotropical migratory birds through communication, cooperation, and conservation efforts (Fort Belvoir, 2001a). There is a PIF buffer area for the Scarlet Tanager in the wooded area just to the west of the proposed Warrior in Transition Unit Complex site at 9th Street.

3.8.7 Do any rare ecological communities occur in the study area?

There are 89 plant and animal species with state rarity or conservation rankings of either S3 (rare to uncommon), S2 (very rare), or S1 (extremely rare) that occur on Fort Belvoir. In addition, seven rare ecological community types have been identified as having rankings of S3, S2, or S1 (Fort Belvoir, 2001a). These communities have delineated boundaries on Fort Belvoir that encompass all of the rare plant species and rare ecological communities, and most of the rare animal species. No rare ecological community types exist within the area of the proposed site for the Warrior in Transition Unit Complex.

3.8.8 How would the project affect upland vegetation?

There would be minor impacts to vegetation as a result of the development and operation of the Warrior in Transition Unit Complex. Vegetation that would be lost as a result of site development includes areas of maintained lawn of the former South Post golf course area located at the corner of Belvoir Road and 9th Street.

Development of the proposed site would convert approximately 16.6 acres of maintained lawn area with scattered trees into developed facilities and associated landscape. Most of the existing vegetation within the footprint of the proposed Warrior in Transition Unit Complex would be permanently and completely removed during construction. Desirable trees that are to be protected and preserved on the project site will be specified in the Tree Preservation Plan. Some species to be protected include white oak, chestnut oak, and hickory.

New vegetation would be planted around the buildings, parking areas, and walkways once construction is complete. Grass turf would be established within the construction limits. Species to be planted are specified in Fort Belvoir's Approved Plant List (Fort Belvoir, 2008c). The seed/sod mix for turf re-establishment would be approved by the Fort Belvoir Forestry Manager to meet seasonal needs. Impacts to vegetation would be adverse but not significant because the project site is located in a predominantly developed area, with lawn and thinly scattered trees and shrubs commonly found within the region.

Forestry Best Management Practices would be implemented where possible during clearing and construction activities, including such activities as limiting erosion and runoff with various soil stabilization techniques and revegetation. Other Best Management Practices would be implemented consistent with the requirements established in the Virginia erosion and sediment control and stormwater management regulations. Along with compliance with the Virginia General Permit for Stormwater on Construction Sites, this would minimize potential for adverse impacts to vegetation and habitat in adjacent forested and wetland areas.

3.8.9 How would the No Action Alternative affect upland vegetation?

Under the No Action Alternative, the Warrior in Transition Unit Complex would not be constructed and no impacts to upland vegetation would occur.

3.8.10 How would the project affect wildlife?

Much of the preferred alternative site is developed and consists of the former South Post golf course and maintained lawn. Maintained grassy areas have limited value as wildlife habitat, due to the lack of vegetative cover. Wildlife use in the area would be minimal and transient in nature due to the lack of natural habitat. Construction activities would likely result in the mortality of some less mobile fauna such as reptiles, amphibians, nesting birds, and small mammals. Most wildlife would be expected to relocate from areas within or immediately surrounding construction areas. After construction is completed, it is expected that some of the displaced species, particularly birds, would return and use the areas adjacent to the developed areas. No significant adverse impacts to wildlife on the proposed project sites are expected.

Additionally, wildlife species that do occur in the vicinity could be disturbed as a result of increased noise from construction. Disturbance would be minimal because wildlife species that do occur in the area would be limited, and adapted to the noise conditions associated with the surrounding land uses. Any disturbance resulting from construction would be short-term and last only during the construction process. Wildlife disturbed by noise from the construction process would be expected to relocate from the immediate area and adjacent areas. Many of these species would be expected to return to the area following the completion of construction activities, since they are adapted to developed areas.

3.8.11 How would the project affect Special Status Species?

No impacts to special status species are expected from the implementation of the Warrior in Transition Unit Complex at the 9th Street site. The proposed project site does not contain suitable habitat for the wood turtle. Medium-quality habitat for the small whorled pogonia exists in the ravine within the forested area west of the proposed project site; however, surveys conducted in 2007 did not find the occurrence of any individual specimens. Construction of the Warrior in Transition Unit Complex would not encroach into the ravine where suitable habitat for small whorled pogonia was found. As such, there would be no impacts to stream hydrology that would alter the identified suitable habitat as construction of impervious surfaces would not occur near the ravine.

Although the bald eagle was delisted by the U.S. Fish and Wildlife Service (USFWS) from the federal endangered species list on June 28, 2007, effective August 8, 2007, the species is still protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Fort Belvoir complies with the Bald Eagle Protection Guidelines provided by the USFWS and Virginia Department of Game and Inland Fisheries (VDGIF). However, the closest active bald eagle nest site at Dogue Creek does not occur in proximity to the proposed development area; therefore, no impacts to bald eagle nests or their foraging activities would be expected as a result of construction of the Warrior in Transition Unit Complex. Fort Belvoir's Environmental and Natural Resource Division staff confirmed 2009 data that no new nests occur within 0.25 mile of the project area.

Construction contractors will be provided with wood turtle information sheets and made aware of the possible presence of wood turtles. If any wood turtles are encountered during the construction, relocation and coordination with the Department of Game and Inland Fisheries will be completed by Environmental and Natural Resource Division.

3.8.12 How will we avoid or minimize adverse effects on vegetation and wildlife during construction?

The project site is located in a predominantly developed area, with lawn and thinly scattered trees and shrubs. Adverse effects on vegetation and wildlife during construction would be minimized with the use of Best Management Practices. Forestry Best Management Practices would be implemented where possible during clearing and construction activities, such activities as limiting erosion and runoff with various soil stabilization techniques and revegetation. Other Best Management Practices would be implemented consistent with the requirements established in the Virginia erosion and sediment control and stormwater management regulations. Additionally, compliance with the Virginia General Permit for Stormwater on Construction Sites would minimize the potential for adverse impacts to vegetation and wildlife in adjacent forested and wetland habitats.

3.8.13 Would Fort Belvoir mitigate any unavoidable negative effects?

Fort Belvoir would mitigate any unavoidable negative effects. Measures that would be taken include:

- Prior to construction a final tree survey would be conducted indicating the trees to be removed.
- A Tree Protection Plan would be developed and implemented prior to construction to indicate existing trees to remain and the protection actions required to preserve the trees.
- Fencing would be placed around the trees to remain that are located within the construction limits.
- Existing mature trees on site would be preserved to the extent practical.
- Once construction is complete, the project site would be landscaped with trees, shrubs, groundcover, seeding, and turf. Low maintenance and native plant material would be used. Landscaping would match the overall theme of the Installation as instructed in Fort Belvoir's Approved Plant List.

- Replacement at a 2:1 ratio would occur for every tree 4 inches or greater in diameter removed during construction. Replacement trees will be 2 inches to 2 ½ inches in diameter and consistent with the tree species removed.

3.8.14 How would the No Action Alternative affect wildlife, including Special Status Species?

Under the No Action Alternative, the Warrior in Transition Unit Complex would not be constructed and no impacts to wildlife would occur. Since the area does not contain suitable habitat for the wood turtle, no impacts to the wood turtle would be expected. Surveys conducted in 2007 for small whorled pogonia found medium-quality habitat in the ravine near 9th street and in the northeastern quadrant of the adjacent forested area. Implementation of the No Action alternative would not affect these areas; therefore, no impacts to the small whorled pogonia or its habitat would occur.

3.9 Historic, Cultural, and Architectural Resources

3.9.1 What standards apply to effects on Cultural Resources?

Federal actions that have the potential to affect cultural resources are subject to a variety of laws and regulations. The *National Historic Preservation Act* (NHPA) of 1966, as amended, is the principal legislative authority for managing cultural resources associated with federal projects. Generally, Section 106 of the NHPA requires all federal agencies such as the Army to consider the effects of their actions on cultural resources listed and/or determined eligible for listing in the National Register of Historic Places (NRHP). Such resources are termed "historic properties" and may include buildings, sites, structures, districts, and objects which meet the NRHP's Criteria of Eligibility. Agreement on mitigation of adverse effects on historic properties is reached through consultation with the State Historic Preservation Officer; Tribal Historic Preservation Officer, if applicable; and as required, the Advisory Council on Historic Preservation (Advisory Council). In addition, the NHPA requires that federal agencies take action to minimize harm to historic properties that would be adversely affected by a federal undertaking. Section 110 of the NHPA also charges federal agencies with the responsibility for establishing programs for the identification, evaluation, and nomination of historic properties on their land to the NRHP.

What Qualifies a Cultural Resource for the National Register?

Eligibility for the NRHP is established according to the official Criteria of Evaluation issued by the Department of the Interior. The criteria are based upon:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and: (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded or may be likely to yield, information important in prehistory or history.

Certain historic properties deemed to be of exceptional national significance have been designated National Historic Landmarks (NHLs) by the Department of the Interior. Additionally, Virginia and Fairfax County maintain their own lists, often overlapping with the NRHP, of historic properties worthy of protection.

In accordance with the regulations implementing Section 106 (36 CFR Part 800), impacts on cultural resources are identified and evaluated by (1) determining the area of potential effects (APE); (2) identifying cultural resources present in the APE that are either listed in or eligible to be listed in the NRHP (i.e., historic properties); (3) applying the criteria of adverse effect to affected historic properties; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

The Federal Government has certain obligations with regard to items of cultural patrimony and sacred sites associated with Native Americans. Although these responsibilities are often included under the rubric of cultural resources compliance, they are defined in separate laws which afford federally recognized tribes status to engage in nation to nation consultations on matters where the tribes' traditional practices and items of cultural patrimony are affected by the actions of federal agencies.

What If There Is an Effect?

Under the implementing regulations for Section 106, a determination of either *adverse effect* or *no adverse effect* must also be made for affected historic properties. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the proposal that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5). A determination of *no adverse effect* means there is either no effect or that the effect would not diminish, in any way, the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

3.9.2 What is the study area for this analysis?

The APE for this analysis is defined as the area from the southern edge of the Community Hospital site/proposed 6th Street extension, south to 9th Street, and between Belvoir Road and Gunston Road.

What is an Area of Potential Effect (APE)?

According to the regulations implementing Section 106, "Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." (36 CFR 800.16 [d]).

For an undertaking such as the Warrior in Transition Unit Complex, the APE would include, at a minimum, the land within the project's limits of construction, an area that might include ancillary supporting facilities as well. In theory, a more expansive APE might be justified by other circumstances such as the project's creating a visual intrusion on the setting of a neighboring historic property, lighting effects could cause excessive light/brightness, a disruption to a documented cultural landscape, or even the creation of excessive offsite noise or traffic impacts that would degrade the character of a historic property or district.

3.9.3 Are any cultural resources located in the area of potential effects?

Fort Belvoir has completed its responsibility under Section 110 of NHPA to survey the installation and identify, by means of professional consultant surveys carried out in accordance with the relevant Secretary of Interior Standards, all cultural resources eligible for the NRHP. Cultural resources surveys of both historic buildings or structures and archaeological resources were carried out with regard to the accepted prehistoric and historic contexts of the region from its occupation by Native Americans through its settlement by Europeans and utilization by the U.S. Army. The findings of these surveys as well as management policies and procedures for the treatment of historic resources were incorporated, in accordance with Army policy, in the 2001 *Fort Belvoir Integrated Cultural Resources Management Plan* (ICRMP). (Fort Belvoir, 2001b)

At the time of the development of the 2001 Fort Belvoir ICRMP, the site that has now been designated as the proposed site for the Warrior in Transition Unit Complex was part of the South Post Golf Course, which was a contributing element of the Fort Belvoir Historic District, determined eligible for the NRHP. However, subsequent decisions taken under the 2005 BRAC mandated redevelopment of Fort Belvoir

have led to the redevelopment of the majority of the land of the South Post Golf Course as the site of the new Community Hospital. The loss of the historic South Post Golf Course was pursuant to consultations with the Virginia Department of Historic Resources (the State Historic Preservation Office [SHPO]) as documented in the Programmatic Agreement with the SHPO in support of 2005 BRAC. As indicated above, the Community Hospital is now under construction (in 2009) and its existence forms part of the baseline for this EA. Therefore the South Post Golf Course as a whole has lost its integrity and no longer exists as a NRHP historic property.

Otherwise, there are no other cultural resources, including archaeological sites, present at the proposed site of the Warrior in Transition Unit Complex (Manning, 2009). The nearest building carried on the Fort Belvoir inventory of historic structures is Building 00815, a Cold War era barracks now used as a health clinic. It is not, however considered historically sensitive due to the provisions of a Program Comment of the Advisory Council on repetitive structures of this kind, nor would the Warrior in Transition Unit Complex be close enough in any case to it to affect its setting.

No sacred sites associated with Native Americans are found at the proposed project site.

3.9.4 How would the project affect cultural resources?

If the complex is placed at the proposed location, it would not be visible or affect the setting of any historic property inside or outside the boundaries of Fort Belvoir included in Fairfax County's Woodlawn Historic Overlay District, which has been developed to protect viewsheds from Woodlawn Plantation and other important related resources (USACE, 2007a). The Warrior in Transition Unit Complex's tallest planned building is four stories in height.

The construction and operation of the Warrior in Transition Unit Complex at the proposed site would create only minor incremental increases to the traffic flows and noise effects associated with the larger BRAC redevelopment, including the Community Hospital, with regard to historic resources near entry points to the post such as the Friends Meeting House and Burial Ground.

3.9.5 Are there measures needed to avoid, minimize, or mitigate adverse effects to cultural resources?

In terms of the regulations implementing Section 106 of NHPA, the Warrior in Transition Unit Complex as an undertaking would have no adverse effect upon historic properties on or eligible for the NRHP. Therefore, there would be no measures needed to avoid, minimize, or mitigate adverse effects to cultural resources beyond certain standard practices brought into play by eventualities, such as an unforeseen discovery during construction of potentially significant archaeological resources, items of traditional cultural patrimony, or human remains. Any unforeseen discoveries would be handled in accordance with the BRAC Programmatic Agreement.

3.9.6 How would the No Action Alternative affect cultural resources?

Under the No Action Alternative there would be no effect upon cultural resources.

3.10 Socioeconomics

3.10.1 What is the study area for analysis?

The study area, or the Region of Influence (ROI), for this project includes Fort Belvoir and Fairfax and Prince William Counties. These two counties may experience economic, demographic, housing and environmental justice effects associated with incoming personnel and construction projects for the Warrior in Transition Unit Complex.

3.10.2 Who lives within the study area?

Fort Belvoir is located in a densely populated region; Fairfax County and Prince William County are growing suburbs in the Greater Washington Area. Fairfax has an estimated population of 1,010,241 people, while Prince William has a smaller population of about 360,411 people, yielding a total population of 1,370,652 for the study area (U.S. Census 2007). The population of the study area is expected to be 1,887,200 by the year 2030 (USACE, 2007a). The analysis for this assessment assumes that approximately 460 employees and patients could be added by the proposed action to those already at Fort Belvoir involved in the Warrior in Transition program.

Table 3-14 provides data from the U.S. Census Bureau on race and ethnicity for Fort Belvoir, Fairfax and Prince William Counties, Virginia, and the United States. Table 3-15 provides similar data as estimated by the American Community Survey for 2007. These data are important because Executive Order (EO) 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires all federal agencies to evaluate how their programs, policies and activities could affect minority and low-income neighborhoods. Federal agencies must examine whether their proposed actions are having an unfair affect on communities or neighborhoods because of their race, color or national origin.

The tables below show that both Fairfax and Prince William Counties are more ethnically diverse than the State as a whole. For Tables 3-14 and 3-15, "Fort Belvoir Census Designated Place (CDP)" coincides with the boundaries at Fort Belvoir. Located within these boundaries along U.S. Route 1 is a small community called Accotink Village. Accotink Village is home to proportionately more non-white minorities than the State as a whole. More than half of Accotink Village residents are minorities; therefore, the area qualifies as an environmental justice community based on racial or ethnic criteria (U.S. Army 2008).

Table 3-14: Race and Ethnic Distribution for 2000 Census (Percent)

Jurisdiction	White	Black	American Indian or Alaskan Native	Asian	Native Hawaiian or other Pacific Islander	Hispanic	Some Other Race
Fort Belvoir CDP	55.7	31.8	0.54	1.7	0.89	10.5	5.0
Fairfax County	70.0	8.7	0.26	13.0	0.07	11.0	4.5
Prince William County	69.0	18.8	0.39	3.8	0.13	9.7	4.3
Virginia	72.3	19.6	0.30	3.7	0.06	4.7	2.0
United States	75.1	12.3	0.88	3.6	0.14	12.5	5.5

Source: U.S. Census Bureau 2000a

Table 3-15: 2007 Race and Ethnic Distribution Population Estimate (Percent)

Jurisdiction	White	Black	American Indian or Alaskan Native	Asian	Native Hawaiian or other Pacific Islander	Hispanic	Some other Race
Fort Belvoir CDP*	55.7	31.8	0.54	1.7	0.89	10.5	5.0
Fairfax County	66.5	9.5	0.17	16.0	0.11	13.6	5.6
Prince William County	59.7	19.7	0.19	7.1	0.04	19.2	20.3
Virginia	70.4	19.6	0.30	4.8	0.07	6.5	2.8
United States	74.0	12.4	0.78	4.4	0.14	15.1	6.2

Source: U.S. Census Bureau 2007. *Data for 2000 is the only data available for this location

3.10.3 Are there low income communities within the study area?

There are low income communities in the study area. Based on Census 2000 data, about 5.6 percent of the Fort Belvoir CDP received incomes below the poverty level (Fort Belvoir, 2008b). In 2000, about 4.5 percent of people in Fairfax County and 4.4 percent of people in Prince William County lived below the poverty level (U.S. Census 2000b). These percentages are significantly less than comparable State and National values (Table 3-16).

Poverty status data is unavailable for Accotink Village; however, the 2000 median household income of $31,696 falls well below median household incomes for Fairfax and Prince William Counties, Virginia, and the U.S. Therefore, Accotink Village qualifies as an environmental justice community based on income. Conversely, both Fairfax and Prince William Counties have median household incomes that exceed State and National levels; therefore, these counties do not qualify as low-income communities. Table 3-18 shows income levels and poverty status for the study area.

Table 3-16: Median Income and Poverty Status for 1999 (2000 Census Data)

Jurisdiction	Median Household Income ($)	Median Family Income ($)	Per Capita Personal Income ($)	Persons Living Below Poverty (Percent)
Fort Belvoir	39,592	39,107	12,453	5.6
Fairfax County	81,050	92,146	36,888	4.5
Prince William County	65,960	71,622	25,641	4.4
Virginia	46,677	54,169	23,975	9.6
United States	41,994	50,046	21,587	12.4
Accotink Village	31,696	26,875	N/A	N/A

Source: U.S. Census 2000b and Fort Belvoir, 2008b

3.10.4 Would the project at the proposed site unfairly affect minority or low-income populations?

Two questions must be addressed to determine whether or not implementation of the Warrior in Transition Unit Complex would unfairly affect minority or low-income populations:

1) How would the proposed construction and operation of the proposed Warrior in Transition Unit Complex affect people living in the area?

2) Would the residents of Accotink Village be disproportionately affected as compared to other residents in the area?

The most likely impacts to the study area include:

- Noise, dust, fumes and debris generated from construction of the proposed Warrior in Transition Unit Complex;
- Traffic increase from construction workers; and
- Traffic increase from new personnel working at the Warrior in Transition Unit Complex and the off-site wounded warriors being treated there.

The details of these impacts, how traffic and air quality would be affected, are discussed in Sections 3.2 and 3.3 of the EA. Accotink Village is not adjacent to or close enough to the construction site to be adversely affected by construction dust and fumes. Additionally, construction is unlikely to cause noise at levels that can be perceived by Accotink Village residents due to their location away from the construction. Traffic impacts would also not affect Accotink residents any more than they would affect those living in the surrounding study area or those traveling along U.S. Route 1. Therefore, the proposed Warrior in Transition Unit Complex would not result in any disproportionate impacts to residents of Accotink Village.

3.10.5 Are there children living in the study area?

Table 3-17 shows the percentage of the populations at Fort Belvoir, Fairfax and Prince William Counties, Virginia, and the U.S. that are under the age of 18, as of 2000 and Table 3-18 shows the percentage of the populations at Fort Belvoir, Fairfax and Prince William Counties, Virginia, and the U.S. that are under the age of 18, as of 2007. In 2000, the Fort Belvoir CDP had a higher proportion of under-18 residents than the State as a whole because of the many military families housed on the post. These under-18 residents are likely to be concentrated in the residential areas of the post, most of which are located on the South Post (Fort Belvoir, 2008b). Similar to EO 12898, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires government agencies to recognize that children may suffer more than adults from environmental health and safety risks (children are more apt to ingest or touch items that contain contaminants e.g., lead paint on window sills). EO 13045 directs federal agencies to identify and assess such risks, and to ensure that its policies, programs, activities, and standards address effects on children.

Table 3-17: Population Under 18 Years (2000)

Jurisdiction	Population under 18 (Percent)
Fort Belvoir	44.4
Fairfax County	25.4
Prince William County	30.4
Virginia	24.6
United States	25.7

Source: U.S. Census 2000c

Table 3-18: Population Under 18 Years (2007)

Jurisdiction	Population under 18 (Percent)
Fort Belvoir	N/A
Fairfax County	24.3
Prince William County	29.6
Virginia	23.6
United States	24.5

Source: U.S. Census 2007

3.10.6 Would the project at the proposed site disproportionately affect children?

The first thing to consider is that construction and operation of the proposed Warrior in Transition Unit Complex would adhere not only to LEED standards but to all environmental regulations as well. This would ensure that the construction and operation process would not generate unmitigated and unregulated toxic substances or materials.

It is also unlikely that children would gain access to the Warrior in Transition Unit Complex without adult supervision as the site is used for soldier rehabilitation and administrative purposes. However, the proposed facility does include a playground and activity area in which children associated with those working or visiting the Warrior in Transition Unit Complex may occupy themselves under adult supervision. Therefore, the project is unlikely to disproportionately affect children.

3.10.7 Is there a high or low rate of unemployment within the study area?

In 2007 the United States Bureau of Labor Statistics (USBLS, 2007) reported an unemployment rate of 4.6 percent for the U.S. and 3.0 percent for Virginia. Both Fairfax and Prince William Counties have unemployment rates lower than the State and National averages at 2.2 and 2.5 percent respectively.

3.10.8 Would the project increase or decrease area employment?

In order to analyze the effects of the proposed action on socioeconomic resources in the Region of Influence (ROI), a model was used that would allow for the evaluation of the significance of the impact to the ROI. The result of construction spending in the ROI was examined for both direct effects, such as employment and the salaries that employment provides to construction workers, and indirect effects, or the effect of those salaries and associated spending on the larger economy in the ROI. Subsequent changes in local economic activity are computed as the product of initial changes in sales volume, either increases or decreases, and a local impact multiplier. In total, the model examines changes in sales volume, income, employment, and population in the ROI, accounting for the direct and indirect effects of the action. Appendix E discusses this methodology in more detail.

Construction of the Warrior in Transition Unit Complex would generate direct economic benefits to the contractors and employees performing their jobs, as well as indirect benefits to the study area. The earnings generated by this work would be felt further down the line as these earnings would be spent in the local economy. As discussed in Appendix E, the model predicts that implementation of the Warrior in Transition Unit Complex could result in annual direct sales of approximately $79 million and indirect (induced) sales of an additional $100 million, or $179 million total. For the ROI of Fairfax and Prince William Counties, however, this represents only about a 0.22-percent boost to the ROI.

Implementation of the Warrior in Transition Unit Complex would also slightly increase area employment. The anticipated new personnel added by completion of the Warrior in Transition Unit Complex are assumed to include approximately 371 military personnel and 87 civilian workers, as well as several volunteers. It is assumed that about half of the paid civilian positions could be filled by the local workforce so there would be minimal impact to area demographics. The additional employees represent 0.16 percent of the existing workforce of the study area. Moreover, the new personnel increase represents only 0.08 percent of the local population.

Therefore, the impacts on the proposed action on the economy and working population of the study area, from both a direct and cumulative perspective, would be beneficial but quite small.

3.10.9 Would the No Action Alternative cause any impacts to socioeconomics in the study area?

The No Action Alternative is a continuation of baseline conditions at Fort Belvoir. Therefore, the No Action Alternative would not have any impacts to socioeconomics in the study area as this alternative would not involve new construction or population increase.

3.11 Community Facilities and Services

3.11.1 What is the study area for the analysis?

The study area for this project includes Fort Belvoir and Fairfax and Prince William Counties. These are the communities that would most likely provide the services and facilities that would be used by the proposed Warrior in Transition Unit Complex employees, volunteers, and visitors.

3.11.2 What are the community facilities and services in the study area?

Community services include government-provided safety, security, and medical services. Community facilities are primarily schools and active and passive recreational facilities in public ownership. An increase in population living or working within a specific area can increase the need for these services and facilities, thus pressuring governments to expand services or provide additional new facilities.

3.11.3 Who provides safety and security services in the study area?

Safety and security issues at Fort Belvoir are handled by the Army's Military Police (MP) and Fire and Emergency Medical Services (EMS). The MP headquarters are located on Abbot Road, on the North Post. There are three fire stations on Fort Belvoir, housing five fire companies (three engine companies,

one ladder truck company, and one airport crash company), with a total staff of approximately 65 firefighters (Fort Belvoir, 2008b).

Fairfax County is served by the Fairfax County Police Department. The Fairfax County Police Department operates from a headquarters building in the courthouse complex in the City of Fairfax and eight district police stations in Mclean, Sully, Reston, Fair Oaks, Mount Vernon, Franconia, West Springfield and Mason (Fairfax County, No date). Fire safety is handled by the Fairfax Fire and Rescue Department, which operates with over 3,000 employees (some uniformed and some volunteer) located out of 37 rescue stations over the county (Fairfax County, 2008).

Prince William County is served by the Price William County Police Department. The Prince William County Police Department serves the community through its Western District Station in Woodbridge, its Eastern District Station in Manassas and 12 satellite stations (Prince William County, No date). Fire safety is handled by the Prince William County Fire Department, which operates with 506 members (some career and some volunteer) (Prince William County, 2009). Eleven (11) volunteer departments and the career department provide emergency response from 20 stations strategically located throughout the County (PWCDFR, 2007).

3.11.4 What types of schools are operating in the study area?

Children living on Fort Belvoir attend schools that are part of the Fairfax County Public School System (FCPS). There are 314 schools in the study area, 226 in Fairfax County and 88 in Prince William County. This includes elementary, middle, and high schools; alternative high schools; and special education, alternative program, and alternative learning centers (NCES, 2009). The Fort Belvoir Elementary School, located on the installation, is one of the largest elementary schools in the FCPS, serving more than 1,200 students from kindergarten through sixth grade (USACE, 2007a).

3.11.5 How would the project affect these services?

Any project that has the potential to increase the number of employees or visitors to an area also could cause an increased demand for, and therefore pressure on, fire, police, and emergency medical services. However, the increase in number of employees, volunteers, and contractors associated with the Warrior in Transition Unit Complex would not have an effect on the operation of services provided in the study area. This is because many of these individuals already use County services provided in Fairfax and Prince William Counties. The number of incoming individuals associated with the Warrior in Transition Unit Complex is negligible compared to the number of Fort Belvoir employees and Fairfax and Prince William County residents that are presently using or that will be using these services by the time the Warrior in Transition Unit Complex is fully constructed. Therefore, the impact of the project on these services would be minimal.

3.11.6 What recreational facilities are available to Fort Belvoir workers and residents?

Fort Belvoir's primary shopping area is the PX Mall on North Post, a discount retail store run by the Army and Air Force Exchanges Services (AAFES). The PX Mall provides goods and services to active duty military, their families, retirees, and reservists. Other shops and service establishments on Fort Belvoir include SunTrust Bank, the Belvoir Federal Credit Union, the Religious Education Center, the Chaplain Family Life Center, the Joint Personal Property Shipping Office, the Barden Education Center, the Van Noy Library, the Veterinary Clinic, and the Self-Help Center (USACE, 2007a).

Fort Belvoir's Family, Morale, Welfare and Recreation (FMWR) program also provides many recreation, sports, entertainment, travel, and leisure activities for soldiers, their families, retirees, and civilians. FMWR facilities include an officer's club, community club, a 36-hole golf course on the North Post with full service golf club and dining facilities, tennis courts, swimming pools, athletic fields, archery range, picnic areas, playgrounds, soccer fields, football fields, softball fields, walking and running trails, youth services center, a 24-lane bowling center with snack bar, and the Sosa Community Center. The Fort

Belvoir Marina has wet slips and dry-storage facilities that can be rented on an annual basis. Some of Fort Belvoir's undeveloped areas are open to recreational use for fishing, bow hunting, bird watching, nature hiking, and environmental education programs (USACE, 2007a).

Both Fairfax and Prince William Counties offer public parks, recreation facilities, and recreational programs including athletic fields for baseball, softball and soccer leagues, basketball courts, golf courses, tennis courts, swimming pools, and playgrounds.

3.11.7 How would the Warrior in Transition Unit Complex affect these facilities?

The proposed project site for the Warrior in Transition Unit Complex is compatible with the build-out of the former South Post golf course, which is now devoted to medical care. Existing tennis courts would also remain for use along with the existing Grill Restaurant on the north side of 9th Street. The proposed Warrior in Transition Unit Complex may increase some recreational opportunities, as the project includes an indoor recreation area, an outdoor playground and a child activity area. Moreover, the proposed SFAC facility includes space that may be used as a Family Resource Center to serve as a nonreligious meeting point for spouses of deployed soldiers and/or a Women, Infant and Children (WIC) office.

Otherwise the impacts on recreational facilities would be similar to the impacts on schools, fire, police, and emergency medical services – a negligible increase in the demand for, and therefore pressure on, recreational areas.

3.11.8 Would the No Action Alternative cause any impacts to community facilities and services in the study area?

The No Action Alternative is a continuation of baseline conditions at Fort Belvoir. Therefore, the No Action Alternative would not have any impacts to community facilities and services as no new construction would occur and no new personnel would arrive.

3.12 Infrastructure and Utilities

3.12.1 What is the study area for analyses?

Utilities being assessed in this EA include potable water supply and distribution, wastewater collection and treatment, natural gas supply and distribution, steam supply and distribution, electric power supply and distribution, communications, and solid waste collection and disposal. The study area for utilities includes the project site and its immediate vicinity, which contains the distribution system that would support the Warrior in Transition Unit Complex. It also considers major supply and collection components of the utility providers that could be affected by utility requirements at the Warrior in Transition Unit Complex.

3.12.2 How would potable water be supplied to the Warrior in Transition Unit Complex?

Fairfax Water provides potable water to Fort Belvoir as a wholesale customer from its Fredrick P. Griffith Water Treatment Plant in Lorton, Virginia. This plant has a production capacity of 120 million gallons per day (mgd). The existing water distribution system on Fort Belvoir South Post for domestic use and fire flows, which is available to supply the Warrior in Transition Unit Complex, is owned and operated by Fort Belvoir. The Army is in the process of privatizing the system. An existing 12-inch main runs along 9th Street and a 12-inch main along Belvoir Road is being replaced by a 16-inch main under the Belvoir Road expansion project. A new water main will also be placed along the extension of 6th Street as part of the Hospital project. The mains along 6th Street and 9th Street would be tapped for supply to the project site, and an existing water line through the site would be removed.

3.12.3 Is the proposed project site currently supplied with sufficient potable water?

Total consumption of potable water at Fort Belvoir averaged approximately 1.8 mgd in 2005 and 2.2 mgd in 2006, with a peak demand of 3.04 mgd (USACE, 2007a, Betts). Current contracted capacity for

potable water with Fairfax Water is 4.4 mgd (USACE, 2007a: Guerra, 2005), and the rated (or licensed) capacity of the potable water system as designed and permitted is 4.75 mgd according to storage capacity at Fort Belvoir. When the demand reaches 80 percent of the rated (or licensed) capacity, the corresponding regulating authority, the Virginia Department of Health, requires submission of a plan for system upgrade.

The increase in demand for BRAC projects and the National Museum of the U.S. Army is likely to surpass 80 percent of licensed capacity, necessitating a requirement to negotiate for additional contracted capacity with Fairfax Water for potable water (USACE, 2007a; Fort Belvoir, 2008b). Fairfax Water has sufficient capacity at present to meet the demand exerted by the community and the demand for potable water due to the proposed BRAC action (USACE, 2007a: Kirkpatrick, 2007). The water demand for the Warrior in Transition Unit Complex has been estimated as 0.078 mgd (EA, 2008), which is a minor increase relative to the other demands posed by the BRAC and museum projects and not cause for exceeding available capacity.

The distribution system in the vicinity of the project site is also considered inadequate to meet demands of the new hospital and other projects on South Post. There are two projects proposed to provide the required upgrades to the water distribution system infrastructure serving the Community Hospital area. These projects improve specific portions of the adjacent distribution system that will provide the primary feeds to the Community Hospital's internal loop, to include replacing 8-inch to 12-inch pipe along U.S. Route 1 with new 12-inch pipe, replacing 12-inch pipe along Belvoir Road with 16-inch pipe, and improving all existing connections.

A hydraulic study was conducted of the distribution system in the vicinity of the Warrior in Transition Unit Complex with these upgrades in place. It included the estimated 0.078 mgd demand for the Warrior in Transition Unit Complex plus all anticipated projects in the surrounding area, such as the hospital. It determined that the system pressure would register above the minimum pressure of 20 pounds per square inch (psi) required by the Virginia Department of Health (12 VAC 5-590-510) in all of 48 locations being modeled, with pressure above the desirable 40 psi in most locations, including those in the immediate vicinity of the Warrior in Transition site (EA, 2008).

Therefore, there will be adequate potable water with sufficient pressure for the Warrior in Transition Unit Complex when all actions and upgrades necessitated by other projects are in place. Its potable water requirements pose a minor impact to the system. The waterworks design will be reviewed and permitted by the Virginia Department of Health.

3.12.4 How would sanitary sewer service be supplied to the Warrior in Transition Unit Complex?

An 8-inch gravity line discharges into the future hospital sanitary sewer pump station located at the southwest corner of the Community Hospital project site. An eight (8)-inch force main will run from the pump station to the existing Fort Belvoir 21-inch gravity sewer, an approximate 2,700 feet distance. The capacity of the Hospital Sewerage Pump Station and size of the wet wells were increased by the Hospital contractor to accommodate the Warrior in Transition Unit Complex. The Warrior in Transition Unit Complex project will include sewer lines that connect its buildings to the Hospital 8-inch gravity line and will also increase the size of the pump station impellors to meet the flow requirements. Designs for these items will not be completed until design flows have been finalized. This system will convey the Warrior in Transition Unit Complex sewerage into the Fort Belvoir system for treatment and disposal off post. An existing sewer line through the site will be removed.

3.12.5 Is the proposed project site supplied with sufficient sanitary sewer service?

The daily average flow limit specified in Fort Belvoir's contract with Fairfax County is 3.0 mgd, and the maximum daily peak flow to the Fairfax County system is 6.0 mgd. The Fort Belvoir system ultimately discharges to Fairfax County's Norman M. Cole, Jr. Pollution Control Plant (formerly the Lower Potomac Pollution Control Plant), connecting to the county system through metered flows. The plant currently has

a maximum daily sewage treatment capacity of 67 mgd (USACE, 2007a: Osei-Kwadwo, 2007). The Norman M. Cole, Jr. Plant receives an average of 45 mgd from all dischargers to the system. It is estimated that the BRAC projects will increase total average wastewater discharged from Fort Belvoir to between 2.48 and 2.78 mgd, which approximately doubles Fort Belvoir requirements prior to accommodating the BRAC 2005 actions. For example, in fiscal years 2001 through 2003, Fort Belvoir discharged an average of between 1.1 and 1.4 mgd of wastewater. The Warrior in Transition Unit Complex could add .07 mgd of wastewater, based on an assumption of 85 percent of potable water use. This is a relatively small increase and a minor impact to the system that will be needed to serve the Fort Belvoir requirements when BRAC and other future facilities are in place.

Therefore, the Warrior in Transition Unit Complex would be supplied with sufficient sanitary sewer service. The sanitary sewer system design will be reviewed and permitted by the Virginia Department of Environmental Quality. The project will include removal of existing lines in the area that would no longer be required.

3.12.6 What are the stormwater requirements for the Warrior in Transition Unit Complex?

Fort Belvoir has a general stormwater permit and is classified as a small municipal separate storm sewer system (MS-4) discharger under applicable stormwater regulations. Under the applicable regulations, any construction activity such as clearing, grading, and excavation that is greater than 2,500 square feet (SF) requires a Virginia Stormwater Management Permit. Fort Belvoir also follows the Fairfax County Chesapeake Bay Preservation Ordinance at Chapter 118 of the Fairfax County Code.

The Warrior in Transition Unit Complex will disturb approximately 16.6 acres and it is estimated that approximately one-half of that area – 8 acres – will be covered by new impervious surfaces. Therefore, a stormwater management permit will be required. The State of Virginia and Fairfax County stormwater regulations require that stormwater runoff as a result of new development will be retained on site. A percentage of phosphorous must also be removed from stormwater runoff prior to leaving the site.

3.12.7 Is the proposed project site supplied with sufficient stormwater management?

Currently there are no stormwater management features that can be utilized at the proposed site for the Warrior in Transition Unit Complex. All requirements must be addressed by constructing necessary stormwater management features and incorporated into the mandatory stormwater management plan. These will include such features as roof drains, underground systems, and water quality structures, as applicable. They would be coordinated with the stormwater management system outfall location from the adjacent Community Hospital site project, located to the northwest of the Warrior in Transition Unit Complex with drainage to a stream system that empties into Accotink Bay.

The site design is to incorporate strategies that would include a combination of structural and non-structural Best Management Practices (BMP's) appropriate for the site. Stormwater retention on site will be designed by considering features such as a detention pond, biorention areas, and sand filters or infiltration galleys below the parking lot areas. The possible inclusion of building runoff collection systems could be beneficial in reducing runoff and in meeting LEED requirements for certification. The design is to include adequate long-term operation and maintenance of BMP's and water quality protection will be considered in accordance with the Federal Clean Water Act and all applicable state and local codes.

A stormwater pollution prevention plan that uses BMP's for erosion and sediment control will also be developed in accordance with the Fairfax County Facilities Manual, the Virginia Erosion and Sediment Control Handbook, and the Fort Belvoir MS4 Permit. Stormwater discharges will be regularly inspected to ensure that the BMP's are controlling the discharge of pollutants to the maximum extent possible and are meeting water quality standards.

A percentage of phosphorous will be removed from stormwater runoff prior to leaving the site by using the Fairfax County Facilities Manual and the Virginia Stormwater Management Handbook to determine the required percentage of phosphorous to be removed and for the Best Management Practices (BMPs) needed to provide the required phosphorous reduction. Implementation of the measures described above will ensure that impacts from stormwater runoff are not significant.

3.12.8 What are the natural gas requirements for the Warrior in Transition Unit Complex?

Space heating could be provided by individual building boilers using natural gas, or could be provided from the nearby steam plant, which uses natural gas as its primary fuel and distillate fuel oil as a backup. As currently planned, natural gas and solar heating methods would be used for water heating, using building water heaters. The Energy Independence and Security Act (EISA) requires that at least 30 percent of the hot water demand for new Federal New Construction Building be met through the use of solar hot water heating. Detailed natural gas requirements cannot be calculated for space heating within the Warrior in Transition Unit Complex until final decisions are reached during the design process on specific equipment selection. At that time, a request for service would be submitted to Washington Gas Company with a list of equipment and their rated British Thermal Unit (BTU) per hour. Operational heating requirements for the EA analysis are based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy, Energy Information Administration (DOI, 2003). Table C30 from this document indicates that the average energy intensity for office buildings using natural gas in Climate Zone 3, which includes Virginia, is 30.1 cubic feet (CF) of gas annually per square foot (SF) of floor space. The same table, using proportions for the natural gas estimates given for lodging structures, indicates that the average energy intensity for a residence is 37.5 cubic feet of gas per SF annually. Space heating for 46,100 SF of administrative space and 194,000 SF for the barracks would require 8.67 million CF annually of natural gas using these assumptions.

Likewise, detailed natural gas requirements cannot be calculated for water heating within the Warrior in Transition Unit Complex until specific equipment selection decisions are made. However, studies of residential use of natural gas for water heating (206,000 BTU/year per residence, 2.8 people per residence) provide a basis for a preliminary estimate of the potential natural gas requirement. (Lutz, 2005). The 138 residences plus additional demand within the four showers and three kitchens of the organizational headquarters and Soldier and Family Assistance Center (conservatively assumed equivalent to 8 residences in daily use because of increased showers use), could use 2,000 – 3,000 million BTU annually. This is 2-3 million cubic feet of natural gas annually.

3.12.9 Is the proposed project site supplied with sufficient natural gas service?

Fort Belvoir's natural gas system is owned and operated by the Washington Gas Company. Upon receiving a Service/Information Request from the Army (Design/Build Contractor), Washington Gas would design and install the gas service. An existing gas main that runs along 9th Street south of the Warrior in Transition Unit Complex provides nearby service from which to make a connection to the site.

The total capacity rating for the entire Fort Belvoir post is approximately 160 million cubic feet per day. Approximately 160 million cubic feet per day is delivered to Fort Belvoir (Royal, 2009). The estimated requirement of 8.67 million cubic feet for space heating and 2-3 million cubic feet per year for the Warrior in Transition Unit Complex is small in comparison to overall post requirements and should be within the capacity of Washington Gas systems. However, these and other requirements for incoming units directed to Fort Belvoir under the 2005 BRAC Law will need a new contract with Washington Gas.

3.12.10 What are the electricity requirements for the Warrior in Transition Unit Complex?

Detailed electricity requirements cannot be calculated for all requirements within the Warrior in Transition Unit Complex until final decisions are reached during the design process on specific equipment selection. At that time, a request for service would be submitted to Dominion Virginia Power with a list of equipment and their electrical loads. The Army (Design/build Contractor) would coordinate the

location and installation of the service and meter with Dominion Virginia Power. However, studies of residential and office space use of electricity provide a basis for a preliminary estimate of the potential electricity requirement. Electricity consumption for the EA analysis is estimated based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy, Energy Information Administration (USDOE, 2003). Table C20 from this document indicates that the average energy intensity for office buildings using electricity in Climate Zone 3, which includes Virginia, is 17.1 kilowatt-hours (kwh) annually per square foot (SF) of floor space. Lodging electricity use is not available directly for Climate Zone 3, so it is conservatively assumed to be the same as that in Climate Zone 4 (a warmer zone requiring more air conditioning), which is 14.0 kwh. The resultant 194,000 SF of lodging requires 2.716 million kwh and 46,000 SF of office space requires 786,600 kwh, for a total requirement of approximately 3.5 million kwh annually.

> An **"Energy Star"** product is a product that is rated for energy efficiency under an *Energy Star* program. A **"FEMP designated product"** is a product that is designated under the *Federal Energy Management Program* of the Department of Energy as being among the highest 25 percent of equivalent products for energy efficiency.

There is strong rationale to assume actual electrical requirements will be lower than typical requirements in the 2003 CBEC survey. The minimum requirement for the project is to achieve a Silver level of Leadership in Energy and Environmental Design (LEED) rating. The buildings, including the building envelope, HVAC systems, service water heating, power, and lighting systems, are to be designed to achieve an energy consumption that is at least 30 percent below the consumption of a building that has been defined as the baseline meeting current National standards (per ANSI/ASHRAE/IESNA Standard 90.1-2004). Energy Star or FEMP designated products are to be purchased. Exterior lighting for parking lots and walkways will be cutoff type meeting LEED requirements using High Intensity Discharge (HID) sources controlled via daylight and time of day controls.

3.12.11 Is the proposed project site supplied with sufficient electricity service?

Effective in 2007, Dominion Virginia Power acquired responsibility for managing the entire electric distribution system at Fort Belvoir under a 50-year contract. As part of that responsibility Dominion Virginia Power is substantially upgrading the system by converting all electric distribution system facilities to a uniform 34.5 kilovolt (kV) line and replacing overhead lines with underground lines in some places. There is an existing overhead power line on the north side of 9th Street adjacent to the Warrior in Transition Unit Complex that will be relocated to underground as the distribution system is upgraded. This would have the capacity to supply the Warrior in Transition Unit Complex.

Prior to the arrival of the BRAC facilities, the South Post was consuming approximately 157 million kwh of electricity annually. Average daily consumption was approximately 800,000 kwh and meter information from Dominion Virginia Power indicated that the incoming feeders were operating at about 50 percent of capacity; connected load data indicated that the main 34.5-kV circuits were operating at 50 to 70 percent of capacity (USACE, 2003). System upgrades are taking the BRAC requirements into consideration. The conservative assumption that the Warrior in Transition Unit Complex could use as much as 3.5 million kwh, derived as discussed in the previous section, suggests that its requirements are relatively small in comparison to overall Fort Belvoir requirements on South Post and should be easily supplied by Dominion Virginia Power. They do not pose a significant impact to electricity service.

3.12.12 What are the requirements for steam in the Warrior in Transition Unit Complex?

Space heating for the Warrior in Transition Unit Complex may be provided from the nearby central steam plant. The plant has recently modernized boilers that use natural gas as their primary fuel with fuel oil as a backup. Fort Belvoir owns and maintains the steam distribution system (USACE, 2003).

3.12.13 Is the proposed project site supplied with sufficient steam service?

If the decision is made to provide space heating from the steam plant, a new steam line would be constructed from the central energy plant along 9th Street and the existing 12th Street line would be taken out of service. This new line would continue past the site of the Warrior in Transition Unit Complex and would continue to supply the existing DeWitt Army Community Hospital. Current users of steam from the central energy plant along 12th Street would be discontinued and the conversion of DeWitt Army Community Hospital to an office building would result in a significant reduction in demand for steam from the central energy plant. These actions would result in more than enough capacity at the central energy plant to supply the Warrior in Transition Unit Complex (Zinkwich, 2009).

3.12.14 What are the communication requirements for the Warrior in Transition Unit Complex?

The Warrior in Transition Unit Complex requires voice and data/copper and fiber optic cables that conform to the current Installation Information Infrastructure Modernization Program Standards to provide voice and electronic data service to all buildings.

3.12.15 Is the proposed project site supplied with sufficient communication service?

Telecommunication and information services on Fort Belvoir consist of a copper and fiber-optic data-distribution network. Telephone service at Fort Belvoir is provided by Verizon Communications under contract with the Defense Telephone Switch Agency – Washington to operate and maintain the existing Fort Belvoir Telecom/IT system. Telecom/IT installation to the Warrior in Transition Unit Complex would be from the nearest communication node at the new Community Hospital. The Army contractor would install concrete encased duct banks and Verizon-Federal would install voice and data/copper and fiber optic cables. Cables would run from the hospital communications room to the Warrior in Transition Unit buildings communications room racks and wall mounted back boards. This approach is feasible, meets all requirements, and would not negatively impact existing systems.

3.12.16 What are the solid waste disposal requirements for the Warrior in Transition Unit Complex?

The 160 employees of the Warrior in Transition Unit Complex would conduct business likely to generate municipal solid waste 5 days per week, 52 weeks per year. Their waste can be estimated as 1 pound per day or 41,600 pounds per year. Waste for the residents living in the barracks can be based on meals with an average of 2 pounds per meal. The 288 residents would consume 3 meals per day, 365 days per year, for a total of 630,720 pounds per year. The sum of waste from employees and residents totals to 336 tons per year, as displayed in Table 3-19.

Table 3-19: Municipal Solid Waste at Warrior in Transition Unit Complex

Personnel	Unit MSW	Annual	Pounds per Year	Tons per Year
160 Employees	1 lb/workday	260 workdays/year	41,600	20.8
288 Residents	2 lb/meal	303,330 meals/year	630,270	315
Total Municipal Solid Waste				336

Construction and demolition debris would be generated during construction. Three items will be demolished: the maintenance shed, several sidewalks, and a rectangular slab. The estimate of demolition debris by weight is 360 tons. Construction debris can be estimated as 4.4 pounds per square foot for approximately 490,000 square feet of building and hard surface construction or approximately 1078 tons. However, the construction contractor is required to achieve a diversion of 50-percent of this waste by weight from placement in the landfill through recycling/reuse. Therefore approximately 719 tons would be generated for the landfill from demolition and construction.

3.12.17 Is the proposed project site supplied with sufficient solid waste disposal service?

It has been reported that Fort Belvoir generates about 6,694 tons of municipal solid waste (MSW) annually that are disposed of off-post by a contract hauler (Brooks, 2007). Approximately 2,719 tons of the total municipal solid waste is recycled (USACE, 2007a: Brooks, 2007). The household and office building trash expected from daily operations at the Warrior in Transition Unit Complex is to be disposed of off-post by a contract hauler to the I-95 Energy/Resource Recovery Facility. A letter of agreement between the Division of Solid Waste Disposal and Resource Recovery of Fairfax County and Fort Belvoir has a cap of 100 tons per day of MSW (USACE, 2007a: Meoli, 2007). Disposal capacity of the Resource Recovery Facility is 3,000 tons per day with an air permit limit of 1.095 million tons per year (USACE, 2007a: Meoli, 2007). The County expects the Resource Recovery Facility to have sufficient capacity to handle disposal needs through 2025 (Fairfax County, 2004).

The installation has a mandatory installation-wide recycling program that is intended to reduce the quantity of materials that must be disposed of by incineration or landfilling. Fort Belvoir has met its recycling goals for solid wastes and now recycles more than 50 percent of its solid waste (USACE, 2003). During period June 2006 to January 2007, Fort Belvoir disposed approximately an average of 450 tons of MSW per month (USACE, 2007a: Meoli, 2007).

The 323 tons annually (27 tons/month) estimated from the Warrior in Transition Unit Complex, with recycling likely to cut that by as much as one-half, would be an increase of only a few percent. This would not be a significant impact to the available solid waste disposal service.

