

Final Environmental Assessment

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop Blue Grass Army Depot, Kentucky

Prepared for



**U.S. Army Corps
of Engineers**

CH2MHILL

September 2006

Final Environmental Assessment

**Construction and Operation of
Armed Forces Reserve Center
and Field Maintenance Shop at
Blue Grass Army Depot,
Kentucky**

Prepared for

**Blue Grass Army Depot, Kentucky Army
National Guard, and
U.S. Army Corps of Engineers, Mobile District**

September 2006

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Executive Summary

ES-1 Introduction

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission (Commission) recommended that certain realignment actions occur at Blue Grass Army Depot (BGAD). BGAD is located approximately 3 miles southeast of Richmond, Kentucky, in central Madison County. BGAD provides munitions, chemical defense equipment, and special operations support to the Department of Defense (DoD).

The Commission recommendations were approved by the President on September 23, 2005, and forwarded to Congress. Congress did not alter any of the Commission's recommendations and on November 9, 2005, the recommendations became law. The Commission's recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

In Kentucky, the Commission recommended the closure of United States Army Reserve (USAR) facilities in Maysville and Richmond. Field Maintenance Shop (FMS) #3, located at the Lexington airport, and FMS #4 at Blue Grass Station, will be closed and consolidated into a new FMS at BGAD. Kentucky Army National Guard (KYARNG) units at Richmond and Lexington will be realigned to BGAD. An Armed Forces Reserve Center (AFRC) and FMS will be constructed to support the realigned units and the entrance to BGAD will be modified.

ES-2 Proposed Action and Alternatives

Proposed Action (Preferred Alternative)

The purpose and need for the proposed action is to enhance the ability of the KYARNG and USAR to fulfill their military missions by providing facilities at BGAD with the capabilities to support national defense requirements and to meet the cost-saving requirements of BRAC. Additionally, the proposed action will help alleviate existing military and civilian traffic congestion on United States Highway 421 (US 421) that results from backups as people wait for security clearance to enter BGAD. This congestion disrupts entry to BGAD and interferes with civilian traffic along US 421 that is unrelated to BGAD activities.

The preferred alternative is to construct an 80,796-sf AFRC and a 34,034-sf FMS to support the KYARNG and USAR units being realigned to BGAD. The AFRC would be located north of the main entrance to BGAD, with the FMS located northeast of the AFRC (Figure ES-1). The entrance to BGAD would be reconstructed to alleviate traffic congestion on US 421 related to personnel waiting to enter through BGAD security and to allow potential recruits and KYARNG/ USAR personnel to access the AFRC without having to pass through BGAD security.