Construction and demolition (C&D) debris in Fairfax County is currently disposed of in five landfills inside and outside the County. In 2002, the annual disposal of C&D debris at these landfills was 1.68 million tons. Fort Belvoir has been disposing of its C&D debris at Hilltop Landfill in Fairfax County, which was receiving 138,000 tons annually. This landfill was estimated to have capacity through 2011, on the basis of expected county C&D rates (Fairfax County, 2005). Although overall long-term capacity for C&D wastes is an issue in Fairfax County, the 719 tons estimated from construction of the Warrior in Transition Unit complex over a 12 to 18-month period is not a significant addition to these requirements.

3.12.18 Would the No Action Alternative cause any impacts to infrastructure or utilities in the study area?

Under the No Action Alternative, there would be no construction or new facilities and no impacts to infrastructure or utilities.

3.13 Hazardous Substances

Hazardous waste management at Fort Belvoir is conducted in accordance with the Resource Conservation and Recovery Act (RCRA). Fort Belvoir has a Master Spill Plan. Fort Belvoir is a large quantity generator of hazardous waste and has one RCRA Part B permit for storage of hazardous wastes from the VDEQ. All current and former hazardous waste management areas present potential constraints to future development, in that closure of such sites is required prior to reuse.

3.13.1 What hazardous substances occur at the proposed project site?

There are no hazardous waste accumulation sites, aboveground storage tanks, or underground storage tanks at or near the Warrior in Transition Unit Complex. The Department of Environmental Quality - Waste Division review of its data files determined there are no sites of concern within a half mile radius of the proposed site (see Appendix F). Three historic Military Munitions Response Program sites near the proposed site have no further action status. There are no Solid Waste Management Unit sites near the project site of concern. This information was based on post-wide GIS information provided by Fort Belvoir.

3.13.2 How would the project affect the storage and use of hazardous substances?

There are no above or underground fuel tanks planned at the Warrior in Transition Unit Complex, nor any existing tanks in use at the grill or other existing facilities that will remain on site. Only minimal amounts of hazardous materials, such as household cleansers or paint for routine cleaning or maintenance of buildings, or fertilizers for maintenance of the grounds, would be stored or used at the Warrior in Transition Unit Complex. These would be stored, used, and disposed of in accordance with federal and state regulations, ensuring no impacts. Fort Belvoir operates an Integrated Pest Management Plan pursuant to DoD Regulation 4150.7 and AR 200-5 to ensure compliance with all laws and regulations that apply to the application and storage of pesticides on Fort Belvoir. The objective of the plan is to use the least toxic method to control pest populations in a cost-effective and environmentally sound manner.

3.13.3 What impacts on storage of hazardous substances would the construction activity generate?

Construction activities would include a short-term increase in the use of fuel, oil, asphalt substances, and fertilizers, and would generate solid and sanitary waste. Some of these substances may be considered "hazardous" if released. Various types of control measures would be implemented to minimize such releases. The Warrior in Transition Unit Complex construction contractors must follow the Fort Belvoir Master Spill Plan, which explains required hazardous substances spill response procedures. The Directorate of Public Works contacts applicable regulators for the reported incident.

The golf course maintenance building to be demolished does not contain asbestos-containing materials or lead-based paint since it was built after 1999. If ACM or LBP are found, in addition to federal waste-related regulations, state regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP would be followed.

3.13.4 How would the No Action Alternative affect the storage or use of hazardous substances?

Under the No Action Alternative, there would be no new facilities and therefore no new use, storage, or disposal of hazardous substances.

3.14 Cumulative Impacts

3.14.1 What are cumulative impacts?

A cumulative impact is defined as "the impacts on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertake such other action" (40 CFR 1508.7). The section goes on to note: "such impacts can result from individually minor but collectively significant actions taking place over a period of time." Cumulative impacts associated with implementation of the proposed action would include any impacts from other on-going mission actions that would be incremental to the impacts of constructing and operating the Warrior in Transition Unit Complex at Fort Belvoir.

3.14.2 What is the study area for this analysis?

The study area for the cumulative impacts analysis includes the South Post of Fort Belvoir and its immediate vicinity.

3.14.3 What other actions are reasonably foreseeable in the project area?

Foreseeable projects with impacts to be located within South Post to which the impacts of the Warrior in Transition Unit Complex should be added to determine cumulative effects include:

- Construction of the National Museum of the United States Army
- Construction of the new Community Hospital, and its associated waterline and outfall

- Replacement of the South Post Fire Station
- Construction of a new facility for Missile Defense Agency (MDA)
- Construction of a Child Development Center (CDC)
- Construction of a North Atlantic Regional Medical Command (NARMC) Headquarters building
- Construction of a new Dental clinic
- Infrastructure upgrades to include widening of Gunston Road, Belvoir Road, upgrade of 9th Street to a 4-lane road, and improvements to Pohick and Goethals Roads.
- Construction of a Museum Support Center
- Expansion or replacement of the Graves Fitness Center
- Other projects associated with increased traffic as described in Section 3.2.4.

3.14.4 To what extent would construction and operation of the Warrior in Transition Unit Complex contribute to cumulative impacts?

Land Use Plans and Coastal Zone Management: Construction of the Warrior in Transition Unit Complex would be consistent with future land use designations for the installation and would not impact land use adversely. The proposed project would be consistent with the State's coastal zone program and not affect the following enforceable policies: fisheries management; subaqueous lands management; wetlands management; dunes management; point source pollution control; shoreline sanitation; and coastal lands management

Transportation and Traffic: Although the site is expected to open in 2011, background projects contemplated in the *Fort Belvoir Transportation Management Plan* projected to 2015 were used to develop the 2011 No Action Condition traffic volumes. Since it is unclear at this point which of the 33 background projects would be on line in 2011, a conservative approach for the traffic analysis was used that incorporated all projected development on the base through 2015. Therefore, cumulative impacts during operation of the Warrior in Transition Unit Complex are included as part of the No Action and Build Conditions impact assessments provided in Section 3.2.

Construction traffic during the projected 15-month construction period would include daily commuting construction workers range between 40 and 75 each weekday and between 25 and 50 daily construction vehicles would also be expected. When compared to the other construction projects at Fort Belvoir during this period, these 65 to 125 daily vehicles represent an average of 5.7 percent of the daily construction vehicles present at Fort Belvoir, with a range of 4.4 and 8.1 percent in any month. This construction traffic is receiving attention and special management during the construction period. Therefore, the incremental effect of construction traffic during construction of the Warrior in Transition Unit Complex cannot be considered to be the cause of a significant traffic impact.

Air Quality: The applicability analysis determined that peak year combined emissions due to construction and operations are all below the appropriate *de minimis* values for areas in nonattainment for ozone and $PM_{2.5}$, demonstrating that a full conformity determination is not required. Air emissions were also evaluated to determine regional significance and found not to be regionally significant. The Army has provided a Record of Non-Applicability in Appendix D.

As discussed previously in Section 3.3.5, because the Warrior in Transition Unit Complex is being constructed in the same time frame as numerous BRAC-related construction projects, the Army has directed that this project will also implement the same restrictions as outlined in the Construction Performance Plan for the BRAC projects. These restrictions include design and construction standards for equipment and vehicles that reduce air emissions through use restrictions on critical ozone days, diesel

oxidation catalysts (DOCs), ultra-low sulfur diesel fuel (ULSD), idling restrictions, and cleaner vehicle options. Implementing these restrictions will help reduce cumulative impacts to air.

Noise: The construction of the Warrior in Transition Unit Complex has the potential to increase noise levels and have impacts to the surrounding land uses should construction occur simultaneously with that for the new Community Hospital and its associated waterline and outfall, Infrastructure Phases I and II, and the child development center. However, construction noise resulting from these projects would be minor and short-term, lasting only the length of construction. Resultant cumulative effects are not significant

Soils and Topography: Construction of the Warrior in Transition Unit Complex would include soil disturbance and compliance with Virginia Stormwater Management regulations and Virginia Erosion and Sediment control regulations. Construction of the new Community Hospital and its associated waterline and outfall, Infrastructure Phases I and II, and the child development center would also require compliance with stormwater and erosion and sedimentation regulations. The completion of the required Stormwater Pollution Prevention Plans and implementation of BMPs among these projects would be coordinated to ensure that any potential impact from soil disturbance would be negligible.

Surface Water, Water Quality, and Floodplains: The construction activities and resulting increase in impervious surface area at the Warrior in Transition Unit Complex will add runoff and the potential for additive cumulative effects to water resources when its effects are added to those from other projects in the same watershed or draining to Accotink Bay. The proper implementation of an approved stormwater management plan, stormwater pollution prevention plan, and sediment and erosion control plan for the Warrior in Transition Unit Complex and other projects will ensure that cumulative effects are reduced and not significant.

Wetlands and Chesapeake Bay Preservation Areas: Construction of the Warrior in Transition Unit Complex facilities would not encroach upon wetlands or designated RPAs, with the possible exception of the outfall for the stormwater management system, which has not yet been designed. During construction, vegetation would be removed and soils exposed, creating an increased potential for erosion and/or transport of surface pollutants into adjacent water bodies. However, low impact development, Leadership in energy and environmental design and sustainable design strategies would be used for development of the site in order to minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off. Resultant cumulative effects would not be significant.

Upland Vegetation and Wildlife: Construction of the Warrior in Transition Unit Complex would develop maintained lawn areas containing areas of scattered trees. Development of these areas containing trees would result in minor impacts to vegetation and wildlife on Fort Belvoir, as overall, minimal vegetation and wildlife habitat would be removed. Resultant cumulative effects would not be significant.

Historic, Cultural, and Architectural Resources: The Warrior in Transition Unit Complex would occupy a portion of the site of the former South Post Golf Course, once a contributing element of the Fort Belvoir Historic District eligible for the National Register of Historic Places. However, the majority of the South Post Golf Course has already been removed by the recent construction of the Community Hospital; and therefore lost its integrity as a historic property. Loss of integrity means that the remaining portion of the South Post Golf Course no longer has any historic significance. Nonetheless, the construction of the WTU Complex may be considered a cumulative effect.

Socioeconomics: Temporary minor positive impacts would be added to the local economy as a result of the proposed Warrior in Transition Unit Complex. Increased construction spending would contribute to raised incomes, higher sales volume, and increased employment. It represents only approximately 1.7 percent of the total value of the approximately $4.5 billion construction program at Fort Belvoir through 2015 and only 0.22 percent of the sales within the region of Influence (Fairfax and Prince William counties – see Appendix E). Also, these are beneficial impacts greatly appreciated during the current

recession. Therefore, the incremental effect of spending during construction of the Warrior in Transition Unit Complex cannot be considered to be the cause of a significant socioeconomic impact.

Community Facilities and Services: The proposed Warrior in Transition Unit Complex would have a positive effect on the wounded warriors who will be receiving care at the new Community Hospital as the facilities would provide the necessary personnel and social service activities to support these soldiers and their families. The project would add negligible adverse impacts to community facilities and services as the incremental impact of the Warrior in Transition Unit Complex is too small to cause a significant impact when added to the other actions.

Infrastructure and Utilities: Water demand from the Warrior in Transition Unit Complex is relatively small compared to overall demand on South Post and has been factored into the system upgrades, such as waterline expansion along Belvoir Road, ensuring no significant cumulative impacts. Wastewater produced from the Warrior in Transition Unit Complex is relatively small compared to overall flows on South Post and will be added to the Hospital system for direct conveyance to the county system, ensuring no significant cumulative impacts. Stormwater management BMPs intended for site will explicitly follow a watershed approach that considers other projects and elements, ensuring minimal cumulative impacts. Electricity and natural gas requirements are relatively small and would not be the cause for a significant cumulative effect. Steam considered for heating will be offset by reductions from other current users. Telecom connections will not affect other users. Solid Waste produced by project is relatively small and would not be the cause for a significant cumulative effect.

Hazardous Substances: The Warrior in Transition Unit Complex, on a site without contamination and producing only hazardous materials associated with the use of asphalt and paint during construction and normal cleaning agents or fertilizers for lawn during operation would not have any impacts and would also not have cumulative impacts.

3.14.5 Would the No Action Alternative contribute to cumulative impacts?

Implementation of the No Action Alternative would avoid new impacts that could interact with the impacts of other past, present, and reasonably foreseeable actions. Therefore, no cumulative impacts would be associated with the No Action Alternative.

4.0 FINDINGS AND CONCLUSIONS

4.1 Unavoidable Adverse Impacts

Unavoidable impacts are those impacts that Fort Belvoir would experience if the proposed Warrior in Transition Unit Complex was implemented under the proposed action (the No Action Alternative would not involve any new impacts). There are potential minor short term construction impacts that include noise, traffic, any soil erosion not fully managed by construction BMPs, and surface water impacts from runoff carrying pollutants not fully avoided by BMPs. There are also moderate long term impacts from increased traffic.

4.2 Best Management Practices and Mitigation Measures

There are no expected impacts that would require mitigation to avoid being considered significant. However, there are a number of measures, termed best management practices (BMPs) that would be employed where appropriate to reduce or minimize impacts. The actions discussed below would be employed to minimize potential adverse impacts.

- Stormwater control features for the project would be designed to insure peak runoff flows do not exceed and potentially are less than existing peak flows from the site.
- Soil samples at the Warrior in Transition Unit Complex site would be taken if suspected contaminated soils are found and contaminated soils would be disposed of off-base by a qualified contractor in accordance with applicable federal and state laws and regulations.
- The Construction Performance Plan (CPP) for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia outlines policies and procedures for complying with emissions reduction requirements and air quality laws of Virginia during the period of construction for BRAC and related activities at Fort Belvoir. CPP restrictions include design and construction standards for equipment and vehicles that reduce air emissions through use restrictions on critical ozone days, diesel oxidation catalysts (DOCs), ultra-low sulfur diesel fuel (ULSD), idling restrictions, and cleaner vehicle options. During construction of the Warrior in Transition Unit Complex, the restrictions outlined in the CPP would be implemented to help reduce cumulative impacts to air.
- Fugitive dust would be minimized during construction by control methods outlined in 9 VAC5-130 *et seq*. of the Regulations for the Control and Abatement of Air Pollution. These precautions could include methods such as using water for dust control; covering open equipment for conveying materials; and promptly removing spilled or tracked dirt or other materials from paved streets or dried sediments resulting from soil erosion.
- Tree replacement at a 2:1 ratio would occur for every tree 4 inches or greater in diameter removed during construction. Replacement trees will be 2 inches to 2 ½ inches in diameter and consistent with the tree species removed.
- Hazardous wastes that are generated by the project would be disposed of in accordance with applicable federal and state laws and regulations.
- Additional traffic improvement measures may be necessary at one intersection if all traffic projected by 2015 occurs. These measures could include adding a traffic circle or a signal. Alternatively, appointments or reporting/ dismissal times for some at the Warrior in Transition Unit Complex could be adjusted to avoid peak hours.

- To meet the challenge of sustainability the project has already identified actions to be included in the proposed project design, construction and operation. Collecting storm water for irrigation and extending existing and planned sidewalk systems through site with enhanced landscaping as appropriate are identified sustainable elements. The current requirements include designing the building to achieve energy consumption of 30% below a baseline building, use of Energy Star or FEMP designated products, providing at least 30% of hot water heating requirements through the use of solar heating; providing waterless urinals in men's restrooms and dual flush technology in women's restrooms; and diverting as a minimum 50% of non-hazardous construction and demolition debris from landfill disposal. The use of High Performance and Sustainable Building, Low Impact Building, LEED strategies, and requirements of the Energy Policy Act of 2005 ("EPACT 2005;" Pub. L. 109-58) during the design process will further refine these requirements and include additional sustainable strategies in the final project.

4.3 Permits

The construction contractor is responsible for providing permit applications and other information needed for Fort Belvoir to obtain the applicable permit (local, state and federal) required for design and construction of all site features and utilities related to the Warrior in Transition Unit Complex that is within the designated construction limits, as well as all the permitting fees. The Garrison Commander is the holder of all permits for Fort Belvoir; the Directorate of Public Works coordinates all contacts with relevant regulators for permitting actions. Permits or concurrences that could be required include, but not limited to:

- Air Quality Permit (Title V) modification;
- National Pollution Discharge Elimination System (NPDES) General Permit;
- Erosion and Sedimentation Control Permit ;
- Stormwater Management Permit;
- The Notice of Intent (NOI) for Stormwater Runoff from Construction Activities, which includes stormwater pollution prevention plan;
- Digging Permit;
- Sanitary Permit;
- Water Protection Permit;
- Wetland Permit (if stormwater features intrude into wetlands);
- State Historic Preservation Office concurrence;
- National Capital Planning Commission review;
- Hot –Work Permit;
- Equipment List;
- Crane Registration;
- Fuel Storage Permit; and
- Permits for Road Closures, After-Hours Work or Weekend Work.

4.4 Conclusion

Under the No Action Alternative, the proposed Warrior in Transition Unit Complex would not be constructed and no environmental impacts would occur.

Construction and operation of the proposed Warrior in Transition Unit Complex under the proposed action would provide the needed support facilities for wounded warriors who will be receiving care at the new Community Hospital. The implementation of the Warrior in Transition Unit Complex, as proposed, is not expected to result in significant adverse impacts on the environment; therefore, preparation of an EIS is not required. Table 4-1 provides a brief comparison of the environmental consequences (i.e., impacts) associated with the proposed action and No Action Alternative.

Table 4-1: Summary of Effects of the Proposed Action and the No Action Alternative

Resource	Proposed Action	No Action Alternative
Land Use Plans and Coastal Zone Management	Compatible with designated land use; no impacts are expected. Consistent with enforceable provisions of the Virginia Coastal Zone Management Program.	No impacts
Transportation and Traffic	During the a.m. peak hour and p.m. peak hour, the proposed project would adversely affect one intersection: the Belvoir Road/Surveyor Road intersection. Additional traffic improvement measures may be necessary at one intersection if all traffic projected by 2015 occurs. These measures could include adding a traffic circle or a signal. Alternatively, appointments or reporting/ dismissal times for some at the Warrior in Transition Unit Complex could be adjusted to avoid peak hours. The proposed project would not adversely affect the other intersection analyzed, including 9th Street/Gunston Road and 9th Street/Belvoir Road intersections. These intersections would be operating at acceptable LOS or at current LOS. Construction traffic averages less than 6-percent of construction traffic at Fort Belvoir during period and is not a significant impact.	No impacts result from the proposed action; however, projected traffic from other future actions result in two intersections operating at Level of Service (LOS) E and three intersections operating at LOS F during the a.m. peak hour without the proposed project. One intersection is projected to operate at LOS E and four intersections are projected to operate at LOS F during the p.m. peak hour without the proposed project.

Resource	Proposed Action	No Action Alternative
Air Quality	Air pollutant emissions are below *de minimis* levels for general conformity. Minor modifications to Title V air permit would occur. During construction, the restrictions outlined in the BRAC Air Emissions Construction Performance Plan would be implemented. Record of Non-Applicability is in Appendix D.	No impacts
Noise	Temporary minor impacts from noise during demolition and construction activities. Noise from operations would be negligible as operation activities of the Warrior in Transition Unit Complex would not be audible from outside of the facilities to other installation users in the area	No impacts
Soils and Topography	Leveling and grading result in minor impacts to soils or topographic conditions. Grading, leveling and excavation of soil would have the potential for sediment and construction contaminants to be carried into the nearby stream, and then to Accotink Bay. Removal of vegetation could increase the percent of rainfall that runs off; peak flows and velocities could be increased if not controlled to cause erosion of the stream banks. Required soil erosion and sediment control plan would insure soils impacts are temporary and minor.	No impacts

Resource	Proposed Action	No Action Alternative
Surface Water, Water Quality, and Floodplains	Minor impacts to surface water; added impervious surface has potential to increase runoff, decrease infiltration to the groundwater, and to carry contaminants from the hard surfaces into the stream and on to the Accotink Bay. Plans for stormwater management, stormwater pollution prevention, and sediment and erosion control will mitigate effects to surface water. Minor impacts to water quality, implementation of LID and other BMPs will offset infiltration losses. Project is not located in floodplains and will have no effect.	No impacts.
Wetlands and Chesapeake Bay Preservation Areas	No direct impacts to wetlands and associated Resource Protection Areas (RPAs), with the possible exception of the stormwater outfall site; siting of new facilities would avoid wetlands. Increase in impervious surfaces could reduce groundwater infiltration on the site. Implementation of minimum LEED Silver rating, sustainable design and LID strategies would minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off. If outfall encroaches on wetland, permit would be obtained that would ensure effects are minimized.	No impacts

Resource	Proposed Action	No Action Alternative
Upland Vegetation and Wildlife	Site is partially developed and contains semi-improved grounds; including landscape urban trees, shrubs, and maintained lawn of the former South Post golf course. Tree replacement of 2:1 for trees four inches in diameter or more. Minor impacts to vegetation and wildlife would occur. No impacts to T&E species are expected.	No impacts
Historic, Cultural, and Architectural Resources	*No adverse effect* under Section 106 of the National Historic Preservation Act. No cultural resources, including archaeological sites, are present at the proposed site. Planned building height of no more than four stories would not be visible or affect the setting of any historic property inside or outside the boundaries of the installation.	No impacts
Socioeconomics	Minor positive effects to the economy would result from construction expenditures. No adverse environmental justice effects are expected.	No impacts
Community Facilities and Services	Negligible increase in demand for housing or social services are expected; minimal impacts to community facilities and services.	No impacts

Resource	Proposed Action	No Action Alternative
Infrastructure and Utilities	Minor increase to overall demand for potable water and on-going water system upgrades in area ensure minimal impact. Small requirement and provision for conveyance to Hospital system ensure minimal impact to sanitary sewers. Project adds retention and BMPs to ensure minor impacts to stormwater management. Small demand for gas and electricity has minimal impact; steam plant capacity or natural gas supply, if selected, is adequate for heating requirements. Telecommunications in vicinity is adequate and easily extended to serve site. Relatively small amounts of municipal solid waste can be handled by existing disposal and collection.	No impacts.
Hazardous Substances	Minor use in construction and storage for building/land maintenance; no impact on use and storage of hazardous substances. No impact: small amounts disposed of in accordance with regulations. No site clean-up is required.	No impacts.

5.0 REFERENCES

Army, No date. U.S. Army. Information Papers. Warrior in Transition. Website. Accessed on 21 January 2009. Accessed at: http://www.army.mil/aps/08/information_papers/sustain/Warrior_in_Transition.html

Chesapeake Bay Program, 2008. Chesapeake Bay Program, A Watershed Partnership. Website. Last Modified on 10/27/2008. Accessed at: http://www.chesapeakebay.net/thebaywatershed.aspx?menuitem=13942

EA Engineering, Science & Technology, Inc. Technical Memorandum: *Fort Belvoir – Hydraulic Evaluation of the Proposed Community Hospital Development*. June, 2008.

Fairfax County, 2008. Fairfax County Fire and Rescue Overview. Website last updated December 5 2008. Accessed on February 17, 2009. Accessed at: <http://www.fairfaxcounty.gov/fr/deptinfo/overview.htm>

Fairfax County. 2004. *Fairfax County Solid Waste Management Plan*. Submitted July 1, 2004. Accessed at: <http://www.co.fairfax.va.us/dpwes/swmp/pln.htm>. Accessed 24 February 2009.

Fairfax County, No date. Fairfax County Police Department Website. Accessed on February 17, 2009. Accessed at: http://www.fairfaxcounty.gov/police/

FHWA, 1995. U.S. Department of Transportation, Federal Highway Administration. Highway Traffic Noise Analysis and Abatement Policy and Guidance. June 1995.

Fort Belvoir, 2008a. U.S. Army Garrison Fort Belvoir. Directorate of Public Works. Installation GIS data.

Fort Belvoir, 2008b. U.S. Army Garrison Fort Belvoir. *DRAFT Environmental Assessment, The National Museum of the United States Army Fort Belvoir, Virginia.* September 2008.

Fort Belvoir, 2008c. U.S. Army Garrison Fort Belvoir. Approved Plant List. 4 June 2008

Fort Belvoir, 2001a. U.S. Army Garrison Fort Belvoir - Environmental and Natural Resources Division Directorate of Installation Support. *Integrated Natural Resources Management Plan 2001-2005.* March 2001.

Fort Belvoir, 2001b. U.S. Army Garrison Fort Belvoir. *Integrated Cultural Resources Management Plan, U.S. Army Garrison, Fort Belvoir, Fairfax Count, Virginia: Final Draft Report*. Prepared for the Directorate of Installation Support, Environmental, and Natural Resources Division by R. Christopher Goodwin and Associates. 2001

Lutz, 2005. James Lutz. *Estimating Energy and Water Losses in Residential Hot Water Distribution Systems.* Lawrence Berkeley National Laboratory, (University of California, University of California). Paper LBNL-57199. 2005.

Manning, 2009. Personal communication between Lawrence Earle (The Louis Berger Group) and Derek Manning (Cultural Resources, Fort Belvoir ENRD) on February 23, 2009

MDE, 2005. *Maryland, Virginia, and the District of Columbia Partner to Improve Air Quality: Maryland Will Chair New Council.* Maryland Department of Environment Press Release. May 31, 2005. Accessed at: http://www.mde.state.md.us/PressReleases/734.html

Montgomery County, 2007. Noise Control Through Planning and Design. Accessible at: http://www.montgomerycountymd.gov/content/dep/Noise/planning_design.pdf.

MWCOG, 2008. Metropolitan Washington Council of Governments. *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan (SIP) for Fine Particle PM2.5 Standard.* March 7, 2008.

MWCOG 2007. Metropolitan Washington Council of Governments. *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan (SIP) for 8-Hour Ozone Standard.* November 30, 2007.

NCES 2009. National Center for Education Statistics. Accessed on February 19, 2009. 2005-2006 School Year. Accessed at: http://nces.ed.gov/ccd/schoolsearch/

For Prince William County:
http://nces.ed.gov/ccd/schoolsearch/school_list.asp?Search=1&InstName=&SchoolID=&Address=&City=&State=51&Zip=&Miles=&County=Prince+William&PhoneAreaCode=&Phone=&DistrictName=&DistrictID=&SchoolType=1&SchoolType=2&SchoolType=3&SchoolType=4&SpecificSchlTypes=all&IncGrade=-1&LoGrade=-1&HiGrade=-1

For Fairfax County:
http://nces.ed.gov/ccd/schoolsearch/school_list.asp?Search=1&InstName=&SchoolID=&Address=&City=&State=51&Zip=&Miles=&County=fairfax&PhoneAreaCode=&Phone=&DistrictName=&DistrictID=&SchoolType=1&SchoolType=2&SchoolType=3&SchoolType=4&SpecificSchlTypes=all&IncGrade=-1&LoGrade=-1&HiGrade=-1

NCPC, 2004. National Capital Planning Commission. *Comprehensive Plan for the National Capital: Federal Elements.* Adopted on August 5, 2004. Accessed at: http://www.ncpc.gov/publication/pg.asp?p=comprehensiveplanforthenationalcapitalfederalelements

OTC, nd. Ozone Transport Commission. *What is the Ozone Transport Commissions?* Accessed at: http://www.otcair.org/. Accessed 25 February, 2009.

PBS&J, 2007. PBS&J. *Fort Belvoir Real Property Master Plan – Installation Design Guide and Standards*. Draft Version. March 2007.

Prince William County, 2009. Prince William County Fire and Rescue. About Prince William Fire and Rescue. Website. Copyright 2003-2009. Accessed on February 17, 2009. Accessed at: <http://www.pwcgov.org/default.aspx?topic=040061000910000781>

Prince William County, No Date. Prince William County Police Department Website. Accessed on February 17, 2009. Accessed at: <http://www.pwcgov.org/default.aspx?topic=040074>

PWCDFR, 2007. Prince William County Department of Fire and Rescue Informational Brochure. January 2007. Accessed on February 17, 2009. Accessed at: www.pwcgov.org/fire

(Royal, 2009). Comments on the draft Environmental Assessment Warrior in Transition Unit Complex at Fort Belvoir, provided by Michelle Royal, Environmental Specialist, Fort Belvoir.

Ruth, 2006. Ruth, J.M. 2006. Partners in Flight – U.S. Website. Served by the USGS Patuxent Wildlife Research Center, Laurel, Maryland, USA. Accessed at: http://www.partnersinflight.org/

USACE, 2007a. U.S. Army Corps of Engineers, Mobile District. *Final Environmental Impact State for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendation and Related Army Action at Fort Belvoir, Virginia.* June 2007.

:Betts, Tim, 2007. Personal communication with Tim Betts, Contractor for the Fort Belvoir Directorate of Public Works. February 1.

:Brooks, M., 2007. *Personal communication with Mary Jo Brooks, Contractor for the Fort Belvoir Directorate of Public Works*. February 21.

:Guerra, Dave: Fairfax Water. 2005. Personal Communication. March 22.

:Harris, Cecil M. 1998. handbook of Acoustical Measurement and Noise Control.

:Kirkpatrick, W.R., 2007. Personal communication with William R. Kirkpatrick, Chief Planning *Engineer, Fairfax Water*. March 15.

:Meoli, Christopher. 2007. *Personal communication with Christopher Meoli, Engineer with Fairfax County Division of Solid Waste Disposal and Resource Recovery*. February 16.

:Osei-Kwadwo, G. 2007. Personal communication with Gilbert Osei-Kwadwo, Manager, Fairfax County Engineering Analysis and Planning Branch, Wastewater Planning and Monitoring Division, Department of Public Works & Environmental Services. April 25.

USACE, 2007b. U.S. Army Corps of Engineers, Mobile District. *Final 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.* July 2007.

USACE, 2003. U.S. Army Corps of Engineers, Mobile District. *Environmental Assessment of the Army Residential Communities Initiative (RCI) Properties at Fort Belvoir, Virginia*. Mobile, Alabama. July 2003.

USBLS, 2007. U.S. Bureau of Labor Statistics . Unemployment Rates for States and Labor Force Data by County 2007 Annual Averages. Accessed at: http://www.bls.gov/lau/lastrk07.htm for States and ftp://ftp.bls.gov/pub/special.requests/la/laucnty07.txt for counties

U.S. Census 2007. U.S. Census Bureau 2007 American Community Survey 1-Year Estimates: ACS Demographic and Housing Estimates: 2007 for Fairfax County, VA, Prince William County, VA, Virginia, and the United States. Accessed February 16, 2009. Accessed at: http://factfinder.census.gov/servlet/ADPGeoSearchByListServlet?ds_name=ACS_2007_1YR_G00_&_lang=en&_ts=252948024738 (Select area of interest)

U.S. Census 2000a. U.S. Census Bureau. Census 2000 Summary File 1 (SF-1) 100- Percent Data: P3 Race: Total Population. Accessed on February 17, 2009. Accessed at: http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=DEC_2000_SF1_U&-mt_name=DEC_2000_SF1_U_P003&-CONTEXT=dt&-tree_id=4001&-all_geo_types=N&-geo_id=01000US&-geo_id=04000US51&-geo_id=05000US51059&-geo_id=05000US51153&-geo_id=16000US5129008&-search_results=05000US51153&-format=&-_lang=en

U.S. Census 2000b. U.S. Census Bureau. Census 2000 Summary File 3 (SF-3) Sample Data: P53 Median Household Income in 1999; P77 Median Family Income in 1999; P82 Per Capita Personal Income 1999; P87 Poverty Status in 1999 by Age. Accessed on February 17, 2009. Accessed at: http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=DEC_2000_SF3_U&-mt_name=DEC_2000_SF3_U_P053&-mt_name=DEC_2000_SF3_U_P077&-mt_name=DEC_2000_SF3_U_P082&-mt_name=DEC_2000_SF3_U_P087&-CONTEXT=dt&-tree_id=4001&-redoLog=true&-all_geo_types=N&-geo_id=01000US&-geo_id=04000US51&-geo_id=05000US51059&-geo_id=05000US51153&-geo_id=16000US5129008&-search_results=05000US51153&-format=&-_lang=en

U.S. Census 2000c. U.S. Census Bureau. Census 2000 Summary File 1 (SF-1): P1 Total Population; P12 Sex by Age. Accessed on February 17, 2009. Accessed at: http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=DEC_2000_SF1_U&-mt_name=DEC_2000_SF1_U_P012&-mt_name=DEC_2000_SF1_U_H001&-mt_name=DEC_2000_SF1_U_H003&-mt_name=DEC_2000_SF1_U_H004&-mt_name=DEC_2000_SF1_U_H005&-mt_name=DEC_2000_SF1_U_P001&-CONTEXT=dt&-tree_id=4001&-redoLog=true&-all_geo_types=N&-geo_id=01000US&-geo_id=04000US51&-

geo_id=05000US51059&-geo_id=05000US51153&-geo_id=16000US5129008&-search_results=05000US51059&-search_results=05000US51153&-format=&-_lang=en

USDOE, 2003. U.S. Department of Energy, Energy Information Administration. *Commercial Buildings Energy Consumption Survey (CBECS)*. 2003.

USDOT, 2006. United States Department of Transportation. Federal Highway Administration Roadway Construction Noise Model User's Guide. Final Report January 2006. FHWA-HEP-05-054. DOT-VNTSC-FHWA-05-01.

USEPA, 2009b. U.S Environmental Protection Agency. AirData "Reports: Monitoring data for Fairfax County." 23 January, 2009.

USEPA, 2009c. U.S. Environmental Protection Agency. 2009c. AirData "Reports: Air Quality Index for Fairfax County." 23 January, 2009.

USEPA, 2009a. U.S. Environmental Protection Agency. National Ambient Air Quality Standards. Accessed at: http://www.epa.gov/ttn/naaqs/

VDEQ, 2008. Virginia Department of Environmental Quality. F*inal 2008 305(b)/303(d) Water Quality Assessment Integrated Report*. Approved by EPA on December 18, 2008. Accessed at: http://www.deq.state.va.us/wqa/ir2008.html

VDEQ, 2007. Virginia Department of Environmental Quality. *Air Regulations – Chapter 30*. Accessed at: http://www.deq.virginia.gov/air/regulations/air30.html. Accessed on 25 February, 2009.

Vega, 2008. Personal communication between Sybille Vega (Natural Resources Branch, Fort Belvoir ENRD) and Julia Yuan (The Louis Berger Group, Inc.) 5 December 2009.

WSSI, 2007a. Wetland Studies and Solutions, Inc. *Resource Protection Area (RPA) Determination, South Post BRAC Study Area, Fairfax County, Virginia.* February 13, 2007. Prepared for the Mobile District, U.S. Army Corps of Engineers and U.S. Army Garrison Fort Belvoir.

WSSI, 2007b. Wetland Studies and Solutions, Inc. *Small Whorled Pogonia (Isotria meloides) Habitat Evaluation and Search Report*. Fort Belvoir Main Post, Fairfax, Virginia. July 13, 2007.

Zinkwich, 2009. Personal communication between Bob Zinkwich,(Energy Engineer, Environmental Protection Branch, DPW) and Frank Skidmore (The Louis Berger Group, Inc.). 20 February 2009.

6.0 LIST OF PREPARERS

U.S. Army Garrison Fort Belvoir Coordinators

Patrick M. McLaughlin, Chief, Environmental and Natural Resources Division, Directorate of Public Works.

Michelle Royal, Environmental Specialist, Environmental and Natural Resources Division, Directorate of Public Works.

The Louis Berger Group, Inc.

Julia Yuan, Environmental Scientist. B.S. Environmental and Forest Biology/Forest Resources Management, M.P.S Forest and Natural Resources Management. Project Management and responsible for Land Use Plans and Coastal Zone Management; Noise; Soil and Topography; Wetlands and Chesapeake Bay Preservation Areas; and Upland Vegetation sections, 8 years experience

Frank Skidmore, P.E., Senior Project Manager. M.S. Civil Engineering. QA/QC and responsible for Surface Water, Water Quality, and Floodplains; Infrastructure and Utilities; and Hazardous Substances sections, 40 years experience.

Rebecca Byron, Environmental Scientist. B.S. Environmental Science and Policy. Responsible for Air Quality section and Administrative Record, 4 years experience.

Pauline Dachman, Environmental Scientist. B.S. Environmental Science and Policy. Responsible for Socioeconomics and Community Facilities and Services sections and Administrative Record, 1 year experience.

George Dizelos, GIS Analyst. B.S. Geography, Computer Cartography, and Geographic Information Systems. Responsible for GIS analysis and mapping, 1 year experience.

Lawrence P. Earle, AICP, Senior Planner. B.A. Government, Master of Planning. Responsible for Historic, Cultural, and Architectural Resources section, 31 years experience.

Michael Monteleone, Transportation Planning Manager. B.S. Geography, M.R.P City and Regional Planning. Responsible for Transportation and Traffic section, 21 years experience.

THIS PAGE INTENTIONALLY LEFT BLANK

7.0 DISTRIBUTION LIST

This section identifies local, state and federal agencies that will receive a copy of the EA and/or FNSI. Other agencies, groups and individuals were informed of availability through the public Notice of Availability.

EA and FNSI DISTRIBUTION LIST

Federal Officials and Agencies

Ms. Karen DelGrosso
NEPA-Federal Facilities Director
U. S. Environmental Protection Agency Region 3
Attn: 3EA30 – NEPA
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. Willie Taylor, Director
U.S. Department of Interior
Office of Environmental Policy and Compliance
1849 C Street, NW
Room 2342
Washington, District of Columbia 20240

Mr. John Hildreth
Southern Field Office Director
National Trust for Historic Preservation
William Aiken House, 456 King Street
Charleston, South Carolina 29403

Mr. John P. Wolfin
Supervisor, Annapolis Field Office
U.S. Fish and Wildlife Service
117 Admiral Cochrane Drive
Annapolis, Maryland 21401-7307

Mr. Eric Davis
NEPA Coordinator
U. S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061

Honorable Gerry Connolly
Representative in Congress
Annandale District Office
4115 Annandale Road, Suite 103
Annandale, Virginia 22003

Honorable James P. Moran

Representative in Congress
333 North Fairfax Street, Suite 201
Alexandria, Virginia 22314

Mr. Lamar Smith
NEPA Oversight Team Leader
U. S. Department of Transportation
Federal Highway Administration
1200 New Jersey Ave, SE, HEPE-30
Washington, District of Columbia 20590-0001

Mr. William Parsons
Director, Fort Belvoir
U.S. Army Family, Morale, Welfare and Recreation
5820 21st Street
Suite 109
Fort Belvoir, Virginia 22060-5937

State Officials and Agencies

Ms. Ellie Irons, Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
P. O. Box 10009
Richmond, Virginia 23219

Honorable Kris Amundson
Virginia House of Delegates
P.O. Box 143
Mount Vernon, Virginia 22121

Honorable David Albo
Virginia House of Delegates
6367 Rolling Mill Place, Suite 102
Springfield, Virginia 22150

Honorable Vivian E. Watts
Virginia House of Delegates
8717 Mary Lee Lane
Annandale, Virginia 22003

Honorable Patricia Ticer
Virginia Senate
301 King Street, Room 2007
Alexandria, Virginia 22314

Honorable Linda T. Puller
Virginia Senate
P.O. Box 73
Mount Vernon, Virginia 22121-0073

Honorable George L. Barker
Virginia Senate
P.O. Box 10527
Alexandria, Virginia 22310

Mr. Marc Holma
Virginia Department of Historic Resources
2801 Kensington Ave.
Richmond, Virginia 23221

Mr. Robert McDonald
Chief, Planning Section
Virginia Department of Transportation
14685 Avion Parkway
Chantilly, Virginia 20151-1104

Ms. Laura McKay
Virginia Coastal Zone Management Program Manager
Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Local Government Officials and Agencies

Mr. David Robertson
Metropolitan Washington Council of Governments
777 N. Capitol Street, N.E., Suite 300
Washington, District of Columbia 20002

Mr. Marcel Acosta, Executive Director
National Capital Planning Commission
401 Ninth Street NW Suite 500 North Lobby
Washington, District of Columbia 20576

Mr. James T. Zook
Department of Planning and Zoning Director
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035

Honorable Sharon Bulova
Chairman, Fairfax County Board of Supervisors
Fairfax County Government Center
12000 Government Center Parkway, Suite 530
Fairfax, Virginia 22035-0071

Supervisor Gerald Hyland
Fairfax County Board of Supervisors
Mount Vernon Government Center
2511 Parkers Lane

Alexandria, Virginia 22306-3273

Supervisor Jeff McKay
Fairfax County Board of Supervisors
Franconia Government Center
6121 Franconia Road
Franconia, Virginia 22310-2508

Supervisor Pat Herrity
Fairfax County Board of Supervisors
West Springfield Governmental Center
6140 Rolling Road
Springfield, Virginia 22152-1580

Mr. Anthony Griffin
Fairfax County Executive
12000 Government Center Pkwy., Suite 552
Fairfax, Virginia 22035-0066

Chairman Peter F. Murphy, Jr.
Fairfax County Planning Commission
12000 Government Center Pkwy, Suite 330
Fairfax, Virginia 22035-0042

Ms. Kathy Ichter
Fairfax County Department of Transportation
12055 Government Center Parkway, Suite 1034
Fairfax, Virginia 22035

Mr. Todd Hafner
Director of Planning and Development
Northern Virginia Regional Park Authority
5400 Ox Road
Fairfax Station, Virginia 22039

Ms. Camille Mittelholtz
Environmental and Heritage Resources Director
Northern Virginia Regional Commission
3060 Williams Drive
Suite 210
Fairfax, Virginia 22031

Organizations

Mr. Dan Rinzel, Chairman
Mount Vernon Council of Citizen's Associations
9301 Maybrook Place
Alexandria, Virginia 22309

Mr. David Dale, Chairman

Mount Vernon Council of Citizen's Associations
P.O. Box 203
Mount Vernon, Virginia 22121-0203

Mr. Paul Gagnon, Chairman
Lee District Council of Citizen's Associations
P.O. Box 10413
Alexandria, Virginia 22310

Mr. Rick Neel
Southeast Fairfax Development Corporation
8850 Richmond Highway Suite 105
Alexandria, Virginia 22309

Ms. Patricia Soriano
Mount Vernon Group, Sierra Club
5405 Barrister Place
Alexandria, Virginia 22304

Mr. Rick Hutson
Mason Neck Citizens Association
P.O. Box 612
Lorton, Virginia 22196

Mr. Mark Grogan
South County Federation
P.O. Box 442
Lorton, Virginia 22199-0442

Ms. Judy Riggin
Alexandria Society of Friends
8990 Woodlawn Road
Fort Belvoir, Virginia 22060

Ms. Laurie Ossman
Executive Director
Woodlawn Plantation
P.O. Box 37
Mount Vernon, Virginia 22121

Libraries

Van Noy Library
Daniel Sadowitz - Director
5966 12th St., Building 1024
Fort Belvoir, Virginia 22060

John Marshall Branch
Kathryn Alleman - Branch Manager
6209 Rose Hill Drive

Alexandria, Virginia 22310-6299

Kingstowne Branch
Linda Masnik - Branch Manager
6500 Landsdowne Centre
Alexandria, Virginia 22315-5011

Lorton Branch
Christine Jones - Branch Manager
9520 Richmond Highway
Lorton, Virginia 22079-2124

Sherwood Regional Branch
Denise Morgan - Branch Manager
2501 Sherwood Hall Lane
Alexandria, Virginia 22306-2799

City of Fairfax Regional Branch
Tina Cunningham - Branch Manager
10360 North Street
Fairfax, Virginia 22030-2514

FNSI DISTRIBUTION LIST

Federal Officials and Agencies

Mr. Greg Weiler
Refuge Manager
Mason Neck National Wildlife Refuge
14344 Jefferson Davis Highway
Woodbridge, Virginia 22191

Ms. Mary Colligan
Protected Resources
National Marine Fisheries Service
Northeast Region
One Blackburn Drive
Gloucester, MA 01930-2298

Mr. Tim Goodger
National Marine Fisheries Service
Oxford Habitat Conservation Office
904 South Morris Street
Oxford, Maryland 21654

Ms. Katharine Kerr
Office of Federal Agency Programs
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 809

Washington, District of Columbia 20004

Mr. John Bricker
State Conservationist
USDA, Natural Resources Conservation Service
1606 Santa Rosa Road, Suite 209
Richmond, Virginia 23229-5014

Ms. Susan Bromm
Division Director
U. S. Environmental Protection Agency
Office of Federal Activities
1200 Pennsylvania Avenue, NW, Room 7241
Washington, District of Columbia 20044

Mr. John Nichols
National Oceanic Atmospheric Administration
National Marine Fisheries Service
Habitat Conservation Division
Chesapeake Bay Program Office
410 Severn Ave., Suite 107A
Annapolis, Maryland 21403

Dr. Wenonah G. Haire
Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, SC 29730

State Officials and Agencies

Ms. Cindy Arrington
Virginia National Defense Industrial Authority
901 E Byrd, West Tower, 19th Fl.
Richmond, Virginia 23218

Ms. Deanna Beacham
Virginia Council on Indians
P.O. Box 1475
Richmond, Virginia 23218

Local Government Officials and Agencies

Mr. Kevin Monroe
Huntley Meadows Park
3701 Lockheed Boulevard
Alexandria, Virginia 22306

Ms. Beth Borostovik
Pohick Bay Regional Park

6501 Pohick Bay Drive
Lorton, Virginia 22079

Ms. Lynn Tadlock
Planning and Development Division
Fairfax County Park Authority
12055 Government Center Parkway, Suite 421
Fairfax, Virginia 22035-1118

Ms. Linda Blank
Fairfax County Department of Planning and Zoning
Historic Preservation Planner
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035

Organizations

Ms. Stella Koch
Northern Virginia Environment Network
1056 Manning Street
Great Falls, Virginia 22066

Ms. Kathi McNeil
Friends of Huntley Meadows
C/O Huntley Meadows Park
3701 Lockheed Blvd.
Alexandria, Virginia 22306

Ms. Martha Wingfield
The Virginia Conservation Network
422 East Franklin Street, Suite 303
Richmond, Virginia 23219

Mr. Pat Malone
P. O. Box 9807
Friendship Station
Washington, District of Columbia 20016-9807

Ms. Tish Tyson
8641 Mount Vernon Highway
Alexandria, Virginia 22309

Mr. Philip Latasa
Friends of Accotink Creek
127 Poplar Road
Fredericksburg, Virginia 22406-5022

Ms. Darcy Levit
The Audubon Society of Northern Virginia
4022 Hummer Road
Annandale, Virginia 22003

NOTICE OF AVAILABILITY/FNSI LEGAL NOTICE

Media

The Washington Post
1st Floor Lennox Building
1150 15th Street, NW
Washington, District of Columbia 20071

The Mount Vernon Gazette
c/o Connection Newspapers
1606 King Street
Alexandria, Virginia 22314

The Mount Vernon Voice
8808-A Pear Tree Court
Alexandria, Virginia 22389

THIS PAGE INTENTIONALLY LEFT BLANK

8.0 ACRONYMS AND ABBREVIATIONS

µg	micrograms
AAFES	Army and Air Force Exchanges Services
ABWR	Accotink Bay Wildlife Refuge
ACS	Army Community Services
ADAAG	Americans with Disabilities Act Accessibility Guidelines
AIRFA	American Indian Religious Freedom Act
AMC	Army Materiel Command
APE	area of potential effect
AQCR	Air-quality Control Region
AR	Army Regulation
ARPA	Archaeological Resource Protection Act
AT/FP	Anti-terrorism/Force Protection
BMPs	Best Management Practices
BRAC	Base Realignment and Closure
BTU	British Thermal Unit
C&D	construction and demolition
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CBECS	Commercial Buildings Energy Consumption Survey
CBPA	Chesapeake Bay Preservation Act
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CQ	Charge of Quarters
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DA	Department of the Army
dB	decibels
dBA	decibels on an A-weighted scale
DoD	Department of Defense

DPW	Directorate of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	emergency medical service
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCPS	Fairfax County Public School System
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FNSI	Finding of No Significant Impact
FWPCA	Federal Water Pollution Control Act
GIS	Geographic Information System
GSF	gross square foot/feet
HID	High Intensity Discharge
HUD	U.S. Department of Housing and Urban Development
HWMP	Hazardous Waste Management/ Waste Minimization Plan
IET	Initial-Entry-Training
JMAWR	Jackson Miles Abbott Wetland Refuge
kV	kilovolt
kWh	kilowatt hours
IAQC	Interstate Air Quality Council
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LOS	Level of Service
LRC	long range component
mgd	million gallons per day
MP	military police
msl	mean sea level
MSW	municipal solid waste
MWAQC	Metropolitan Washington Air Quality Committee
MWCOG	Metropolitan Washington Council of Governments
FMWR	Family, Morale, Welfare and Recreation
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act

NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	Notice of Availability
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety & Health Act
OTC	Ozone Transport Commission
Pb	lead
PCB	Polychlorinated Biphenyl
PIF	Partners in Flight
PL	Public Law
PM	particulate matter
ppm	parts per million
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
RMA	resource management area
RPA	resource protection area
RPMP	Real Property Master Plan
SCS	Soil Conservation Service
SESCP	soil erosion and sediment control plan
SF	square foot/feet
SFAC	Soldier and Family Assistance Center
SIP	State Implementation Plan
SO_2	sulfur dioxide
SWM	storm water management
SWPPP	stormwater pollution prevention plan
tpy	tons per year
TSCA	Toxic Substance Control Act
UFAS	Uniform Federal Accessibility Standards
USACE	U.S. Army Corps of Engineers
USC	U.S. Code

USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VDEQ	Virginia Department of Environmental Quality
VCRMP	Virginia's Coastal Resources Management Program
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VMRC	Virginia Marine Resource Commission
VOC	volatile organic compound
WIC	Women, Infant and Children
WTU	Warrior in Transition Unit

APPENDICES

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A: STATUTES AND EXECUTIVE ORDERS

THIS PAGE INTENTIONALLY LEFT BLANK

Army Compliance with Federal Environmental Statutes, Regulations, and Executive Orders

Environmental Resources	Statute, Regulation, or Executive Order
Air	Clean Air Act (CAA) of 1970 (PL 91-604), as amended in 1977 (PL 95-95) and 1990 (PL 101-549); U.S. Environmental Protection Agency (USEPA), Subchapter C-Air Programs (40 CFR 50-99)
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211)
Water	Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-149); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 400-471); Safe Drinking Water Act (SDWA) of 1972 (PL 93-523) and Amendments of 1986 (PL 99-339); USEPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-624); Sikes Act of 1960 (PL 86-797) and Amendments of 1986 (PL 99-561), 1997 (PL 105-85 Title XXIX), and 2004 (PL 108-136); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79); Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
Wetlands and Floodplains	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); USEPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (EO 11988); Protection of Wetlands-1977 (EO 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
Cultural Resources	NHPA (16 USC 470 et seq.) (PL 89-665) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 (EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); Antiquities Act of 1906; Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601); Protection of Historic Properties (36 CFR 800); Consultation and Coordination with Indian Tribal Governments (EO 13175)
Solid/Hazardous Materials and Waste	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-580), as Amended by PL 100-582; USEPA, subchapter I-Solid Wastes (40 CFR 239-282); Comprehensive Environmental

	Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (TSCA) (PL 94-469); USEPA, Subchapter R-Toxic Substances Control Act (40 CFR 700-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 150-189); Emergency Planning and Community Right-to-Know Act (40 CFR 350-399); Federal Compliance with Pollution Control Standards-1978 (EO 12088); Superfund Implementation (EO 12580); Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423)
Environmental Justice	Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898); Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)
Human Health and Safety	Safety and Health Regulations for General Industry (29 CFR 1910); Safety and Health Regulations for Construction (29 CFR 1926)

APPENDIX B: AGENCY COORDINATION

THIS PAGE INTENTIONALLY LEFT BLANK

Virginia Department of Environmental Quality

Federal Consistency Determination Review

THIS PAGE INTENTIONALLY LEFT BLANK

The Louis Berger Group Inc.

2445 M Street, NW, Washington, D.C. 20037
Tel: (202) 331-7775 Fax: (202) 293-0787 www.louisberger.com

June 1, 2009

Ms. Ellie Irons
Department of Environmental Quality
Virginia Coastal Program, Room 631
629 East Main Street
Richmond, Virginia 23219

Dear Ms. Irons:

On behalf of the Department of the Army, The Louis Berger Group Inc. submits the enclosed Federal Consistency Determination for the proposed construction and operation of the Warrior in Transition Unit Complex at Fort Belvoir, Virginia.

Should you have any questions or need additional information on the project, please contact:

Ms. Dorothy Keough
Natural Resource Branch Chief
Phone: (703) 806-0049
Email: dorothy.e.keough@us.army.mil

I would like to thank you in advance for your cooperation in this matter. Please provide your response to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any other questions concerning this request, please do not hesitate to contact me at 202-303-2662.

Sincerely,
THE Louis Berger Group, INC.

Julia Yuan
Environment Scientist/Project Manager

Enclosure: Federal Consistency Determination

cc: Patrick M. McLaughlin, Chief, Environmental and Natural Resources Division,
Dorothy Keough, Branch Chief, Natural Resources Branch
Michelle Royal, Environmental Specialist, Environmental and Natural Resources Division

Coastal Zone Management Act (CZMA) Federal Consistency Determination

This document provides the Commonwealth of Virginia with Fort Belvoir's Federal Consistency Determination (FCD) under CZMA section 307 and 15 C.F.R. Part 930 sub-part C. The information in this FCD is provided pursuant to 15 C.F.R. Section 930.39.

Proposed Federal Agency Action:

The Army's proposed action is to construct and operate a Warrior in Transition Unit Complex north of 9th Street on the former South Post golf course. The proposed action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of two companies of Warriors in Transition and a Soldier and Family Assistance Center (SFAC) that would assist both soldiers housed at the Warrior in Transition Unit complex and additional recovering soldiers residing off post.

The purpose of the project is to provide adequate facilities for soldiers being treated at the Fort Belvoir Community Hospital or other area medical facilities whose injuries require an extended recovery/transition period before the soldiers can be returned to their unit or released to civilian life. Providing quality care for the Nation's wounded warriors recovering from their war injuries has become a national priority and the Army has designed standard facilities within a standard organization with necessary medical and administrative assistance to carry out this important mission. Such facilities are referred to as a Warrior in Transition Unit Complexes.

Appropriate Warrior in Transition Unit facilities for soldiers who will be receiving care at the Fort Belvoir Community Hospital or other area medical facilities do not currently exist at Fort Belvoir. Fort Belvoir personnel and social service activities supporting soldiers and their families are located in at least five different buildings on post. This causes customers to travel to several different locations to receive required services and has a negative impact, especially on in-and out-processing soldiers. Three of the buildings currently in use are inadequate in configuration, as they were converted from other uses. Building 1001, which was constructed in 1945 is old and has inefficient HVAC and utilities systems that fail frequently. Space is inadequate to support required Army Community Services (ACS) programs, which includes services for wounded soldiers under the Warrior in Transition program. In order to provide customer-demanded programs, the ACS staff is currently using hallways and storage rooms for offices and administrative functions. This compromises client confidentiality and also poses safety and fire hazards as means of egress are restricted.

Warrior in Transition Unit Complex

The Warrior in Transition Unit Complex would be constructed using standard Warrior in Transition designs with primary facilities to include a 194,400 square feet (SF) barracks, a 15,000 SF SFAC, and a 31,000 SF administration and operations facility. New parking for the Warrior in Transition Unit Complex would include 407 spaces (193 for barracks population, 36 for SFAC, 137 for Administration, and 41 for off-site Warrior in Transition population), totaling approximately 4.0 acres of surface parking. Included in the 407 spaces are 29 visitors and 8 handicapped spaces.

The exact requirements of the facilities would depend on final design for the proposed action, but construction at the proposed site would require: clearing and grading to prepare the site;

excavating and trenching to lay potable water, sanitary sewer, telephone, electric, and other utility lines; and construction of the buildings and other structures. Heavy machinery would be needed for the grading and construction, as well as heavy trucks to deliver machinery and construction materials, and to haul away debris and excess materials. Construction would require laying approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. Construction would also require the removal of approximately 0.4 acres of old road pavement at the proposed site in the former golf course area, and one building (the golf course maintenance building, Building 1493) to make way for Warrior in Transition Unit Complex facilities.

The proposed site of the Warrior in Transition Unit Complex is on the South Post portion of the installation, at a 16.6-acre site on the corner of Belvoir Road and 9th Street (see enclosures).

ENFORCEABLE POLICIES OF THE VIRGINIA COASTAL RESOURCES MANAGEMENT PROGRAM

Fort Belvoir has determined that the proposed development and operation of the Warrior in Transition Unit Complex may reasonably affect the land or water uses or natural resources of the Commonwealth of Virginia's coastal zone. The following discussion provides an assessment of potential effects of facility development and operation at the proposed site and an analysis of the consistency of project development at the proposed site with each of the nine enforceable policies and mechanisms of the Virginia Coastal Resources Management Program. The proposed development of the Warrior in Transition Unit Complex on Fort Belvoir may affect the land or water uses or natural resources of the Commonwealth of Virginia's coastal zone in the following manner:

1. Fisheries

Development and operation of the Warrior in Transition Unit Complex at the proposed site on South Post would not impact conservation and enhancement of finfish and shellfish resources or adversely affect commercial and recreational fisheries. The proposed site is not located on State waters or waters of the United States. The proposed action would not involve the use of marine anti-foulant paints containing Tributyltin (TBT).

2. Subaqueous Lands

Development and operation of the Warrior in Transition Unit Complex at the proposed site on South Post would not involve any encroachments in, on, or over state-owned submerged lands.

3. Wetlands

Wetlands would not be directly affected as a result of constructing the Warrior in Transition Unit Complex at the proposed site. Preliminary site design has the project footprint avoiding the wetland located to the west of the proposed site. Low Impact Development (LID) strategies would be used for the development of the site in order to minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off.

4. Dunes and Beaches

The proposed site within South Post is not located on, or in the vicinity of, coastal primary sand dunes. The proposed project does not involve an encroachment upon, or the destruction or alteration of, coastal primary sand dunes as defined by the Coastal Primary Sand Dune Protection Act, Virginia Code §28.2-1400 to §28.2-1420.

5. Nonpoint Source Water Pollution

Fort Belvoir follows two regulatory programs that are intended to protect water resources from degradation caused by stormwater runoff. They include the Virginia Stormwater Management Regulations (4VAC3-20) and the Virginia Erosion and Sediment Control Regulations (4VAC50-30. Construction disturbance associated with development of the Warrior in Transition Unit Complex at the proposed site would include approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. Construction would also require the removal of approximately 0.4 acres of old road pavement at the proposed site in the former golf course area, and one building (the golf course maintenance building, Building 1493) to make way for the new facilities..

Overall disturbance would exceed 2,500 SF requiring Fort Belvoir to obtain a Virginia General Permit for Stormwater Discharges on Construction Sites. Under the applicable regulations, any construction activity such as clearing, grading, and excavation, that is greater than 2,500 SF within areas subject to the Chesapeake Bay Preservation Act requires a General Permit.

As a component of the General Permit, the construction contractor would develop a stormwater pollution prevention plan (SWPPP) and a soil erosion and sediment control plan (SESCP). The permit requires use of best management practices for erosion and sediment control at the construction site. The permit also requires the contractor to regularly inspect stormwater discharges from the site to ensure that the best management practices are controlling the discharge of pollutants to the maximum extent practicable, and are meeting water quality standards. In addition, the pollution prevention plan requires the contractor to manage other wastes on site, such as building materials, garbage, and debris, and to have controls to minimize the exposure of these materials to stormwater, in order to minimize the discharge of pollutants to State waters.

The SWPPP and SESCP would also be developed in accordance with the Fairfax County Facilities Manual, the Virginia Erosion and Sediment Control Handbook, and the Fort Belvoir MS4 Permit. BMPs such as prompt stabilization of exposed soil, silt fences, sediment traps, storm drain inlet filters, and sediment basins where practicable, to minimize erosion and sedimentation until the site has stabilized would be considered. Stormwater discharges will be regularly inspected to ensure that the BMP's are controlling the discharge of pollutants to the maximum extent possible and are meeting water quality standards.

Site-specific BMPs or mitigation measures would incorporate strategies that would include a combination of structural and non-structural BMP's appropriate for the site, including consideration of Low Impact Development (LID) measures. A watershed-based approach would be implemented to evaluate upstream and downstream concerns and mitigate possible effects. Stormwater retention on site would be designed by considering features such as a detention pond, bioretention areas, and sand filters or infiltration galleys below the parking lot areas. The design would include adequate long-term operation and maintenance of BMP's and water quality

protection will be considered in accordance with the Federal Clean Water Act and all applicable State and local codes.

6. Point Source Pollution

The Department of Conservation and Recreation is responsible for the issuance, denial, revocation, termination, and enforcement of National Pollutant Discharge Elimination System (NPDES) permits for the control of stormwater discharges from land disturbing activities under the Virginia Stormwater Management Program.

Overall construction disturbance associated with development of the Warrior in Transition Unit Complex would exceed 2,500 SF requiring Fort Belvoir to obtain a Virginia General Permit for Stormwater Discharges on Construction Sites. As a component of the Permit the construction contractor would develop a SWPPP and SESCP. The SWPPP and SESCP would also be developed in accordance with the Fairfax County Facilities Manual, the Virginia Erosion and Sediment Control Handbook, and the Fort Belvoir MS4 Permit.

The permit requires the contractor to regularly inspect stormwater discharges from the site to ensure that the best management practices are controlling the discharge of pollutants to the maximum extent practicable, and are meeting water quality standards. In addition, the pollution prevention plan requires the contractor to manage other wastes on-site, such as building materials, garbage, and debris, and to have controls to minimize the exposure of these materials to stormwater, in order to minimize the discharge of pollutants to State waters.

Impacts would be minor based on the proposed site location, the relatively small size of the project area, and the mitigation measures that would be implemented.

7. Shoreline Sanitation

Development and operation of the Warrior in Transition Unit Complex at the proposed site on South Post would not have any impact on shoreline sanitation. The proposed project does not involve the installation of septic tanks or associated drainfields.

8. Point Source Air Pollution

All new construction for the Warrior in Transition Unit Complex will either be heated by Fort Belvoir's steam plant or by small individual boilers. Water would be heated by natural gas. The new facilities would use 2,000 – 3,000 million BTU annually. This is 2-3 million cubic feet of natural gas annually.

Fort Belvoir is located within the Washington, D.C. airshed (AQCR 47). AQCR 47 is in moderate non-attainment for the criteria pollutant ozone under the 8-hour ozone standard, and in non-attainment for $PM_{2.5}$. The airshed is in attainment for all other pollutants. As major source for stationary emissions, Fort Belvoir operates under a Title V permit.

To regulate the emission levels resulting from a project, federal actions located in nonattainment areas are required to demonstrate compliance with the general conformity rule established in 40 CFR Part 93. Fort Belvoir has completed a General Conformity Rule applicability analysis in order to analyze any impact to air quality. The *de minimis* threshold for moderate ozone non-

attainment areas in an ozone transport region is 100 tons per year (TPY) for NO_x and 50 TPY for VOCs. The *de minimis* threshold for emission level under non-attainment for directly emitted $PM_{2.5}$ is 100 TPY.

It is anticipated that the additional emissions associated with the operation of the Warrior in Transition Unit Complex would fall well below *de minimis* levels and would not require a full conformity determination. Air quality impacts are not expected to be significant on either a local or regional level from the construction and operation of the Warrior in Transition Unit Complex.

All proposed access roads, parking areas and ingress/egress will be designed and constructed to avoid or minimize traffic congestion and/or unnecessary localized vehicular idling.

Construction activities related to the proposed actions are likely to give rise to fugitive dust emissions. During construction, fugitive dust will be kept to a minimum by employing measures that include, but are not limited to, the following: use, where possible, of water for dust control; covering of open equipment for conveying materials; and prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

9. Coastal Lands

Wetlands would not be directly affected as a result of constructing the Warrior in Transition Unit Complex at the proposed site. Preliminary site design has the project footprint avoiding the wetland located to the west of the proposed site. LID strategies would be used for the development of the site in order to minimize land disturbance, preserve existing vegetation, minimize impervious surfaces, and reduce run-off.

ADIVSORY POLICIES FOR DOD AGENCY ACTIVITIES AND DEVELOPMENT PROJECTS

Although not required for the purposes of Federal Consistency, in accordance with 15 C.F.R. § 930.30(c), Fort Belvoir has considered the following advisory policies of Virginia's Coastal Resources Management Program:

1. Natural Heritage and Wildlife Resources

Fort Belvoir supports potential habitat for the federally-listed small whorled pogonia (*Isotria meloides*) and habitat for the recently-delisted bald eagle (*Haliaeetus leucocephalus*). Fort Belvoir supports the habitat for the federal species of concern Northern Virginia Well Arthropod (*Stygobromus phreaticus*). The bald eagle, wood turtle (*Clemmys insculpta*) and Northern Virginia Well Arthropod are the only state-listed threatened species known to inhabit Fort Belvoir. Much of the installation's bald eagle habitat are contained within the Accotink Bay Wildlife Refuge, while some of the wood turtle habitat is included within the installation's two refuges and the Fort Belvoir Forest and Wildlife Corridor. Northern Virginia Well Arthropod habitat is mainly contained in the T-17 refuge. The T-17 refuge for the Northern Virginia Well Arthropod was formed as a mitigation measure in the Record of Decision signed August 2007 for Fort Belvoir actions in 2005 Base Realignment and Closure Act (BRAC).

The Fort Belvoir Natural Heritage Inventories conducted in 2000 by the Virginia Department of Conservation and Recreation – Division of Natural Heritage (VDCR-DNH) identified seven Virginia state rare animal species and four Virginia state rare plant species on the installation. The inventory also identified 16 state watchlist animal species and three state watchlist plant species on Fort Belvoir.

A survey for the small whorled pogonia conducted on 6 June and 3 July 2007 covering the proposed Warrior in Transition Unit Complex site and the site of the new Community Hospital (north of the proposed project site) found potential habitat for the species to exist on-site. However, during the survey no individuals were found. No surveys for the wood turtle were conducted at the proposed project site because habitat for the species does not exist on-site. The closest active bald eagle nest is located on the shore of Dogue Creek.

Development of the Warrior in Transition Unit Complex at the proposed site South Post would not adversely affect any special status species. The proposed project site does not contain suitable habitat for the wood turtle. Suitable habitat for the small whorled pogonia exists in the area of the proposed site; however, surveys of the proposed site conducted in 2007 did not find the occurrence of any individual specimens.

No adverse impacts to foraging activities of bald eagles would be expected as a result of construction and operation of Warrior in Transition Unit Complex. The closest active bald eagle nest site does not occur in proximity to the proposed development area; therefore, no impacts to bald eagle nests would be expected as a result of construction of the Warrior in Transition Unit Complex.

The bald eagle was delisted by the U.S. Fish and Wildlife Service from the federal endangered species list on June 28, 2007, effective August 8, 2007. The bald eagle is still protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The DoD follows the Bald Eagle Protection Guidelines provided by the USFWS and VDGIF.

No adverse impacts to Northern Virginia Well Arthropod would be expected as a result of construction and operation of Warrior in Transition Unit Complex. The proposed development area does not occur in proximity or contain any potential habitat for the Northern Virginia Well Arthropod.

Informal correspondence requesting information on threatened or endangered species with the potential to occur in the vicinity of the proposed project areas has been initiated with the U.S. Fish and Wildlife Service (USFWS, Gloucester Virginia Field Office); Virginia Department of Game and Inland Fisheries; and Virginia Department of Conservation and Recreation – Division of Natural Heritage. Any information or concerns regarding rare, threatened, or endangered species or critical habitats received as a result of agency correspondence will be fully considered and addressed prior to implementation of affected proposed activities.

2. Historic Structures and Archaeological Resources

Fort Belvoir has completed its responsibility under Section 110 of National Historic Preservation Act (NHPA) to survey the installation and identify, by means of professional consultant surveys carried out in accordance with the relevant Secretary of Interior Standards, all cultural resources eligible for the National Register of Historic Places (NRHP). Cultural resources surveys of both

historic buildings or structures and archaeological resources were carried out with regard to the accepted prehistoric and historic contexts of the region from its occupation by Native Americans through its settlement by European, and utilization by the U.S. Army. The findings of these surveys as well as management policies and procedures for the treatment of historic resources were incorporated, in accordance with Army policy, in the 2001 Fort Belvoir Integrated Cultural Resources Management Plan (ICRMP).

At the time of the development of the 2001 Fort Belvoir ICRMP, the site that has now been designated as the proposed site for the Warrior in Transition Unit Complex was part of the South Post Golf Course which was a contributing element of the Fort Belvoir Historic District, determined eligible for the NRHP. However, subsequent decisions taken under the 2005 BRAC mandated redevelopment of Fort Belvoir have led to the redevelopment of the majority of the land of the South Post Golf Course as the site of the new Community Hospital. The Community Hospital is now under construction (in 2009) and its existence forms part of the baseline conditions for the proposed action. Therefore, the South Post Golf Course as a whole has lost its integrity and no longer exists as a NRHP historic property.

Otherwise, there are no other cultural resources, including archaeological sites, present at the proposed site of the Warrior in Transition Unit Complex. The nearest building carried on the Fort Belvoir inventory of historic structures is Building 00815, a Cold War era barracks now used as a health clinic. It is not, however considered historically sensitive due to the provisions of a Program Comment of the Advisory Council on repetitive structures of this kind, nor would the Warrior in Transition Unit Complex be close enough in any case to it to affect its setting.

3. Solid and Hazardous Wastes

Hazardous waste management at Fort Belvoir is conducted in compliance with the Resource Conservation and Recovery Act (RCRA). Fort Belvoir has a Waste Minimization Plan and a Master Spill Plan. Fort Belvoir is a large quantity generator of hazardous waste and has one RCRA Part B permit for storage of hazardous wastes from the VDEQ. All current and former hazardous waste management areas present potential constraints to future development, in that closure of such sites is required prior to reuse. There are no hazardous waste accumulation sites, aboveground storage tanks, or underground storage tanks at or near the Warrior in Transition Unit Complex.

Construction activities would include a short-term increase in the use of fuel, oil, asphalt substances, and fertilizers, and would generate solid and sanitary waste. Some of these substances may be considered “hazardous” if released. Various types of control measures would be implemented to minimize such releases. The Warrior in Transition Unit Complex construction contractors must follow the Fort Belvoir Master Spill Plan, which explains required hazardous substances spill response procedures. The construction contractor must call the Fort Belvoir Fire Department if there is a hazardous substance spill of five gallons or more. The Directorate of Public Works would contact any applicable regulators for the reported incident.

4. Pesticides and Herbicides

Following development of the Warrior in Transition Unit Complex, herbicides may be used on a limited basis for the control of noxious weeds within the developed area. However, native

vegetation would be used to landscape the site once construction is complete. Use of native vegetation on developed land often require little or no management, and therefore can effectively reduce the amount of herbicides applied. To the extent that management of the facility requires the use of herbicides, Fort Belvoir will use the least amount of toxic herbicides effective for controlling the target species and their use will be strictly in accordance with the manufacturers' recommendations and the principles of Fort Belvoir's Integrated Pest Management Plan. The plan serves as a tool to reduce reliance on pesticides and herbicides, to enhance environmental protection, and to maximize the use of integrated pest management techniques.

5. State Scenic Rivers and Scenic Byways

Development of the Warrior in Transition Unit Complex would not cause any adverse impacts to any streams on the National Park Service's Nationwide Inventory, Final List of Rivers, or existing or potential State Scenic Rivers or State Scenic Byways.

6. Tree Protection

The proposed site consists of semi-improved grounds; including landscape urban trees, shrubs, and maintained lawn that was once part of the former South Post golf course. Development of proposed action at the proposed site would convert approximately 16.6 acres of maintained lawn area with scattered trees into developed facilities and associated landscape.

Prior to construction a final tree survey would be conducted indicating the trees to be removed. A Tree Protection Plan would be developed and implemented prior to construction to indicate existing trees to remain and the protection actions required to preserve the trees. Fencing would be placed around the trees to remain that are located within the construction limits. Existing mature trees on site would be preserved as much as possible. Once construction is complete the project site would be landscaped with trees, shrubs, groundcover, seeding, and turf. Low maintenance and native plant material would be used. Landscaping would match the overall theme of the Installation as instructed in Fort Belvoir's Approved Plant List. Trees would be replaces at 2:1 ratio for every tree 4 inches or greater in diameter removed during construction. Replacement trees will be 2 inches to 2 ½ inches in diameter and consistent with the tree species removed.

7. Recreation Resources

Development of the Warrior in Transition Unit Complex at the proposed site will not cause adverse impacts to any existing recreation resource nor preclude the development of planned recreational facilities. The existing tennis courts located on the southeastern corner of the project site will remain for use along with the existing Grill Restaurant located on the north side of 9th Street.

8. Pollution Prevention

The Fort Belvoir Pollution Prevention Plan specifies actions that the installation must take to meet federal, state, DoD, and Army pollution prevention policy goals. The plan also serves to reduce long-term liabilities associated with waste disposal and to protect public health and the environment by reducing the amount of waste generated and decreasing use of toxic materials, fuels, and chemicals. The plan recommends options for non-toxic chemical substitutions;

recycling chemical, organic, and solid wastes (including composting); reducing air emissions; and conserving energy and water. In addition, Fort Belvoir has attempted to minimize environmental impacts through effective siting and planning, and the use of on-site best management practices.

9. Energy Conservation

The design of the proposed Warrior in Transition Unit Complex would incorporate sustainable design and construction and would be consistent with Executive Order 12123: Greening the Government Through Efficient Energy Management. The project would incorporate sustainable design and construction and the final project would be required to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating.

CONCLUSION

Based on the above information, data, and analysis, Fort Belvoir finds that the proposed development of the Warrior in Transition Unit Complex at the proposed site is fully consistent with the federally approved enforceable policies of the Virginia Coastal Resource Management Program.

Jerry L. Blixt
Colonel, US Army
Commanding

Figure 1: Proposed Site for the Warrior in Transition Unit Complex, at Fort Belvoir

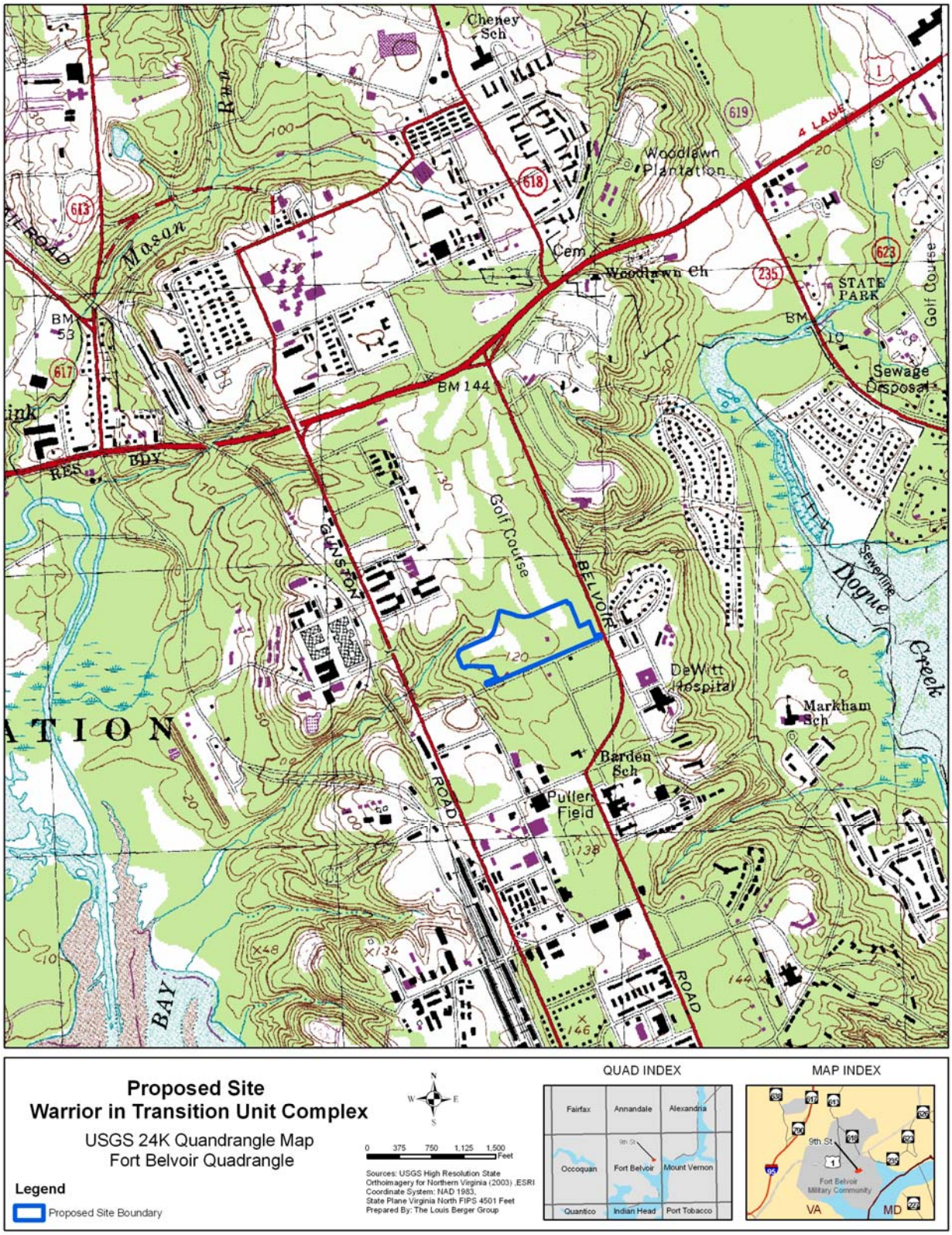
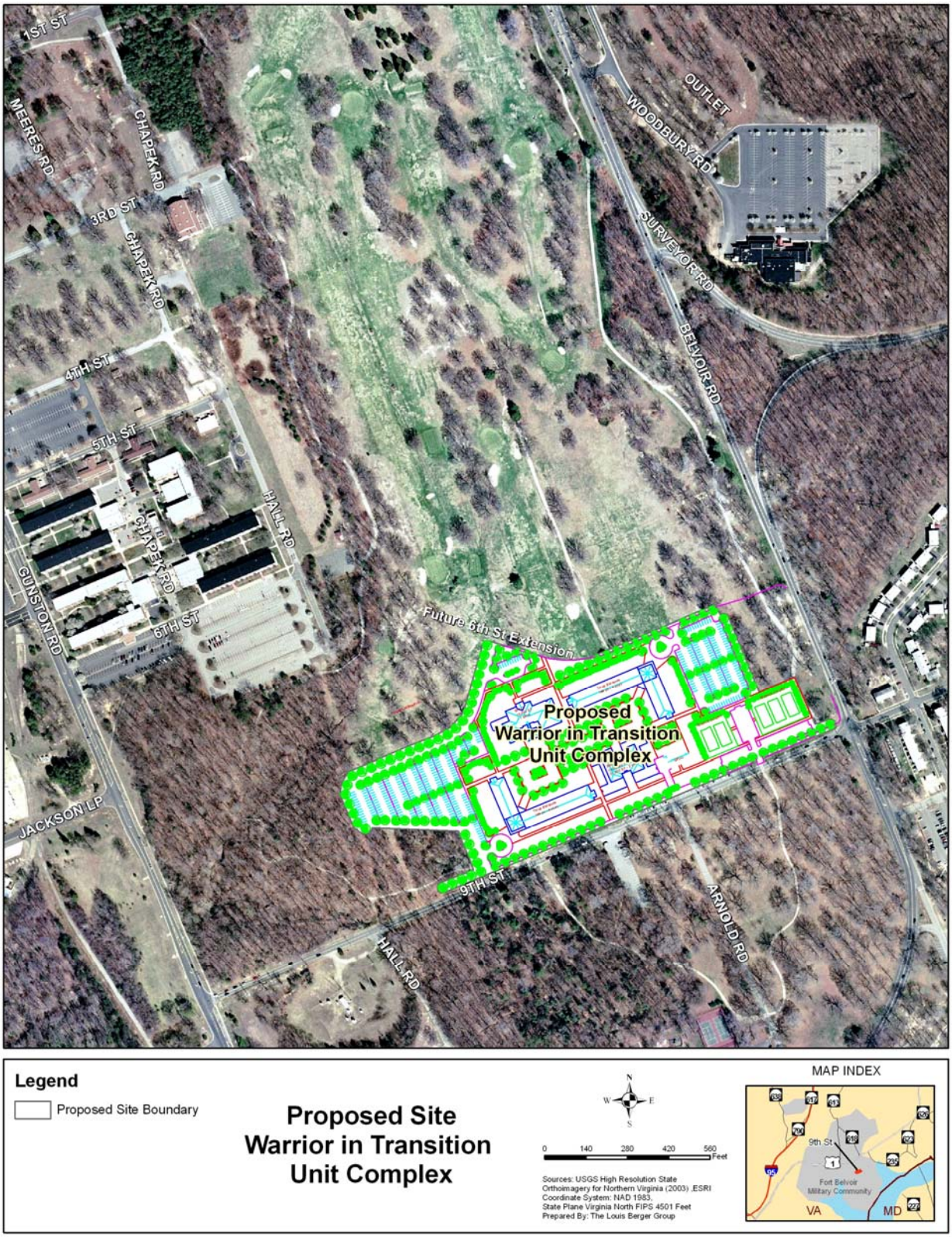


Figure 2: Close up of Proposed Site for the Warrior in Transition Unit Complex, at Fort Belvoir



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

August 12, 2009

Ms. Julia Yuan
The Louis Berger Group, Inc.
2445 M Street, NW
Washington, D.C. 20037

RE: Federal Consistency Determination for the Warrior in Transition Unit Complex at Fort Belvoir, proposed by the U.S. Department of the Army, DEQ 09-122F

Dear Ms. Yuan:

The Commonwealth of Virginia has completed its review of the Federal Consistency Determination (FCD) for the above-referenced project. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal consistency determinations and responding to appropriate officials on behalf of the Commonwealth. This letter is in response to the June 1, 2009 letter (received June 5, 2009 and additional copies received June 17, 2009) requesting concurrence with the federal consistency determination. The following agencies, planning district commission and locality participated in this review:

Department of Environmental Quality
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Health
Department of Transportation
Department of Historic Resources
Northern Virginia Regional Commission
Fairfax County.

PROJECT DESCRIPTION

The U.S. Army Garrison, Fort Belvoir proposes to construct and operate a Warrior in Transition Unit Complex on a 16.66acre site located at the former South Post golf course. The primary facilities will include a 194,400-square foot barracks, a 15,000-

square foot Soldier and Family Assistance Center and a 31,000-square foot administration and operations facility. Associated facilities will include sidewalks, 4acres of parking, access roads and utilities. The proposed construction would require the demolition of Building 1493, the golf course maintenance building.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended and the federal consistency regulations administering the Coastal Zone Management Act (15 CFR 930.31(c)), Federal actions that can have reasonably foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner consistent to the maximum extent practicable with the Virginia Coastal Resources Management Program (VCP) (also called the Virginia Coastal Zone Management Program). The VCP is comprised of a network of programs administered by several agencies. In order to be consistent with the VCP, the Federal agency must obtain all the applicable permits and approvals listed under the enforceable policies of the VCP prior to commencing the project.

According to information in the federal consistency determination, the proposed activity would have no effect on the following enforceable policies: fisheries management, subaqueous lands management, dunes management, point source pollution control and shoreline sanitation. However, the Army must ensure that the proposed action is also consistent with the aforementioned policies. The analysis which follows responds to the Army's discussion of the enforceable policies of the VCP that apply to this project and review comments submitted by agencies that administer the enforceable policies.

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.2, the public was invited to participate in the Commonwealth's review of the FCD. A public notice of this proposal was published on the DEQ web site from June 22, 2009 to July 21, 2009. No comments were received in response to the public notice.

CONSISTENCY CONCURRENCE

Based on our review of the Army's FCD and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposal is consistent with the VCP provided that all applicable permits and approvals are obtained as described below. However, other State approvals which may apply to this project are not included in this consistency concurrence. Therefore, the Army must ensure that this project is constructed and operated in accordance with all applicable Federal, State, and local laws and regulations.

1. Water Quality and Wetlands Management. According to the FCD (page 3), wetlands would not be directly affected by the proposed construction. The preliminary

site design demonstrates avoidance of the wetland area located to the west of the proposed project site.

1(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit (VPDES), Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit. The VWP Permit is a State permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Water Protection and Compliance, within the DEQ Division of Water Quality Programs. In addition to Central Office staff who review and issue VWP permits for transportation and water withdrawal projects, the seven DEQ regional offices perform permit application reviews and issue permits for the covered activities.

1(b) Findings. The DEQ-Northern Regional Office (NRO) states that if surface waters cannot be avoided and impacts are proposed, then a Virginia Water Protection (VWP) permit would be required from DEQ.

1(c) Recommendations. DEQ recommends that all efforts should be taken to ensure that adjacent wetlands are not adversely impacted by the proposed activities. In general, the Army must comply with Section 404(b)(1) guidelines of the Clean Water Act and with the Commonwealth's wetland mitigation policies. Both Federal and State guidelines recommend avoidance and minimization of wetland impacts as the first steps in the mitigation process. Any unavoidable impacts to State water may require compensation such as wetland creation, restoration or other acceptable forms of wetland compensatory mitigation.

In general, DEQ recommends that wetland impacts be avoided to the maximum extent practicable and encourages the following practices to minimize impacts to wetlands:

- operate machinery and construction vehicles outside of wetlands as no machinery may enter surface waters, unless authorized by a VWP permit;
- any temporary impacts to surface waters associated with this project shall require restoration to pre-existing conditions;
- erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992;
- heavy equipment in temporarily impacted surface waters shall be placed on mats, geotextile fabric or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be

removed immediately upon completion of work;

- all construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a permit; and
- herbicides used in or around any surface water shall be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish and Wildlife Service. These herbicides should be applied according to the label directions by a licensed herbicide applicator. A non-petroleum based surfactant shall be used in or around any surface waters.

1(d) Conclusion. Provided that wetlands will be avoided or if impacted, a VWP permit is obtained, then the proposed project would be consistent with the wetlands management enforceable policy of the VCP. For additional information, contact DEQ's Northern Regional Office.

2. Coastal Lands Management and Chesapeake Bay Preservation Area. According to the FCD (page 6), the Army will use Low Impact Development (LID) strategies for site development, in order to minimize land disturbance, preserve existing vegetation, minimize impervious cover and reduce run-off.

2(a) Agency Jurisdiction. The Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance administers the coastal lands management enforceable policy of the Virginia Coastal Program which is governed by the Chesapeake Bay Preservation Act (Virginia Code §10.1-2100-10.1-2114) and Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20 *et seq.*).

2(b) Chesapeake Bay Agreement. The 1998 *Chesapeake Ecosystem Unified Plan* requires the signatories, including the Department of the Army, to fully cooperate with local and state governments in carrying out voluntary and mandatory actions to comply with the management of stormwater. All signatory agencies also committed to encouraging construction design that a) minimizes natural area loss on new and rehabilitated federal facilities; b) adopts low impact development and best management technologies for storm water, sediment and erosion control, and reduces impervious surfaces; and c) considers the *Conservation Landscaping and BayScapes Guide for Federal Land Managers*. In addition, the Chesapeake 2000 Agreement committed the signatory agencies to a number of sound land use and stormwater quality controls. The signatories additionally committed the agencies to lead by example with respect to controlling nutrient, sediment and chemical contaminant runoff from government properties. In December 2001, the Executive Council of the Chesapeake Bay Program issued *Directive No. 01-1: Managing Storm Water on State, Federal and District-owned Lands and Facilities*, which includes specific commitments for agencies to lead by example with respect to stormwater control.

2(c) Findings. The proposed project may be located on lands that are analogous to lands protected under the Chesapeake Bay Protection Act (Act). Therefore, the proposed project must be consistent with the Act and may be subject to the performance criteria for RPAs (as specified in § 9 VAC 10-20-130 of the Regulations) and the general performance criteria for all Chesapeake Bay Preservation Areas (in § 9 VAC 10-20-120 of the Regulations).

Also, project activities must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover. For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*, § 4 VAC 50-60-10, shall be satisfied.

2(d) Recommendations. For additional information and to ensure that this project is constructed in a manner that is consistent with the Bay Act Regulations, contact DCR.

2(e) Conclusion. Provided that the Army adheres to the above requirements, DCR-DCBLA finds that the proposed activity would be consistent with the *Chesapeake Bay Preservation Act* and Regulations.

3. Fisheries Management. The FCD (page 3) states that the proposed project site is not located in State waters or waters of the United States. Construction would not impact conservation and enhancement of finfish and shellfish resources or adversely affect fisheries.

3(a) Jurisdiction. The Department of Game and Inland Fisheries (DGIF) and the Virginia Marine Resource Commission (VMRC) administer the fisheries management enforceable policy of the VCP.

3(b) Findings. DGIF finds that Dogue, Accotink, and Pohick creeks and the Potomac River have been designated Confirmed Anadromous Fish Use Areas. However, the project will not directly impact these waters or their tributaries. Therefore, DGIF does not anticipate the project to result in adverse impacts upon these resources.

3(c) Recommendations. If project activities change and instream work is proposed, DGIF recommends the following:

- adhere to a time-of-year restriction from February 15 through June 30 of any year;
- conduct in-stream activities during low or no-flow conditions;
- use non-erodible cofferdams to isolate the construction area;
- block no more than 50% of the streamflow at any given time;
- stockpile excavated material in a manner that prevents reentry into the stream;
- restore original streambed and streambank contours;

- revegetate barren areas with native vegetation; and
- implement strict erosion and sediment control measures.

In addition, due to future maintenance costs associated with culverts and the loss of riparian and aquatic habitat, DGIF prefers stream crossings to be constructed via clear-span bridges. However, if this is not possible, DGIF recommends countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. DGIF also recommends the installation of floodplain culverts to carry bankfull discharges.

For additional information, contact Amy Ewing of DGIF at (804) 367-2211.

3(d) Conclusion. Assuming strict adherence to erosion and sediment controls and minimization and, to the greatest extent possible, minimizing impervious surfaces and consideration of LID techniques to treat runoff and allow infiltration of water, DGIF finds this project consistent with the fisheries management enforceable policy of the VCP.

4. Nonpoint Source Pollution Control. The FCD (page 4) states that the proposed construction would increase the amount of impervious areas by approximately 8 acres. Fort Belvoir would obtain a Virginia General Permit for Stormwater Discharges on Construction Sites and would develop a Stormwater Pollution Prevention Plan, as well as incorporate LID measures into the site design.

4(a) Agency Jurisdiction. The Department of Conservation and Recreation's (DCR) Division of Soil and Water Conservation administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R).

4(b) Erosion & Sediment Control and Stormwater Management Project-Specific Plans. According to the Department of Conservation and Recreation's, Division of Soil and Water Conservation, the Army and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of greater than 2,500 square feet on lands analogous to Chesapeake bay Preservation Areas would be regulated by VESCL&R. Accordingly, the Army must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to DCR's Warrenton Regional Office for review for compliance. The Army is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt

action against non-compliant sites, and other mechanisms consistent with agency policy.

4(c) VSMP General Permit for Construction Activities. The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet on lands analogous to Chesapeake bay Preservation Areas are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and forms are available at http://www.dcr.virginia.gov/soil_and_water/index.shtml.

5. Air Pollution Control. The FCD (page 5) states that all new construction will be heated by Fort Belvoir's steam plant or by small individual boilers. The construction site is located in an area that is in moderate non-attainment for ozone under the 8-hour ozone standard. As a major source for stationary emissions, Fort Belvoir operates under a Title V permit.

In order to analyze any impacts to air quality from the proposed project, Fort Belvoir completed a General Conformity Rule applicability analysis. The analysis indicated that the additional emissions associated with the operation of the Complex would fall below the *de minimis* levels and would not require a full conformity determination.

5(a) Agency Jurisdiction. DEQ's Air Quality Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that become Virginia's Air Pollution Control Law. DEQ is charged to carry out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issue of necessary permits to construct and operate all stationary sources in the region as well as to monitor emissions from these sources for compliance. As a part of this mandate, the environmental documents of new projects to be undertaken in the State are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

5(b) Ozone Nonattainment Area. According to the DEQ Air Division, the project site is located in an ozone (O_3) nonattainment area and an emission control area for the volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are contributors to ozone pollution. Therefore, the applicant should take all reasonable precautions to limit emissions of VOCs and NO_x principally by controlling or limiting the burning of

fossil fuels. A second precaution, which typically applies to road construction and paving work (9 VAC 5-40-5490 in the Regulations for the Control and Abatement of Air Pollution), places limitations on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents), and may apply to the project. The asphalt must be "emulsified" (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.

5(c) Agency Findings. The DEQ-Office of Air Data Analysis states that there will be minor emissions associated with the project. The Army will address air impacts through its construction mitigation plan.

5(d) Fugitive Dust. During project activities, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-130 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

5(e) Open Burning/Use of Incineration Devices. If project activities include the open burning of materials on- or off-site or the use of special incineration devices, this activity must meet the requirements under 9 VAC 5-130 *et seq.* of the *Regulations* for open burning and it may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The Army should contact Fairfax County officials to determine what local requirements, if any, exist.

5(f) Fuel Burning Equipment. Should the proposed project require the installation of fuel burning equipment (boilers, generators, etc.), or other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources. In this case, the Army should contact the Air Permitting Manager at DEQ-NRO prior to construction and operation of fuel burning or other air pollution emitting equipment for a permitting determination. For more information or questions concerning requirements, contact DEQ's Northern Regional Office.

ADDITIONAL ENVIRONMENTAL CONSIDERATIONS

In addition to the enforceable policies of the VCP, comments were also provided with respect to applicable requirements and recommendations of the following programs:

1. Solid and Hazardous Waste Management. The FCD (page 8) states that hazardous waste management at Fort Belvoir is conducted in compliance with the Resource Conservation and Recovery Act and the base has a Waste Minimization Plan and a Master Spill Plan. There are no hazardous waste accumulation sites, aboveground or underground storage tanks at or near the proposed project site.

1(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board (VWMB) and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act (CERCLA), commonly called Superfund, and the Virginia Waste Management Act. DEQ administers regulations established by the VWMB and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

1(b) Comments. The DEQ-Waste Division states that solid and hazardous waste issues were addressed in the report, but the report did not include a search of waste-related data bases. A Geographic Information System (GIS) database search did not reveal any waste sites within a half mile radius of the project site that would impact or be impacted by the subject site.

1(c) Finding. The Waste Division staff reviewed its data files and determined that there are numerous hazardous waste, solid waste, formerly used defense(FUDS) and voluntary remediation program (VRP) sites located within the same zip code as the project site; however their proximities to the subject site are unknown.

Zip code 22304

Solid Waste

- Covanta Alexandria Arlington Incorporated, SWP 435, Energy Recovery/Incineration Facility
- FCR Incorporated, PBR 088, Materials Recovery Facility
- Inova Alexandria Hospital, PBR 202, RMW Steam Sterlizer
- Morgan Distribution, PBR 247, RMW Steam Sterlizer

Formerly Used Defense Sites (FUDS)

- C03VA0176, VA9799F1651, Arlington Hall Trng., Alexandria
- C03VA0508, VA9799F1710, Cameron Station, Alexandria

Voluntary Remediation Program (VRP)

- VRP00247, Landmark Professional Center, Certificate Issued
- VRP00347, Sparkle Dry Cleaners, Certificate Issued

Zip code 22150

Hazardous Waste

- US General Services Administration, VA4470039336 LQG (Active)

Voluntary Remediation Program

- VRP00260, Fairfax Lumber & Millwork Company, Inc., Enrolled in Program
- VRP00493, Midtown Springfield-Hotel Parcel, Eligibility Pending
- VRP00359, Park Cleaners, Certificate Issued

Zip code 22311: No sites located.

The following websites may prove helpful in locating additional information for these identification numbers: http://www.epa.gov/superfund/sites/cursites/index.htm or http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

1(d) Federal Facilities Program. DEQ's Federal Facilities Restoration Program staff states that according to Map 2-1: Overview of MMRP Ranges, the proposed location of the Warrior in Transition Complex is located approximately 700 meters from the Congressional Demonstration Area to the east, approximately 400 meters from the Entrenchment and Gas School Area to the southeast and approximately 200 meters from the Gunston Road 1000 feet Rifle Range to the west. Both the Congressional Demonstration Area and the Entrenchment and Gas School Area contain multiple Solid Waste Management Units (SWMUs).

1(e) Asbestos-Containing Materials and Lead-Based Paint. During demolition activities, materials should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP). If ACM or LBP are found, in addition to federal waste-related regulations, state regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

1(f) Recommendations. DEQ's Federal Facilities Restoration Program staff recommends that Fort Belvoir contact Marcia Kicos, Environmental Compliance Branch Chief, Directorate of Public Works, Environmental & Natural Resource Division, Fort Belvoir, Virginia at (703) 806-0020 for information concerning CERCLA obligations at Fort Belvoir's Main Post. Ms. Kicos or her designee should be advised prior to initiating any land, sediment, or groundwater disturbing activities at or near MMRP range areas and Main Post SWMUs. For questions concerning these comments, contact Wade Smith at (804) 698-4125 or wade.smith@deq.virginia.gov.

Also, DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately. Questions and requests for information on waste issues may be directed to DEQ's Northern Regional Office.

2. Natural Heritage Resources. The FCD (page 7) states that the Fort Belvoir Natural Heritage Inventories conducted in 2000 by DCR-DNH identified seven Virginia state rare animal species and four rare plant species. The proposed construction would not adversely affect any special status species.

2(a) Agency Jurisdiction. The mission of the Virginia Department of Conservation and Recreation is to conserve Virginia's natural and recreational resources. DCR supports a variety of environmental programs organized within seven divisions including the Division of Natural Heritage (DNH). The Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources.

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

2(c) Agency Findings. According to the information currently in DCR's files, natural heritage resources are documented in the project area. However, due to the scope of the activity and the distance to the resources, DCR does not anticipate that this project will adversely impact these natural heritage resources.

2(d) Threatened and Endangered Plant and Insect Species. The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the Code of Virginia, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service (FWS), DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by FWS, are available, adherence to the order and tasks outlined in the plans should be followed to the extent possible.

VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between the VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR found that the current activity will not affect any documented state-listed plant and insect species.

2(e) Natural Area Preserves. DCR found that there are no State Natural Area Preserves under its jurisdiction in the project vicinity.

2(f) Recommendation. New and updated information is continually added to Biotics. Therefore, it is recommended that DCR-DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented.

3. Wildlife Resources. The FCD (pages 6 and 7) states that habitat at Fort Belvoir potentially supports the federally-listed small whorled pogonia and the recently delisted bald eagle. Although suitable habitat for the small whorled pogonia exists in the area of the project site, a 2007 survey of the site did not find the occurrence of individual specimens. The base also supports habitat for the federal species of concern Northern Virginia Well Arthropod; however, no habitat for this species is located at the proposed project site.

The bald eagle, wood turtle and Northern Virginia Well Arthropod are the only state-listed threatened species known to inhabit Fort Belvoir. The proposed project site does not contain suitable habitat for the wood turtle. Also, the proposed project would have no adverse effect on the foraging activities of the bald eagle and there are no eagle nest sites located near the proposed project area.

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

3(b) Agency Findings. According to DGIF's records, the following species have been documented in the project area:

- <u>Bald Eagle</u>: The state-listed Threatened bald eagle has been documented in the project area, along with eagle nesting locations and a summer/winter bald eagle concentration zone. However, this project site falls outside the management zones for both the known eagle nests and the concentration zone. Therefore, DGIF does not anticipate this project to result in adverse impacts upon bald eagles using the documented nest nearby or those within the concentration zone.

  However, new bald eagle nests may have been constructed in or near the project area during the 2009 nesting season and these nests may be adversely impacted by the project activities.

- Wood Turtle: The wood turtle is a state-listed Threatened species. This species is present within Dogue Creek and its tributary, and due to its presence, these waters have been designated a Threatened and Endangered Species Waters. However, it does not appear that the Creek will be adversely impacted by the project. Therefore, DGIF does not anticipate this project to result in primary adverse impacts upon wood turtle or the resources upon which it depends.

  However, contractors associated with work at this site should be made aware of the possible presence of wood turtles. An appropriate information sheet to distribute to contractors and employees could include the following text with a picture of a wood turtle: "The wood turtle is a State Threatened species that may be found in or near the project area. Description: A medium sized semi-terrestrial turtle, adults are 6-8 inches long. The dull brown upper shell is very rough; each section of the shell is composed of growth rings that form an irregular pyramid. However, there can be great variation in appearance and especially in older turtles, the upper shell may appear smooth. The bottom shell is yellow with black blotches. It has a black head and dark brown extremities. The yellow to burnt orange skin on the neck and in the leg sockets is a distinguishing characteristic. If one of these turtles is found within the project/road area, it should be carefully removed to safety in suitable habitat (a run or deep pool with sandy or muddy bottom and submerged roots, branches, or logs) in the nearest perennial stream. It is a violation of Virginia law to harm or keep for personal possession a wood turtle. If you have any questions concerning this species, please call the Virginia Department of Game and Inland Fisheries at 804-367-6913."

  Further information about wood turtles can be found online at: http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030062.

3(c) Recommendations. DGIF provides the following recommendations for the proposed action.

- Bald Eagles: To ensure protection of bald eagles, contact the Center for Conservation Biology to determine if any new bald eagle nests were detected during the 2009 survey season. If any new nests were documented within 0.25 mile (1,320 feet) of the project area, contact DGIF for further consultation.

- Wood Turtles: All contractors associated with work at this site should be made aware of the possible presence of wood turtles and become familiar with their appearance, status and life history. If any wood turtles are encountered and are in jeopardy during the development or construction of this project, immediately remove them from danger and move them safely to suitable habitat in or near the closest perennial stream. Any relocations should be coordinated DGIF and the attached wood turtle observation form should be completed and sent to DGIF.

Finally, to minimize overall impacts to wildlife and Virginia's natural resources, DGIF recommends the following:

- avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable;
- maintain undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams;
- maintain wooded lots to the fullest extent possible; and
- design stormwater controls for this project to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales.

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

4. Historic and Archaeological Resources. The FCD (pages 7 and 8) states that Fort Belvoir has completed its responsibility under *Section 110 of the National Historic Preservation Act* to survey the installation and identify all cultural resources eligible for the National Register of Historic Places (NRHP). The South Post Golf Course site was once a contributing element of the Fort Belvoir Historic District. However, subsequent decisions under the 2005 Base Realignment and Closure (BRAC) have led to the redevelopment of the majority of the former golf course area. Therefore, the South Post Golf Course has lost its integrity and no longer exists as a NRHP historic property. In addition, there are no archaeological sites present at the project site.

4(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with *Section 106 of the National Historic Preservation Act (NHPA) of 1966*, as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding. DHR also provides comments to DEQ through the state EIR review process.

4(b) Comments. The DHR states that the Army is in direct consultation with DHR on this proposed project and has entered into a Programmatic Agreement (PA), which guides all future consultation for projects carried out through the BRAC process.

4(c) Requirement. In accordance with *Section 106 of the National Historic Preservation Act,* as amended, and its implementing regulations codified at 36 CFR Part 800, federal agencies must consider the effects of their undertakings on historic properties. To ensure compliance with the NHPA, the Army should continue to work with DHR.

5. Tree Protection. The FCD (page 9) states that that the proposed project site consists of semi-improved grounds, including landscaped urban trees, shrubs and a maintained lawn that was once part of the former South Post golf course. The development would convert approximately 16.6 acres of maintained lawn area with scattered trees into the new facilities.

5(a) Agency Jurisdiction. The mission of the Virginia Department of Forestry (DOF) is to protect and develop healthy, sustainable forest resources for Virginians. DOF was established in 1914 to prevent and suppress forest fires and reforest bare lands. Since the Department's inception, it has grown and evolved to encompass other protection and management duties including: protecting Virginia's forests from wildfire, protecting Virginia's waters, managing and conserving Virginia's forests, managing state-owned lands and nurseries, and managing regulated incentive programs for forest landowners.

5(b) Recommendations. In general, trees should be left in groupings or clusters to provide aesthetic and environmental benefits, as well as reducing costs associated with maintaining open space to the extent practicable. The following measures are recommended during construction to protect trees not slated for removal:

- mark and fence trees at least to the dripline or the end of the root system, whichever extends farther from the tree stem;
- mark trees with highly visible ribbon so that equipment operators can see the protected areas easily;
- do not park heavy equipment, move or stack construction materials near trees which can damage root systems by compacting the soil;
- use mats to minimize soil compaction and mechanical injury to plants; and
- stockpile soil away from trees to avoid killing the root systems.

Questions pertaining to protection of trees and forest resources of the Commonwealth may be addressed to the Department of Forestry, Todd Groh, at (434) 220-9044 or todd.groh@dof.virginia.gov.

6. Transportation Impacts. The FCD does not address transportation issues.

6(a) Agency Jurisdiction. The Virginia Department of Transportation (VDOT) provides comments pertaining to potential impacts to existing and future transportation systems.

6(b) Findings. VDOT concludes that the facility will have minimal impact on the existing and future roadway networks maintained by VDOT.

7. Waterworks Operation Regulations.

7(a) Findings. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) states that there are no public groundwater sources within a mile radius of the project site and no public surface water source within a 5-mile radius of the proposed project site. The proposed project will not impact public drinking water sources.

7(b) Waterworks Operation Regulations. Installation of new water lines and appurtenances must comply with the State's Waterworks Regulations. The Virginia Department of Health, Office of Drinking Water administers both federal and state laws governing waterworks operation.

7(c) Recommendations. VDH recommends that any potential impacts to public water distribution systems be verified by the local utility. For the installation of new water lines and appurtenances, the applicant should contact Fairfax County and VDH's Culpeper Field Office to determine the applicable requirements for the project.
7(d) Water Conservation Recommendations. In general, the facilities should be planned and designed to minimize water usage. The following recommendations may be helpful during the design of the facilities:

- Landscape the complex with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.
- Install low-flow toilets.
- Consider installing low flow restrictors/aerators to faucets.
- Improve irrigation practices by:
    - upgrading sprinkler clock and water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems);
    - installing a rain shutoff device; and
    - collecting rainwater with a rain bucket or cistern system with drip lines.
- Check for and repair leaks (toilets and faucets) during regular routine maintenance activities.

8. Wastewater Treatment Systems. The FCD (page 3) states that trenches would be excavated for sanitary sewer lines for the complex.

8(a) Findings. Construction and operation permits may be required for sewer line construction and connections depending on projected flow and/or the need to pump wastewater to an existing collection system.

8(b) Requirements. Installation of sanitary sewer lines and construction of the waste water collection system must comply with the State's Sewerage Regulations. DEQ has approval authority over plans and specifications for most discharging sewage collection systems and treatment works, except for single family home (<1000 gallon per day (gpd)) systems. This authority is contained in the Sewage Collection and Treatment (SCAT) Regulations (12 VAC 5-581). If applicable, the applicant must coordinate with DEQ's Northern Regional Office for approval.

9. Pollution Prevention. The FCD (page 9) states that the Fort Belvoir Pollution Prevention Plan specifies actions that the installation must take to meet federal, state, Department of Defense and Army pollution prevention policy goals. The plan also

serves to reduce long-term liabilities associated with waste disposal and to protect public health and the environment.

9(a) Comments. DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

9(b) Recommendations. We have several pollution prevention recommendations that may be helpful in constructing or operating this project:

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

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact DEQ's Office of Pollution Prevention, Sharon Baxter at (804) 698-4344.

10. Pesticides and Herbicides. When pesticides or herbicides must be used, their use should be strictly in accordance with manufacturers' recommendations. In addition, we recommend that the Applicant use the least toxic pesticides or herbicides effective in controlling the target species. For more information on pesticide or herbicide use, please contact the Department of Agriculture and Consumer Services at (804) 786-3501.

11. Energy Conservation. The design of the proposed facilities would incorporate sustainable design and construction techniques and would be consistent with Executive

Order 12123, Greening the Government Through Efficient Energy Management. The project would be required to achieve a Leadership in Energy and Environmental Design (LEED) Silver rating (FCD, page 10).

11(a) Recommendations. The proposed development should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, the energy efficiency of the facilities can be enhanced by maximizing the use of the following:

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

Please contact Matt Heller, Department of Mines, Minerals, and Energy at (434) 951-6351 for additional information.

12. Pesticides and Herbicides. In general, when pesticides or herbicides must be used, their use should be strictly in accordance with manufacturers' recommendations. In addition, we recommend that the Applicant use the least toxic pesticides or herbicides effective in controlling the target species. For more information on pesticide or herbicide use, please contact the Department of Agriculture and Consumer Services at (804) 786-3501.

13. Regional and Local Comments. Fairfax County and the Northern Virginia Regional Commission were invited to comment on the proposed project.

13(a) Regional Planning Impacts. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

13(b) Regional Comments. The Northern Virginia Regional Commission states that Fairfax County has enacted a jurisdiction-wide Chesapeake Bay Resource Management Area (RMA) designation. The local ordinance requires the maintenance of a 100-foot riparian buffer along all perennial streams and wetlands. Also, special attention should be given to post-construction stormwater quality management. In specific, the RMA designation requires that all development result in a no-net-increase standard for phosphorus loadings based on the jurisdiction's average imperviousness.

The calculations for the loadings can be found in the Northern Virginia BMP Handbook. A copy of the handbook can be found at the following website: http://www.novaregion.org/index.asp?NID=250.

13(c) Local Comments. Fairfax County reviewed the proposed project and states that County staff, including Park Authority, Department of Transportation, and the Department of Planning and Zoning staff, support the project but advise that Fort Belvoir work to avoid all impacts to the wetland near the west side of the proposed complex.

Also, the consistency determination does not clearly identify the location of this wetland nor does information indicate whether or not this wetland is connected by surface flow to any tidal tributaries.

13(d) Recommendations. If the wetland is connected by surface to any of the surrounding tributaries, Fairfax County recommends that a one hundred foot buffer be provided between the wetland and any land disturbing activity. In addition, County staff recommends the Army consistently maintain all appropriate erosion and sedimentation controls adjacent to this wetland during construction in order to avoid impacts such as excessive sedimentation and turbidity in the streams which surround the construction site.

County transportation staff requests that future project documents cumulatively evaluate and mitigate for transportation impacts related to this project as well as other projects in the project vicinity.

REGULATORY AND COORDINATION NEEDS

1. Coastal Lands Management and Chesapeake Bay Preservation Areas. The project is subject to the development criteria of §§ 9 VAC 10-20-120 and 130 and the local ordinance and must be consistent with the general performance criteria (9 VAC 10-20-120), and the stormwater management criteria consistent with water quality protection provisions (4 VAC 3-20-71 *et seq.*) of the *Virginia Stormwater Management Regulations* (4 VAC 50-60 *et seq.*). To ensure consistency with the coastal lands management enforceable policy, contact DCR-DCBLA (Joan Salvati, telephone (804) 225-3440) for additional guidance and coordination.

2. Erosion & Sediment Control and Stormwater Management Project-Specific Plans. If the proposed project disturbs more than 2,500 square feet, an erosion and sediment control (ESC) plan should be prepared and implemented to ensure compliance with state law and regulations (VESCL §10.1-560, §10.1-564; VESCR §4 VAC 50-30-30). The ESC plan should be submitted to DCR's Warrenton Regional Office at (540) 347-6420 for review for compliance.

As with the ESC Plan, the Army is required to prepare a project-specific Stormwater Management Plan for all projects involving a regulated activity. All specifications and

plans must be prepared in accordance with the current versions of the Virginia Stormwater Management Law and the Virginia Stormwater Management Program (VSMP) Regulations (4 VAC 50-60 *et seq.*).

3. VSMP General Permit. The Army is required to apply to the Department of Conservation and Recreation for registration coverage under the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Construction Activities. This permit requires the Army to develop a project specific stormwater pollution prevention plan (SWPPP) (Virginia Stormwater Management Law Act §10.1-603.1 *et seq.*; VSMP Permit Regulations §4 VAC 40-50 *et seq.*). Specific questions regarding the VSMP General Permit for Construction Activities requirements should be directed to the Department of Conservation and Recreation's Division of Soil and Water Conservation (Holly Sepety, telephone, (804) 225-2613).

4. Air Quality Regulations. This project may be subject to air regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- asphalt paving operations (9 VAC 5-40-5490 *et seq.*);
- fugitive dust and emissions control (9 VAC 5-50-60 *et seq.*); and
- open burning and incineration devices (9 VAC 5-130 *et seq.*).

For information regarding air permits that may be required for fuel-burning equipment, contact Terry Darton at DEQ's Northern Regional Office (telephone, (703) 583-3845).

5. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations.

Some of the applicable state laws and regulations are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); and
- Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110).

Some of the applicable Federal laws and regulations are:

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

5(a) Asbestos-Containing Material. It is the responsibility of the owner or operator of a facility undergoing a demolition activity, prior to the commencement of the activity, to thoroughly inspect the affected part of the facility where the demolition or renovation

operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Contact the DEQ Waste Management Program for additional information, (804) 698-4021, and the Department of Labor and Industry, Ronald L. Graham at (804) 371-0444.

5(b) Lead-Based Paint. This project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

6. Protected Species. To ensure protection of bald eagles, contact the Center for Conservation Biology (telephone, (757) 221-2247) to determine if any new bald eagle nests were detected during the 2009 survey season. Also, the capture and relocation of any wood turtles observed at the project site should be coordinated with John Kleopfer, DGIF's Region I Wildlife Diversity Biologist, at (804) 829-6580.

7. Historic Resources. To ensure compliance with *Section 106 of the National Historic and Preservation Act* and to complete the Programmatic Agreement for the project, contact Marc Holma of DHR (telephone, (804) 367-2323, ext. 114).

Thank you for the opportunity to comment on this FCD. Detailed comments of reviewing agencies are attached for your review. If you have questions, please do not hesitate to call me at (804) 698-4325 or Anne Pinion at (804) 698-4488.

Sincerely,

Ellie Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: David Hartshorn, DEQ-NRO
Paul Kohler, DEQ-Waste
Amy Ewing, DGIF
Melanie Allen, VDOT
Barry Matthews, VDH
Roger Kirchen, DHR
Pamela Nee, Fairfax County
G. Mark Gibbs, Northern Virginia RC

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: Anne Pinion, Environmental Program Planner

FROM: Paul Kohler, Waste Division Environmental Review Coordinator

DATE: July 15, 2009

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

SUBJECT: Environmental Impact Report: Warrior in Transition Unit Complex, Fort Belvoir; 09-

The Waste Division has completed its review of the Environmental Impact report for the Warrior in Transition Unit Complex, Fort Belvoir project in Fort Belvoir, Virginia. We have the following comments concerning the waste issues associated with this project:

Both solid and hazardous waste issues were addressed in the report. The report did not include a search of waste-related data bases. A GIS database search did not reveal any waste sites within a half mile radius that would impact or be impacted by the subject site. The Waste Division staff performed a cursory review of its data files and determined that there are a number of hazardous waste, solid waste, formerly used defense sites (FUDS) and voluntary remediation program (VRP) sites located within zip codes 22304, 22150, and 22311, however their proximity to the subject site is unknown. These are as follows.

Zip code 22304
SW
Covanta Alexandria Arlington Incorporated, SWP 435, Energy Recovery/Incineration Facility;
FCR Incorporated, PBR 088, Materials Recovery Facility
Inova Alexandria Hospital, PBR 202, RMW Steam Sterlizer
Morgan Distribution, PBR 247, RMW Steam Sterlizer

FUDS
C03VA0176, VA9799F1651, ARLINGTON HALL TRNG, ALEXANDRIA
C03VA0508, VA9799F1710, CAMERON STA, ALEXANDRIA

VRP
VRP00247, Landmark Professional Center, Certificate Issued
VRP00347, Sparkle Dry Cleaners, Certificate Issued

Zip code 22150
HW
US GENERAL SERVICES ADMINISTRATION, VA4470039336 LQG (ACTIVE)

VRP
VRP00260, Fairfax Lumber & Millwork Company, Inc., Enrolled in Program
VRP00493, Midtown Springfield-Hotel Parcel, Eligibility Pending
VRP00359, Park Cleaners, Certificate Issued

Zip code 22311
None located.

The following websites may prove helpful in locating additional information for these identification numbers: http://www.epa.gov/superfund/sites/cursites/index.htm or http://www.epa.gov/enviro/html/rcris/rcris_query_java.html. Wade Smith of DEQ's Federal Facilities Program has been contacted for his review of this determination and will reply in a separate memo, if he identifies any additional issues.

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

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

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

If you have any questions or need further information, please contact Paul Kohler at (804) 698-4208.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE DIVISION
OFFICE OF REMEDIATION PROGRAMS

RECEIVED

JUN 29 2009

DEQ-Office of Environmental Impact Review

Memorandum

To: Anne N. Pinion
Environmental Impact Review Coordinator

From: Wade M. Smith
Federal Facilities Remediation Project Manager

Subject: Warrior in Transition Unit Complex
Consistency Determination
Fort Belvoir, Virginia

Date: June 28, 2009

The *Fort Belvoir, Warrior in Transition Unit Complex Consistency Determination* (Consistency Determination) for Fort Belvoir, Virginia, dated June 18, 2009 was received by the Virginia Department of Environmental Quality's (DEQ's) Office of Remediation Programs (ORP) on June 18, 2009. Per the *Environmental Review Request Form* attached to the Consistency Determination, comments are due to Anne N. Pinion of the DEQ's Office of Environmental Impact Review by July 20, 2009.

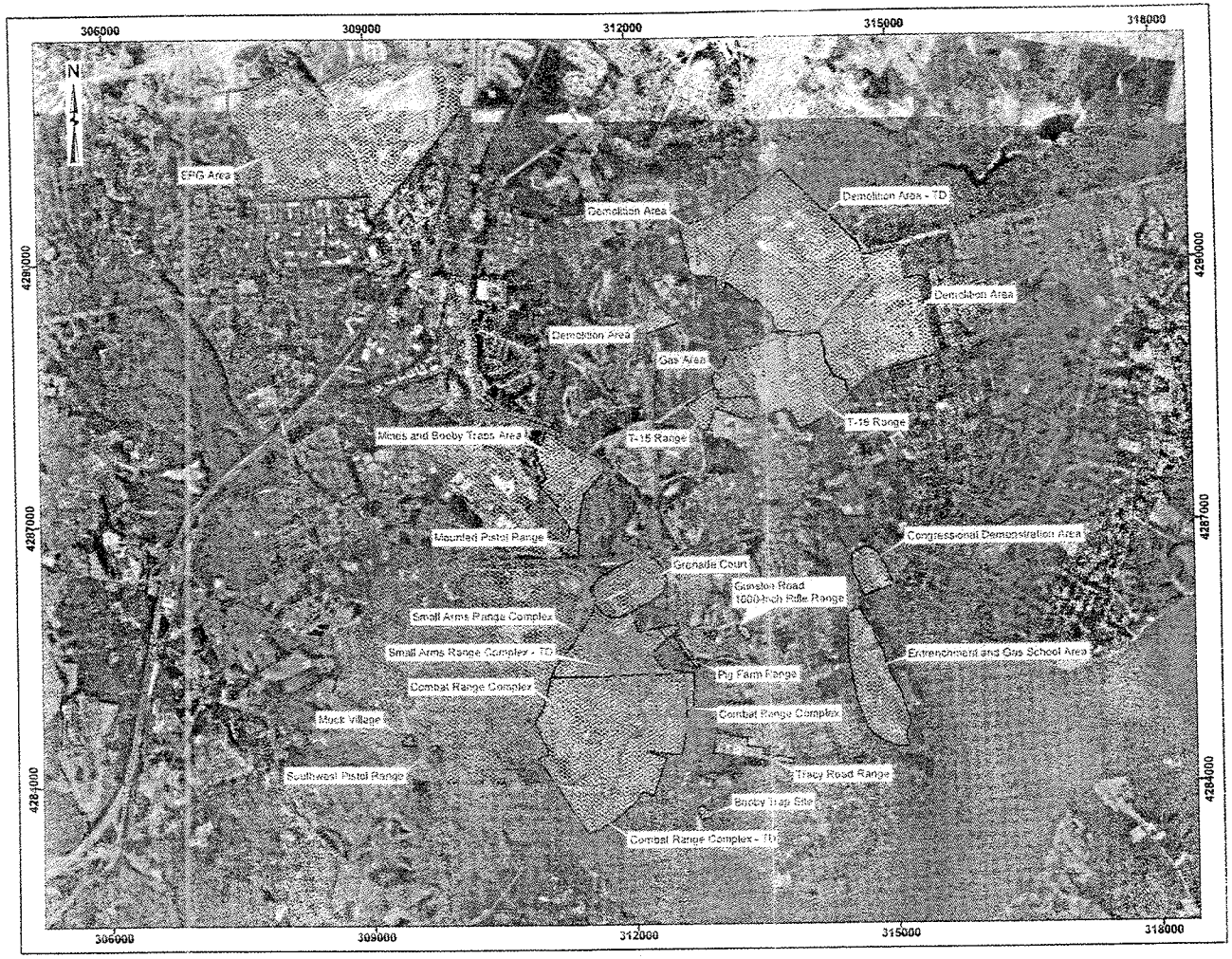
As stated in the Consistency Determination, the proposed action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of two companies of Warriors in Transition and a Soldier and Family Assistance Center (SFAC) that would assist both soldiers housed at the Warrior in Transition Unit complex and additional recovering soldiers residing off post.

According to the attached figure (Map 2-1: Overview of [Military Munitions Restoration Program] MMRP Ranges), the proposed location of the Warrior in Transition Complex is: within approximately 700 meters of the Congressional Demonstration Area to the east; within approximately 400 meters of the Entrenchment and Gas School Area to the southeast; and within approximately 200 meters of the Gunston Road 1000" Rifle Range to the west. Both the Congressional Demonstration Area and the Entrenchment and Gas School Area contain multiple Solid Waste Management Units (SWMUs).

The DEQ's Federal Facilities Restoration Program recommends contacting Ms. Marcia Kicos, Environmental Compliance Branch Chief, Directorate of Public Works, Environmental & Natural Resource Division, Fort Belvoir, Virginia at (703) 806-0020 for information concerning CERCLA obligations at Fort Belvoir's Main Post. Ms. Kicos, or her designee, should be advised prior to initiating any land, sediment, or groundwater disturbing activities at or near MMRP range areas and Main Post SWMUs.

Please contact me at (804) 698-4125 or wade.smith@deq.virginia.gov with any additional questions.

Attachment: Map 2-1: Overview of MMRP Ranges



Final Site Inspection
Fort Belvoir, VA

MALCOLM PIRNIE

Map 2-1
Overview of MMRP Ranges

Legend

- Installation Boundary
- MMRP Site
- Transferred MMRP Site
- Operational Range Area
- Contours
- Roads
- Streams
- Water

0 750 1,500 2,250 3,000 Meters

Data Source: AEC, CTT Inventory, 2002
Color Infared DOQ, 1994

Coordinate System: UTM Zone 18N
Datum: NAD 1983
Units: Meters

Contract: DACA31-00-D-0043

RECEIVED
JUL 07 2009
DEQ-Office of Environmental Impact Review

Hartshorn,David
From: Hartshorn,David
Sent: Thursday, July 02, 2009 10:59 AM
To: Pinion,Anne
Cc: Hartshorn,David
Subject: CD #09-122F

NRO comments regarding the Warrior in Transition Unit Complex, Fort Belvoir – Department of Defense/Department of the Army are as follows:

Air Compliance: The project manager is reminded that during construction phase of this project, that the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120; and that should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during construction, that the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100. In addition, should the project install fuel burning equipment (Boilers, Generators, etc...), or other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources and as such should contact the Air Permitting Manager DEQ-NRO prior to construction and operation of fuel burning or other air pollution emitting equipment for a permitting determination.

Virginia Water Protection Permit (VWPP) Program: U.S. Department of the Army proposes to construct and operate a Warrior in Transition Unit Complex at Fort Belvoir, Virginia. The Federal Consistency Determination indicates that surface waters are located within the project area but that the site has been designed to avoid and minimize impacts to surface waters. The Virginia Department of Environmental Quality (DEQ) recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable. If surface waters cannot be avoided and are proposed to be impacted, a Virginia Water Protection (VWP) permit will be required from DEQ.

R. David Hartshorn
Regional Air Compliance Manager
DEQ-NRO
13901 Crown Court
Woodbridge, VA 22193
(703) 583-3895
fax (703) 583-3821
e-mail - R.David.Hartshorn@deq.virginia.gov
This electronic mail (including any attachments) may contain information that is privileged, confidential, and/or otherwise protected from disclosure to anyone other than its intended recipient(s). Any dissemination or use of this electronic email or its contents (including any attachments) by persons other than the intended recipient(s) is strictly prohibited.

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: Anne N. Pinion **DEQ - OEIA PROJECT NUMBER: 09 – 122F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

X CONSISTENCY DETERMINATION

PROJECT TITLE: WARRIOR IN TRANSITION UNIT COMPLEX, FORT BELVOIR

PROJECT SPONSOR: DEPARTMENT OF DEFENSE / DEPARTMENT OF THE ARMY

PROJECT LOCATION: ☐ **OZONE NON ATTAINMENT AREA**

REGULATORY REQUIREMENTS MAY BE APPLICABLE TO: **X** **CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

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

COMMENTS SPECIFIC TO THE PROJECT:

Being in an ozone non-attainment area, all precautions are to be taken to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_X) during construction. Our Northern Virginia regional office may be consulted for any permit needs concerning construction & operation of new utilities based on fossil fuels.

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis **Date: June 26, 2009**

Pinion,Anne

From: Ballou,Thomas
Sent: Tuesday, August 11, 2009 11:57 AM
To: Pinion,Anne; Lewis-Cheatham,Sonya
Cc: Narasimhan,Kotur; Irons,Ellie
Subject: RE: Consistency Review and EA

Due to minor air emissions associated with the project, I believe that this statement is sufficient to address the construction mitigation plan. Thanks for the opportunity to review this.

From: Pinion,Anne
Sent: Monday, August 10, 2009 3:36 PM
To: Ballou,Thomas; Lewis-Cheatham,Sonya
Cc: Narasimhan,Kotur; Irons,Ellie
Subject: RE: Consistency Review and EA

On page ES-8 of the EA, I found this:

The Construction Performance Plan (CPP) for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, Virginia outlines policies and procedures for complying with emissions reduction requirements and air quality laws of Virginia during the period of construction for BRAC and related activities at Fort Belvoir. CPP restrictions include design and construction standards for equipment and vehicles that reduce air emissions through use restrictions on critical ozone days, diesel oxidation catalysts (Docks), ultra-low sulfur diesel fuel (ULSD), idling restrictions, and cleaner vehicle options. During construction of the Warrior in Transition Unit Complex, the restrictions outlined in the CPP would be implemented to help reduce cumulative impacts to air.

I didn't see much general information in the conformity analysis that would help answer your question (on the issue of the BRAC and the mitigation) and the consistency document just stated the results of the general conformity rule analysis. So without much information, I though calling them would help. I do not think the document was particularly clear on that point, but I may have missed something.

Anne

From: Ballou,Thomas
Sent: Monday, August 10, 2009 3:29 PM
To: Pinion,Anne; Lewis-Cheatham,Sonya
Cc: Narasimhan,Kotur; Irons,Ellie
Subject: RE: Consistency Review and EA

Do they specifically state this somewhere in the document(s)?

From: Pinion,Anne
Sent: Monday, August 10, 2009 2:26 PM
To: Ballou,Thomas; Lewis-Cheatham,Sonya

Cc: Narasimhan,Kotur; Irons,Ellie
Subject: RE: Consistency Review and EA

Tom,

I called Michelle Royal at Fort Belvoir. The short answer is no, it is not under the 2005 BRAC projects, but because it is being constructed concurrently with most of those projects, they will abide by the Construction Performance Plan (CPP) for the Reduction of Air Emissions for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir. But the CPP is unrelated to mitigation requirements, so it would not be regulated by/under them.

If you have specific questions, you can call Michelle at Fort Belvoir (703-806-0054).

Anne

From: Ballou,Thomas
Sent: Monday, August 10, 2009 2:07 PM
To: Pinion,Anne; Lewis-Cheatham,Sonya
Cc: Narasimhan,Kotur; Irons,Ellie
Subject: RE: Consistency Review and EA

Anne – we are looking at this project and will provide comments by the due date. It is again unclear to us as to whether this is a totally new project or whether it's part of the previous BRAC realignment exercise. This distinction would determine if any air quality mitigation requirements apply to this project.

From: Pinion,Anne
Sent: Thursday, August 06, 2009 1:03 PM
To: Ballou,Thomas; Lewis-Cheatham,Sonya
Cc: Narasimhan,Kotur
Subject: Consistency Review and EA

Tom and Sonya,

Ellie asked me to send this to you all – not sure which of you might want to tackle.

It is a project at Fort Belvoir. The project is –

The U.S. Army Garrison, Fort Belvoir proposes to construct and operate a Warrior in Transition Unit Complex on a 16.6 acre site located at the former South Post golf course. The primary facilities will include a 194,400-square foot barracks, a 15,000-square foot Soldier and Family Assistance Center and a 31,000-square foot administration and operations facility. Associated facilities will include sidewalks, 4 acres of parking, access roads and utilities. The proposed construction would require the demolition of Building 1493, the golf course maintenance building.

On the T:/Fort Belvoir EA there are three documents. One is the Consistency Determination, one is the EA and one is the air analysis. Could you please review this and provide comments? You can submit comments to me by email. I need them no later than **Wednesday, August 12.**

Thanks,
Anne

Anne N. Pinion
Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219
(804) 698-4488
NEW EMAIL: anne.pinion@deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-6124

MEMORANDUM

Date: July 17, 2009

To: Anne Pinion, DEQ

From: Robert S. Munson, Planning Bureau Manager, DCR-DPRR

Subject: DEQ 09-122F, Fort Belvoir Warrior in Transition Complex, Fairfax CO

Division of Natural Heritage

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

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

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

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

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

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Shirl Dressler at (804) 367-6913.

Division of Chesapeake Bay Local Assistance

In Fairfax County, the areas protected by the *Chesapeake Bay Preservation Act*, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. All areas of the County not included in the RPA are designated as RMAs.

The proposed project may be located on lands that, if located outside federally-owned property, would be protected by the Regulations. As Federal Consistency regulations mandate compliance with local regulatory programs, the areas in question are subject to the performance criteria for RPAs (as specified in § 9 VAC 10-20-130 of the Regulations) and the general performance criteria for all Chesapeake Bay Preservation Areas (in § 9 VAC 10-20-120 of the Regulations).

Projects that include land disturbing activity must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover. For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*, § 4 VAC 50-60-10, shall be satisfied.

Pursuant to the Coastal Zone Management Act of 1972, as amended, Federal activities affecting Virginia's coastal resources or coastal uses must be consistent with the Virginia Coastal Resources Management Program (VCRMP)(section 307(c)(1) of the Act and the *Federal Consistency Regulations*, 15 CFR Part 930, sub-part C). The 1998 *Chesapeake Ecosystem Unified Plan* requires the signatories, including the Department of the Army, to fully cooperate with local and state governments in carrying out voluntary and mandatory actions to comply with the management of stormwater. All signatory agencies also committed to encouraging construction design that a) minimizes natural area loss on new and rehabilitated federal facilities; b) adopts low impact development and best management technologies for storm water, sediment and erosion control, and reduces impervious surfaces; and c) considers the *Conservation Landscaping and BayScapes Guide for Federal Land Managers*. In addition, the Chesapeake 2000 Agreement committed the signatory agencies to a number of sound land use and stormwater quality controls. The signatories additionally committed the agencies to lead by example with respect to controlling nutrient, sediment and chemical contaminant runoff from government properties. In December 2001, the Executive Council of the Chesapeake Bay Program issued *Directive No. 01-1: Managing Storm Water on State, Federal and District-owned Lands and Facilities*, which includes specific commitments for agencies to lead by example with respect to stormwater control.

Provided adherence to the above requirements, the proposed activity would be consistent with the *Chesapeake Bay Preservation Act* and Regulations.

Division of Soil and Water Conservation

The Applicant and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency

under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of greater than 2,500 square feet would be regulated by VESCL&R. Accordingly, the Applicant must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to the DCR Regional Office that serves the area where the project is located for review for compliance. The Applicant is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL §10.1-567;].

General Permit for Discharges of Stormwater from Construction Activities in CBPA:
The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet in areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at
http://www.dcr.virginia.gov/soil_and_water/index.shtml
[Reference: Virginia Stormwater Management Law Act §10.1-603.1 et seq.; VSMP Permit Regulations §4VAC-50 et seq.]

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Pinion,Anne

From: Ewing, Amy (DGIF)
Sent: Friday, July 17, 2009 1:49 PM
To: Pinion,Anne
Subject: ESSLog# 26693_09-122F_Warrior in Transition Complex-Ft. Belvoir
Attachments: WOOD TURTLE form.doc

We have reviewed the subject project that proposes to construct the Warrior in Transition Unit Complex on a 16.6 -acre site on Ft. Belvoir. This will result in at least 8 acres of impervious surface.

According to our records, state Threatened wood turtle has been documented form the project area. Dogue Creek and its tributary have been designated Threatened and Endangered Species Waters due to the presence of this species. However, it does not appear this resource will be adversely impacted by the project, therefore, we do not anticipate this project to result in primary adverse impacts upon wood turtle or the resources upon which it depends. Because this species may be encountered during site preparation and construction, we recommend that all contractors associated with work at this site be made aware of the possibility of wood turtles on site and become familiar with their appearance, status and life history. If any wood turtles are encountered and are in jeopardy during the development or construction of this project, immediately remove them from danger and move them safely to suitable habitat in or near the closest perennial stream. Any relocations should be coordinated with J.D. Kleopfer, VDGIF Wildlife Diversity Biologist, at 804-829-6580 and the attached wood turtle observation form should be completed and sent to DGIF.

An appropriate information sheet to distribute to contractors and employees could include the following text below a picture of a wood turtle: "The wood turtle is a State Threatened species that may be found in or near the project area. Description: A medium sized semi-terrestrial turtle, adults are 6-8 inches long. The dull brown upper shell is very rough; each section of the shell is composed of growth rings that form an irregular pyramid. However, there can be great variation in appearance and especially in older turtles, the upper shell may appear smooth. The bottom shell is yellow with black blotches. It has a black head and dark brown extremities. The yellow to burnt orange skin on the neck and in the leg sockets is a distinguishing characteristic. If one of these turtles is found within the project/road area, it should be carefully removed to safety in suitable habitat (a run or deep pool with sandy or muddy bottom and submerged roots, branches, or logs) in the nearest perennial stream. It is a violation of Virginia law to harm or keep for personal possession a wood turtle. If you have any questions concerning this species, please call the Virginia Department of Game and Inland Fisheries at 804-367-6913."

Further information about wood turtles can be found online at: http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030062

State Threatened bald eagle has been documented in the project area. Both eagle nesting locations and a summer/winter bald eagle concentration zone have been documented in the project area. This project site falls outside the management zones for both the known eagle nests and the concentration zone. Therefore, we do not anticipate this project to result in adverse impacts upon bald eagles utilizing the documented nest nearby or those utilizing the concentration zone.
However, it is possible that new bald eagle nests have been constructed in or near the project area during the 2009 nesting season and that such nests may be adversely impacted by the project activities. To ensure protection of this listed species, please contact the Center for Conservation Biology at 757-221-2247 to determine if any new bald eagle nests were detected during the 2009 surveys. If a new nest was documented within 0.25 mile (1,320 feet) of the project area, please contact us to facilitate further consultation regarding the new nest(s).

In addition, Dogue Creek, Accotink Creek, Pohick Creek, and the Potomac River have been designated Confirmed Anadromous Fish Use Areas. However, it does not appear this project proposes impacts in these waters or their tributaries. Therefore, we do not anticipate the project to result in adverse impacts upon these resources. If instream work in such waters is proposed, we recommend it adhere to a time of year restriction from February 15 through June 30 of any year. In addition, we recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

To minimize overall impacts to wildlife and our natural resources, we offer the following comments about development activities: We recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent

practicable. We recommend maintaining undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams. We recommend maintaining wooded lots to the fullest extent possible. We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

Assuming strict adherence to erosion and sediment controls and minimization, to the greatest extent possible, impervious surfaces (including consideration of LID techniques to treat runoff and allow infiltration of water), we find this project consistent with the Fisheries Management Section of the CZMA.

Thanks, Amy

Amy M. Ewing
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
804-367-2211
amy.ewing@dgif.virginia.gov

WOOD TURTLE
FIELD OBSERVATION FORM

The Virginia Department of Game and Inland Fisheries needs your help in monitoring Wood Turtle (*Glyptemys insculpta*) populations. If you encounter a Wood Turtle, please fill-out the necessary information below and mail this form to:

Virginia Department of Game and Inland Fisheries
Attn: John Kleopfer
3801 John Tyler Memorial Hwy
Charles City, VA 23030
804-829-6580

If possible, send digital photos to: John.Kleopfer@dgif.virginia.gov

Distribution: **The Wood Turtle is found primarily in the northeastern United States and parts of southeastern Canada, reaching the southern limit of its range in northern Virginia. In Virginia, it has been documented in Warren, Rockingham, Shenandoah, Frederick, Loudoun, Fairfax, and Page counties. However, its distribution within these counties is not widespread.**

Species Descriptions (also see photos on the back of this sheet):

WOOD TURTLE: The Wood Turtle is a semi-aquatic turtle usually found in or near streams, but not in ponds, reservoirs or lakes. The shell length of an adult Wood Turtle can reach 9 inches. The plastron (bottom-half of the shell) is NOT hinged and the carapace (top-half of the shell) is flattened. The legs and tail are usually reddish to orange in color. Females are sometimes less colorful.

EASTERN BOX TURTLE (*Terrapene carolina carolina*): The Eastern Box Turtle is a terrestrial (land) species seldom found in water and is often misidentified as a Wood Turtle. The Eastern Box Turtle has a high domed shell and hinged plastron, which allows for it to completely enclose itself. The shell length of an adult is rarely over 5 inches.

Your name: _____

Your address: _____

Your phone number (optional): _____

Describe the location of the observation. Be sure to include the name of the nearest stream.

_____

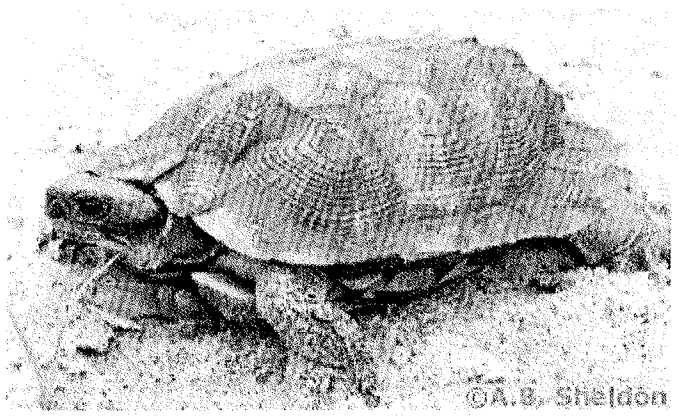
_____

_____

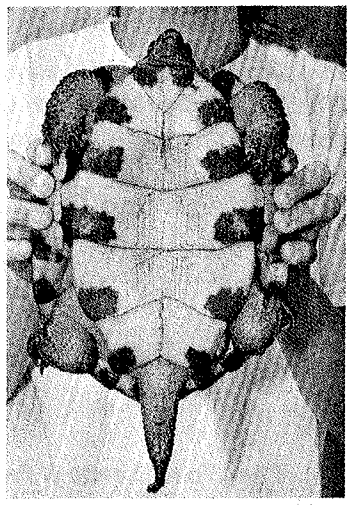
Comments: _____

THE WOOD TURTLE IS A PROTECTED SPECIES IN VIRGINIA AND IT IS THEREFORE ILLEGAL TO COLLECT OR HARM IT.

WOOD TURTLE

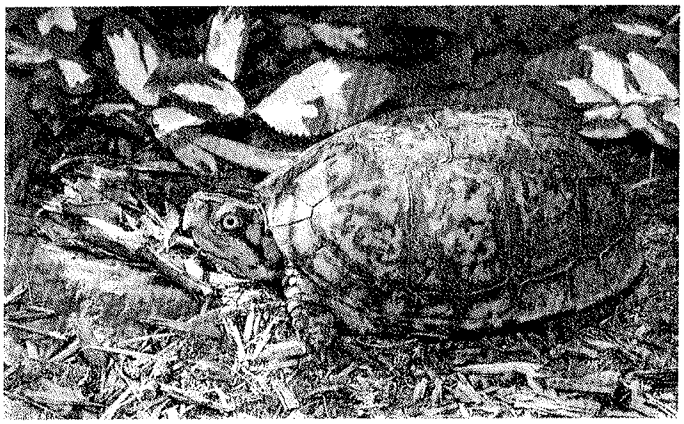


Note the sculptured scales of the top of shell (carapace).

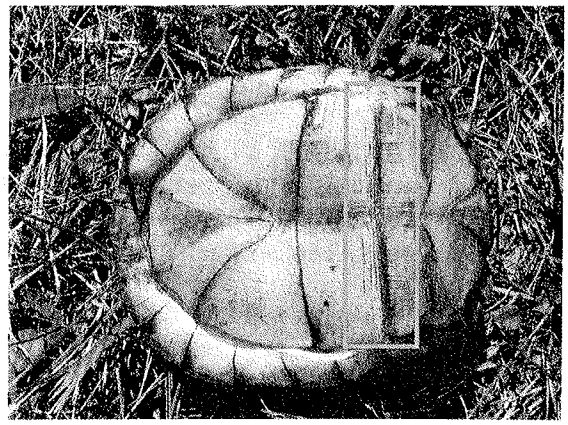


Bottom view (plastron) of a male Wood Turtle. The concaved plastron is characteristic of a male. Note the distinct black markings and the brightly colored legs and tail.

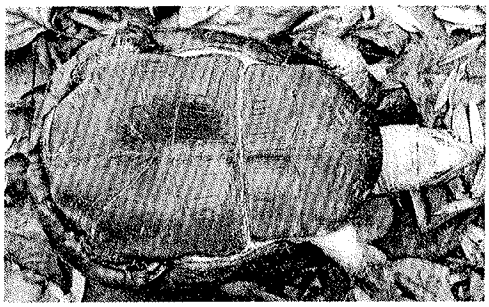
EASTERN BOX TURTLE

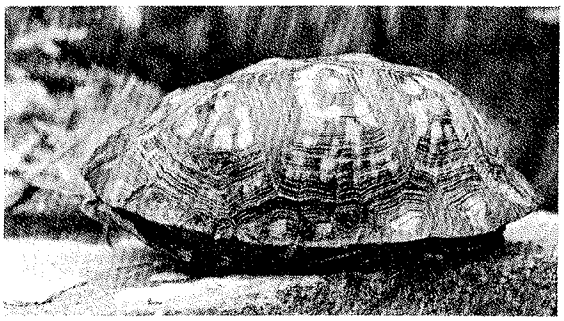


Note the high domed shell and lack of sculptured scales. Males usually have an orange or yellowish face and legs and are more brightly colored in comparison to females.



Note the hinged plastron and no markings. The concaved plastron is also characteristic of male box turtles.





The plastron of Eastern Box Turtles will often turn black.

Unlike Wood Turtles, box turtles can completely enclose themselves for protection.

Pinion,Anne

From: Kirchen, Roger (DHR)
Sent: Friday, July 17, 2009 10:54 AM
To: Pinion,Anne
Subject: WArrior in Transition Unit Complex, Fort Belvoir (DEQ #09-122F; DHR File No. 2006-0820)

DHR has been in direct consultation with the Army regarding this project and have entered into a Programmatic Agreement (PA) which will guide all future consultation for projects carried out through the BRAC process. Please remind the Army of its responsibilities to continue consultation with our office pursuant to the PA and Section 106 of the National Historic Preservation Act.

Roger W. Kirchen, Archaeologist
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221
phone: (804) 367-2323 x153
fax: (804) 367-2391
web: www.dhr.virginia.gov

Pinion,Anne

From: Forsgren, Diedre (VDH)
Sent: Wednesday, July 01, 2009 2:33 PM
To: Pinion,Anne
Cc: Matthews, Barry (VDH)
Subject: CD: Warrior in Transition Unit Complex, Fort Belvoir

DEQ Project #: 09-122S
Name: Warrior in Transition Unit Complex, fort Belvoir
Sponsor: DOD/Dept. of the Army
Location: Fairfax County

VDH – Office of Drinking Water has reviewed DEQ Project Number 09-122S. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

No groundwater wells are within 1 mile radius of the project site.

No surface water intakes are located within 5 miles radius of the project site.

Project does not fall within Zone 1 or Zone 2 of any public surface water sources.

There is no impact to public drinking water sources due to this project.

Diedre Forsgren
Office Services Specialist
VIRGINIA DEPARTMENT OF HEALTH
Office of Drinking Water
109 Governor Street, 6th Floor
Richmond, VA 23219
Phone: (804) 864-7241
email: diedre.forsgren@vdh.virginia.gov

Pinion,Anne

From: Allen, Melanie L. (VDOT)
Sent: Wednesday, July 22, 2009 2:57 PM
To: Pinion,Anne
Cc: Fahrney, Tom W. (VDOT)
Subject: RE: EIR Project Reminder

Ms. Pinion,

VDOT (Northern Virginia District) has had an opportunity to review the referenced project for its potential to impact the proposed or existing transportation system. The facility will have minimal impact on the existing and future roadway networks maintained by VDOT. Please notify if there are any questions or anything additional this office may provide to assist in review of this project.

Sincerely,

Melanie L. Allen
Environmental Program Planner
melanie.allen@vdot.virginia.gov | 804-786-0868 | 1401 E. Broad Street Richmond, VA 23219

From: Pinion,Anne [mailto:Anne.Pinion@deq.virginia.gov]
Sent: Wednesday, July 22, 2009 1:48 PM
To: Allen, Melanie L.
Subject: EIR Project Reminder

Melanie,

Comments for the following project were due July 20, 2009.

- 09-122S Army-Warrior in Transition Unit, Fort Belvoir

Thanks,

Anne

Anne N. Pinion

Department of Environmental Quality

629 East Main Street

Richmond, Virginia 23219

(804) 698-4488

NEW EMAIL: anne.pinion@deq.virginia.gov

3060 Williams Drive, Suite 510
Fairfax, Virginia 22031
www.novaregion.org

Northern Virginia Regional Commission

Voice: 703-642-0700
Fax: 703-642-5077

RECEIVED
JUL 10 2009
DEQ-Office of Environmental Impact Review

Chairman
Hon. Harry J. Parrish II
Vice Chairman
Hon. Martin E. Nohe
Treasurer
Hon. Redella S. Pepper
Executive Director
G. Mark Gibb

County of Arlington
Hon. Barbara A. Favola
Hon. J. Walter Tejada

County of Fairfax
Hon. Sharon Bulova
Hon. John Foust
Hon. Penelope A. Gross
Hon. Pat Herrity
Hon. Catherine M. Hudgins
Hon. Linda Smyth

County of Loudoun
Hon. Stevens Miller
Hon. Scott K. York

County of Prince William
Hon. Michael C. May
Hon. Martin E. Nohe
Hon. Frank J. Principi

City of Alexandria
Hon. Redella S. Pepper
Hon. Paul C. Smedberg

City of Fairfax
Hon. Joan Cross

City of Falls Church
Hon. Harold Lippman

City of Manassas
Hon. Harry J. Parrish II

City of Manassas Park
Hon. Suhas Naddoni

Town of Dumfries
Hon. Clyde N. Washington, Jr.

Town of Herndon
Hon. Steve DeBenedittis

Town of Leesburg
Hon. Kristen C. Umstattd

Town of Purcellville
Hon. Robert W. Lazaro, Jr.

Town of Vienna
Hon. M. Jane Seeman

(as of January 30, 2009)

July 8, 2009

Ms. Anne Pinion
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Re: Warrior in Transition Unit Complex, Fort Belvoir

Dear Ms. Pinion:

The Northern Virginia Regional Commission staff has reviewed the Environmental Assessment for the proposed project referenced above, and would like to offer the following additional comments:

Please be advised that Fairfax County has enacted a jurisdiction-wide Chesapeake Bay Resource Management Area (RMA) designation. This RMA designation requires that all development result in a no-net-increase standard for phosphorus loadings, based on the jurisdiction's average imperviousness. Please refer to the Northern Virginia BMP Handbook for calculation procedures. A copy of the Handbook is available on NVRC's website at http://www.novaregion.org/index.asp?NID=250.

Special attention should be given to post-construction stormwater quality management. The developing agency must adhere to *the post-development* water quality requirements set forth by the Virginia Stormwater Management Regulations (VR 215-02-00 Part IV and §2.3). State agencies are required to meet all local ordinances pursuant to the Virginia Chesapeake Bay Act.

Additionally, please be advised that this project falls under the jurisdiction of the Chesapeake Bay Preservation Act (CBPA), which was adopted into Fairfax County's local ordinance in 1990. The CBPA requires the maintenance of a 100 foot riparian buffer along all perennial streams and wetlands. Please refer to the CBPA for allowable uses within, or near, such Resource Protection and Maintenance Areas.

A copy of this letter should be included with your submission to indicate that preliminary review by this agency has been completed. Your cooperation with this intergovernmental review process is appreciated.

Sincerely,

Marshall Popkin
Environmental Planner

County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

RECEIVED
JUL 24 2009
DEQ-Office of Environmental Impact Review

July 20, 2009

Anne N. Pinion
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia, 23219

Dear Ms. Pinion:

In collaboration with the Fairfax County Park Authority staff and Department of Transportation staff, the Department of Planning and Zoning has reviewed the Coastal Zone Management Act Consistency Determination, federal project 09-122F, for the construction and operation of the Warrior in Transition Unit Complex on a 16.6 acre site located on Fort Belvoir, north of 9th Street on the former South Post golf course. According to the documentation, the primary facilities will include a 194,400 square foot barracks, a 15,000 square foot Soldier and Family Assistance Center, and a 31,000 square foot administration and operations facility. Associated facilities will include sidewalks, four acres of parking, access road, and utilities.

Staff supports this project but advises that caution be exercised in avoiding impacts to the wetland near the west side of the proposed complex. The Consistency Determination indicates that that this project will avoid negative impacts to the wetland, but the documentation does not clearly identify the location of this wetland nor does information indicate whether or not this wetland is connected by surface flow to any tidal tributaries. If the wetland is connected by surface to any of the surrounding tributaries, staff recommends that a one hundred foot buffer be provided between the wetland and any land disturbing activity. In addition, staff advises that vigilance be exercised to maintain appropriate erosion and sedimentation controls adjacent to this wetland during construction in order to avoid impacts such as excessive sedimentation and turbidity in the streams which surround this site.

While we acknowledge that transportation issues are indirectly related to resources such as water and air quality that the Coastal Zone Management Act seeks to protect, transportation staff requests that transportation impacts related to this project as well as other projects on Fort Belvoir in this vicinity be cumulatively evaluated and mitigated.

Thank you for this opportunity to comment on the Consistency Determination for this important project. If you have any questions about our comments, please do not hesitate to contact Mary Ann Welton of my staff at 703-324-1380.

Department of Planning and Zoning
Planning Division
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035
Phone 703-324-1325 FAX 703-324-1485
www.fairfaxcounty.gov/dpz/

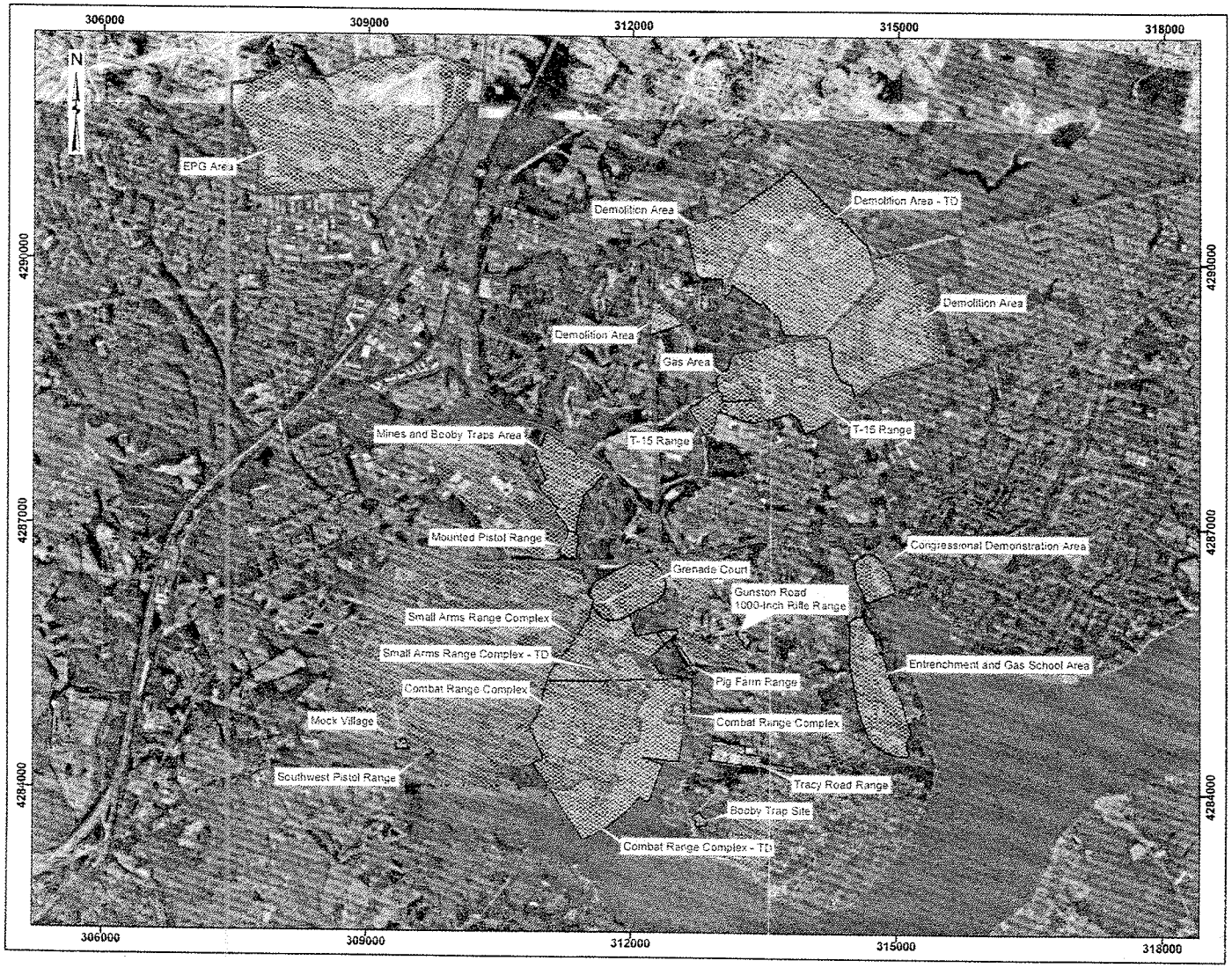
DEPARTMENT OF PLANNING & ZONING

Sincerely,

Fred R. Selden, Planning Division Director
Department of Planning and Zoning

FS: MAW

cc:
Board of Supervisors
Anthony H. Griffin, County Executive
Robert A. Stalzer, Deputy County Executive
Pamela G. Nee, Department of Planning and Zoning (DPZ)
Mary Ann Welton, DPZ
Sandra Stallman, Park Authority
Dan Southworth, Department of Transportation



Final Site Inspection
Fort Belvoir, VA

MALCOLM PIRNIE

Map 2-1
Overview of MMRP Ranges

Legend

- Installation Boundary
- MMRP Site
- Transferred MMRP Site
- Operational Range Area
- Contours
- Roads
- Streams
- Water

0 750 1,500 2,250 3,000 Meters

Data Source: AEC, CTT Inventory, 2002
Color Infared DOQ, 1994

Coordinate System: UTM Zone 18N
Datum: NAD 1983
Units: Meters

Contract: DACA31-00-D-0043

U. S. Fish and Wildlife Service

Fort Belvoir's request for information from the United States Fish and Wildlife Service (USFWS) regarding construction and operation of the Warrior in Transition Unit Complex sent on June 1, 2009 has gone unanswered.

THIS PAGE INTENTIONALLY LEFT BLANK

The Louis Berger Group Inc.
2445 M Street, NW, Washington, D.C. 20037
Tel: (202) 331-7775 Fax: (202) 293-0787 www.louisberger.com

June 1, 2009

Ms. Karen Mayne
Endangered Species Biologist
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, Virginia 23061

RE: Intergovernmental and Interagency Coordination of Environmental Planning for the Fort Belvoir Warrior in Transition Unit Complex Environmental Assessment.

Dear Ms. Mayne:

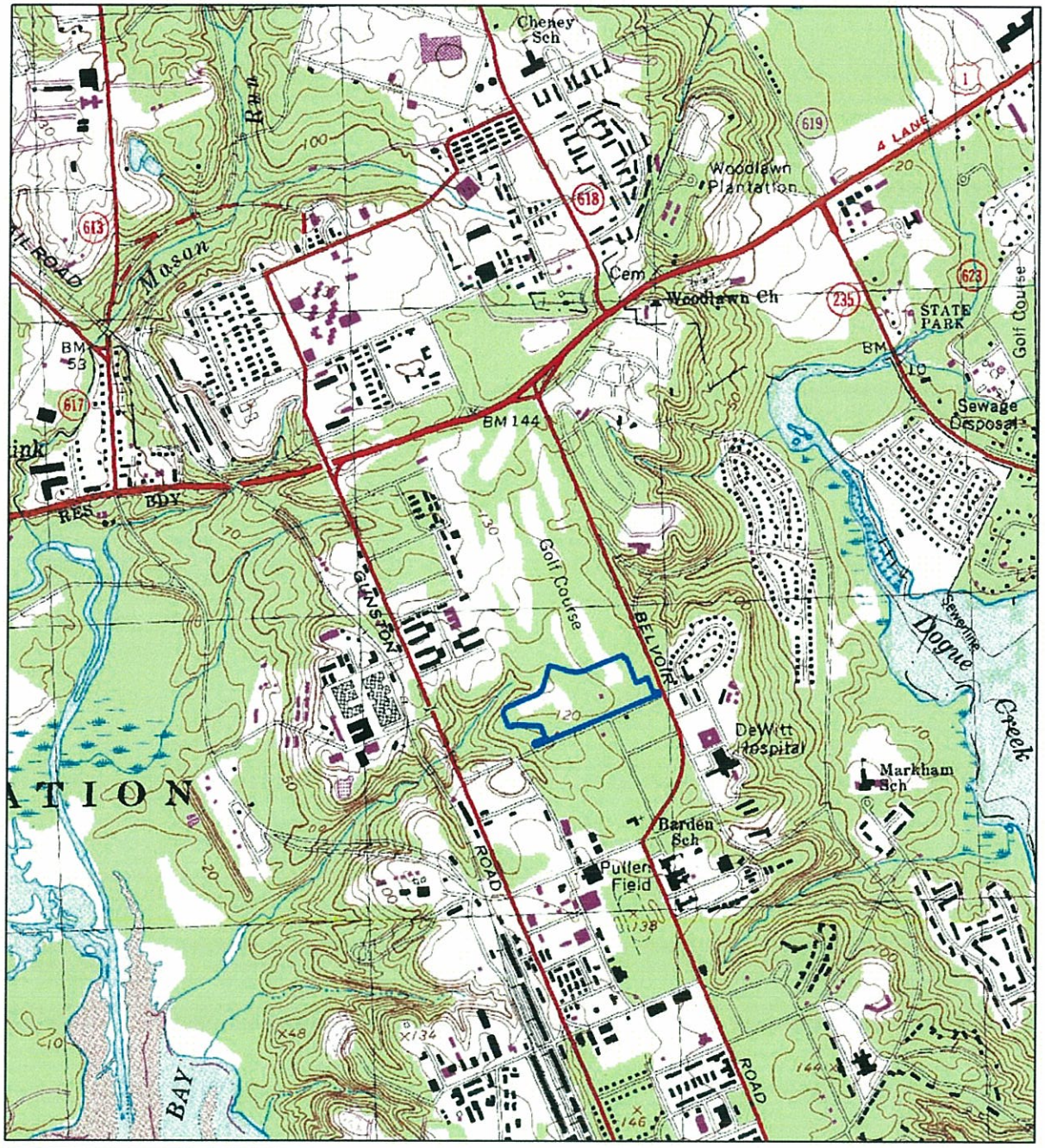
On behalf of the Department of the Army (DA), The Louis Berger Group Inc. is preparing an Environmental Assessment (EA) to determine the potential effects associated with the impacts related to construction and operation of a Warrior in Transition Unit Complex at Fort Belvoir, Virginia. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The proposed site for the new Warrior in Transition Unit Complex would on South Post at a 16.6-acre site on the corner of Belvoir Road and 9th Street. Construction would require laying approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. The Army would need to remove approximately 0.4 acres of old road pavement and one building (the golf course maintenance building, Building 1493) at the proposed site to make way for Warrior in Transition Unit Complex facilities.

We are requesting a current list of federally listed threatened, or endangered species that are known to occur, or that could potentially occur on, or in the vicinity of the proposed site for the Warrior in Transition Unit Complex. We would also like to know if there are any other sensitive natural resources or ecosystems that should be considered during the development of the EA. The proposed site being considered for location of the Warrior in Transition Unit Complex is provided in the attached enclosures.

I would like to thank you in advance for your cooperation in this matter. Please provide any comments to me at the address listed above or fax your response to my attention at 202-293-

Enclosure 1: Proposed Site for the Warrior in Transition Unit Complex, at Fort Belvoir



Proposed Site
Warrior in Transition Unit Complex

USGS 24K Quandrangle Map
Fort Belvoir Quadrangle

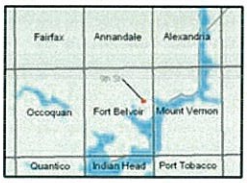
Legend

Proposed Site Boundary

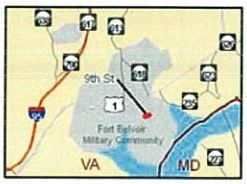
0 375 750 1,125 1,500 Feet

Sources: USGS High Resolution State Orthoimagery for Northern Virginia (2003) ESRI
Coordinate System: NAD 1983,
State Plane Virginia North FIPS 4501 Feet
Prepared By: The Louis Berger Group

QUAD INDEX



MAP INDEX



0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-303-2662.

Sincerely,
THE Louis Berger Group, INC.

Julia Yuan
Environment Scientist/Project Manager

Enclosure: USGS Fort Belvoir Quadrangle with Proposed Site

cc: Patrick M. McLaughlin, Chief, Environmental and Natural Resources Division,
Dorothy Keough, Branch Chief, Natural Resources Branch
Michelle Royal, Environmental Specialist, Environmental and Natural Resources Division

Virginia Department of Conservation and Recreation

THIS PAGE INTENTIONALLY LEFT BLANK

The Louis Berger Group Inc.

2445 M Street, NW, Washington, D.C. 20037
Tel: (202) 331-7775 Fax: (202) 293-0787 www.louisberger.com

June 1, 2009

Ms. René Hypes
Virginia Department of Conservation and Recreation
Division of Natural Heritage
217 Governor St. 2nd Floor
Richmond, VA 23219

RE: Intergovernmental and Interagency Coordination of Environmental Planning for the Fort Belvoir Warrior in Transition Unit Complex Environmental Assessment.

Dear Ms. Hypes:

On behalf of the Department of the Army (DA), The Louis Berger Group Inc. is preparing an Environmental Assessment (EA) to determine the potential effects associated with the impacts related to construction and operation of a Warrior in Transition Unit Complex at Fort Belvoir, Virginia. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The proposed site for the new Warrior in Transition Unit Complex would on South Post at a 16.6-acre site on the corner of Belvoir Road and 9th Street. Construction would require laying approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. The Army would need to remove approximately 0.4 acres of old road pavement and one building (the golf course maintenance building, Building 1493) at the proposed site to make way for Warrior in Transition Unit Complex facilities.

We are requesting a current list of federally listed threatened, or endangered species that are known to occur, or that could potentially occur on, or in the vicinity of the proposed site for the Warrior in Transition Unit Complex. We would also like to know if there are any other sensitive natural resources or ecosystems that should be considered during the development of the EA. The proposed site being considered for location of the Warrior in Transition Unit Complex is provided in the attached enclosures.

I would like to thank you in advance for your cooperation in this matter. Please provide any comments to me at the address listed above or fax your response to my attention at 202-293-

0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-303-2662.

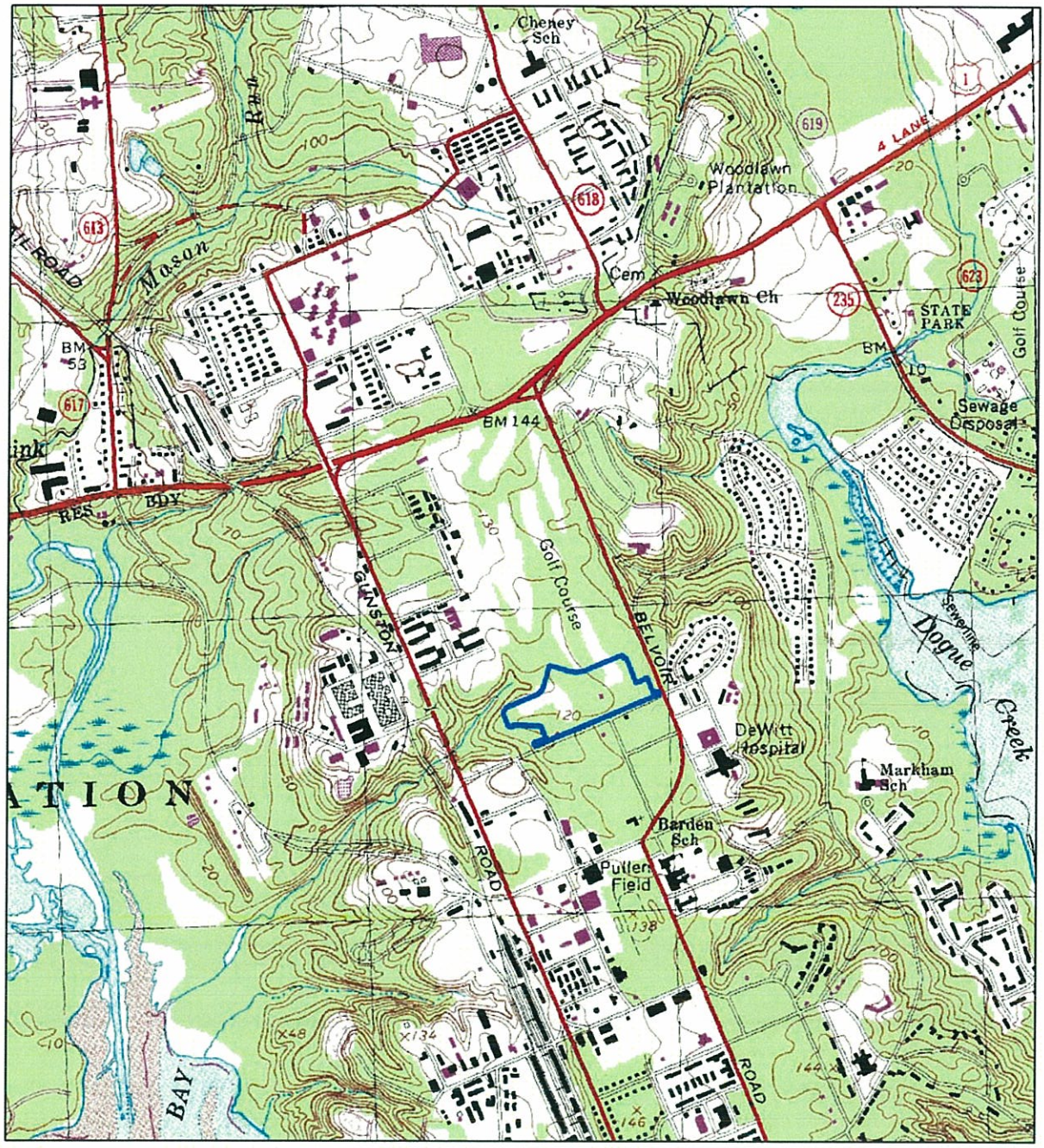
Sincerely,
THE Louis Berger Group, INC.

Julia Yuan
Environment Scientist/Project Manager

Enclosure: USGS Fort Belvoir Quadrangle with Proposed Site

cc: Patrick M. McLaughlin, Chief, Environmental and Natural Resources Division,
Dorothy Keough, Branch Chief, Natural Resources Branch
Michelle Royal, Environmental Specialist, Environmental and Natural Resources Division

Enclosure 1: Proposed Site for the Warrior in Transition Unit Complex, at Fort Belvoir



Proposed Site
Warrior in Transition Unit Complex

USGS 24K Quandrangle Map
Fort Belvoir Quadrangle

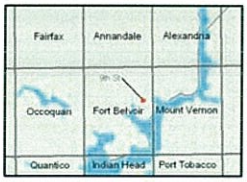
Legend

Proposed Site Boundary

0 375 750 1,125 1,500 Feet

Sources: USGS High Resolution State Orthoimagery for Northern Virginia (2003). ESRI
Coordinate System: NAD 1983,
State Plane Virginia North FIPS 4501 Feet
Prepared By: The Louis Berger Group

QUAD INDEX



MAP INDEX

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

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

June 18, 2009

Julia Yuan
The Louis Berger Group, Inc.
2445 M Street, NW
Washington, D.C. 20037

Re: Fort Belvoir Warrior in Transition Unit Complex Environmental Assessment

Dear Ms. Yuan:

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

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

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

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

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

A fee of $90.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 217 Governor Street Richmond, VA 23219.** Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2008. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,

Kristal McKelvey
Coastal Zone Locality Liaison

Virginia Department of Game and Inland Fisheries

The Department of Game and Inland Fisheries reviewed the Draft EA and provided comments to Fort Belvoir as part of the Virginia Department of Environmental Quality's coordinated comments letter dated 19 August 2009, see Appendix F.

THIS PAGE INTENTIONALLY LEFT BLANK

The Louis Berger Group Inc.

2445 M Street, NW, Washington, D.C. 20037
Tel: (202) 331-7775 Fax: (202) 293-0787 www.louisberger.com

June 1, 2009

Mr. Andy Zadnik
Wildlife Diversity Division
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

RE: Intergovernmental and Interagency Coordination of Environmental Planning for the Fort Belvoir Warrior in Transition Unit Complex Environmental Assessment.

Dear Mr. Zadnik:

On behalf of the Department of the Army (DA), The Louis Berger Group Inc. is preparing an Environmental Assessment (EA) to determine the potential effects associated with the impacts related to construction and operation of a Warrior in Transition Unit Complex at Fort Belvoir, Virginia. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The proposed site for the new Warrior in Transition Unit Complex would on South Post at a 16.6-acre site on the corner of Belvoir Road and 9th Street. Construction would require laying approximately 8 acres of impervious surface (asphalt or concrete) for the building footprints, parking areas, internal roadways, driveways, and paved walkways. The Army would need to remove approximately 0.4 acres of old road pavement and one building (the golf course maintenance building, Building 1493) at the proposed site to make way for Warrior in Transition Unit Complex facilities.

We are requesting a current list of federally listed threatened, or endangered species that are known to occur, or that could potentially occur on, or in the vicinity of the proposed site for the Warrior in Transition Unit Complex. We would also like to know if there are any other sensitive natural resources or ecosystems that should be considered during the development of the EA. The proposed site being considered for location of the Warrior in Transition Unit Complex is provided in the attached enclosures.

I would like to thank you in advance for your cooperation in this matter. Please provide any comments to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-303-2662.

Sincerely,
THE Louis Berger Group, INC.

Julia Yuan
Environment Scientist/Project Manager

Enclosure: USGS Fort Belvoir Quadrangle with Proposed Site

cc: Patrick M. McLaughlin, Chief, Environmental and Natural Resources Division,
Dorothy Keough, Branch Chief, Natural Resources Branch
Michelle Royal, Environmental Specialist, Environmental and Natural Resources Division

Enclosure 1: Proposed Site for the Warrior in Transition Unit Complex, at Fort Belvoir

Virginia Department of Historic Resources

(SHPO - State Historic Preservation Office)

THIS PAGE INTENTIONALLY LEFT BLANK

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO ATTENTION OF

JUN 2 5 2009

Directorate of Public Works

SUBJECT: Section 106 Consultation, Warriors in Transition Complex Construction

Mr. Marc Holma
Architectural Historian
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Holma:

Fort Belvoir plans to construct a Warriors in Transition (WT) complex to support Soldiers receiving treatment at the Fort Belvoir Community Hospital (FBCH).

The WT complex will consist of two 144-man barracks (195,000 square feet each), a Soldier and Family Assistance Center (15,000 square feet), an administration and operations building to house battalion and company headquarters (31,000 square feet), a 3.6 acre surface parking lot, and supporting landscaping and stormwater management facility. The total complex will cover approximately eight acres of land.

Fort Belvoir has identified two potential locations for the complex, 9th Street and Army Materiel Command (AMC). The 9th Street site is located along the north side of 9th Street to the south of the FBCH. The AMC site is located between Gunston Road and the AMC building between 3rd and 4th Streets. Maps of both sites are enclosed. Both sites, along with a no action alternative, will be evaluated by a pending National Environmental Policy Act document. The Areas of Potential Effect (APEs) for this project are defined as the two proposed eight-acre complex sites.

In accordance with 36CFR800.4, Fort Belvoir has identified historic resources within and adjacent to each alternative site within the APE, with the following results. No historic architectural resources are present at either site. Both sites have been heavily disturbed by previous construction activities. No known archaeological sites have been identified within the APE. Two archeological sites (44FX1921 and 44FX1933) have been identified within 1000 feet of the APE at the 9th Street site. Both sites have undergone Phase II surveys and have been determined not eligible for the National Register. Seven archaeological sites have been identified within 1000 feet of the AMC site (44FX1895, 44FX1896, 44FX1897, 44FX1898, 44FX1899, 44FX1902 and 44FX1903). All seven sites were identified by MAAR Associates in 1993.

Sites 44FX1895, 44FX1896 and 44FX1897 were determined not eligible for National Register listing. Sites 44FX1899, 44FX1902 and 44FX1903 were identified as potentially eligible for National Register listing. A Phase II survey was conducted on Site 44FX1898 by Christopher Goodwin Associates in 1997 and the site was determined not eligible for National Register listing. The construction contract for this project shall include an Unexpected Discoveries Clause for the purposes of protecting archeological resources.

Both proposed sites for the complex are more than half a mile away from the National Register-eligible Fort Belvoir and Woodlawn Historic Districts. Building heights shall not exceed four stories to ensure that they do not impact the viewsheds of either the Fort Belvoir or Woodlawn Historic Districts.

Based on its historic resources identification efforts, Fort Belvoir has determined that no historic properties will be affected by the construction of the complex at either the 9th Street or AMC sites [36CFR800.4]. Please provide comment on our determination of no historic properties affected in accordance with 36CFR800.4(d)(1). If we do not receive your comments within the 30 day allowed time period, we will assume concurrence and proceed with the project as planned.

A copy of this correspondence has been sent to the Catawba Indian Nation, Tribal Historic Preservation Office.

Point of contact is Bill Sanders, Director of Public Works, at 703-806-3017.

Sincerely,

for Mark T. Moffett COL, EN 25 JUN 09
Jerry L. Blixt
Colonel, US Army
Commanding

Enclosures

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

Directorate of Public Works

JUN 2 5 2009

SUBJECT: Section 106 Consultation, Warriors in Transition Complex Construction

Dr. Wenonah G. Haire
Tribal Historic Preservation Officer
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Dear Dr. Haire:

Fort Belvoir plans to construct a Warriors in Transition (WT) complex to support Soldiers receiving treatment at the Fort Belvoir Community Hospital (FBCH).

The WT complex will consist of two 144-man barracks (195,000 square feet each), a Soldier and Family Assistance Center (15,000 square feet), an administration and operations building to house battalion and company headquarters (31,000 square feet), a 3.6 acre surface parking lot, and supporting landscaping and stormwater management facility. The total complex will cover approximately eight acres of land.

Fort Belvoir has identified two potential locations for the complex, 9th Street and Army Materiel Command (AMC). The 9th Street site is located along the north side of 9th Street to the south of the FBCH. The AMC site is located between Gunston Road and the AMC building between 3rd and 4th Streets. Maps of both sites are enclosed. Both sites, along with a no action alternative, will be evaluated by a pending National Environmental Policy Act document. The Areas of Potential Effect (APEs) for this project are defined as the two proposed eight-acre complex sites.

In accordance with 36CFR800.4 Fort Belvoir has identified historic resources within and adjacent each alternative site within the APE, with the following results. No historic architectural resources are present at either site. Both sites have been heavily disturbed by previous construction activities, no known archaeological sites have been identified within the APE. Two archeological sites (44FX1921 and 44FX1933) have been identified within 1000 feet of the APE at the 9th Street site. Both sites have undergone Phase II surveys and have been determined not eligible for the National Register. Seven archaeological sites have been identified within 1000 feet of the AMC site (44FX1895, 44FX1896, 44FX1897, 44FX1898, 44FX1899, 44FX1902 and 44FX1903). All seven sites were identified by MAAR Associates in 1993.

Sites 44FX1895, 44FX1896 and 44FX1897 were determined not eligible for National Register listing. Sites 44FX1899, 44FX1902 and 44FX1903 were identified as potentially eligible for National Register listing. A Phase II survey was conducted on Site 44FX1898 by Christopher Goodwin Associates in 1997 and the site was determined not eligible for National Register listing. The construction contract for this project shall include an Unexpected Discoveries Clause for the purposes of protecting archeological resources.

Both proposed sites for the complex are more than half a mile away from the National Register-eligible Fort Belvoir and Woodlawn Historic Districts. Building heights shall not exceed four stories to ensure that they do not impact the viewsheds of either the Fort Belvoir or Woodlawn Historic Districts.

Based on its historic resources identification efforts, Fort Belvoir has determined that no historic properties will be affected by the construction of the complex at either the 9th Street or AMC sites [36CFR800.4]. Please provide comment on our determination of no historic properties affected in accordance with 36CFR800.4(d)(1). If we do not receive your comments within the 30 day allowed time period, we will assume concurrence and proceed with the project as planned.

A copy of this correspondence has been sent to the Virginia State Historic Preservation Office.

Point of contact is Bill Sanders, Director of Public Works, at 703-806-3017.

Sincerely,

for Mark T. Moffett COL, EN
25 JUN 09
Jerry L. Blixt
Colonel, US Army
Commanding

Enclosures

RE: Section 106 Consultation, Warriors in Transition Unit Complex Construction

I have reviewed this project, DHR File number 2006-0820, Warriors in Transition Unit Complex Construction, Fort Belvoir, Virginia. I concur/do not concur with Fort Belvoir's finding of "No Historic Properties Affected."

Mr. Marc Holma, Architectural Historian
Office of Review and Compliance
Virginia Department of Historic Resources

22 July 09
Date

Please return this form via fax or hard copy to:

Mr. Patrick McLaughlin
USAG Fort Belvoir
Directorate of Public Works
Chief, Environmental and Natural Resource Division
9430 Jackson Loop, Suite 200
Fort Belvoir, Virginia 22060

Fax: 703-806-0622

APPENDIX C: TRANSPORTATION

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C: TRANSPORTATION

BACKGROUND TRAFFIC TRIP GENERATION

The Existing Condition traffic network was based upon counts conducted in 2008. In order to project future 2011 No Action Condition a.m. and p.m. peak hour traffic volumes, the 2008 Existing Condition a.m. and p.m. traffic volumes were increased by the trips generated by background projects considered in the study area in the future as part of the *Fort Belvoir Transportation Management Plan* (Table C-1).

Table C-1. Projects included in the 2011 No Action Condition

Area	Project	Size (Gross Square Feet)
Town Center		
	PEO EIS Admin Facility	290,000 GSF
	Secure Admin Facility (for PEO EIS)	157,400 GSF
	Secure Admin Facility	789,326 GSF
	Replace South Post Fire Station	10,297 GSF
	Emergency 911 Center	9,200 GSF
	Expand Main Post Library	11,500 GSF
	South Post Fitness Facility	89,448 GSF
	Expand Recreation Center	10,500 GSF
	Expand Bowling Center	10,750 GSF
	USANCA Support Facility	25,558 GSF
	Missile Defense Agency Facility	89,522 GSF
Community Support		
	Expand and Renovate P / X	186,334 GSF
	Expand and Renovate Commissary	150,000 GSF
	Soldier Support Center	68,724 GSF
	Name Brand Car Care Facility	12,000 GSF
	Car Wash 1,320 GSF	
Industrial		
	Museum Support Center	124,775 GSF
	Shoppette	7,233 GSF
	Battalion Headquarters for 249th Battalion	47,253 GSF
	Tactical Equipment Maintenance Facility	74,300 GSF
	Replace 1400/1900 Warehouses	83,000 GSF
	Vet Clinic Addition	4,250 GSF
	Vehicle Maintenance Shop	45,000 GSF
New Troop Village		
	Replace 1400/1900 Warehouses	83,000 GSF
	Multipurpose Fields	1.15 Acres
	Trainee Barracks	515 units
Lower North Post		
	DCNG Resources Training Center	54,600 GSF
Community Hospital		
	Hospital	870,955 GSF
	Medical Guest House	200 units
	NARMC HQ Building	9,000 GSF
	Dental Clinic	16,000 GSF
	AMC Relocatables	230,000 GSF
	Day Care Center	300 students

The projects used as part of this plan are proposed to be implemented by 2015. To be conservative, all of these projects were included in the development of the 2011 No Action Condition traffic volumes because it is unclear at this point which of these 33 projects would be on line in 2011.

In addition, several Future Fort Belvoir roadway improvement projects are included in the analysis:

- Widening of Gunston Road from one lane to two lanes in each direction between 12th Street and John J. Kingman Road
- Widening of Belvoir Road from one lane to two lanes in each direction between Route 1 and 12th Street
- Widening of Pohick Road from one lane to two lanes in each direction between Route 1 and 12th Street

An estimate of the trips generated by these proposed background development was prepared for the *Fort Belvoir Transportation Management Plan* using the procedures established by the Institute of Transportation Engineers (ITE) Trip Generation, Seventh Edition. Each proposed development was modeled using the appropriate ITE land use code and was associated to an independent variable and time period of analysis (a.m. and p.m. peak hours on weekdays) through a regression analysis. The directional distribution of trips entering and exiting each proposed development was also estimated based upon the ITE Trip Generation manual for the weekday a.m. and p.m. peak hours.

Because these trips reflect the net increase in activity as the result of the implementation of the background development, they were added to the Existing Condition traffic volumes to yield the future 2015 traffic volumes. The trips projected in the *Fort Belvoir Transportation Management Plan* to be generated by the Warrior in Transition Unit Complex for each peak hour were removed from their respective a.m. and p.m. peak hour traffic networks to create the 2015 No Action condition volumes. Based upon data specific to the proposed operations of the Warrior in Transition Unit Complex, a revised trip generation procedure was developed for this project. Vehicles generated by the Warrior in Transition Unit Complex were assigned to the key 13 intersections in the study area based on the assignment for this facility used in the *Fort Belvoir Transportation Management Plan*. Survey results indicate that the region currently maintains a 15% reduction in single occupancy vehicle (SOV) trips. For the *Fort Belvoir Transportation Management Plan*, a 30% total reduction in SOV trips was used (15% higher than the background) in addition to the background. For the purpose of the Warrior in Transition Unit Complex traffic analysis, only the background condition was considered (15% total reduction).

WARRIOR IN TRANSITION UNIT COMPLEX TRIP GENERATION

The existing Warrior in Transition Unit Complex is located to the east off of Belvoir Road, to the south of 12th Street. The current SFAC is located further to the south on Belvoir Road. Currently, there are 67 warriors in transition living off post being treated on post who are assigned to the existing Warrior in Transition Unit. It is estimated that approximately 75 percent of these (50) travel to the post during the a.m. peak hour (8:00 to 9:00) and depart during the p.m. peak hour (4:00 to 5:00). In addition, there are 27 personnel on the staff assigned to these facilities, of which approximately 85 percent travel to the post during the a.m. peak hour and depart during the p.m. peak hour. When a daily attendance factor of 90 percent is applied for staff, a total of 21 staff are currently traveling to the post during the a.m. peak hour and depart during the p.m. peak hour. There are currently no peak hour visitors to these sites. As a result, a total of 71 persons on average that are associated with the Warrior in Transition Unit and SFAC currently travel to the post during the a.m. peak hour and depart during the p.m. peak hour.

For the proposed project, the Warrior in Transition Unit and SFAC would be combined into one site just to the south of the new Community Hospital between 9th Street, Belvoir Road, 6th Street, and Gunston

Road. It is estimated that the facility would accommodate 412 warriors, with 288 to be housed in the barracks and 124 to live off-post. It is assumed that none of the resident soldiers would travel during the a.m. or p.m. peak hours. However, it is projected that approximately 102 of the soldiers living off-post on average would travel to the post during the a.m. peak hour and depart during the p.m. peak hour. A total of 160 administrative staff are projected to be assigned to the new facility; approximately 85 percent would travel to the post during the a.m. peak hour and depart during the p.m. peak hour. When the daily attendance factor of 90% is applied, a total of 122 staff would be projected to travel to the post during the a.m. peak hour and depart during the p.m. peak hour. In addition, it is anticipated that 14 SFAC visitors would travel to the post during the a.m. and p.m. peak hours and depart during the p.m. peak hour. As a result, a total of 238 persons are projected to travel to the post during the a.m. peak hour and depart during the p.m. peak hour, with an additional 14 traveling to the post during the p.m. peak hour.

Therefore a net addition of 167 vehicles are projected to travel to the post during the a.m. peak hour and depart during the p.m. peak hour (238 persons projected less the 71 current persons). To summarize, the number of new vehicles for Fort Belvoir generated by the proposed action are as follows:

- In during the a.m. peak hour = 167 new vehicles
- Out during the a.m. peak hour = 0
- In during the p.m. peak hour = 14
- Out during the p.m. peak hour = 167

Vehicles generated by the proposed action were assigned to 13 key intersections in the study area based on the assignment for this facility used in the *Fort Belvoir Transportation Management Plan.* It is anticipated that vehicles would enter the site from both 6th and 9th Streets. The 71 current vehicles traveling to and from the Warrior in Transition Unit and SFAC sites south of 12th Street were reassigned to the proposed site.

The following pages of Appendix C provide maps that show the number of vehicles turning or passing through each of these intersections during a.m. and p.m. peak hours for the existing condition, no build condition (existing plus traffic from future projects excluding the proposed action), trips generated by the proposed action, and the resulting build condition (no build plus trip generation).

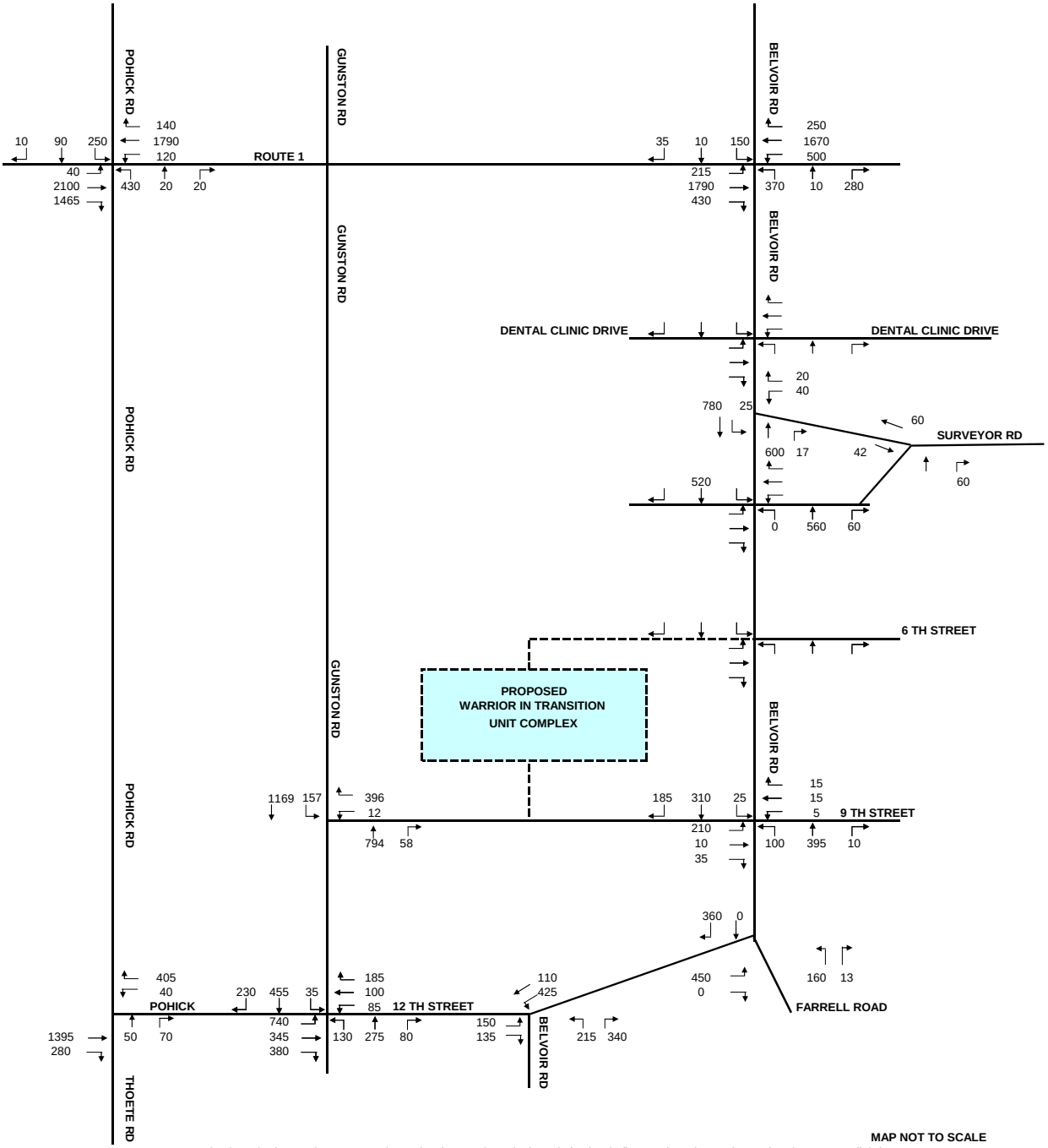
Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

THIS PAGE INTENTIONALLY LEFT BLANK

EXISTING CONDITION - 2008

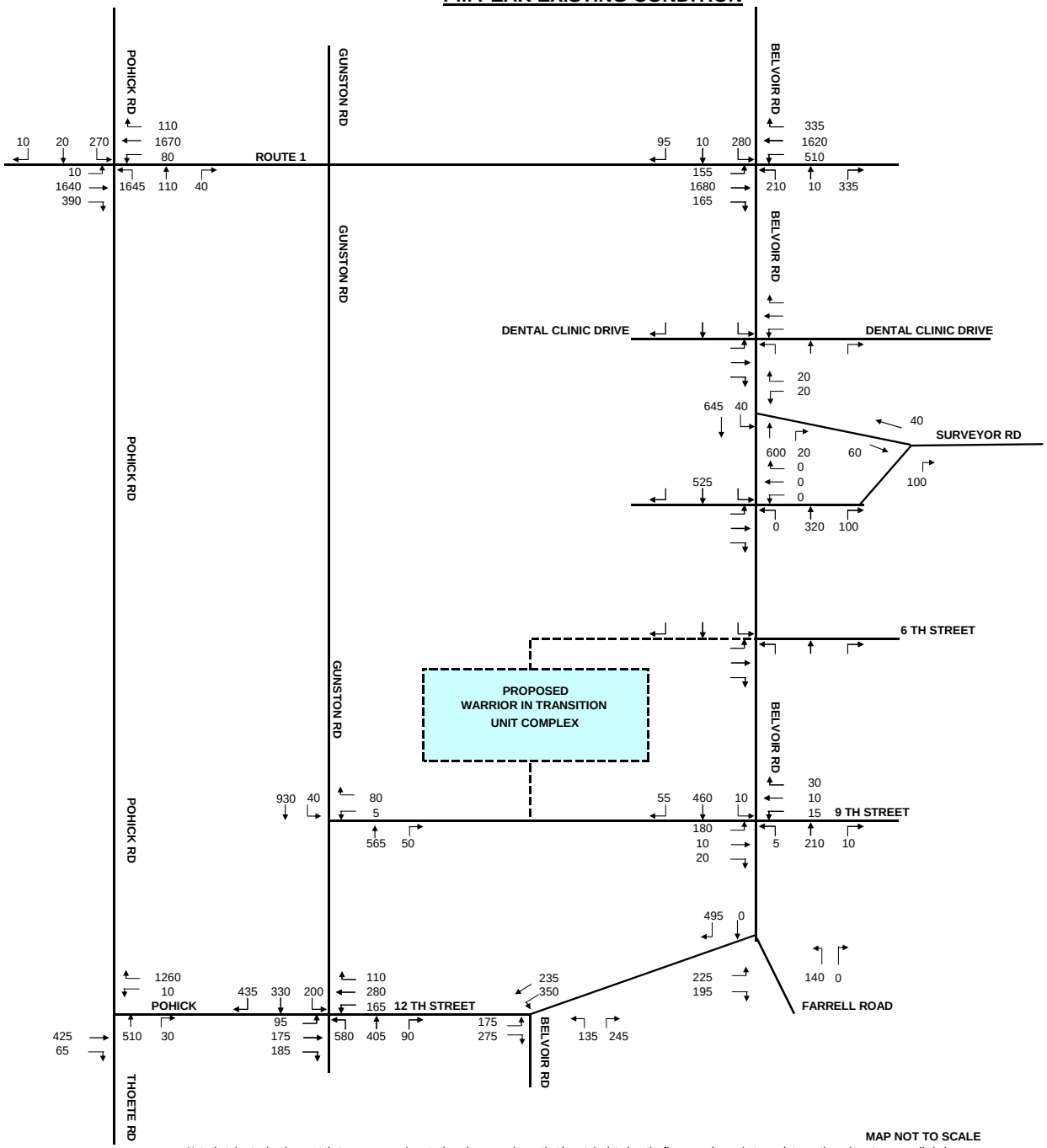
THIS PAGE INTENTIONALLY LEFT BLANK

AM PEAK EXISTING CONDITION



Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

PM PEAK EXISTING CONDITION

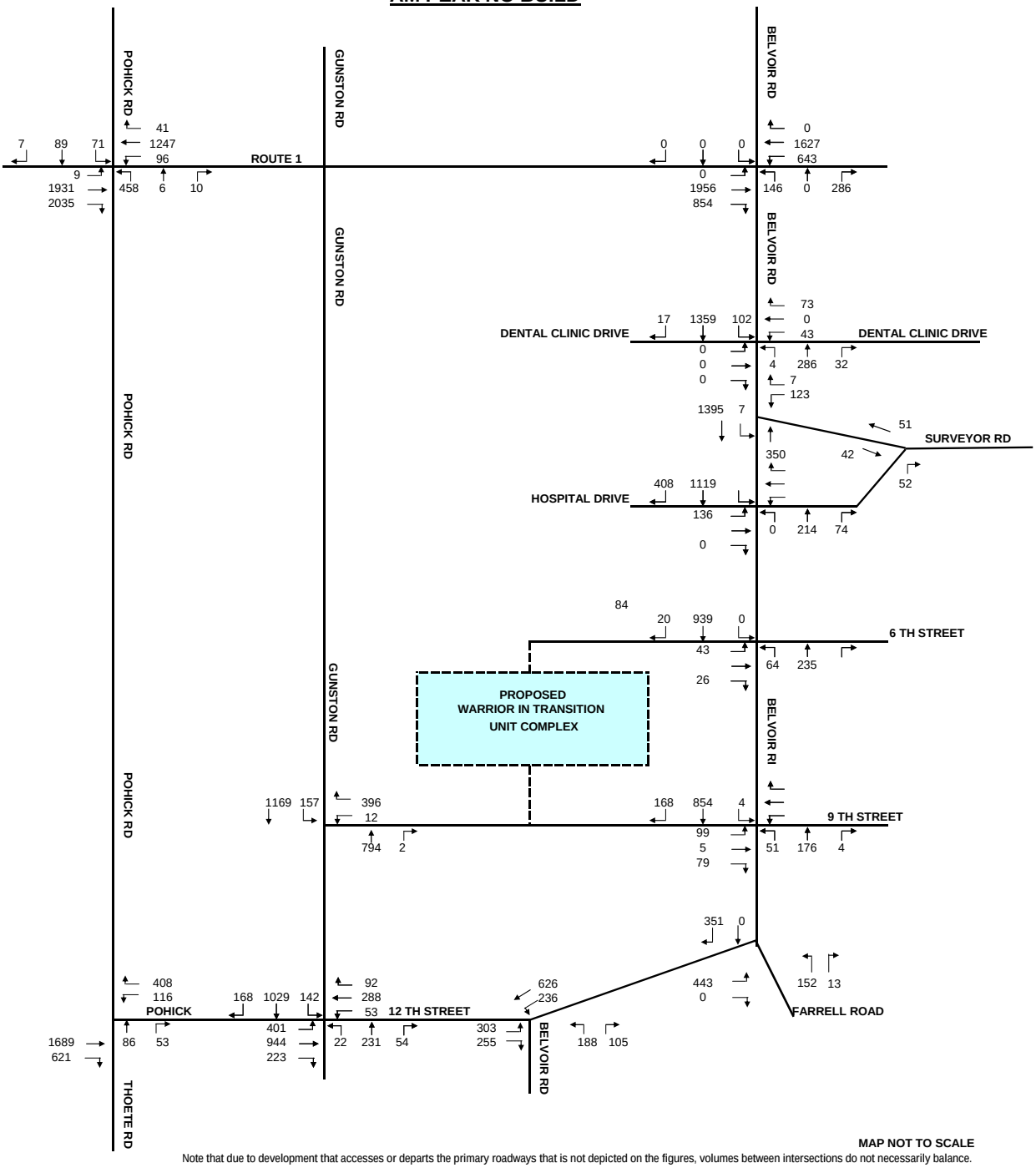


Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

NO ACTION ALTERNATIVE – PEAK HOUR TRAFFIC VOLUMES

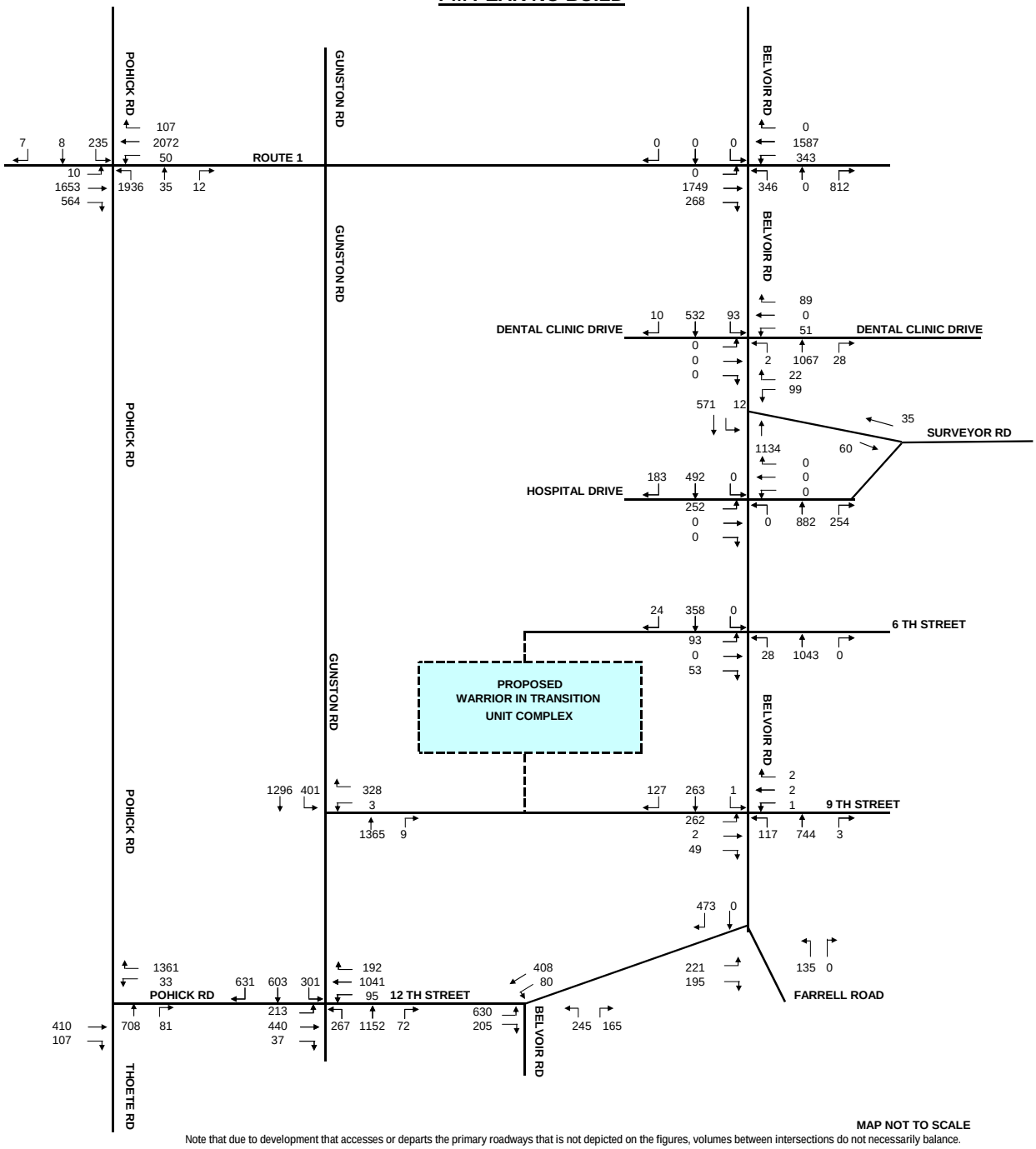
THIS PAGE INTENTIONALLY LEFT BLANK

AM PEAK NO BUILD



Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

PM PEAK NO BUILD

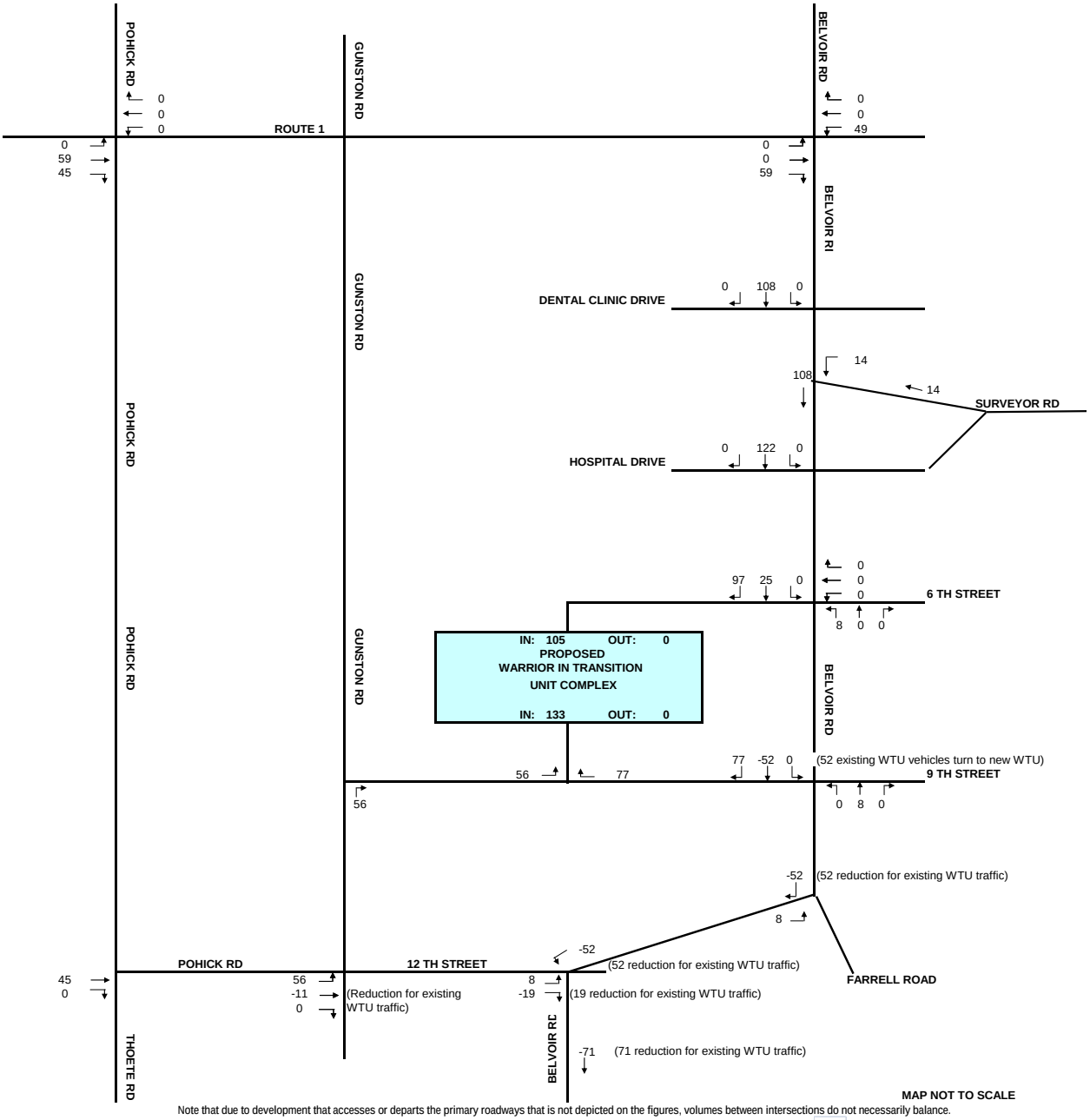


Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

BUILD ALTERNATIVE – TRIP GENERATION PEAK HOUR TRAFFIC VOLUMES

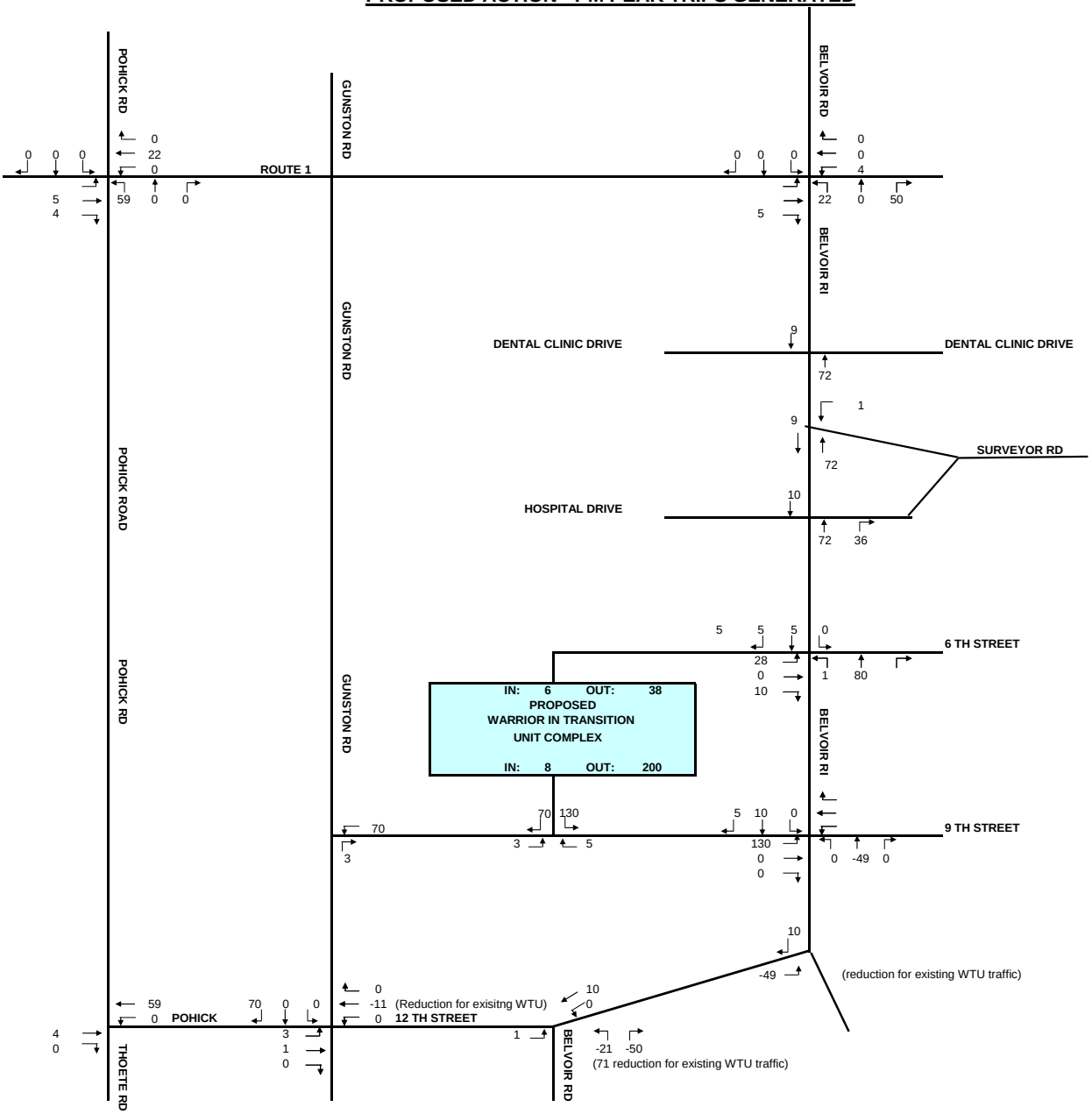
THIS PAGE INTENTIONALLY LEFT BLANK

PROPOSED ACTION - AM PEAK TRIPS GENERATED



Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

PROPOSED ACTION - PM PEAK TRIPS GENERATED



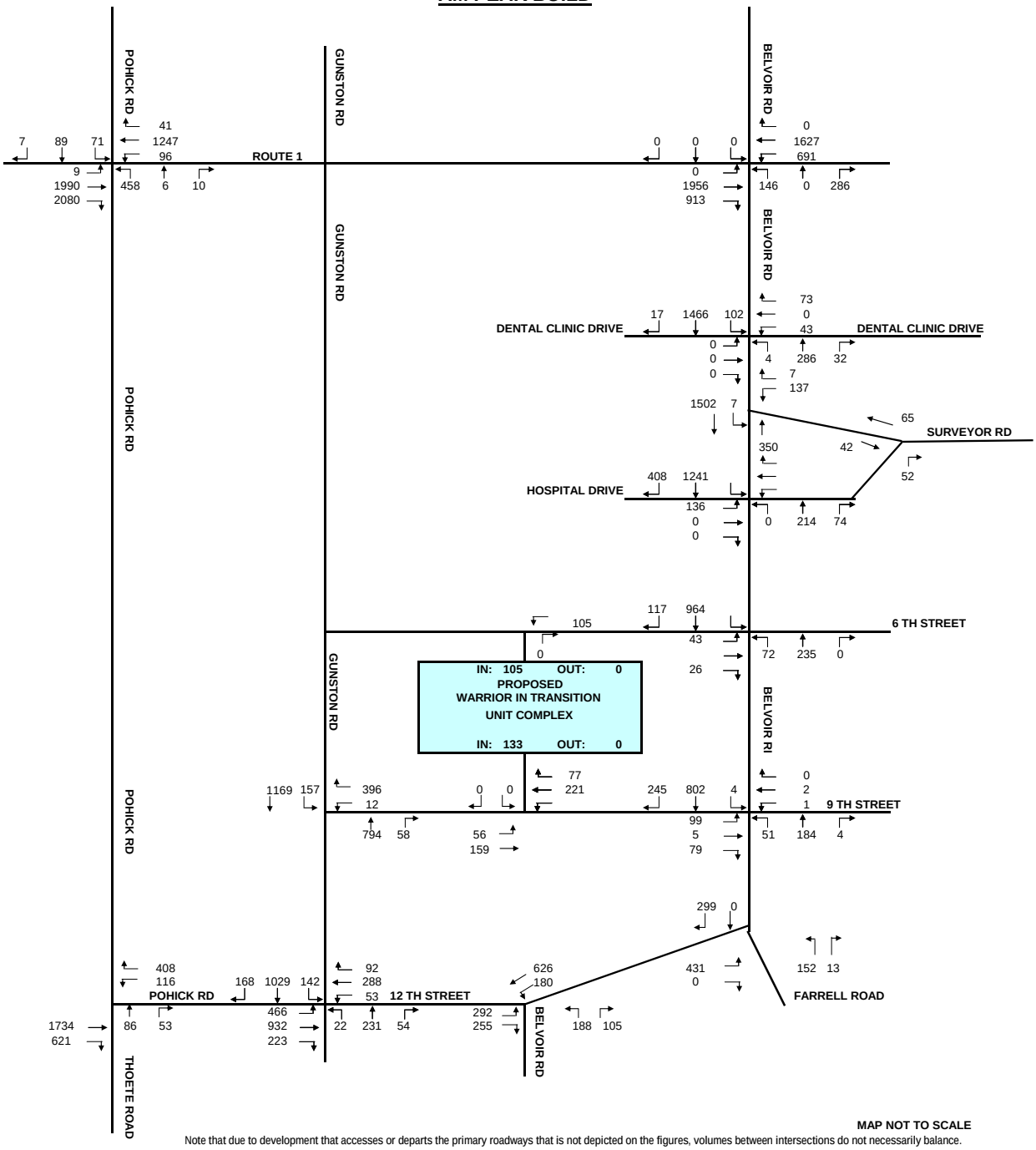
MAP NOT TO SCALE

Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

BUILD ALTERNATIVE – TOTAL PEAK HOUR TRAFFIC VOLUMES

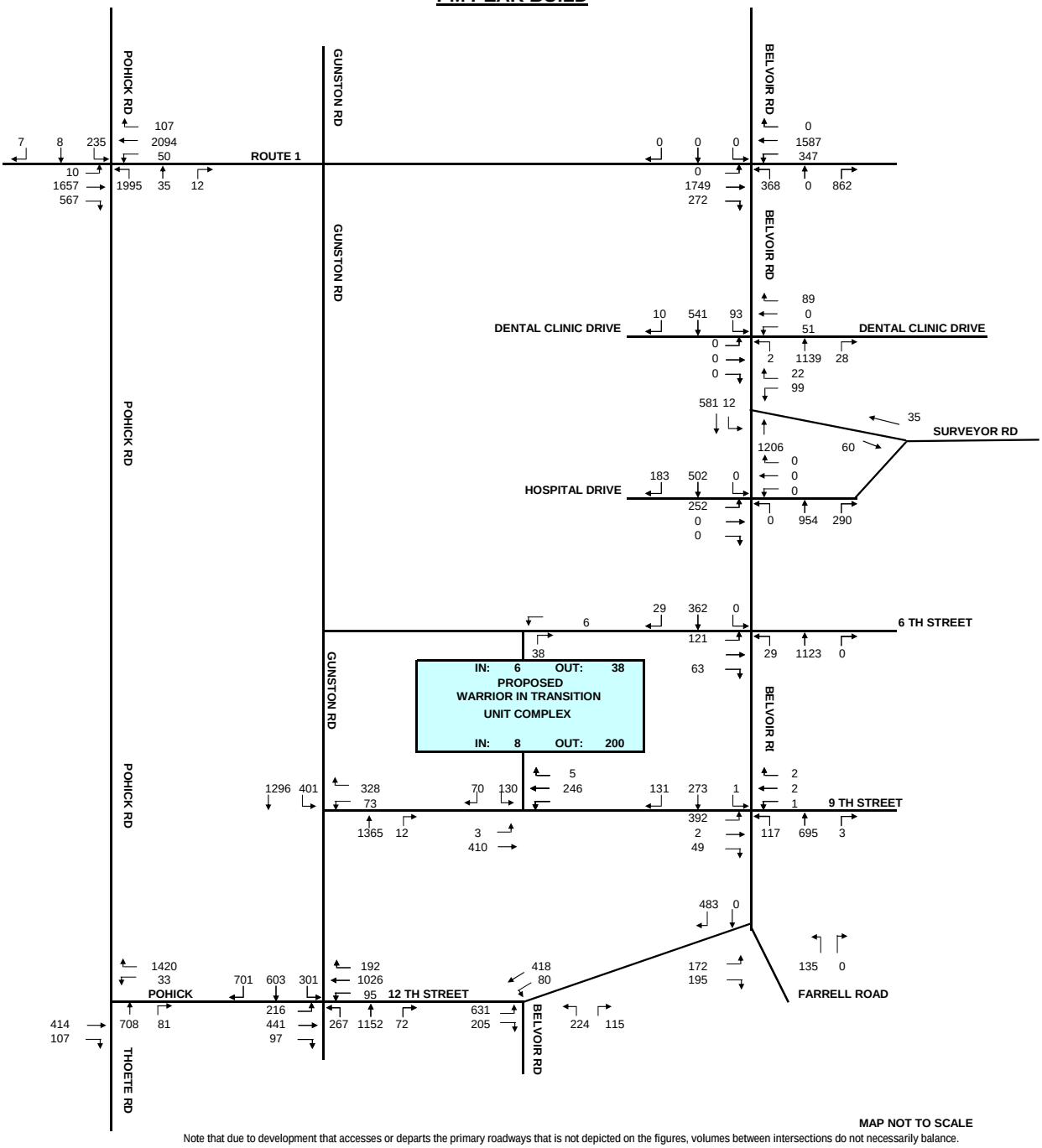
THIS PAGE INTENTIONALLY LEFT BLANK

AM PEAK BUILD



Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

PM PEAK BUILD



Note that due to development that accesses or departs the primary roadways that is not depicted on the figures, volumes between intersections do not necessarily balance.

APPENDIX D: AIR CONFORMITY APPLICABILITY ANALYSIS

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

1.0 Project Description D-1
2.0 Meteorology/Climate D-1
3.0 Current Ambient Air Quality Conditions D-2
4.0 Air Quality Regulatory Requirements: General Conformity Applicability Analysis D-2
5.0 Conformity Applicability Analysis D-3
5.1 Construction Phase Emissions D-4
5.2 Operations Emissions D-9
5.3 Combined Construction and Operations Emissions D-12
5.4 Regional Significance D-13
5.5 Conclusion D-13
6.0 References D-13

TABLES

Table D-1: National Ambient Air Quality Standards for ozone and $PM_{2.5}$ D-2
Table D-2: Emissions Factors for Construction Vehicles D-4
Table D-3: Equations for Construction Emissions Calculations D-5
Table D-4: Total Equipment Emissions For Construction D-6
Table D-5: Emissions from Construction D-9
Table D-6: Total Annual Emissions from heating – Building Boilers D-10
Table D-7: Total Annual Emissions from heating – Combined Fuel Oil and Natural Gas D-11
Table D-8: Emission Factors for Commuter Vehicles D-11
Table D-9: Equations for Operations Emissions Calculations D-11
Table D-10: Annual Emissions from Daily Vehicle Traffic D-12
Table D-11: Annual Emissions from Operations Using Building boilers D-12
Table D-12: Annual Emissions from Operations Using the Steam Plant D-12
Table D-13: Total Annual Emissions – Building Boilers D-12
Table D-14: Total Annual Emissions – Steam Plant D-12
Table D-15: SIP Emission Inventories D-13

Attachment One: Record of Non-Applicability

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D: AIR CONFORMITY APPLICABILITY ANALYSIS

A General Conformity applicability analysis was conducted to determine if increases in air pollution from the Warrior in Transition Unit (WTU) construction project would cause or contribute to new violations of the National Ambient Air Quality Standards (NAAQS); increase the frequency of severity of existing NAAQS violations; or delay timely attainment of the NAAQS or interim emission reductions. The project will occur within a U.S. Environmental Protection Agency (USEPA) designated moderate nonattainment area for ozone and nonattainment for particulate matter (2.5 microns) and is subject to the federal conformity requirements. The purpose of this analysis is to apply the Federal General Conformity Rule established in 40 CFR, Part 93 entitled: *Determining Conformity of Federal Actions to State or Federal Implementation Plans* to the proposed action in order to determine if effects on air quality are significant.

The federal conformity rules were established to ensure that federal activities do not interfere with efforts to get nonattainment areas back into compliance with the NAAQS. In particular, Section 176(c) of the Clean Air Act (CAA) prohibits federal agencies, departments or instrumentalities from engaging in, supporting, licensing, or approving any action, in an area that is in nonattainment of the NAAQS, which does not conform to an approved state or federal implementation plan. Therefore, the agency must determine whether or not the project would interfere with the clean air goals in the State Implementation Plan (SIP).

1.0 Project Description

The Army's proposed action is to construct and operate a WTU Complex north of 9th Street on the former South Post golf course. The proposed action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of two companies of Warriors in Transition and a Soldier and Family Assistance Center (SFAC) that would assist both soldiers housed at the Warrior in Transition Unit Complex and additional recovering soldiers residing off post.

Construction would include a 194,400 square foot (SF) WT Barracks, a 15,000 SF SFAC and a 31,000 SF Administration and Operations facility.

Construction is expected to occur over a 15 month time period. For the purposes of this analysis, it was assumed that all construction would occur within a one year time frame. This ensures a conservative analysis.

2.0 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. Climate at Fort Belvoir can be characterized as a humid, continental climate with a mean high temperature of 88°F in July and a mean low temperature of 27°F in January. The average temperature is 57.5°F. Summers are warm with periods of high humidity and winters are cold, with periods of snow cover. May is the month with most precipitation, averaging 3.82 inches (TWC, nd).

3.0 Current Ambient Air Quality Conditions

Fort Belvoir and Fairfax County are within the Washington, D.C. airshed (AQCR 47). AQCR 47 is in moderate nonattainment for the criteria pollutant ozone, under the 8-hour ozone standard, and in nonattainment for $PM_{2.5}$. The airshed is in attainment for all other pollutants

4.0 Air Quality Regulatory Requirements: General Conformity Applicability Analysis

In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the USEPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for the following criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}) and particles with a diameter less than or equal to nominal 2.5 micrometers ($PM_{2.5}$)), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). Federal regulations designate Air-Quality Control Regions (AQCRs) in violation of the NAAQS as nonattainment areas. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme. Severity categories have not been applied to $PM_{2.5}$ nonattainment areas. The USEPA has classified the Metropolitan Washington, DC area, which includes Fairfax County and Fort Belvoir, as in moderate nonattainment for the 8-hour ozone NAAQS and in nonattainment for $PM_{2.5}$.

The NAAQS for ozone and $PM_{2.5}$ are shown in Table D-1.

TABLE D-1: NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE AND $PM_{2.5}$

Pollutant	Federal Standard
Ozone (O_3)* 8-Hour Average	0.075 ppm
Particulate Matter ($PM_{2.5}$)*	
24-Hour Average	35 µg/m^3
Annual Geometric Mean	15 µg/m^3

Sources: USEPA, 2009a

* Ozone: the 0.075 ppm standard is actually that the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.

* PM2.5: annual geometric mean, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
24-hour standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3.

AQCR 47 is also in an ozone transport region; it in attainment for all other criteria pollutants. In December 2006, a federal appellate court remanded the USEPA's 8-hour ozone standard. No final decision has been reached on the outcome for this decision. On 3 October, 2007, the USEPA issued a memo stating that for New Source Reviews, AQCRs will be held to the 1-hour ozone standard regulations (USEPA, 2007a). This ruling does not affect the General Conformity Analysis at this time.

To regulate the emission levels resulting from a project, federal actions located in nonattainment areas are required to demonstrate compliance with the general conformity rule established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). The

project area is located within a nonattainment area; therefore, a General Conformity Rule applicability analysis is warranted.

Section 93.153 of the Rule sets applicability requirements for projects subject to the Rule through establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant nonattainment area designations. For projects below the *de minimis* levels, a full conformity determination is not required. Those at or above the levels are required to perform a conformity determination as established in the Rule. The *de minimis* levels apply to emissions that can occur during the construction and operation phases of the action.

Fort Belvoir has completed a General Conformity Rule applicability analysis in order to analyze any impact to air quality. For ozone, emissions have been estimated for the ozone precursor pollutants NO_x and volatile organic compounds (VOCs). Annual emissions for these compounds were estimated for each of the project actions (construction and operations) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* threshold for moderate ozone nonattainment areas in an ozone transport region is 100 tons per year (TPY) for NO_x and 50 TPY for VOCs.

On July 11, 2006 USEPA established *de minimis* levels for $PM_{2.5}$. The final rule established 100 TPY as the *de minimis* emission level under nonattainment for directly emitted $PM_{2.5}$ and each of the precursors that form it (SO_2, NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of $PM_{2.5}$, SO_2, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination would be required. Under the current USEPA policy for addressing $PM_{2.5}$ precursors, only $PM_{2.5,}$ NO_x, and SO_2 must be evaluated in all regions. States are not required to evaluate VOCs or ammonia unless the State or USEPA make a technical demonstration that those particular emissions from sources within the State significantly contribute to $PM_{2.5}$ concentrations in a given nonattainment area (USEPA, 2007b). Neither the USEPA nor Virginia have found VOC or ammonia to be a significant precursor of $PM_{2.5}$ in AQCR 47; therefore VOC and ammonia are not required to be evaluated for $PM_{2.5}$ under the Rule. Ammonia is not further addressed by this EA (VOC is addressed as an ozone precursor).

Sources of NO_x, VOCs, $PM_{2.5}$, and SO_2 associated with the proposed project would include emissions from construction and demolition equipment, commuter vehicles, fugitive dust ($PM_{2.5}$), painting of interior building surfaces and building sealants (VOCs only), painting parking spaces (VOCs only), and emissions from stationary units (boilers for space and water heating).

In addition to the evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed ten-percent of the total emissions inventory for a particular criteria pollutant in a nonattainment area. If the emissions exceed this ten-percent threshold, the federal action is considered to be a "regionally significant" activity, and thus, the general conformity rules apply.

5.0 Conformity Applicability Analysis

This project construction- and operations-related General Conformity analysis was performed for the proposed action at Fort Belvoir. This conformity analysis and air emissions evaluation will follow the criteria regulated in *40 CFR Parts 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993). The emissions evaluation will also follow all NEPA-related criteria regulated in *40 CFR Part 6*.

5.1 Construction Phase Emissions

Construction emissions would result from the operation of heavy equipment and delivery trucks, workforce commuters, and the painting of the building structures and parking spaces. The project would utilize a mix of heavy equipment for construction, mainly associated with preparing the site for the buildings and utility relocation.

5.1.1 Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using model emission rate input for the year 2010 in USEPA's *Nonroad 2005 Emission Inventory Model: Diesel Construction Equipment, Fairfax County, Virginia* (USEPA, 2005b). Truck emission levels were calculated using USEPA's *MOBILE6* model for conditions in July 2010 (USEPA, 2006). The total annual emissions in TPY were determined for each vehicle type based on the number of operating hours per year per vehicle type.

Emissions factors used for construction vehicles, under all alternatives, are shown in Table D-2.

TABLE D-2: EMISSIONS FACTORS FOR CONSTRUCTION VEHICLES

Construction Vehicle Type	Emissions Factors (lbs/hr)			
	NO_x	VOC	$PM_{2.5}$	SO_2
Chipping Machine	1.169	0.119	0.114	0.165
Front End Loader	3.402	0.204	0.194	0.496
Chain Saws	0.208	0.029	0.025	0.037
Excavator	2.763	0.204	0.149	0.529
Dozer	2.714	0.199	0.180	0.496
Pneumatic Tire Roller	0.927	0.099	0.090	0.156
Steel Wheel Roller	0.927	0.099	0.090	0.156
Asphalt Paver	1.284	0.100	0.082	0.215
Vibratory Roller	1.466	0.116	0.105	0.240
Grader	1.513	0.121	0.107	0.265
Scraper	5.190	0.280	0.255	0.827
Concrete Pumper Truck	2.941	0.237	0.101	0.331
Concrete Truck	2.941	0.237	0.101	0.331
Crane	1.156	0.116	0.099	0.182
Backhoe	1.470	0.353	0.322	0.213
Water Tanker*	9.984	0.242	0.242	0.0132
Dump Truck*	9.984	0.242	0.324	0.0132
Pick-Up Truck*	1.22	1.304	1.444	0.0088
Delivery Truck (Medium)*	1.069	0.306	0.239	0.003
Delivery Truck (Heavy)*	6.488	0.713	0.453	0.0056
Air Compressor	0.558	0.049	0.051	0.093

* Units are in grams/mile.

For both alternatives, it was assumed that delivery trucks would travel 20 miles per trip, making one trip per day.

- Pick-up trucks would be used mainly by site foremen. There would be two at each site and are assumed to travel 5 miles per day around the construction sites.

- Water tankers are assumed to have 20 miles per day of operation.

Calculations for Construction Emissions

Using the emissions factors in Table D-2, construction emissions were calculated for the proposed construction at Fort Belvoir. Using the assumptions described above, the emissions in tons of NO_x, VOC, $PM_{2.5}$, and SO_2 for construction equipment emissions were calculated for each vehicle type using the appropriate equations displayed in Table D-3.

TABLE D-3: EQUATIONS FOR CONSTRUCTION EMISSIONS CALCULATIONS

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, Hourly On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (hours/day) (1 ton/2000 lbs) = tons of air emissions	(1 grader) (1.513 lbs/hr) (29 days in operation) (8 hours/day) (1 ton/2000 lbs) = **0.174 tons of NO_x of equipment emissions**
Construction Truck Emissions with Vehicle-miles	(# vehicle type) (Emission factor) (Total # of miles traveled during a specific construction activity) (miles/day)(1 lb/453.59 grams)(1 ton/2000 lbs) = tons of air emissions	(1 dump truck) (9.984 grams/mile) (173 miles total during construction)(1 lb/453.59 grams) (1 ton/2000 lb) = **0.297 tons NO_x of vehicle emissions**
Construction Crew, Commuting	(# of vehicles) (#miles/day) (#days) (emissions factor grams/mile) (1 lb/453.59 grams) (1 ton/2000 lb) = tons of vehicle emissions	(90 vehicles) (40 miles/day) (240 days) (0.76 grams/mile/vehicle) (1 lb/453.59 grams) (1 ton/2000 lb) = **0.72 tons NO_x of vehicle emissions**

Surface Disturbance (Fugitive $PM_{2.5}$)

The quantity of dust emissions from construction operations is proportional to the area of land being worked and to the level of construction activity. The following assumptions were used in $PM_{2.5}$ emission calculations for fugitive dust emissions (AP-42 Section 13.2.3; USEPA 2005a).

E = open area x *EF* x PM10/Total Suspended Particulates (TSP) x $PM_{2.5}$/PM10 x capture fraction where:

Open area = number of acres open
EF = 80 lb TSP/acre
PM10/TSP = 0.45 lb PM_{10}/lb TSP
$PM_{2.5}/PM_{10}$ = 0.15 lb $PM_{2.5}$/lb PM10
Capture fraction = 0.5

A sample calculation is provided below:

Paved area = 100 acres
E = 100 ac x 80 lb TSP/ac x 0.45 lb PM_{10}/lb TSP x 0.15 lb $PM_{2.5}$/ lb PM_{10} x 2000 lb/ton
= 1.35 tons

Fugitive emissions resulting from construction of the Proposed Action, with a disturbance area of 16 acres, would be 0.106 tons.

The Proposed Action

Equipment requirements were estimated for the construction and demolition activities associated with site preparation for buildings, parking, and trenching for utilities. Table D-4 provides the equipment assumptions and resultant total equipment emissions for the Proposed Action.

TABLE D-4: TOTAL EQUIPMENT EMISSIONS FOR CONSTRUCTION

Construction Vehicle Type	Total Equipment/Vehicle Days of Operation	Annual Emissions (TPY)			
		NO_x	VOC	$PM_{2.5}$	SO_2
Front End Loader	41	0.508	0.033	0.027	0.078
Excavator	15	0.166	0.012	0.010	0.032
Dozer	52	0.568	0.042	0.032	0.104
Pneumatic Tire Roller	5	0.019	0.002	0.002	0.003
Steel Wheel Roller	10	0.039	0.004	0.004	0.006
Asphalt Paver	25	0.071	0.006	0.006	0.012
Vibratory Roller	55	0.317	0.025	0.020	0.052
Grader	29	0.174	0.014	0.011	0.030
Concrete Pumper Truck	30	0.353	0.028	0.022	0.040
Concrete Truck	28	0.329	0.027	0.021	0.037
Crane/Manlift	402	1.859	0.186	0.138	0.296
Backhoe	17	0.098	0.023	0.014	0.014
Water Tanker	4	0.001	0.000	0.000	0.000
Dump Truck	335*	0.003	0.000	0.000	0.000
Pick-Up Truck	720	0.004	0.006	0.000	0.000
Delivery Truck (Medium)	4800	0.256	0.298	0.005	0.002
Delivery Truck (Heavy)	4800	0.076	0.044	0.009	0.000
Air Compressor	20	0.045	0.004	0.004	0.007
Total Emissions		**4.841**	**0.750**	**0.427**	**0.707**

* Units are in total miles (for Dump Trucks only).

Dump truck calculations are performed based on the estimated number of total miles needed throughout that year, with a round trip haul of 16 miles. This estimation assumes a 16 ton capacity dump truck. Under total days of operation in the tables, dump trucks will instead display the total annual miles estimated.

5.1.2 Emissions from Construction Crew Workers

Emissions from construction personnel traffic were calculated using the USEPA's *MOBILE6.* It is assumed that the construction crew would consist of an average of 75 workers per day for 240 days. For a conservative analysis, it was assumed each person would drive to the site and that the average number of workers would drive approximately 40 miles each day. Based on *MOBILE6,* the emission factor for NO_x is 0.760 grams/mile/vehicle, VOC is 1.299 grams/mile/vehicle, $PM_{2.5}$ is 0.011 grams/mile/vehicle, and SO_2 is .0068 grams/mile/vehicle for the average fleet in Fairfax County, Virginia. Resultant total emissions associated with the commuter vehicles from the construction crew, using the commuter equation in Table D-3, are approximately:

- 0.603 tons of NO_x,
- 1.031 tons of VOC
- 0.009 tons of SO_2, and
- 0.005 tons of $PM_{2.5}$.

5.1.3 Emissions from Volatile Organic Compounds

Sealants emit VOCs when applied during construction. For this project, sealants would be used around windows and doors. Per the U.S. Green Building Council standards for low-emitting materials, non-porous sealants have 250 g/l of VOC.

For the Barracks, each two person unit has two windows and a balcony door, estimated to have a total perimeter of 73 feet. Each barracks building has four single and two double doors, for a total perimeter of 132 feet.

- (288 units x 73 feet) + 132 feet = 21,156 linear feet

For the Headquarters building there are 48 3.5’ by 5’ windows, five 3’ by 7’ doors, and five 6’ by 7’ doors on the first the floor. The second floor contains 24 3.5’ by 5’ windows and two 18’ by 5’ windows.

- 48 x 2(3.5 + 5) + 5 x 2(3 + 7) + 5 x 2(6 + 7) + 24 x 2(3.5 + 5) + 2 x 2(18 + 5) = 1,546 linear feet

For the SFAC, there are a total of 17 5’ by 6’ windows, six 3’ by 7’ doors and five 6’ by 7’ doors.

- 17 x 2(5 + 6) + 6 x 2(3 + 7) + 5 x 2(6 + 7) = 624 linear feet

Assume that each caulk cross section is 3/8 inch by 1 inch and therefore each linear foot has 1” by 3/8” by 1’ by 1’/144” = 0.0026 cubic feet.

- 25,000 feet x 0.0026 ft^3 = 65 ft^3 of caulk.
- 1 g/l = 0.0624 lb/ft^3
- 250(0.0624)(65)/2000 = 0.0507 tons from sealants

For the exterior, it is assumed that window and door trim as well as trim along the rooflines would be painted. Using the same roof and door linear foot assumptions that are listed above, it is assumed that the trim for windows and doors would be three inches wide.

- 25,000 feet x 0.25 feet = 6,250 ft^2

For the trim surrounding the roof, the perimeter was increased by 25 percent in order to account for the additional linear feet added by the sloped roof. The assumed trim for the roof is six inches. A sloped roof is assumed for a conservative analysis. Exterior paint would have a glossy finish with a VOC content of 1.25 pounds per gallon.

- Headquarters building: 694 ft perimeter + (694 x 25 percent) = 968 ft x 0.5 ft = 434 ft^2
- SFAC: 558 ft perimeter + (558 ft x 25 percent) = 698 ft x 0.5 ft = 350 ft^2
- Barracks: 1,357 ft perimeter + (1,375 x 25 percent) = 1,720 ft x 0.5 ft = 860 ft^2 x 2 barracks = 1,720 ft^2
- Exterior trim total: 6,250 + 434 + 350 + 1,720 = 8,754 ft^2
- 1 gallon covers 300 ft^2 and 3 coats would be used, requiring 88 gallons total.
- (88 gal x 1.25 lb/gal)/2000 lb/ton = 0.055 tons from exterior painting

It is assumed that interiors of buildings will be painted; the exterior will be brick or stone and roof will use shingles. For painting building structures, the current RFP states that water-based latex paint would be used with a maximum VOCs content of 0.5 pound per gallon for flat finishes and 1.25 pounds per gallon for glossy finishes. Glossy finishes would be used in bathroom and kitchen areas. One gallon of paint covers approximately 300 square feet. Three coats of flat paint would be applied (one primer and two finish) to approximately 213,023 square feet of interior surfaces and glossy paint would be used to cover 84,685 square feet of kitchen and bathroom space, based on current floor plans. Based on these specifications, approximately 2,130 gallons of flat paint and 847 gallons of glossy paint are needed for interior construction. Total interior painting for buildings creates approximate VOCs emissions of:

- Flat Finish = 0.447 tons
- Glossy Finish= 0.529 tons

Emissions from painting parking spaces were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 18 feet long and every two parking spaces share a common line. Approximately 10 square feet would be painted for every parking space. For parking spaces, it was assumed that alkyd paint would be used with a VOCs content of 1.25 pounds per gallon and one gallon of paint covers approximately 200 square feet. One coat of paint would be applied to the parking surfaces. Based on the construction of 412 spaces, approximate VOCs emissions for painting parking spaces would be:

- 412 spaces = 0.013 ton

Concrete curing compounds would also be associated with the construction of all three buildings. It is assumed that the concrete associated with the buildings would receive one coat of solvent-based curing compound with a VOC content of 2.9 pounds per gallon. Each gallon of curing compound covers 400 ft^2.

The building footprints were used to calculate the square footage. With buildings that have a smaller second story footprint, it is assumed that the additional area would account for miscellaneous concrete associated with the structures.

- Headquarters Building: 210 ft x 137 ft = 28,770 x 2 stories = 57,540 ft^2
- SFAC: 178 ft x 101 ft = 17,978
- Barracks:
    - 378 ft by 56 ft = 21,168 ft^2
    - 253 ft by 56 ft = 14,168 ft x 2 wings = 28,336 ft^2
    - (21,168 ft^2 + 28,336 ft^2) x 4 stories = 198,016 ft^2 x 2 barracks = 396,032 ft^2
- Total concrete curing: 57,540 ft^2 + 17,978 ft^2 + 396,032 ft^2 = 471,550 ft^2
- (471,550/400 ft2/gal) = (976 gal x 2.9 lb/gal)/ 2000 lb/ton = 1.709 tons VOC

Total VOC emissions associated with this project would be:

0.533 tons + 0.529 tons + 0.013 tons + 0.055 tons + 1.709 tons = 2.839 tons VOC

5.1.5 Summary of Construction Emissions

After emissions analysis was performed for all aspects of construction, the totals were added to determine the combined annual construction emissions. Table D-5 summarizes the results.

TABLE D-5: EMISSIONS FROM CONSTRUCTION

Construction Activity	Total Annual Emissions (TPY)			
	NO_x	VOC	$PM_{2.5}$	SO_2
Use of Heavy Equipment	4.841	0.750	0.427	0.707
Fugitive Emissions	NA	NA	0.106	NA
Construction Crew, Commuting	0.603	1.031	0.009	0.005
Painting, sealing, and concrete curing	NA	2.839	NA	NA
Total Emissions from Construction	**5.444**	**4.619**	**0.435**	**0.712**

5.2 Operations Emissions

Operations emissions are from heating sources and new commuters associated with the Proposed Action.

5.2.1 Heating Source Emissions

All new construction for the Proposed Action will either be heated by Fort Belvoir's steam plant or by small individual boilers. Water would be heated by natural gas, provided by Washington Gas Company. Studies of residential use of natural gas for water heating (206,000 BTU/year per residence, 2.8 people per residence) provide a basis for a preliminary estimate of the potential natural gas requirement. (Lutz, 2005). The 138 residences plus additional demand within the four showers and three kitchens of the organizational headquarters and Soldier and Family Assistance Center (conservatively assumed equivalent to 8 residences in daily use because of increased showers use), would use 2,000 – 3,000 million BTU annually. This is 2-3 million cubic feet of natural gas annually. To be conservative, this analysis assumed 3 million cubic feet of natural gas.

Operational heating requirements for the EA analysis are based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy, Energy Information Administration (DOI, 2003). Table C30 from this document indicates that the average energy intensity for office buildings using natural gas in climate zone 3, which includes Virginia, is 30.1 cubic feet (CF) of gas annually per square foot (SF) of floor space. The same table, using proportions for the natural gas estimates given for lodging structures, indicates that the average energy intensity for a residence is 37.5 cubic feet of gas per SF annually. At 1,000 British Thermal Units (BTUs) per CF of gas, this equates annually to 30,100 and 37,500 BTU annually per SF of office and residential space respectively.

Space heating for 46.100 SF of administrative space and 194,000 SF for the barracks requires annually:

- (46,100 SF)(30.1 CF/SF) + (294,000 SF)(37.5 CF/SF) = 8.67 million CF natural gas

The analysis for the space heating emissions has been conducted for two different assumptions: 1) that heat will be provided by individual building boilers and 2) heat would be provided by the steam plant. Water heating would be provided by building boilers in each case.

For the assumption that building boilers would provide space heat, units are assumed to be heated by small boilers that operate at less than 100 million Btu per hour. Operational heating emissions are based

on the USEPA's AP-42 Fifth Edition, Compilation of Air Pollution Emission Factors Volume I, Chapter 1: Stationary Sources, Supplement D (USEPA, 1998).

- NO_x = 100 lb NO_x /10^6 CF natural gas
- VOCs = 5.5 lb/10^6 CF natural gas
- $PM_{2.5}$ = 7.6 lb/10^6 CF natural gas
- SO_2 = 0.6 lb/10^6 CF natural gas

The same emission rates are assumed for the 3 million CF of natural gas used for water heating.

The resultant annual emissions for full operation are available in Table D-6.

TABLE D-6: TOTAL ANNUAL EMISSIONS FROM HEATING – BUILDING BOILERS

Heating	Total Annual Emissions (TPY)			
	NO_x	VOC	$PM_{2.5}$	SO_2
Space Heating	0.434	0.024	0.033	0.003
Water Heating	0.150	0.008	0.011	0.001
Full Operation	**0.584**	**0.032**	**0.044**	**0.004**

For the analysis assuming space heat from the steam plant, operational heating emissions are based on the emission rates set forth in the Fort Belvoir's Title V permit. It is assumed that fuel oil would heat approximately 21 percent of the total BTUs required to heat the buildings while natural gas would heat the remaining 79 percent. This is based on permit annual throughput limits for the steam plant boilers of 501 x 10^6 CF of natural gas, and 941,230 gallons of distillate oil (assumed to provide 142,000 BTU/gallon), which equates to an approximate ratio by BTU of 79% natural and 21% fuel oil. The following natural gas and fuel oil emission rates are allowed by the permit:

NO_x = 0.05 lb /10^6 BTU natural gas or 0.14 lb/10^3 gal of oil

VOC = 0.03 lb/10^6 BTU (Identical for each fuel type)

PM_{10} (assumed to equal $PM_{2.5}$) = 0.024 lb/10^6 BTU (Identical for each fuel type)

SO_2 = 0.52 lb/10^6 BTU (Identical for each fuel type)

The resultant annual emissions for use of the steam plant with fuel oil and natural gas is provided in Table D-7

TABLE D-7: TOTAL ANNUAL EMISSIONS FROM HEATING – COMBINED FUEL OIL AND NATURAL GAS

Heating	Total Emissions (TPY)			
	NO_x	VOC	$PM_{2.5}$	SO_2
Space Heating	0.299	0.130	0.104	2.256
Water Heating	0.150	0.008	0.011	0.001
Full Operation	**0.449**	**0.138**	**0.116**	**2.257**

5.2.2 Vehicle Emissions from Daily Commuters

Vehicle emissions from commuter vehicles are based on the *MOBILE6* air modeling program, estimating the emissions per vehicle per mile traveled. The *MOBILE6* modeling program takes into account the vehicle age, average speed, and vehicle type to create average emission factors to be used in an overall analysis. The analysis assumed that the annual average temperature is 57.5° F. Based on this assumption, the emissions factors for $PM_{2.5}$, NO_x, and VOC from average vehicles are provided in Table D-8.

TABLE D-8: EMISSION FACTORS FOR COMMUTER VEHICLES

Pollutant	Emissions Factor - grams/mile/vehicle
NO_x	0.760
VOC	1.299
$PM_{2.5}$	0.011
SO_2	0.007

The annual emissions in tons per year of NO_x, VOC, $PM_{2.5}$, and SO_2 for commuter emissions during operations were calculated using the appropriate equations displayed in Table D-9.

TABLE D-9: EQUATIONS FOR OPERATIONS EMISSIONS CALCULATIONS

Emission Source	Equation	Sample Calculation
Operations, Commuters	(# of vehicles) (# of trips/day) (#miles/trip) (#days/year)= #miles/year (#miles/year) (emissions factor grams/mile) (1 lb/453.59 grams) (1 ton/2000 lb) = TPY of Vehicle Emissions	(158 vehicles) (2 trips/day) (20 miles/trip) (240 days/year) (0.760 g/mile/vehicle) (1 lb/453.59 grams) (1 ton/2000 lbs) = **1.271 TPY NO_x**

For the analysis, it is assumed that there would be 120 additional staff compared to current conditions commuting five days a week. Additionally, three company staff would commute twice a week on weekends. Three times a week, 52 additional warriors compared to current conditions would travel to the site. Over the course of a year, these total 37,224 trips and it is assumed that each commuter travels 40 miles per day. For visitors to the barracks, it is assumed that the 29 visitor parking spaces will rotate on a roughly three-hour basis over 12 hours. This equals 116 visitors per day, seven days a week. It is assumed that visitors will be staying in lodging nearby and would have a 10 mile round trip.

Based on these assumptions, the commuter vehicle emissions are shown in Table D-10.

TABLE D-10: ANNUAL EMISSIONS FROM DAILY VEHICLE TRAFFIC

Total Annual Emissions – TPY			
NO_x	**VOC**	**$PM_{2.5}$**	**SO_2**
1.602	2.738	0.024	0.014

5.2.3 Summary of Annual Operations Emissions

Annual operations emissions include emissions from heating the building space and water and emissions from daily employee traffic. Tables D-11 and D-12 provide the total annual operations emissions for the two fuel type assumptions.

TABLE D-11: ANNUAL EMISSIONS FROM OPERATIONS USING BUILDING BOILERS

Operations Activity	Total Annual Emissions –TPY			
	NOx	**VOC**	**$PM_{2.5}$**	**SO_2**
Heating	0.584	0.032	0.044	0.004
Commuter Traffic	1.602	2.738	0.024	0.014
Total Emissions from Operations	**2.186**	**2.770**	**0.068**	**0.018**

TABLE D-12: ANNUAL EMISSIONS FROM OPERATIONS USING THE STEAM PLANT

Operations Activity	Total Annual Emissions –TPY			
	NOx	**VOC**	**$PM_{2.5}$**	**SO_2**
Heating	0.449	0.138	0.116	2.257
Commuter Traffic	1.602	2.738	0.024	0.014
Total Emissions from Operations	**2.051**	**2.877**	**0.140**	**2.271**

5.3 Combined Construction and Operations Emissions

The emissions from construction and operations occur in different years and do not combine on an annual basis. Tables D-13 and D-14 show that emissions associated with constructing and operating the alternative, when compared to the *de minimis* values for an area that is in moderate nonattainment for ozone, nonattainment for $PM_{2.5}$ established in 40 CFR 93.153 (b) for NO_x, $PM_{2.5}$, and SO_2 of 100 tons per year; and for VOCs of 50 tons per year, fall below the *de minimis* values.

TABLE D-13: TOTAL ANNUAL EMISSIONS – BUILDING BOILERS

Activity	Total Annual Emissions (TPY)			
	NO_x	**VOC**	**$PM_{2.5}$**	**SO_2**
***de minimis* levels**	**100**	**50**	**100**	**100**
Construction	5.444	4.619	0.435	0.712
Full Operation	2.186	2.770	0.068	0.018

TABLE D-14: TOTAL ANNUAL EMISSIONS – STEAM PLANT

Activity	Total Annual Emissions (TPY)			
	NO_x	**VOC**	**$PM_{2.5}$**	**SO_2**
***de minimis* levels**	**100**	**50**	**100**	**100**
Construction	5.444	4.619	0.435	0.712
Full Operation	2.051	2.877	0.140	2.271

5.4 Regional Significance

Air emissions were also evaluated to determine regional significance. The *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan for Fine Particle Standard* (MWCOG, 2008) and the *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan for 8-Hour Ozone* (MWCOG, 2007) set forth daily target levels for nonattainment pollutants within the Washington Metropolitan nonattainment region. Annual and daily emission inventories for each of the pollutants are available in Table D-15.

TABLE D-15: SIP EMISSION INVENTORIES

Source of Emissions	$PM_{2.5}$ 2009 Emission Inventory (TPY)		Ozone 2009 Emission Inventory (TPD)	
	$PM_{2.5}$	SO_2	NO_x	VOCs
Point	4,650	215,827	113	14
Area	15,379	14,250	27	179
Non-Road	2,226	1,303	75	88
On-Road	1,108	518	146	66

Emissions resulting from the construction and operation of the Proposed Action do not exceed ten percent of the emission inventories. Impacts to air quality would not be significant.

5.5 Conclusion

As the annual emissions are well below *de minimis* levels and are not regionally significant, a full conformity determination is not required. A draft Record of Non-Applicability (RONA) can be found in Attachment One.

6.0 References

Metropolitan Washington Council of Governments. 2007. *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan (SIP) for 8-Hour Ozone Standard*. November 30, 2007.

Metropolitan Washington Council of Governments. 2008. *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan (SIP) for Fine Particle PM2.5 Standard*. March 7, 2008.

TWC, n.d. The Weather Channel. "Fort Belvoir, VA Averages" Accessed at: www.weather.com. Accessed on: February 24, 2009.

U.S. Department of Energy, 2003. Energy Information Administration. *Commercial Buildings Energy Consumption Survey (CBECS)*. 2003.

U.S. Environmental Protection Agency. 1998. Compilation of Air Pollutant Emission Factors, Volume I, Chapter 1 Supplement D: Stationary Sources, AP-42, 5th edition.

U.S. Environmental Protection Agency. 2005a. *MOBILE6 Emission Factor Model, for Trucks year 2010 Vehicle Emissions.*

U.S. Environmental Protection Agency. 2005b. *Methodology to Estimate the Transportable Fraction (TF) of Fugitive Dust Emissions for Regional and Urban Scale Air Quality Analyses.*

U.S. Environmental Protection Agency. 2006. Nonroad2005 Emission Inventory Model: Diesel Construction Equipment, Montgomery County, Maryland. Posted 2/10/2006. Model Run 7/06/07.

U.S. Environmental Protection Agency. 2007a. Memorandum: New Source Review (NSR) Aspects of the Decision of the U.S. Court of Appeals for the District of Columbia on the Phase 1 Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standards (NAAQS). 3 October, 2007.

U.S. Environmental Protection Agency. 2007b. Policies for Addressing PM2.5 Precursor Emissions. Rich Damberg, Office of Air Quality Planning and Standards. 20 June, 2007.

U.S. Environmental Protection Agency. 2009. National Ambient Air Quality Standards. http://www.epa.gov/ttn/naaqs/

ATTACHMENT ONE: RECORD OF NON-APPLICABILITY

THIS PAGE INTENTIONALLY LEFT BLANK

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action
Name: Environmental Assessment for Warrior in Transition Unit Complex at Fort Belvoir, Virginia

Project/Action
Point of Contact: Patrick M. McLaughlin
Chief, Environmental Natural Resources Division
Telephone: (703) 806-3193

Begin Date: March 2010
End Date: March 2011

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The General Conformity Rule applies to federal actions occurring in regions designated as being in non-attainment for the National Ambient Air Quality Standards (NAAQS) or attainment areas subject to maintenance plans (maintenance areas). Threshold *(de minimis)* rates of emissions have been established for federal actions with the potential to have significant air quality impacts. If a project/action located in an area designated as non-attainment exceeds these *de mimimis* levels, a general conformity analysis is required. Fort Belvoir is in Fairfax County which is in moderate nonattainment for ozone and in nonattainment for particulate matter with diameter less than or equal to 2.5 micrometers ($PM_{2.5}$). Thus the thresholds for ozone precursor pollutants nitrogen oxides (NOx) and volatile organic compounds (VOCs), for $PM_{2.5}$, and the $PM_{2.5}$ precursor pollutant sulfur dioxide SO_2 apply.

A General Conformity Analysis of this project/action is not required because total maximum annual direct and indirect emissions from this project/action have been estimated at:

NO_X: 5.444 tons per year, VOCs: 4.619 tons per year, $PM_{2.5}$: 0.435 tons per year, and SO_2: 2.271 tons per year

These are below the *de minimis* levels established in 40 CFR 93.153 (b) of:

NO_x, $PM_{2.5}$, SO_2: 100 tons per year; VOC: 50 tons per year.

Fairfax County is in attainment for all other criteria pollutants including sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter (PM_{10}) and lead and therefore, these pollutants are not subject to conformity review.

Supporting documentation and emissions estimates can be found in Section 3.3 and Appendix D of the Environmental Assessment.

Patrick M. McLaughlin
Chief, Environmental Natural Resources Division
U.S. Army Garrison Fort Belvoir

APPENDIX E: ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL

THIS PAGE INTENTIONALLY LEFT BLANK

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL

SOCIOECONOMIC IMPACT ASSESSMENT

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the region of influence (ROI). In this regard, the actions proposed for the Fort Belvoir Warrior in Transition Unit Complex would have a multiplier effect on the local and regional economy. With the proposed action, direct jobs would be created, generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed the Economic Impact Forecast System (EIFS) to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments for BRAC. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in the EIFS model are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS is developed under a joint project of the U.S Army Corps of Engineers (USACE), the Army Environmental Policy Institute (AEPI), and the Computer and Information Science Department of Clark Atlanta University, Georgia. EIFS is an on-line system, and the EIFS Web application is hosted by the USACE, Mobile District. The system is available to anyone with an approved user-id and password. University staff and the staff of USACE, Mobile District are available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

THE EIFS MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA and EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements which describe the Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment;

average annual income of affected civilian or military employees; the percent of civilians expected to relocate due to the Army's action; and the percent of military living on-post. Once these are entered into the EIFS model, a projection of changes in the local economy is provided. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the Proposed Action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the Proposed Action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the Proposed Action. Population is the increase or decrease in the local population as a result of the Proposed Action.

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action's impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables

Table E-1: Historical Deviation Variables

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

The following are the EIFS inputs and output data and the RTVs for the ROI. These data form the basis for the socioeconomic impact analysis presented in Section 3.10 of the EA.

SUMMARY OF ASSUMPTIONS

For purposes of running the EIFS model, construction spending inputs were selected to determine the maximum impact that Proposed Actions could have on the regional economy. It was assumed that about

half of the civilian personnel would re-locate within the ROI. The construction costs and incoming personnel data were obtained through communication with Fort Belvoir personnel. The EA analysis assumes that 458 new personnel would relocate to the proposed Warrior in Transition Unit Complex. These personnel include new civilian and military employees, and military patients. It is further assumed that these include 87 new civilian employees and 371 new military staff and patients. The impacts from incoming personnel and construction spending are shown in Tables E-2 through E-4.

Table E-2: Forecast Input for the EIFS Model

EIFS Report Fairfax and Prince William Counties, VA– Forecast Input	
Change In Local Expenditures	$70,000,000
Change In Civilian Employment	87
Average Income of Affected Civilian	$62,000
Percent Expected to Relocate	50
Change In Military Employment	371
Average Income of Affected Military	$35,000
Percent of Military Living On-base	74
Employment Multiplier	2.28
Income Multiplier	2.28

Table E-3: EIFS Report for Fort Belvoir, VA – Forecast Output

Forecast Output	Value	Percent Change
Employment Multiplier	2.28	
Income Multiplier	2.28	
Sales Volume – Direct	$78,628,960	
Sales Volume – Induced	$100,645,100	
Sales Volume – Total	$179,274,000	0.22%
Income – Direct	$ 34,159,730	
Income - Induced	$ 22,689,330	
Income – Total (place of work)	$ 56,849,060	0.12%
Employment – Direct	795	
Employment – Induced	432	
Employment – Total	1227	0.16%
Local Population	245	
Local Off-base Population	1032	0.08%

Table E-4: EIFS Report for Fairfax and Prince William Counties, VA– RTV Summary

RTV Summary				
	Sales Volume	**Income**	**Employment**	**Population**
Positive RTV	12.4%	11.85%	4.83 %	2.23%
Negative RTV	-11.56%	-5.23%	-6.37%	-0.9%

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F: AGENCY COMMENTS ON DRAFT EA

THIS PAGE INTENTIONALLY LEFT BLANK

U.S. Environmental Protection Agency

THIS PAGE INTENTIONALLY LEFT BLANK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

RECEIVED
AUG 26 2008
ENVIRONMENTAL AND NATURAL
RESOURCE DIVISION
U.S. ARMY, FORT BELVOIR

August 19, 2009

Mr. Jerry L. Blixt, Colonel
US Army Garrison, Fort Belvoir
ATTN: Directorate of Public Works
9430 Jackson Loop, Suite 100
Fort Belvoir, Virginia 22060-5116

Re: Draft Environmental Assessment for Warrior in Transition Unit Complex at Fort Belvoir, Virginia

Dear Colonel Blixt:

In accordance with the National Environmental Policy Act (NEPA) of 1969 and Section 309 of the Clear Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Assessment (EA) for the Warrior in Transition Unit Complex at Fort Belvoir, VA.

The purpose of the proposed action is to construct and operate a Warrior in Transition Unit Complex consisting of barracks to house 288 soldiers recovering from war injuries and supporting organizational and administrative facilities, including unit headquarters and a Soldier and Family Assistance Center (SFAC) to assist both soldiers housed in the barracks and additional recovering soldiers residing off post. This action will provide adequate facilities to soldiers whose injuries require an extended recovery/transition period before the soldiers can be returned to their unit or released to civilian life.

The Proposed Action involves constructing new facilities, including buildings, sidewalks, parking, access roads, and necessary utilities to accommodate the personnel and functions of battalion headquarters, two companies of Warriors in Transition and a SFAC.

EPA understands the purpose and need for the proposed project. In looking at the environmental impacts of the proposed action, EPA offers the following comments for your review and consideration.

Wetlands/Stormwater Management

As stated on page 38, "However, the stormwater management system has not been designed; the outfall for this system could be placed in a channel that is considered a wetland." EPA appreciates that the Army will seek a watershed-based approach to evaluate upstream and downstream concerns and mitigate possible effects; considering site-specific Best Management Practices (BMP), mitigation measures, Low Impact Development and Leadership in Energy and

Environmental Design and Sustainable Design strategies.

Wetlands present on, or immediately surrounding the site should be delineated according to the 1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Impacts to wetlands should be avoided or minimized whenever possible. The total size of the wetlands should be provided, in addition to the size of the wetland in the study area and size of the direct impact. The EA must analyze the size and functional values of all impacted wetlands and develop a mitigation plan for their replacement.

Energy Efficiency

This project does present an excellent opportunity to implement the President's Executive Order 13423, Strengthening Federal Environmental Energy and Transportation Management by incorporating energy efficiency into the retrofit or construction efforts. Enclosed with this letter is information that we recommend the Army consider when planning the construction phase of the project.

Thank you for providing EPA with the opportunity to review this project. If you have questions regarding these comments, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs

Attachment

Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474

ENERGY EFFICIENCY

The Federal government has made significant progress in improving environmental and energy performance through a series of executive orders, Memoranda of Understanding, and other guidance. Executive Order (EO) 13423: Strengthening Federal Environmental, Energy, and Transportation Management, intends to build on that body of work and success by integrating and updating prior practices and requirements into a cohesive, strategic approach to further ensure enhanced performance and compliance with statutory and other legal requirements. Section 2 of the EO directs Federal agencies to implement sustainable practices for:

- Energy efficiency and reductions in greenhouse gas emissions.
- Use of renewable energy.
- Reduction in water consumption intensity.
- Acquisition of green products and services.
- Pollution prevention, including reduction or elimination of the use of toxic and hazardous chemicals and materials.
- Cost-effective waste prevention and recycling programs.
- Increased diversion of solid waste.
- Sustainable design/high performance buildings.
- Vehicle fleet management, including the use of alternative fuel vehicles and alternative fuels and the further reduction of petroleum consumption.
- Electronics stewardship.

Each agency shall use a variety of energy and water management strategies and tools to meet the goals of EO 13423. These strategies and tools include, but are not limited to, the following:

Distributed Generation

Where life-cycle cost effective, each agency shall implement distributed generation systems in new construction or retrofit projects, including renewable systems such as solar electric, solar lighting, geo (or ground-coupled) thermal, small wind turbines, as well as other generation systems such as fuel cell, cogeneration, or highly efficient alternatives. In addition, agencies are encouraged to use distributed generation systems when a substantial contribution is made toward enhancing energy reliability or security.

Metering

To the maximum extent practicable, agencies should install metering devices that measure consumption of potable water, electricity, and thermal energy in Federal buildings and other facilities and grounds. Data collected shall be incorporated into Federal tracking systems and be made available to Federal facility managers. Agencies should consider inclusion of metering requirements in all Energy Savings Performance Contracts (ESPC) and Utility Energy Services Contracts (UESC), as appropriate.

Auditing

Agencies should conduct energy and water audits of at least 10 percent of facility square footage annually and conduct new audits at least every 10 years, thereafter. This audit requirement can be met by audits done in conjunction with ESPC or UESC projects.

Energy Star® Tools

For applicable facilities, agencies should meet Energy Star® Building criteria, and score the energy performance of buildings using the Energy Star® Portfolio Manager rating tool as part of comprehensive facility audits. Agencies may use the Energy Star Portfolio Manager rating tool to track energy and water use in all facilities.

Energy Purchasing

Agencies should purchase electricity and thermal energy from sources that use high efficiency and low-carbon generating technologies in order to reduce greenhouse gas intensity to the extent possible.

Water Efficient Products

Where applicable, agencies should purchase WaterSense (SM) labeled products and choose irrigation contractors who are certified through a WaterSense labeled program. EPA's WaterSense program is a voluntary public-private partnership that identifies and promotes high performance products and programs that help preserve the nation's water supply.

Procurment

Each agency shall give preference in their procurement and acquisition programs to the purchase of:

- Recycled content products designated in EPA's Comprehensive Procurement Guidelines.
- Energy Star® products identified by DOE and EPA, as well as Federal Energy Management Program (FEMP) designated energy-efficient products.
- Water-efficient products, including those meeting EPA's WaterSense standards.
- Energy from renewable sources.
- Biobased products designated by the U.S. Department of Agriculture in the BioPreferred Program.
- Environmentally preferable products and services, including Electronic Product Environmental Assessment Tool (EPEAT) registered electronic products.
- Alternative fuel vehicles and alternative fuels required by Energy Policy Act (EPAct).
- Products with low or no toxic or hazardous constituents, consistent with Section 7(a) of the EO.
- Non-ozone depleting substances, as identified in EPA's Significant New Alternatives Program.

Energy Efficient Standby Power Devices

When purchasing commercially available, off-the-shelf energy-consuming products, agencies shall purchase products that use no more than one watt of standby power as defined and measured by International Electrotechnical Commission (IEC) code 62301, or otherwise meet FEMP specifications for low standby power consumption. If FEMP has not specified a standby power level for a product category, agencies shall purchase products with the lowest standby power consumption available. Agencies shall adhere to these requirements, when life-cycle cost effective and practicable, and where the relevant product's utility and performance are not compromised as a result.

Recycling Programs

Each agency shall maintain waste prevention and recycling programs in all of its facilities in the most cost-effective manner possible, and where appropriate, leased facilities and facilities managed by the General Services Administration (GSA). In GSA managed facilities, GSA shall manage the recycling program, but agencies shall work with GSA to ensure that there is a recycling program that meets the agencies' needs.

Sustainability

Building construction and operation have an enormous direct and indirect impact on the environment. Buildings not only use resources such as energy and raw materials, they also generate waste and potentially harmful atmospheric emissions. As economy and population continue to expand, designers and builders face a unique challenge to meet demands for new and renovated facilities that are accessible, secure, healthy, and productive while minimizing their impact on the environment.

The main objectives of sustainable design are to avoid resource depletion of energy, water, and raw materials; prevent environmental degradation caused by facilities and infrastructure throughout their life cycle; and create built environments that are livable, comfortable, safe, and productive.

While the definition of what constitutes sustainable *building* design is constantly changing, there are six fundamental principles generally agreed on.

- Optimize Site Potential
  Creating sustainable buildings starts with proper site selection, including consideration of the reuse or rehabilitation of existing buildings. The location, orientation, and landscaping of a building affect the local ecosystems, transportation methods, and energy use. Siting for physical security has become a critical issue in optimizing site design. The location of access roads, parking, vehicle barriers, and perimeter lighting must be integrated into the design along with sustainable site considerations. Site design for security cannot be an afterthought. Along with site design for sustainability, it must be addressed in the preliminary design phase to achieve a successful project. See WBDG Balancing Security Safety and Sustainability Objectives.

- Optimize Energy Use
  With America's supply of fossil fuel dwindling, concerns for energy security increasing, and the impact of greenhouse gases on world climate rising, it is essential to find ways to reduce load, increase efficiency, and utilize renewable energy resources in federal facilities.

- Protect and Conserve Water
  In many parts of the country, fresh water is an increasingly scarce resource. A sustainable building should reduce, control, or treat site-runoff, use water efficiently, and reuse or recycle water for on-site use when feasible.

- Use Environmentally Preferable Products
  A sustainable building should be constructed of materials that minimize life-cycle environmental impacts such as global warming, resource depletion, and human toxicity. These environmentally preferable materials are defined by Executive Order 13101 to be "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose." As such, they contribute to improved worker safety and health, reduced liabilities, reduced disposal costs, and achievement of environmental goals.

- Enhance Indoor Environmental Quality (IEQ)
  The indoor environmental quality (IEQ) of a building has a significant impact on occupant health, comfort, and productivity. Among other attributes, a sustainable building should maximize daylighting; have appropriate ventilation and moisture control; and avoid the use of materials with high-VOC emissions. Additional consideration must now be given to ventilation and filtration to mitigate chemical, biological, and radiological attack.

- Optimize Operational and Maintenance Practices
  Incorporate operating and maintenance considerations into the design of a facility will greatly contribute to improved working environments, higher productivity, and reduced energy and resource costs. Designers are encouraged to specify materials and systems that simplify and reduce maintenance requirements; require less water, energy, and toxic chemicals and cleaners to maintain; and are cost-effective and reduce life-cycle costs.

We realize that all of the recommendations listed above may not be applicable to this specific project but please consider these issues as you proceed through project design

Commonwealth of Virginia

Draft Environmental Assessment Review

The following agencies, planning district commission, and locality joined in this review:

Department of Environmental Quality

Department of Game and Inland Fisheries

Department of Conservation and Recreation

Marine Resources Commission

Department of Health

Department of Historic Resources

Northern Virginia Regional Commission

Fairfax County

The Department of Transportation was also invited to comment.

THIS PAGE INTENTIONALLY LEFT BLANK

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

August 19, 2009

Colonel Jerry L. Blixt, Commander
ATTN: Directorate of Public Works
U.S. Army Garrison Fort Belvoir
9430 Jackson Loop, Suite 100
Fort Belvoir, Virginia 22060-5116

RE: Environmental Assessment for the Warrior in Transition Unit Complex at Fort Belvoir, *proposed by the U.S. Department of the Army*, DEQ 09-149F

Dear Commander:

The Commonwealth of Virginia has completed its review of the above-referenced draft Environmental Assessment (EA). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. The following agencies, planning district commission and locality joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Marine Resources Commission
Department of Health
Department of Historic Resources
Northern Virginia Regional Commission
Fairfax County

The Department of Transportation was also invited to comment.

PROJECT DESCRIPTION

The U.S. Army Garrison, Fort Belvoir proposes to construct and operate a Warrior in Transition Unit Complex on a 16.6-acre site located at the former South Post golf course. The facilities will include a 194,400-square foot barracks, a 15,000-square

foot Soldier and Family Assistance Center and a 31,000-square foot administration and operations facility. Associated facilities will include sidewalks, 4 acres of parking, access roads and utilities. The proposed construction would require the demolition of Building 1493, the golf course maintenance building.

PROJECT DOCUMENTS

DEQ recently coordinated and responded to a Federal Consistency Determination (FCD) for this project under DEQ # 09-122F. The FCD was received on June 17, 2009 with a 60-day deadline of August 14, 2009. During the course of the review of the FCD, DEQ received a draft EA on July 23, 2009 for the same proposal, thereby resulting in the coordination of two reviews for the same project. For efficiency, we recommend that, for future reviews, Fort Belvoir include the FCD under the Coastal Zone Management Act in the NEPA document. This approach would facilitate the Commonwealth's concurrent review of the documents. It would also be beneficial to the Army, in that both reviews would be completed within 60 days instead of two separate reviews with different deadlines. The Commonwealth's August 12, 2009 response on the FCD is attached for your use.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Water Quality and Wetlands Management. The draft EA (page ES-5) states indirect impacts to wetlands may occur due to the construction of a stormwater outfall.

1(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit (VPDES), Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit. The VWP Permit is a State permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Water Protection and Compliance, within the DEQ Division of Water Quality Programs. In addition to Central Office staff who review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

1(b) Findings. The DEQ-Northern Regional Office (NRO) states that if surface waters cannot be avoided and impacts are proposed, then a Virginia Water Protection (VWP) permit would be required from DEQ. Fairfax County's Stormwater Planning Division (SWPD) staff indicates that the proposed construction will increase the amount of impervious surface and the resulting stormwater runoff could affect unnamed tributaries flowing directly to Accotink Bay and ultimately to Gunston Cove.

1(c) Recommendations. Fairfax County's SWPD staff recommends that the following measures be implemented to protect water quality:

- integrate stormwater controls into the construction design ("better site design") of buildings, walkways and parking areas;
- avoid construction activities in Chesapeake Bay Resource Protection Areas (RPAs);
- monitor erosion and sedimentation control requirements during construction; and
- design the site so that post-construction runoff is comparable to pre-construction conditions. SWPD staff strongly supports the Army's stated intention to use best management practices and to incorporate multiple low impact development techniques to manage stormwater runoff.

Also, DEQ recommends that all efforts should be taken to ensure that adjacent wetlands are not adversely impacted by the proposed activities. In general, the Army must comply with Section 404(b)(1) guidelines of the Clean Water Act and with the Commonwealth's wetland mitigation policies. Both Federal and State guidelines recommend avoidance and minimization of wetland impacts as the first steps in the mitigation process. Any unavoidable impacts to State waters may require compensation such as wetland creation, restoration or other acceptable forms of wetland compensatory mitigation.

In general, DEQ recommends that wetland impacts be avoided to the maximum extent practicable and encourages the following practices to minimize impacts to wetlands:

- operate machinery and construction vehicles outside of wetlands as no machinery may enter surface waters, unless authorized by a VWP permit;
- any temporary impacts to surface waters associated with this project shall require restoration to pre-existing conditions;
- erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992;
- heavy equipment in temporarily impacted surface waters shall be placed on mats, geotextile fabric or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work;
- all construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a permit; and
- herbicides used in or around any surface water shall be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish and Wildlife Service. These herbicides should be applied according to

the label directions by a licensed herbicide applicator. A non-petroleum based surfactant shall be used in or around any surface waters.

2. Subaqueous Lands Management. The draft EA gives no indication that impacts to stream channels would occur as part of the proposed project.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Virginia Code *§ 28.2-1200* through *1400*, regulates encroachments in, on or over state-owned subaqueous beds as well as tidal wetlands throughout the Commonwealth. Also, the VMRC serves as the clearinghouse for the Joint Permit Application (JPA) used by the:

- U.S. Army Corps of Engineers for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a VWP permit;
- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands; and
- local wetlands board for impacts to wetlands.

The VMRC will distribute the completed JPA to the appropriate agencies. Each agency will conduct its review and respond.

2(b) Agency Comments. According to VMRC, if any portion of the proposed project involves encroachments channelward of ordinary high water along natural rivers and streams, a permit may be required from the VMRC prior to commencing land-disturbing activities.

2(c) Recommendations. For additional information on requirements pertaining to the submission of the JPA and potential impacts to subaqueous lands, contact the VMRC.

3. Coastal Lands Management and Chesapeake Bay Preservation Areas. The Warrior in Transition Unit Complex site is located outside of Resource Protection Areas as field verified by Fort Belvoir personnel. The stormwater management system has not been designed, but may impact the RPA. However, the Army will implement Low Impact Development (LID) strategies to minimize impacts, including preserving existing vegetation and minimizing imperious surfaces (EA, page 38).

3(a) Agency Jurisdiction. The Department of Conservation and Recreation's (DCR) Division of Chesapeake Bay Local Assistance (DCBLA) administers the coastal lands management enforceable policy of the Virginia Coastal Program which is governed by the Chesapeake Bay Preservation Act (Virginia Code §10.1-2100-10.1-2114) and Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20 *et seq.*).

3(b) Findings. The proposed project may be located on lands that are analogous to lands protected under the Chesapeake Bay Preservation Act (Act). Therefore, the

proposed project must be consistent with the Act and may be subject to the performance criteria for Resource Protection Areas (as specified in § 9 VAC 10-20-130 of the Regulations) and the general performance criteria for all Chesapeake Bay Preservation Areas (in § 9 VAC 10-20-120 of the Regulations).

Also, project activities must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover. For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*, § 4 VAC 50-60-10, shall be satisfied.

3(c) Recommendations. For additional information and to ensure that this project is constructed in a manner that is consistent with the Bay Act Regulations, contact DCR.

4. Erosion and Sediment Control and Stormwater Management. The draft EA (page 33) states that the contractor would be required to submit a soil erosion and sediment control plan to the Army for approval prior to site construction. Also, stormwater would be directed to catch basins, road ditches, or curb and gutter; existing swales would be avoided to the extent practicable.

4(a) Agency Jurisdiction. The Department of Conservation and Recreation's Division of Soil and Water Conservation administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R).

4(b) Erosion & Sediment Control and Stormwater Management Project-Specific Plans. According to the Department of Conservation and Recreation's, Division of Soil and Water Conservation, the Army and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of greater than 2,500 square feet on lands analogous to Chesapeake Bay Preservation Areas would be regulated by VESCL&R. Accordingly, the Army must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to DCR's Warrenton Regional Office for review for compliance. The Army is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy.

4(c) VSMP General Permit for Construction Activities. The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet on lands analogous to Chesapeake Bay Preservation Areas are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and forms are available at http://www.dcr.virginia.gov/soil_and_water/index.shtml.

5. Air Pollution Control. A minor modification to Fort Belvoir's Title V permit may be required for the proposed construction. However, the impacts to air quality would not be significant and would be below *de minimis* threshold levels (EA, page 27).

5(a) Agency Jurisdiction. DEQ's Air Quality Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that become Virginia's Air Pollution Control Law. The DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The Division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, Environmental Impact Reports of projects to be undertaken in the State are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

5(b) Ozone Nonattainment Area. According to the DEQ Air Division, the project site is located in an ozone (O_3) nonattainment area and an emission control area for the volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are contributors to ozone pollution. Therefore, the applicant should take all reasonable precautions to limit emissions of VOCs and NO_x principally by controlling or limiting the burning of fossil fuels. A second precaution, which typically applies to road construction and paving work (9 VAC 5-40-5490 in the Regulations for the Control and Abatement of Air Pollution), places limitations on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents), and may apply to the project. The asphalt must be "emulsified" (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.

5(c) Agency Findings. The DEQ-Office of Air Data Analysis states that there will be minor emissions associated with the project. The Army will address air impacts through its construction mitigation plan.

5(d) Fugitive Dust. During project activities, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-130 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

5(e) Open Burning/Use of Incineration Devices. If project activities include the open burning of materials on- or off-site or the use of special incineration devices, this activity must meet the requirements under 9 VAC 5-130 *et seq.* of the *Regulations* for open burning and it may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The Army should contact Fairfax County officials to determine what local requirements, if any, exist.

5(f) Fuel Burning Equipment. Should the proposed project require the installation of fuel burning equipment (boilers, generators, etc.), or other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources. In this case, the Army should contact the Air Permitting Manager at DEQ-NRO prior to construction and operation of fuel burning or other air pollution emitting equipment for a permitting determination. For more information or questions concerning requirements, contact DEQ's Northern Regional Office.

6. Solid and Hazardous Wastes and Hazardous Materials. The EA (page ES-7) states that no site clean-up is required and all hazardous wastes will be disposed in accordance with the regulations.

6(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board (VWMB) and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act (CERCLA), commonly called Superfund, and the Virginia Waste Management Act. DEQ administers regulations established by the VWMB and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include

items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

6(b) Comments. The DEQ-Waste Division states that solid and hazardous waste issues were addressed in the report, but the report did not include a search of waste-related data bases. A Geographic Information System (GIS) database search did not reveal any waste sites within a half mile radius of the project site that would impact or be impacted by the subject site.

6(c) Finding. The Waste Division staff reviewed its data files and determined that there are numerous hazardous waste, solid waste, formerly used defense(FUDS) and voluntary remediation program (VRP) sites located within the same zip code as the project site; however their proximities to the subject site are unknown.

Zip code 22304

Solid Waste

- Covanta Alexandria Arlington Incorporated, SWP 435, Energy Recovery/Incineration Facility
- FCR Incorporated, PBR 088, Materials Recovery Facility
- Inova Alexandria Hospital, PBR 202, RMW Steam Sterlizer
- Morgan Distribution, PBR 247, RMW Steam Sterlizer

Formerly Used Defense Sites (FUDS)

- C03VA0176, VA9799F1651, Arlington Hall Trng., Alexandria
- C03VA0508, VA9799F1710, Cameron Station, Alexandria

Voluntary Remediation Program (VRP)

- VRP00247, Landmark Professional Center, Certificate Issued
- VRP00347, Sparkle Dry Cleaners, Certificate Issued

Zip code 22150

Hazardous Waste

- US General Services Administration, VA4470039336 LQG (Active)

Voluntary Remediation Program

- VRP00260, Fairfax Lumber & Millwork Company, Inc., Enrolled in Program
- VRP00493, Midtown Springfield-Hotel Parcel, Eligibility Pending
- VRP00359, Park Cleaners, Certificate Issued

Zip code 22311: No sites located.

The following websites may prove helpful in locating additional information for these identification numbers: http://www.epa.gov/superfund/sites/cursites/index.htm or http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

6(d) Federal Facilities Program. DEQ's Federal Facilities Restoration Program staff states that the proposed location of the Warrior in Transition Complex is located approximately 700 meters from the Congressional Demonstration Area to the east, approximately 400 meters from the Entrenchment and Gas School Area to the southeast and approximately 200 meters from the Gunston Road 1000 feet Rifle Range to the west. Both the Congressional Demonstration Area and the Entrenchment and Gas School Area contain multiple Solid Waste Management Units (SWMUs).

6(e) Asbestos-Containing Materials and Lead-Based Paint. During demolition activities, materials should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP). If ACM or LBP are found, in addition to federal waste-related regulations, state regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

6(f) Recommendations. DEQ's Federal Facilities Restoration Program staff recommends that Fort Belvoir contact Marcia Kicos, Environmental Compliance Branch Chief, Directorate of Public Works, Environmental & Natural Resource Division, Fort Belvoir, Virginia at (703) 806-0020 for information concerning CERCLA obligations at Fort Belvoir's Main Post. Ms. Kicos or her designee should be advised prior to initiating any land, sediment, or groundwater disturbing activities at or near MMRP range areas and Main Post SWMUs. For questions concerning these comments, contact Wade Smith at (804) 698-4125 or wade.smith@deq.virginia.gov.

Also, DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately. Questions and requests for information on waste issues may be directed to DEQ's Northern Regional Office.

7. Natural Heritage Resources. The draft EA (pages 40 and 41) states that no rare ecological community types exist within the project area. A Natural Heritage Inventory was performed at Fort Belvoir and seven Virginia state rare animal species and four Virginia state rare plant species were identified at the installation. However, coordination with DCR (June 18, 2009, EA, Appendix B) indicated that the project would not adversely affect these natural heritage resources.

7(a) Agency Jurisdiction. The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. DCR supports a variety of environmental programs organized within seven divisions including the Division of Natural Heritage (DNH). DCR's Natural Heritage Program's mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources.

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

7(c) Agency Findings. According to the information currently in DCR's files, natural heritage resources are documented in the project area. However, due to the scope of the activity and the distance to the resources, DCR does not anticipate that this project will adversely impact these natural heritage resources.

7(d) Threatened and Endangered Plant and Insect Species. The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the Code of Virginia, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service (FWS), DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by FWS, are available, adherence to the order and tasks outlined in the plans should be followed to the extent possible.

VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between the VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR found that the current activity will not affect any documented state-listed plant and insect species.

7(e) Natural Area Preserves. DCR found that there are no State Natural Area Preserves under its jurisdiction in the project vicinity.

7(f) Recommendation. New and updated information is continually added to Biotics. Therefore, it is recommended that DCR-DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented.

8. Wildlife and Fisheries Resources. The draft EA (page 40) states that the proposed project site is located outside of Fort Belvoir's 740-acre Forest and Wildlife Corridor. Habitat for the wood turtle does not exist at the site and the closest bald eagle nest is along Dogue Creek, approximately 3000 feet east of the proposed project site.

8(a) Agency Jurisdiction. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects

(*Virginia Code* Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

8(b) Agency Findings. According to DGIF's records, the following species have been documented in the project area:

- Bald Eagle: The state-listed Threatened bald eagle has been documented in the project area, along with eagle nesting locations and a summer/winter bald eagle concentration zone. However, this project site falls outside the management zones for both the known eagle nests and the concentration zone. Therefore, DGIF does not anticipate this project to result in adverse impacts upon bald eagles using the documented nest nearby or those within the concentration zone.

  However, new bald eagle nests may have been constructed in or near the project area during the 2009 nesting season and these nests may be adversely impacted by the project activities.

- Wood Turtle: The wood turtle is a state-listed Threatened species. This species is present within Dogue Creek and its tributary, and due to its presence, these waters have been designated a Threatened and Endangered Species Waters. However, it does not appear that the Creek will be adversely impacted by the project. Therefore, DGIF does not anticipate this project to result in primary adverse impacts upon wood turtle or the resources upon which it depends.

  However, contractors associated with work at this site should be made aware of the possible presence of wood turtles. An appropriate information sheet to distribute to contractors and employees could include the following text with a picture of a wood turtle: "The wood turtle is a State Threatened species that may be found in or near the project area. Description: A medium sized semi-terrestrial turtle, adults are 6-8 inches long. The dull brown upper shell is very rough; each section of the shell is composed of growth rings that form an irregular pyramid. However, there can be great variation in appearance and especially in older turtles, the upper shell may appear smooth. The bottom shell is yellow with black blotches. It has a black head and dark brown extremities. The yellow to burnt orange skin on the neck and in the leg sockets is a distinguishing characteristic. If one of these turtles is found within the project/road area, it should be carefully removed to safety in suitable habitat (a run or deep pool with sandy or muddy bottom and submerged roots, branches, or logs) in the nearest perennial stream. It is a violation of Virginia law to harm or keep for personal possession a wood turtle. If you have any questions concerning this species, please call the Virginia Department of Game and Inland Fisheries at 804-367-6913."

Further information about wood turtles can be found online at: http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030062.

8(c) Recommendations. DGIF provides the following recommendations for the proposed action.

- Bald Eagles: To ensure protection of bald eagles, contact the Center for Conservation Biology to determine if any new bald eagle nests were detected during the 2009 survey season. If any new nests were documented within 0.25 mile (1,320 feet) of the project area, contact DGIF for further consultation.

- Wood Turtles: All contractors associated with work at this site should be made aware of the possible presence of wood turtles and become familiar with their appearance, status and life history. If any wood turtles are encountered and are in jeopardy during the development or construction of this project, immediately remove them from danger and move them safely to suitable habitat in or near the closest perennial stream. Any relocations should be coordinated with DGIF and the attached wood turtle observation form should be completed and sent to DGIF.

Finally, to minimize overall impacts to wildlife and Virginia's natural resources, DGIF recommends the following:

- avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable;
- maintain undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams;
- maintain wooded lots to the fullest extent possible; and
- design stormwater controls for this project to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales.

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

9. Historic Structures and Archaeological Resources. The draft EA (pages 45 and 46) states that Fort Belvoir has completed its responsibility under *Section 110 of the National Historic Preservation Act* to survey the installation and identify all cultural resources eligible for the National Register of Historic Places (NRHP). The South Post Golf Course site was once a contributing element of the Fort Belvoir Historic District. However, subsequent decisions under the 2005 Base Realignment and Closure (BRAC) Act have led to the redevelopment of the majority of the former golf course area. Therefore, the South Post Golf Course has lost its integrity and no longer exists as a

NRHP historic property. In addition, there are no archaeological sites present at the project site.

9(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with *Section 106 of the National Historic Preservation Act of 1966* (NHPA), as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding. DHR also provides comments to DEQ through the state EIR review process.

9(b) Finding. The DHR has been in direct consultation with the Army and concurs with the Army's assessment that no historic properties would be affected.

10. Tree Protection. The draft EA (page 43) states that a tree protection plan would be developed and implemented prior to construction. The proposed project site consists of semi-improved grounds, including landscaped urban trees, shrubs and a maintained lawn that was once part of the former South Post golf course. Tree replacement at a 2:1 ratio would occur for every tree removed that is greater than 4 inches in diameter (EA, page ES-8).

10(a) Agency Jurisdiction. The mission of the Virginia Department of Forestry (DOF) is to protect and develop healthy, sustainable forest resources for Virginians. DOF was established in 1914 to prevent and suppress forest fires and reforest bare lands. Since the Department's inception, it has grown and evolved to encompass other protection and management duties including: protecting Virginia's forests from wildfire, protecting Virginia's waters, managing and conserving Virginia's forests, managing state-owned lands and nurseries, and managing regulated incentive programs for forest landowners.

10(b) Recommendations. In general, to the extent practicable, trees not slated for removal should be left in groupings or clusters to provide aesthetic and environmental benefits, as well as reducing costs associated with maintaining open space. The following measures are recommended during construction to protect trees not slated for removal:

- mark and fence trees at least to the dripline or the end of the root system, whichever extends farther from the tree stem;
- mark trees with highly visible ribbon so that equipment operators can see the protected areas easily;
- do not park heavy equipment, move or stack construction materials near trees which can damage root systems by compacting the soil;
- use mats to minimize soil compaction and mechanical injury to plants; and
- stockpile soil away from trees to avoid killing the root systems.

Questions pertaining to protection of trees and forest resources of the Commonwealth may be addressed to the Department of Forestry, Todd Groh, at (434) 220-9044 or todd.groh@dof.virginia.gov.

11. Transportation Impacts. The Army conducted a study of the area's traffic network and determined that one base intersection would be affected during the a.m. and p.m. peak hour timeframe (EA, page 22). This intersection may require future traffic improvement measures (EA, page ES-8).

11(a) Agency Jurisdiction. The Virginia Department of Transportation (VDOT) provides comments pertaining to potential impacts to existing and future transportation systems.

11(b) Findings. During its review of the FCD for this proposal, VDOT indicated that the facility will have *minimal impact on the existing and future roadway networks maintained* by VDOT.

12. Waterworks Operation Regulations. The water demand for the proposed facilities has been factored into the system upgrades for the proposed project, including the waterline expansion project on Fort Belvoir's South Post (EA, page 62).

12(a) Findings. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) states that there are no public groundwater sources within a mile radius of the project site and no public surface water source within a 5-mile radius of the proposed project site. The proposed project will not impact public drinking water sources.

12(b) Waterworks Operation Regulations. Installation of new water lines and appurtenances must comply with the State's Waterworks Regulations. The Virginia Department of Health, Office of Drinking Water administers both federal and state laws governing waterworks operation.

12(c) Recommendations. VDH recommends that any potential impacts to public water distribution systems be verified by the local utility. For the installation of new water lines and appurtenances, the applicant should contact Fairfax County and VDH's Culpeper Field Office to determine the applicable requirements for the project.

12(d) Water Conservation Recommendations. In general, the facilities should be planned and designed to minimize water usage. The following recommendations may be helpful during the design of the facilities:

- Landscape the complex with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.
- Install low-flow toilets.
- Consider installing low flow restrictors/aerators to faucets.

- Improve irrigation practices by:
  - upgrading sprinkler clock and water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems);
  - installing a rain shutoff device; and
  - collecting rainwater with a rain bucket or cistern system with drip lines.
- Check for and repair leaks (toilets and faucets) during regular routine maintenance activities.

13. Wastewater Treatment Systems. The draft EA (page 62) states that wastewater from this facility will be added to the Belvoir's hospital system for direct conveyance to the county system, which will ensure no significant, cumulative impacts for the proposed project.

13(a) Findings. Construction and operation permits may be required for sewer line construction and connections depending on projected flow and/or the need to pump wastewater to an existing collection system.

13(b) Requirements. Installation of sanitary sewer lines and construction of the waste water collection system must comply with the State's Sewerage Regulations. DEQ has approval authority over plans and specifications for most discharging sewage collection systems and treatment works, except for single family home (<1000 gallon per day (gpd)) systems. This authority is contained in the Sewage Collection and Treatment (SCAT) Regulations (12 VAC 5-581). If applicable, the applicant must coordinate with DEQ's Northern Regional Office for approval.

14. Pollution Prevention.

14(a) Comments. DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

14(b) Recommendations. We have several pollution prevention recommendations that may be helpful in constructing or operating this project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program.

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.
- Integrate pollution prevention techniques into the facility maintenance and operation. Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact DEQ's Office of Pollution Prevention, Sharon Baxter at (804) 698-4344.

15. Pesticides and Herbicides. When pesticides or herbicides must be used, their use should be strictly in accordance with manufacturers' recommendations. In addition, we recommend that the Army use the least toxic pesticides or herbicides effective in controlling the target species. For more information on pesticide or herbicide use, please contact the Department of Agriculture and Consumer Services at (804) 786-3501.

16. Energy Conservation. The draft EA (FONSI, page 2) states that the facility is being designed to meet or exceed the Leadership in Energy and Environmental Design's (LEED) silver rating.

16(a) Recommendations. The proposed facilities should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, the energy efficiency of the facilities can be enhanced by maximizing the use of the following:

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

Please contact Matt Heller, Department of Mines, Minerals, and Energy at (434) 951-6351 for additional information.

17. Regional and Local Comments. Fairfax County and the Northern Virginia Regional Commission were invited to comment on the proposed project.

17(a) Regional Planning Impacts. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

17(b) Regional Comments. The Northern Virginia Regional Commission commented on the federal consistency review that was completed August 12, 2009 (DEQ # 09-122F). The Commission has no additional comments at this time. However, their comments on the consistency review are as follows:

The Commission states that Fairfax County has enacted a jurisdiction-wide Chesapeake Bay Resource Management Area (RMA) designation. The local ordinance requires the maintenance of a 100-foot riparian buffer along all perennial streams and wetlands. Also, special attention should be given to post-construction stormwater quality management. In specific, the RMA designation requires that all development result in a no-net-increase standard for phosphorus loadings based on the jurisdiction's average imperviousness. The calculations for the loadings can be found in the Northern Virginia BMP Handbook. A copy of the handbook can be found at the following website: http://www.novaregion.org/index.asp?NID=250.

17(c) Local Comments. Fairfax County is currently developing Watershed Management Plans for the combined Dogue Creek/Belle Haven/Four Mile Run watersheds as well as for the other major watershed (Accotink Creek) within the garrison. Representatives from Fort Belvoir have been actively involved in the Watershed Advisory Groups, which provide stakeholder input on these Watershed Management Plans. Fairfax County commends the Army for its participation in and dedication to the process. For more information about these Watershed Management Plans, contact Danielle Wynne of SWPD staff at danielle.wynne@fairfaxcounty.gov or (703)324-5616.

In addition, as stated in the County's previously submitted comments on the consistency determination, the location of the wetland is not clearly defined in the documentation nor does the EA state whether this wetland is connected by surface flow to any tidal tributaries.

17(d) Recommendations. The County recommends the following:

- avoid using the wetland area near the west side of the proposed complex as a stormwater outfall. The impact of stormwater inundation could have significant negative impacts on the wetland;
- mitigate for any impacts to wetlands;

- maintain all appropriate erosion and sediment control measures during construction in order to avoid impacts such as excessive sedimentation and turbidity in the streams surrounding the construction site; and
- provide a one hundred foot buffer between the wetland and any land disturbing activity, if the wetland is connected by surface flow to any of the surrounding tributaries.

REGULATORY AND COORDINATION NEEDS

1. Wetlands Management. If impacts to wetlands are proposed, then a JPA should be submitted and a VWP permit obtained prior to project commencement. To receive a JPA, contact the VMRC at (757) 247-2200. The VMRC will distribute the application to the appropriate agencies and each agency will conduct its review and respond. For additional information on the VWP permit program, contact Trisha Beasley of DEQ's Northern Virginia Regional Office (telephone, (703) 583-3940).

2. Subaqueous Lands Impacts. Pursuant to Section 28.2-1204 of the Code of Virginia, the VMRC has jurisdiction over encroachments in, on, or over any State-owned rivers, streams, or creeks in the Commonwealth. Accordingly, if any portion of the subject project involves any encroachments channelward of ordinary high water along natural rivers and stream, a permit may be required. For additional information, contact Elizabeth Murphy, VMRC, at (757) 247-8027.

3. Erosion & Sediment Control and Stormwater Management Project-Specific Plans. Since the proposed project will disturb more than 2,500 square feet, an erosion and sediment control (ESC) plan should be prepared and implemented to ensure compliance with state law and regulations (VESCL §10.1-560, §10.1-564; VESCR §4 VAC 50-30-30). The ESC plan should be submitted to DCR's Warrenton Regional Office at (540) 347-6420 for review for compliance.

As with the ESC Plan, the Army is required to prepare a project-specific Stormwater Management Plan for all projects involving a regulated activity. All specifications and plans must be prepared in accordance with the current versions of the Virginia Stormwater Management Law and the Virginia Stormwater Management Program (VSMP) Regulations (4 VAC 50-60 *et seq.*).

4. VSMP General Permit. The Army is required to apply to the Department of Conservation and Recreation for registration coverage under the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Construction Activities. This permit requires the Army to develop a project specific stormwater pollution prevention plan (SWPPP) (Virginia Stormwater Management Law Act §10.1-603.1 *et seq.*; VSMP Permit Regulations §4 VAC 40-50 *et seq.*). Specific questions regarding the VSMP General Permit for Construction Activities requirements should be directed to the Department of Conservation and Recreation's Division of Soil and Water Conservation (Holly Sepety, telephone, (804) 225-2613).

5. Air Quality Regulations. This project may be subject to air regulations administered by the Department of Environmental Quality. The following sections of Virginia *Administrative Code are applicable*:

- asphalt paving operations (9 VAC 5-40-5490 *et seq.*);
- fugitive dust and emissions control (9 VAC 5-50-60 *et seq.*); and
- open burning and incineration devices (9 VAC 5-130 *et seq.*).

For information regarding air permits that may be required for boilers, emergency generators and fuel-burning equipment, contact Terry Darton at DEQ's Northern Regional Office (telephone, (703) 583-3845).

6. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations.

Some of the applicable state laws and regulations are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); and
- Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110).

Some of the applicable Federal laws and regulations are:

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

6(a) Asbestos-Containing Material. It is the responsibility of the owner or operator of a facility undergoing a demolition activity, prior to the commencement of the activity, to thoroughly inspect the affected part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Contact the DEQ Waste Management Program for additional information, (804) 698-4021, and the Department of Labor and Industry, Ronald L. Graham at (804) 371-0444.

6(b) Lead-Based Paint. This project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

7. Protected Species. To ensure protection of bald eagles, contact the Center for Conservation Biology (telephone, (757) 221-2247) to determine if any new bald eagle nests were detected during the 2009 survey season. Also, the capture and relocation of any wood turtles observed at the project site should be coordinated with John Kleopfer, DGIF's Region I Wildlife Diversity Biologist, at (804) 829-6580.

Thank you for the opportunity to review the draft Environmental Assessment for this undertaking. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or Anne Pinion at (804) 698-4488 for clarification of these comments.

Sincerely,

Ellie L. Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: David Hartshorn, DEQ-NRO
Amy Ewing, DGIF
John Kleopfer, DGIF
Elizabeth Murphy, VMRC
Melanie Allen, VDOT
Marc Holma, DHR
G. Mark Gibbs, NVRC
Pamela Nee, Fairfax County

Pinion,Anne

From: Ewing, Amy (DGIF)
Sent: Friday, August 07, 2009 12:38 PM
To: Pinion,Anne
Subject: ESSLog# 26693_09-149F_Warrior in Transition Unit Complex, Ft. Belvoir
Attachments: ESSLog# 26693_09-122F_Warrior in Transition Complex-Ft. Belvoir

We have reviewed the EA for the subject project. We provided comments regarding this proejct to you during review of the Consistency Determination (09-122F). Those comments are attached and apply to this review.

Thanks, Amy

Amy M. Ewing
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
804-367-2211
amy.ewing@dgif.virginia.gov

Pinion,Anne

From: Ewing, Amy (DGIF)
Sent: Friday, July 17, 2009 1:49 PM
To: Pinion,Anne
Subject: ESSLog# 26693_09-122F_Warrior in Transition Complex-Ft. Belvoir
Attachments: WOOD TURTLE form.doc

We have reviewed the subject project that proposes to construct the Warrior in Transition Unit Complex on a 16.6 -acre site on Ft. Belvoir. This will result in at least 8 acres of impervious surface.

According to our records, state Threatened wood turtle has been documented form the project area. Dogue Creek and its tributary have been designated Threatened and Endangered Species Waters due to the presence of this species. However, it does not appear this resource will be adversely impacted by the project, therefore, we do not anticipate this project to result in primary adverse impacts upon wood turtle or the resources upon which it depends. Because this species may be encountered during site preparation and construction, we recommend that all contractors associated with work at this site be made aware of the possibility of wood turtles on site and become familiar with their appearance, status and life history. If any wood turtles are encountered and are in jeopardy during the development or construction of this project, immediately remove them from danger and move them safely to suitable habitat in or near the closest perennial stream. Any relocations should be coordinated with J.D. Kleopfer, VDGIF Wildlife Diversity Biologist, at 804-829-6580 and the attached wood turtle observation form should be completed and sent to DGIF.

An appropriate information sheet to distribute to contractors and employees could include the following text below a picture of a wood turtle: "The wood turtle is a State Threatened species that may be found in or near the project area. Description: A medium sized semi-terrestrial turtle, adults are 6-8 inches long. The dull brown upper shell is very rough; each section of the shell is composed of growth rings that form an irregular pyramid. However, there can be great variation in appearance and especially in older turtles, the upper shell may appear smooth. The bottom shell is yellow with black blotches. It has a black head and dark brown extremities. The yellow to burnt orange skin on the neck and in the leg sockets is a distinguishing characteristic. If one of these turtles is found within the project/road area, it should be carefully removed to safety in suitable habitat (a run or deep pool with sandy or muddy bottom and submerged roots, branches, or logs) in the nearest perennial stream. It is a violation of Virginia law to harm or keep for personal possession a wood turtle. If you have any questions concerning this species, please call the Virginia Department of Game and Inland Fisheries at 804-367-6913."

Further information about wood turtles can be found online at: http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030062

State Threatened bald eagle has been documented in the project area. Both eagle nesting locations and a summer/winter bald eagle concentration zone have been documented in the project area. This project site falls outside the management zones for both the known eagle nests and the concentration zone. Therefore, we do not anticipate this project to result in adverse impacts upon bald eagles utilizing the documented nest nearby or those utilizing the concentration zone.
However, it is possible that new bald eagle nests have been constructed in or near the project area during the 2009 nesting season and that such nests may be adversely impacted by the project activities. To ensure protection of this listed species, please contact the Center for Conservation Biology at 757-221-2247 to determine if any new bald eagle nests were detected during the 2009 surveys. If a new nest was documented within 0.25 mile (1,320 feet) of the project area, please contact us to facilitate further consultation regarding the new nest(s).

In addition, Dogue Creek, Accotink Creek, Pohick Creek, and the Potomac River have been designated Confirmed Anadromous Fish Use Areas. However, it does not appear this project proposes impacts in these waters or their tributaries. Therefore, we do not anticipate the project to result in adverse impacts upon these resources. If instream work in such waters is proposed, we recommend it adhere to a time of year restriction from February 15 through June 30 of any year. In addition, we recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

To minimize overall impacts to wildlife and our natural resources, we offer the following comments about development activities: We recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent

practicable. We recommend maintaining undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams. We recommend maintaining wooded lots to the fullest extent possible. We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

Assuming strict adherence to erosion and sediment controls and minimization, to the greatest extent possible, impervious surfaces (including consideration of LID techniques to treat runoff and allow infiltration of water), we find this project consistent with the Fisheries Management Section of the CZMA.

Thanks, Amy

Amy M. Ewing
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
804-367-2211
amy.ewing@dgif.virginia.gov

WOOD TURTLE
FIELD OBSERVATION FORM

The Virginia Department of Game and Inland Fisheries needs your help in monitoring Wood Turtle (*Glyptemys insculpta*) populations. If you encounter a Wood Turtle, please fill-out the necessary information below and mail this form to:

Virginia Department of Game and Inland Fisheries
Attn: John Kleopfer
3801 John Tyler Memorial Hwy
Charles City, VA 23030
804-829-6580

If possible, send digital photos to: John.Kleopfer@dgif.virginia.gov

Distribution: **The Wood Turtle is found primarily in the northeastern United States and parts of southeastern Canada, reaching the southern limit of its range in northern Virginia. In Virginia, it has been documented in Warren, Rockingham, Shenandoah, Frederick, Loudoun, Fairfax, and Page counties. However, its distribution within these counties is not widespread.**

Species Descriptions (also see photos on the back of this sheet):

WOOD TURTLE: The Wood Turtle is a semi-aquatic turtle usually found in or near streams, but not in ponds, reservoirs or lakes. The shell length of an adult Wood Turtle can reach 9 inches. The plastron (bottom-half of the shell) is NOT hinged and the carapace (top-half of the shell) is flattened. The legs and tail are usually reddish to orange in color. Females are sometimes less colorful.

EASTERN BOX TURTLE (*Terrapene carolina carolina*): The Eastern Box Turtle is a terrestrial (land) species seldom found in water and is often misidentified as a Wood Turtle. The Eastern Box Turtle has a high domed shell and hinged plastron, which allows for it to completely enclose itself. The shell length of an adult is rarely over 5 inches.

Your name: _____

Your address: _____

Your phone number (optional): _____

Describe the location of the observation. Be sure to include the name of the nearest stream.

_____

_____

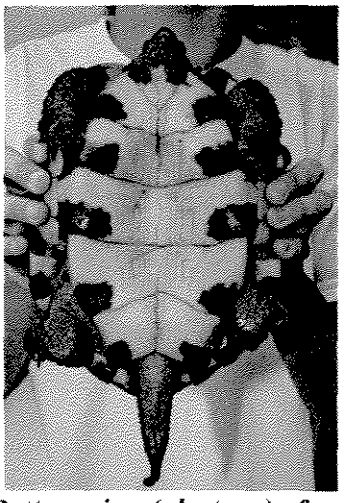
_____

Comments: _____

THE WOOD TURTLE IS A PROTECTED SPECIES IN VIRGINIA AND IT IS THEREFORE ILLEGAL TO COLLECT OR HARM IT.

WOOD TURTLE

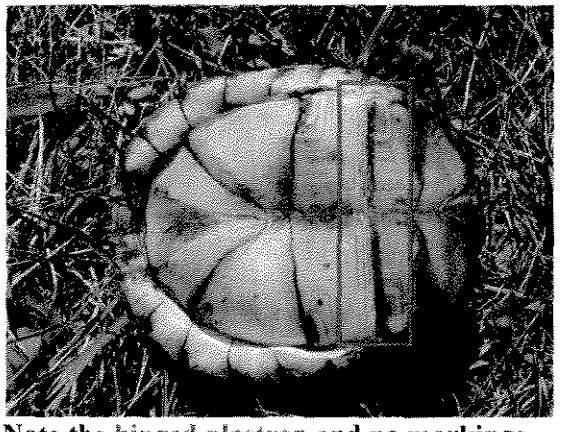
Note the sculptured scales of the top of shell (carapace).



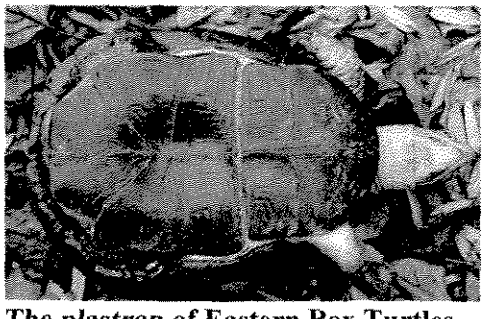
Bottom view (plastron) of a male Wood Turtle. The concaved plastron is characteristic of a male. Note the distinct black markings and the brightly colored legs and tail.

EASTERN BOX TURTLE

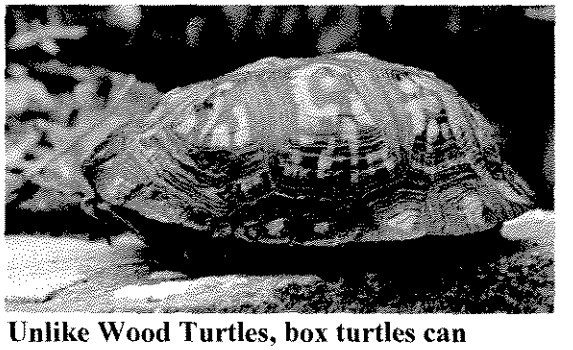
Note the high domed shell and lack of sculptured scales. Males usually have an orange or yellowish face and legs and are more brightly colored in comparison to females.



Note the hinged plastron and no markings. The concaved plastron is also characteristic of male box turtles.



The plastron of Eastern Box Turtles



Unlike Wood Turtles, box turtles can

will often turn black.

completely enclose themselves for protection.

If you cannot meet the deadline, please notify ANNE N. PINION at 804/698-4488 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

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

Please return your comments to:

MS. ANNE N. PINION
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
anpinion@deq.virginia.gov

ANNE N. PINION
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS The DHR and Ft Belvoir are in direct Consultation on this project (Warrior in Transition Unit Complex) pursuant to Section 106. We have informed the Army that we concurred w/ its assessment that No Historic Properties Are Affected.

(signed) [illegible] (date) 31 July 09

(title) Architectural Historian

(agency) DHR

PROJECT #09-149F DHR # 2006-0820 **10/07**

County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

August 13, 2009

Anne N. Pinion
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia, 23219

Dear Ms. Pinion:

In collaboration with the Department of Public Works and Environmental Services (DPWES) and the Fairfax County Park Authority staff, the Department of Planning and Zoning has reviewed the Environmental Assessment (EA) with the Finding of No Significant Impact (FONSI) for the construction and operation of the Warrior in Transition Unit Complex. This project would provide facilities for soldiers whose injuries require an extended recovery and transition period. The project is proposed to be developed on a 16.6 acre site at the northwest corner of the intersection of 9th Street and Belvoir Road. According to the documentation, the primary facilities will include a 194,400 square foot barracks, a 15,000 square foot Soldier and Family Assistance Center, and a 31,000 square foot administration and operations facility. Associated facilities will include sidewalks, four acres of parking, access road, and utilities. The proposed facility will be designed to achieve a Leadership in Energy and Environmental Design (LEED) silver rating.

Stormwater Planning Division (SWPD) staff of DPWES has noted that construction of the proposed facility and the associated increase in impervious surface and stormwater runoff could affect unnamed tributaries flowing directly to Accotink Bay and ultimately to Gunston Cove. SWPD staff recommends that the following measures be implemented in support of water quality protection:

- Prior to construction, stormwater controls should be integrated into lot development and construction design ("better site design") of buildings, walkways and parking areas;
- Construction activities in the Resource Protection Areas of the unnamed tributaries should be avoided;
- Erosion and sedimentation control requirements should be monitored during construction;
- Post-construction runoff should be comparable to pre-construction conditions. SWPD strongly supports the Department of the Army's stated intention to use BMPs incorporating multiple low impact development techniques to manage stormwater runoff.

Department of Planning and Zoning
Planning Division
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035
Phone 703-324-1325 FAX 703-324-1485
www.fairfaxcounty.gov/dpz/

Watershed Management Plans are currently being developed by the County for the combined Dogue Creek/Belle Haven/Four Mile Run watersheds as well as for the other major watershed (Accotink Creek) within the garrison. Representatives from Fort Belvoir have been actively involved in the Watershed Advisory Groups which provide stakeholder input on these Watershed Management Plans. The Department of the Army should be commended for its participation in and dedication to the process. For more information about these Watershed Management Plans, Danielle Wynne of SWPD staff may be contacted at danielle.wynne@fairfaxcounty.gov or at 703-324-5616.

As noted in the County's previously submitted comments for the Consistency Determination for this project, staff continues to advise that caution be exercised to avoid and mitigate impacts to the wetland near the west side of the proposed complex. The EA indicates that appropriate wetland permits will be secured if the wetland is affected by a stormwater outfall. Staff recommends the wetland area be avoided as a possible stormwater outfall. The impact of stormwater inundation could have significant negative impacts on the wetland. The location of the wetland is not clearly defined in the documentation nor does the EA state whether this wetland is connected by surface flow to any tidal tributaries. If the wetland is connected by surface to any of the surrounding tributaries, the entire system would be designated a Resource Protection Area as defined by the County's Chesapeake Bay Preservation Ordinance and protected with a one hundred foot buffer. Staff also advises that vigilance be exercised to maintain appropriate erosion and sedimentation controls adjacent to this wetland during construction in order to avoid impacts such as excessive sedimentation and turbidity in the streams which surround this site.

Thank you for this opportunity to comment on this project. If you have any questions about our comments, please do not hesitate to contact Mary Ann Welton of my staff at 703-324-1380.

Sincerely,

Pamela G. Nee

Pamela G. Nee, Chief
Environment and Development Review Branch
Department of Planning and Zoning

PGN: MAW

cc:
Board of Supervisors
Anthony H. Griffin, County Executive
Robert A. Stalzer, Deputy County Executive
Pamela G. Nee, Department of Planning and Zoning (DPZ)
Mary Ann Welton, DPZ
Fred Rose, Department of Public Works and Environmental Services
Sandra Stallman, Park Authority

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: Anne N. Pinion **DEQ - OEIA PROJECT NUMBER: 09 – 149F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

☐ CONSISTENCY DETERMINATION

PROJECT TITLE: WARRIOR IN TRANSITION UNIT COMPLEX, FORT BELVOIR

PROJECT SPONSOR: U. S. DEPARTMENT OF DEFENSE / DEPARTMENT OF THE ARMY

PROJECT LOCATION: X OZONE NON ATTAINMENT AREA

REGULATORY REQUIREMENTS MAY BE APPLICABLE TO: **X** **CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

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

COMMENTS SPECIFIC TO THE PROJECT:

Being in an ozone non-attainment area, all precautions are to be taken to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_X) during construction. Subject to approval of minor changes to Title V permit.

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis **Date: July 31, 2009**

If you cannot meet the deadline, please notify ANNE N. PINION at 804/698-4488 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

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

Please return your comments to:

MS. ANNE N. PINION
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
anpinion@deq.virginia.gov

ANNE N. PINION
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

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

(signed) _____ (date) 7/29/09

(title) Environmental Engineer

(agency) VMRC

PROJECT #09-149F

10/07

Pinion,Anne
From: Kohler,Paul
Sent: Monday, August 17, 2009 11:10 AM
To: Pinion,Anne
Subject: RE: EIR Project Reminder

No additional comments. Will this suffice or do you need a more formal memo?

From: Pinion,Anne
Sent: Thursday, August 13, 2009 10:13 AM
To: Kohler,Paul; Hartshorn,David; Allen, Melanie L. (VDOT); Nee, Pamela; Northern VA PDC - Mark Gibb
Subject: EIR Project Reminder

Reviewers,

Comments for the following projects were due August 10, 2009.

- 09-149F Army-Warrior in Transition Unit Complex EA

This EA is about the same project reviewed under 09-122F (consistency determination) in July. Please let me know if you have additional comments beyond that which you submitted on 09-122F. The EA contains more information than the consistency did, so you may have more to work with...

If you have any questions, please contact me.

Thanks,
Anne

Anne N. Pinion
Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219
(804) 698-4488
NEW EMAIL: anne.pinion@deq.virginia.gov

Pinion,Anne

From: Rhur, Robbie (DCR)
Sent: Monday, August 03, 2009 10:59 AM
To: Pinion,Anne
Cc: Sacks, David (DCR); nhreview.po-richmond.dom-richmond@dcr.virginia.gov; Hypes, Rene (DCR)
Subject: Project 09-149F comments

Attachments: Robbie Rhur.vcf

Robbie Rhur.vcf
(635 B)

Hi Anne:

Since we reviewed this project under the federal consistancy in July, DCR has no additonal comments.

Thank you

Robbie Rhur
Environmental Impact Review Coordinator
804-371-2594
Robbie.Rhur@dcr.virginia.gov

Forsgren, Diedre (VDH)

From: Forsgren, Diedre (VDH)
Sent: Friday, August 07, 2009 10:44 AM
To: Pinion, Anne (DEQ)
Cc: Matthews, Barry (VDH)
Subject: EA: Warrior in Transition Unit Complex, Fort Belvoir (09-149F)

Anne:

We at ODW have been having some difficulty with our emails to DEQ.

If this returns as undeliverable, I'll call to alert you of an incoming fax.

Thanks,

Diedre Forsgren

From: Forsgren, Diedre (VDH)
Sent: Thursday, August 06, 2009 9:06 AM
To: Pinion, Anne (DEQ)
Cc: Matthews, Barry (VDH)
Subject: EA: Warrior in Transition Unit Complex, Fort Belvoir; 09-149F

DEQ Project #:	09-149F
Name:	Warrior in Transition Unit Complex, Fort Belvoir
Sponsor:	US DOD/Department of the Army
Location:	Fairfax County

The Office of Drinking Water has no additional comments to those made on July 1, 2009, to Ann Pinion, DEQ.

Diedre Forsgren
Office Services Specialist
VIRGINIA DEPARTMENT OF HEALTH
Office of Drinking Water, Room 622-A
109 Governor Street
Richmond, VA 23219
Phone: (804) 864-7241
email: diedre.forsgren@vdh.virginia.gov

Pinion,Anne
From: Hartshorn,David
Sent: Thursday, August 13, 2009 11:19 AM
To: Pinion,Anne
Cc: Hartshorn,David
Subject: EA #09-149F

NRO comments regarding the Warrior in Transition Unit Complex, Fort Belvoir – Department of Defense/Department of the Army are as follows:

After careful review of these documents, DEQ-NRO has no additional comments beyond what was provided on 7-2-2009 regarding this project under the Project Number #09-122F.

R. David Hartshorn
Regional Air Compliance Manager
DEQ-NRO
13901 Crown Court
Woodbridge, VA 22193
(703) 583-3895
fax (703) 583-3821
e-mail - R.David.Hartshorn@deq.virginia.gov
This electronic mail (including any attachments) may contain information that is privileged, confidential, and/or otherwise protected from disclosure to anyone other than its intended recipient(s). Any dissemination or use of this electronic email or its contents (including any attachments) by persons other than the intended recipient(s) is strictly prohibited.

Pinion,Anne

From: Marshall Popkin [mpopkin@novaregion.org]
Sent: Thursday, August 13, 2009 2:58 PM
To: Pinion,Anne
Cc: avosper@novaregion.org
Subject: Warrior in Transition Unit Complex

Dear Ms. Pinion:

NVRC does not wish to comment further on this project. All comments were submitted to DEQ in a letter dated July 8, 2009.

Thank you,
Marshall Popkin

Marshall B. Popkin - Environmental Planner
Northern Virginia Regional Commission
3060 Williams Dr. Suite 510
Fairfax, VA 22031

mpopkin@novaregion.org
703 642 4641

------ Forwarded Message
From: "Pinion,Anne" <Anne.Pinion@deq.virginia.gov>
Date: Thu, 13 Aug 2009 10:12:50 -0400
To: "Kohler,Paul" <Paul.Kohler@deq.virginia.gov>, "Hartshorn,David" <R.David.Hartshorn@deq.virginia.gov>, "Allen, Melanie L. (VDOT)" <Melanie.Allen@VDOT.Virginia.gov>, "Nee, Pamela" <Pamela.Nee@fairfaxcounty.gov>, <gmg@novaregion.org>
Conversation: EIR Project Reminder
Subject: *EIR Project Reminder*

Reviewers,

Comments for the following projects were due August 10, 2009.

- 09-149F Army-Warrior in Transition Unit Complex EA

This EA is about the same project reviewed under 09-122F (consistency determination) in July. Please let me know if you have additional comments beyond that which you submitted on 09-122F. The EA contains more information than the consistency did, so you may have more to work with…

If you have any questions, please contact me.

Thanks,

Anne

Anne N. Pinion

Department of Environmental Quality

629 East Main Street

Richmond, Virginia 23219

(804) 698-4488

NEW EMAIL: anne.pinion@deq.virginia.gov

------ End of Forwarded Message

National Capital Planning Commission

THIS PAGE INTENTIONALLY LEFT BLANK

NCPC
NATIONAL CAPITAL PLANNING COMMISSION

401 9th Street, NW
North Lobby, Suite 500
Washington, DC 20004
Tel 202 482-7200
Fax 202 482-7272
www.ncpc.gov

IN REPLY REFER TO:
NCPC File No. 6968

August 20, 2009

Commander, U.S. Army Garrison Fort Belvoir
ATTN: Mr. Bill Sanders
Director of Public Works
9430 Jackson Loop
Suite 100
Fort Belvoir, VA 22060-5116

Re: Comments on the Environmental Assessment for the Warrior in Transition Unit Complex at U.S. Army Garrison, Fort Belvoir

Dear Mr. Sanders:

Thank you for the opportunity to comment on the draft Environmental Assessment (EA) and the draft Finding of No Significant Impact (FONSI) for the planned Warrior in Transition Unit Complex, to be located at Fort Belvoir, Virginia. Overall, the National Capital Planning Commission (NCPC) staff considers the document to be a thorough analysis of the relevant issues surrounding the facility and found its organization to be helpful to our review process. We provide the following comments on the draft document:

Traffic Impact Analysis

The Warrior in Transition Unit Complex's trip generation is forecasted based on the *Fort Belvoir Transportation Management Plan* (TMP). NCPC staff has not seen the Fort Belvoir TMP and therefore is unable to evaluate traffic impacts against the TMP. We encourage the Army to submit the TMP to NCPC for review.

The draft EA indicates possible future traffic impacts to the Belvoir Road/Surveyor Road intersection, from the WITUC. To mitigate these potential impacts, NCPC staff supports the implementation of future measures as acknowledged in the draft EA on page 23: *"The traffic impacts identified during the a.m. and p.m. peak hours at the unsignalized Belvoir Road and Surveyor Road intersection could be reduced by the installation of a traffic signal or traffic circle (roundabout)."*

Comprehensive Plan for the National Capital

On page 14 the draft EA states, "The Federal Elements that would be applicable to the proposed Warrior in Transition Unit Complex would be Federal Workplace." However, the proposed Complex will be evaluated against all Elements of the Comprehensive Plan for the National Capital in particular the Federal Workplace, the Transportation, and the Federal Environment Elements.

Based on the proposed location of the Warrior in Transition Unit Complex, the Transportation Element requires a parking ratio of one space for every one and a half employees (1:1.5). The draft EA clearly indicates the amount of parking that will be provided, however does not describe the number of personnel that will be working at the Complex. Please include personnel numbers as well as the projected parking ratio.

Given the close proximity of the project site to a stream that outfalls into the Potomac River, special attention should be given to the following relevant polices located within the Federal Environment Element:

- Minimize tree cutting and other vegetation removal to reduce soil disturbance and erosion, particularly in the vicinity of waterways. When tree removal is necessary, trees should be replaced to prevent a net tree loss;
- Control the use of pesticides, herbicides, fertilizers, chemicals, oil, salts, and other threats to prevent the pollution of groundwater and waterways;
- Use pervious surfaces and retention ponds to reduce stormwater runoff and impacts on off-site water quality;
- Encourage the use of innovative and environmentally friendly "Best Management Practices" in site and building design and construction practice, such as green roofs, rain gardens, and permeable surface walkways, to reduce erosion and avoid pollution of surface waters;
- Require wastewater reduction through conservation and reuse in all new federal buildings and major federal renovation projects;
- Encourage the natural recharge of groundwater and aquifers by limiting the creation of impervious surfaces, avoiding disturbance to wetlands and floodplains, and designing stormwater swales and collection basins on federal installations;
- Promote water conservation programs and the use of new water-saving technologies that conserve and monitor water consumption in all federal facilities;

Further Coordination

Because agency coordination with the U.S. Fish and Wildlife Service, Virginia Department of Environmental Quality, Virginia Department of Game and Inland

Fisheries, and Virginia Department of Historic Resources (Virginia State Historic Preservation Office) was not complete at the time NCPC received the draft EA, we request the Army take into account all agency comments on the EA.

As the Warrior in Transition Unit Complex project will be submitted to NCPC for review we encourage the Army to consult with NCPC staff as the project moves forward into design.

Additionally, it is our understanding that the *Fort Belvoir Real Property Master Plan* is being revised and NCPC staff encourages the Army to provide us with regular updates to ensure consistency between Fort Belvoir's master plan and our *Comprehensive Plan for the National Capital*.

If you have any questions regarding our comments or our submission requirements, please contact Mr. Michael Weil at (202) 482-7253 or michael.weil@ncpc.gov.

Sincerely,

David W. Levy, RA, AICP
Director, Urban Design and Plan Review

Fort Belvoir’s Response to Comments Received

THIS PAGE INTENTIONALLY LEFT BLANK

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

SEP 2 1 2009

Directorate of Public Works

Ms. Barbara Rudnick
U.S. Environmental Protection Agency
Region III
Office of Environmental Programs
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Dear Ms. Rudnik:

Thank you for providing comments on the Draft Environmental Assessment (EA) for the Warrior in Transition Unit Complex at Fort Belvoir, VA. I appreciate the opportunity for improving the document and decision process made possible by staff comments. Your comments were considered and incorporated into the final documents as appropriate. Attached is a summary of modifications to the EA. You may view the final EA at www.belvoir.army.mil.

Point of contact is Mr. Bill Sanders, Director of Public Works at 703-806-3017.

Sincerely,

Stephen J. Bowden, Deputy
Jerry L. Blixt
Colonel, US Army
Commanding

Enclosure

"LEADERS IN EXCELLENCE"

Printed on Recycled Paper

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO ATTENTION OF

SEP 2 1 2009

Directorate of Public Works

Mr. David W. Levy, RA, AICP
National Capital Planning Commission
401 9th Street, NW
North Lobby, Suite 500
Washington, DC 20004

Dear Mr. Levy:

Thank you for providing comments on the Draft Environmental Assessment (EA) for the Warrior in Transition Unit Complex at Fort Belvoir, VA. I appreciate the opportunity for improving the document and decision process made possible by staff comments. Your comments were considered and incorporated into the final documents as appropriate. Attached is a summary of modifications to the EA. You may view the final EA at www.belvoir.army.mil.

Point of contact is Bill Sanders, Director of Public Works at 703-806-3017.

Sincerely,

for Stephen J. Booth, Deputy
Jerry L. Blixt
Colonel, US Army
Commanding

Enclosure

"LEADERS IN EXCELLENCE"

Printed on Recycled Paper

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

SEP 2 1 2009

Directorate of Public Works

Ms. Ellie Irons
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Dear Ms. Irons:

Thank you for providing comments from the Commonwealth of Virginia on the Draft Environmental Assessment (EA) for the Warrior in Transition Unit Complex at Fort Belvoir, VA. I appreciate the opportunity for improving the document and decision process made possible by staff comments. The Commonwealth's comments were considered and incorporated into the final documents as appropriate. Attached is a summary of modifications to the EA. You may view the final EA at www.belvoir.army.mil.

Point of contact is Bill Sanders, Director of Public Works at 703-806-3017.

Sincerely,

for Stephen Jr. Brooks, Deputy
Jerry L. Blixt
Colonel, US Army
Commanding

Enclosure

"LEADERS IN EXCELLENCE"

Printed on Recycled Paper

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Virginia Department of Environmental Quality	1	DEQ Coordinated Comments Letter, Dated 19 August 2009	ES, 3	ES.5, 3.7.4					The DEQ-Northern Regional Office (NRO) states that if surface waters cannot be avoided and impacts are proposed, then a Virginia Water Protection (VWP) permit would be required from DEQ. Fairfax County's Stormwater Planning Division (SWPD) staff indicates that the proposed construction will increase the amount of impervious surface and the resulting stormwater runoff could affect unnamed tributaries flowing directly to Accotink Bay and ultimately to Gunston Cove. Recommendations. Fairfax County's SWPD staff recommends that the following measures be implemented to protect water quality: -integrate stormwater controls into the construction design ("better site design") of buildings, walkways and parking areas; avoid construction activities in Chesapeake Bay Resource Protection Areas (RPAs); monitor erosion and sedimentation control requirements during construction; and design the site so that post-construction runoff is comparable to pre-construction conditions. SWPD staff strongly supports the Army's stated intention to use best management practices and to incorporate multiple low impact development techniques to manage stormwater runoff.			Fort Bevloir concurs, Sections 3.6.7, 3.7.4, and 4.3 of EA
Virginia DEQ	2	DEQ Coordinated Comments Letter, Dated 19 August 2009	ES, 3	ES.5, 3.7.4					DEQ recommends that all efforts should be taken to ensure that adjacent wetlands are not adversely impacted by the proposed activities. In general, the Army must comply with Section 404(b)(l) guidelines of the Clean Water Act and with the Commonwealth's wetland mitigation policies. Both Federal and State guidelines recommend avoidance and minimization of wetland impacts as the first steps in the mitigation process. Any unavoidable impacts to State waters may require compensation such as wetland creation, restoration or other acceptable forms of wetland compensatory mitigation. DEQ recommends that wetland impacts be avoided to the maximum extent practicable and encourages the following practices to minimize impacts to wetlands: -operate machinery and construction vehicles outside of wetlands as no machinery may enter surface waters, unless authorized by a WVP permit; -any temporary impacts to surface waters associated with this project shall require restoration to pre-existing conditions; -erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992; -heavy equipment in temporarily impacted surface waters shall be placed on mats, geotextile fabric or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work;			Fort Bevloir concurs, Section 3.7.5 of EA

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Virginia Marine Resources Commission	3	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.6					According to VMRC, if any portion of the proposed project involves encroachments channelward of ordinary high water along natural rivers and streams, a permit may be required from the VMRC prior to commencing land-disturbing activities. For additional information on requirements pertaining to the submission of the JPA and potential impacts to subaqueous lands, contact the VMRC.			Fort Bevloir concurs, Sections 3.7.5 and 4.3 of EA
Virginia Department of Conservation and Recreation, Division of Chesapeake Bay Local Assistance	4	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.6, 3.7					The proposed project may be located on lands that are analogous to lands protected under the Chesapeake Bay Preservation Act (Act). Therefore, the proposed project must be consistent with the Act and may be subject to the performance criteria for Resource Protection Areas (as specified in 5 9 VAC 10-20-130 of the Regulations) and the general performance criteria for all Chesapeake Bay Preservation Areas (in 3 9 VAC 10-20-120 of the Regulations). Also, project activities must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover. For land disturbance over 2,500 square feet, the project must comply with the requirements of the Virginia Erosion & Sediment Control Handbook, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions of the Virginia Stormwater Management Regulations, 5 4 VAC 50-60-1 0, shall be satisfied.			Correction accepted. Text in Section 3.6.7 of EA amended.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DCR, Division of Soil and Water Conservation	5	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.5					the Army and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of greater than 2,500 square feet on lands analogous to Chesapeake Bay Preservation Areas would be regulated by VESCL&R. Accordingly, the Army must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations.			Fort Belvoir concurs, Section 3.5.6 of EA
DCR, Division of Soil and Water Conservation	6	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.6					The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet on lands analogous to Chesapeake Bay Preservation Areas are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations.			Correction accepted. Text in Section 3.6.7 of EA amended.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DEQ, Air Quality Division	7	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.3					According to the DEQ Air Division, the project site is located in an ozone (03) nonattainment area and an emission control area for the volatile organic compounds (VOCs) and oxides of nitrogen (NO,), which are contributors to ozone pollution. Therefore, the applicant should take all reasonable precautions to limit emissions of VOCs and NO, principally by controlling or limiting the burning of fossil fuels. A second precaution, which typically applies to road construction and paving work (9 VAC 5-40-5490 in the Reaulations for the Control and Abatement of Air Pollution), places limitations on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents), and may apply to the project. The asphalt must be "emulsified" (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.			Fort Belvoir concurs, Section 3.3.5 of EA.
DEQ, Air Quality Division	8	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.3					The DEQ-Office of Air Data Analysis states that there will be minor emissions associated with the project. The Army will address air impacts through its construction mitigation plan.			Fort Belvoir concurs, Sections 3.3.5 and 3.14.4 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DEQ, Air Quality Division	9	DEQ Coordinated Comments Letter, Dated 19 August 2009		Air Pollution Control - Fugitive Dust					During project activities, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-130 et seq. of the Reaulations for the Control and Abatement of Air Pollution.			Correction accepted. Text in Section 3.3.5 of EA amended.
DEQ, Air Quality Division	10	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.3					If project activities include the open burning of materials on- or off-site or the use of special incineration devices, this activity must meet the requirements under 9 VAC 5-1 30 et seq. of the Regulations for open burning and it may require a permit. The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. The Army should contact Fairfax County officials to determine what local requirements, if any, exist.			Fort Belvoir concurs, Section 3.3.5 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DEQ, Air Quality Division	11	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.3					Should the proposed project require the installation of fuel burning equipment (boilers, generators, etc.), or other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources. In this case, the Army should contact the Air Permitting Manager at DEQ-NRO prior to construction and operation of fuel burning or other air pollution emitting equipment for a permitting determination.			Fort Belvoir concurs, Sections 3.3.4 and 4.3 of the EA.
DEQ- Waste Division	12	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.13					The DEQ-Waste Division states that solid and hazardous waste issues were addressed in the report, but the report did not include a search of wasterelated data bases. A Geographic Information System (GIs) database search did not reveal any waste sites within a half mile radius of the project site that would impact or be impacted by the subject site. **Finding.** The Waste Division staff reviewed its data files and determined that there are numerous hazardous waste, solid waste, formerly used defense(FUDS) and voluntary remediation program (VRP) sites located within the same zip code as the project site; however their proximities to the subject site are unknown.			Additional language added to Section 3.13.1 to state the distance of of sites of concern to the project area.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DEQ- Waste Division	13	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.3					Federal Facilities Program. DEQ's Federal Facilities Restoration Program staff states that the proposed location of the Warrior in Transition Comolex is located approximately 700meters from the Congressional Demonstration Area to the east, approximately 400 meters from the Entrenchment and Gas School Area to the southeast and approximately 200 meters from the Gunston Road 1000 feet Rifle Range to the west. Both the Conaressional Demonstration Area and the Entrenchment and Gas School Area contain multiple Solid Waste Management Units (SWMUs).			Additional language added to Section 3.13.1 regarding Military Munitions Response Program and SWMU sites in relations to the project site.
DEQ- Waste Division	14	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.13					**Asbestos-Containing Materials and Lead-Based Paint.** During demolition activities, materials should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP). If ACM or LBP are found, in addition to federal waste-related regulations, state regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.			Additional language added to Section 3.13.3 regarding ACM and LBP .

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DEQ- Waste Division	15	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.13					**Recommendations.** DEQ's Federal Facilities Restoration Program staff recommends that Fort Belvoir contact Marcia Kicos, Environmental Compliance Branch Chief, Directorate of Public Works, Environmental & Natural Resource Division, Fort Belvoir, Virginia at (703) 806-0020 for information concerning CERCLA obligations at Fort Belvoir's Main Post. Ms. Kicos or her designee should be advised prior to initiating any land, sediment, or groundwater disturbing activities at or near MMRP range areas and Main Post SWMUs. For questions concerning these comments, contact Wade Smith at (804) 698-41 25 or wade.smith@deq.virginia.gov.			Fort Belvoir concurs, Section 3.13.1 of EA.
DEQ- Waste Division	16	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.12					DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.			Fort Belvoir concurs, Section 3.12.16, 3.12.17, and 3.13 of the EA.
DCR Division of Natural Heritage	17	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					**Comments.** DCR-DNH has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. **Agency Findings.** According to the information currently in DCR's files, natural heritage resources are documented in the project area. However, due to the scope of the activity and the distance to the resources, DCR does not anticipate that this project will adversely impact these natural heritage resources.			Fort Belvoir concurs, Section 3.8.5 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
DCR Division of Natural Heritage	18	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between the VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR found that the current activity will not affect any documented state-listed plant and insect species.			Fort Belvoir concurs, Section 3.8.5 of EA.
DCR Division of Natural Heritage	19	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					DCR found that there are no State Natural Area Preserves under its jurisdiction in the project vicinity. **Recommendation.** New and updated information is continually added to Biotics. Therefore, it is recommended that DCR-DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented.			Response notation accepted.
Virginia Department of Game and Inland Fisheries	20	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					Agency Findings. According to DGIF's records, the following species have been documented in the project area: Bald Eagle: The state-listed Threatened bald eagle has been documented in the project area, along with eagle nesting locations and a summerlwinter bald eagle concentration zone. However, this project site falls outside the management zones for both the known eagle nests and the concentration zone. Therefore, DGIF does not anticipate this project to result in adverse impacts upon bald eagles using the documented nest nearby or those within the concentration zone. However, new bald eagle nests may have been constructed in or near the project area during the 2009 nesting season and these nests may be adversely impacted by the project activities. Wood Turtle: The wood turtle is a state-listed Threatened species. This species is present within Dogue Creek and its tributary, and due to its presence, these waters have been designated a Threatened and Endangered Species Waters. However, it does not appear that the Creek will be adversely impacted by the project. Therefore, DGIF does not anticipate this project to result in primary adverse impacts upon wood turtle or the resources upon which it depends. However, contractors associated with work at this site should be made aware of the possible presence of wood turtles. An appropriate information sheet to distribute to contractors and employees.			Fort Belvoir concurs, Section 3.8.11 of EA. Fort Belvoir ENRD staff confirmed 2009 data showing no new nests within 0.25 mile of the project area. Additional language regarding wood turtle information provided to contractors added to Section 3.8.11.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	The comment refers to the following: Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Virginia Department of Game and Inland Fisheries	21	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					Recommendations. DGIF provides the following recommendations for the proposed action. Bald Eagles: To ensure protection of bald eagles, contact the Center for Conservation Biology to determine if anv new bald eagle nests were detected during the 2009 survey season. If any new nests were documented within 0.25 mile (1,320feet) of the project area, contact DGIF for further consultation. Wood Turtles: All contractors associated with work at this site should be made aware of the possible presence of wood turtles and become familiar with their appearance, status and life history. If any wood turtles are encountered and are in jeopardy during the development or construction of this project, immediately remove them from danger and move them safely to suitable habitat in or near the closest perennial stream. Any relocations should be coordinated with DGIF and the attached wood turtle observation form should be completed and sent to DGIF.			Additional language regarding wood turtle information provided to contractors added to Section 3.8.11.
Virginia Department of Game and Inland Fisheries	22	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					to minimize overall impacts to wildlife and Virginia's natural resources, DGIF recommends the following: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain undisturbed wooded buffers of at least 100 feet in width around all onsite wetlands and on both sides of all perennial and intermittent streams; maintain wooded lots to the fullest extent possible; and design stormwater controls for this project to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales.			Fort Belvoir concurs, Sections 3.8.8 and 2.12 of EA.
Virginia Department of Historic Resources	23	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.9					Finding. The DHR has been in direct consultation with the Army and concurs with the Army's assessment that no historic properties would be affected.			Fort Belvoir concurs, Section 3.9 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Virginia Department of Forestry	24	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.8					Virginia Department of Forestry (DOF) Recommendations. In general, to the extent practicable, trees not slated for removal should be left in groupings or clusters to provide aesthetic and environmental benefits, as well as reducing costs associated with maintaining open space. The following measures are recommended during construction to protect trees not slated for removal: mark and fence trees at least to the dripline or the end of the root system, whichever extends farther from the tree stem; mark trees with highly visible ribbon so that equipment operators can see the protected areas easily; do not park heavy equipment, move or stack construction materials near trees which can damage root systems by compacting the soil; use mats to minimize soil compaction and mechanical injury to plants; and stockpile soil away from trees to avoid killing the root systems.			Fort Belvoir concurs, Sections 3.8.8 and 3.8.13 of EA.
Virginia Department of Transportation	25	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.2					Findings. During its review of the FCD for this proposal, VDOT indicated that the facility will have minimal impact on the existing and future roadway networks maintained by VDOT.			Fort Belvoir concurs, Section .
Virginia Department of Health	26	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.12					**Findings.** The Virginia Department of Health (VDH), Office of Drinking Water (ODW) states that there are no public groundwater sources within a mile radius of the project site and no public surface water source within a 5-mile radius of the proposed project site. The proposed project will not impact public drinking water sources. **Recommendations.** VDH recommends that any potential impacts to public water distribution systems be verified by the local utility. For the installation of new water lines and appurtenances, the applicant should contact Fairfax County and VDH's Culpeper Field Office to determine the applicable requirements for the project.			Fort Belvoir concurs, Section 3.12.3 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Virginia Department of Health	27	DEQ Coordinated Comments Letter, Dated 19 August 2009							Water Conservation Recommendations. In general, the facilities should be planned and designed to minimize water usage. The following recommendations may be helpful during the design of the facilities: Landscape the complex with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides. Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees; Install low-flow toilets. Consider installing low flow restrictors/aerators to faucets. Improve irrigation practices by: upgrading sprinkler clock and water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems); installing a rain shutoff device; and collecting rainwater with a rain bucket or cistern system with drip lines. Check for and repair leaks (toilets and faucets) during regular routine maintenance activities.			Fort Belvoir concurs, Section 4.2 of EA.
Virginia Department of Health	28	DEQ Coordinated Comments Letter, Dated 19 August 2009							**Findings.** Construction and operation permits may be required for sewer line construction and connections depending on projected flow and/or the need to pump wastewater to an existing collection system. **Requirements.** Installation of sanitary sewer lines and construction of the waste water collection system must comply with the State's Sewerage Regulations. DEQ has approval authority over plans and specifications for most discharging sewage collection systems and treatment works, except for single family home (~100 gallon per day (gpd)) systems. This authority is contained in the Sewage Collection and Treatment (SCAT) Regulations (12 VAC 5-581). If applicable, the applicant must coordinate with DEQ's Northern Regional Office for approval.			Fort Belvoir concurs, Section 4.3 of EA.
DEQ Office of Pollution Prevention	29	DEQ Coordinated Comments Letter, Dated 19 August 2009							Comments. DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and onsite Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.			Fort Belvoir concurs, Section 4.2 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU **Comment**	Name of Reviewer	Source of Reviewer Comment	**Action Taken in EA to Address the Comment**
Virginia Department of Agriculture and Consumer Services	30	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.13					When pesticides or herbicides must be used, their use should be strictly in accordance with manufacturers' recommendations. In addition, we recommend that the Army use the least toxic pesticides or herbicides effective in controlling the target species.			Additional text regarding pesticides added to Section 3.13.2 of EA.
Virginia Department of Mines, Minerals, and Energy	31	DEQ Coordinated Comments Letter, Dated 19 August 2009	4	4.2					Recommendations. The proposed facilities should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency.			Fort Belvoir concurs, Section 4.2 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
Northern Virginia Regional Commission	32	DEQ Coordinated Comments Letter, Dated 19 August 2009							The Northern Virginia Regional Commission commented on the federal consistency review that was completed August 12, 2009 (DEQ # 09- 122F). The Commission has no additional comments at this time. However, their comments on the consistency review are as follows: The Commission states that Fairfax County has enacted a jurisdiction-wide Chesapeake Bay Resource Management Area (RMA) designation. The local ordinance requires the maintenance of a 100-foot riparian buffer along all perennial streams and wetlands. Also, special attention should be given to post-construction stormwater quality management. In specific, the RMA designation requires that all development result in a no-net-increase standard for phosphorus loadings based on the jurisdiction's average imperviousness.			Fort Belvoir concurs, Sections 3.7.4 and 4.2 of EA.
Fairfax County	33	DEQ Coordinated Comments Letter, Dated 19 August 2009							In addition, as stated in the County's previously submitted comments on the consistency determination, the location of the wetland is not clearly defined in the documentation nor does the EA state whether this wetland is connected by surface flow to any tidal tributaries. **Recommendations.** The County recommends the following: avoid using the wetland area near the west side of the proposed complex as a stormwater outfall. The impact of stormwater inundation could have significant negative impacts on the wetland; mitigate for any impacts to wetlands; maintain all appropriate erosion and sediment control measures during construction in order to avoid impacts such as excessive sedimentation and turbidity in the streams surrounding the construction site; and provide a one hundred foot buffer between the wetland and any land disturbing activity, if the wetland is connected by surface flow to any of the surrounding tributaries,			Additional text regarding stormwater outfall added to Section 3.7.5.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
EPA Region III	1	EPA Region III Comments Letter, Dated 19 August 2009	3	3.6					Wetlands/Stormwater Management As stated on page 38, "However, the stormwater management system has not been designed; the outfall for this system could be placed in a channel that is considered a wetland." EPA appreciates that the Army will seek a watershed-based approach to evaluate upstream and downstream concerns and mitigate possible effects; considering site-specific Best Management Practices (BMP), mitigation measures, Low Impact Development and Leadership in Energy and Environmental Design and Sustainable Design strategies.			Fort Belvoir concurs.
EPA Region III	2	DEQ Coordinated Comments Letter, Dated 19 August 2009	3	3.7					Wetlands present on, or immediately surrounding the site should be delineated according to the 1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Impacts to wetlands should be avoided or minimized whenever possible. The total size of the wetlands . should be provided, in addition to the size of the wetland in the study area and size of the direct impact. The EA must analyze the size and functional values of all impacted wetlands and develop a mitigation plan for their replacement.			Fort Belvoir concurs, Section 3.7.2 of EA.
EPA Region III	3	DEQ Coordinated Comments Letter, Dated 19 August 2009							Energy Efficiency This project does present an excellent opportunity to implement the President's Executive Order 13423, Strengthening Federal Environmental Energy and Transportation Management by incorporating energy efficiency into the retrofit or construction efforts. Enclosed with this letter is information that we recommend the Army consider when planning the construction phase of the project.			Fort Belvoir concurs, Section 4.2 of EA.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
National Capital Planning Commission	1	NCPC Comments Letter, Dated 20 August 2009	3	3.2					The Warrior in Transition Unit Complex's trip generation is forecasted based on the Fort Belvoir Transportation Management Plan (TMP). NCPC staff has not seen the Fort Belvoir TMP and therefore is unable to evaluate traffic impacts against the TMP. We encourage the Army to submit the TMP to NCPC for review.			Comment noted.
National Capital Planning Commission	2	NCPC Comments Letter, Dated 20 August 2009	3	3.2					The draft EA indicates possible future traffic impacts to the Belvoir Road/Surveyor Road intersection, from the WITUC. To mitigate these potential impacts, NCPC staff supports the implementation of future measures as acknowledged in the draft EA on page 23: "The traffic impacts identified during the a. m. and p. m. peak hours at the unsignalized Belvoir Road and Surveyor Road intersection could be reduced by the installation of a traffic signal or traffic circle (roundabout). "			Fort Belvoir concurs.
National Capital Planning Commission	3	NCPC Comments Letter, Dated 20 August 2009	3	3.1					On page 14 the draft EA states, "The Federal Elements that would be applicable to the proposed Warrior in Transition Unit Complex would be Federal Workplace." However, the proposed Complex will be evaluated against all Elements of the Comprehensive Plan for the National Capital in particular the Federal Workplace, the Transportation, and the Federal Environment Elements.			Correction accepted.
National Capital Planning Commission	4	NCPC Comments Letter, Dated 20 August 2009	2	2.7					Based on the proposed location of the Warrior in Transition Unit Complex, the Transportation Element requires a parking ratio of one space for every one and a half employees (1:1.5). The draft EA clearly indicates the amount of parking that will be provided, however does not describe the number of personnel that will be working at the Complex. Please include personnel numbers as well as the projected parking ratio.			Section 2.8 modified to show personnel and project parking ratio.

Reviewer	Reviewer Comment #	Source of Reviewer Comment	*The comment refers to the following* Chapter	Section	Page	Paragraph	Line	Sentence	COMMENT SUMMARY - ENVIRONMENTAL ASSESSMENT FOR WTU Comment	Name of Reviewer	Source of Reviewer Comment	Action Taken in EA to Address the Comment
National Capital Planning Commission	5	NCPC Comments Letter, Dated 20 August 2009							Given the close proximity of the project site to a stream that outfalls into the Potomac River, special attention should be given to the following relevant polices located within the Federal Environment Element: Minimize tree cutting and other vegetation removal to reduce soil disturbance and erosion, particularly in the vicinity of waterways. When tree removal is necessary, trees should be replaced to prevent a net tree loss; Control the use of pesticides, herbicides, fertilizers, chemicals, oil, salts, and other threats to prevent the pollution of groundwater and waterways; Use pervious surfaces and retention ponds to reduce stormwater runoff and impacts on off-site water quality; Encourage the use of innovative and environmentally friendly "Best Management Practices" in site and building design and construction practice, such as green roofs, rain gardens, and permeable surface walkways, to reduce erosion and avoid pollution of surface waters; Require wastewater reduction through conservation and reuse in all new federal buildings and major federal renovation projects; Encourage the natural recharge of groundwater and aquifers by limiting the creation of impervious surfaces, avoiding disturbance to wetlands and floodplains, and designing stormwater swales and collection basins on federal installations; Promote water conservation programs and the use of new water-saving technologies that conserve and monitor water consumption in all federal facilities;			Fort Belvoir concurs , Section 3.6.7 and 4.2 of EA.
National Capital Planning Commission	6	NCPC Comments Letter, Dated 20 August 2009							Further Coordination Because agency coordination with the U.S. Fish and Wildlife Service, Virginia Department of Environmental Quality, Virginia Department of Game and Inland Fisheries, and Virginia Department of Historic Resources (Virginia State Historic Preservation Office) was not complete at the time NCPC received the draft EA, we request the Army take into account all agency comments on the EA.			3