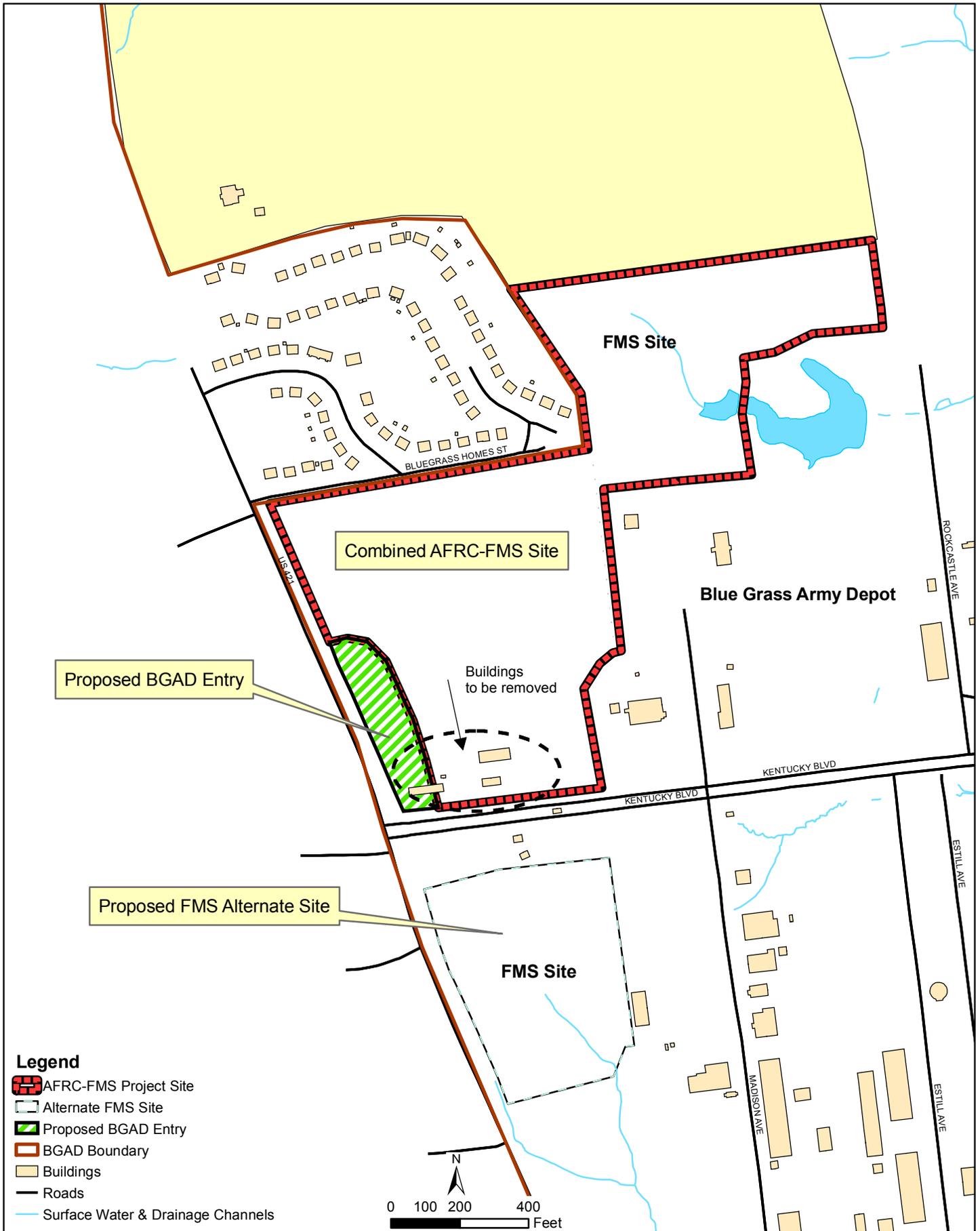


Figure ES-1

Proposed Project Area - Blue Grass Army Depot

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Richmond, Kentucky

The AFRC would provide administrative, supply, classroom, locker, latrine, and kitchen space in addition to the recruiting area. The FMS would contain mechanical and electrical equipment, a locker room, latrine, break/assembly area, physical fitness area, and a work area that would include repair and machine shops. Additional support facilities would include military and privately owned vehicle parking, fencing, sidewalks, exterior fire protection, lighting, access roads, wash platform, fuel storage and dispensing system, and work bays. The FMS is proposed to be collocated with the AFRC to reduce construction costs and allow for convenient access to both facilities.

Alternative Action

Under this alternative, the same facilities as described for the proposed action would be constructed, with the AFRC in the same location and the FMS facility would be located south of the main entrance to BGAD (Figure ES-1). The BGAD entrance would be redesigned to enhance traffic flow and to allow access to the AFRC by potential recruits and KYARNG/USAR personnel, as described for the proposed action. Under this alternative, the AFRC would be placed outside the security fence for BGAD, facilitating access to the recruiting center; however, the FMS would be located inside the security fence and on the opposite side of the road through the main entrance.

No Action Alternative

Under the no action alternative, KYARNG would not construct the AFRC and FMS facilities on BGAD and the entrance to BGAD would not be reconstructed. Implementation of the no action alternative would result in units continuing to occupy aging, decentralized facilities that lack the capacity for expansion or consolidation, would impair the ability of units to fulfill their designated missions, and would conflict with the Commission recommendations. Under the no action alternative, the main entrance to BGAD would not be reconstructed and security-related traffic congestion would continue on US 421.

Alternatives Not Considered in Detail

Other alternatives were considered but dismissed as impracticable. Other alternatives considered were:

- Locate the facilities at a different location on BGAD.
- Rehabilitate the Richmond USAR facility.
- Rehabilitate the Existing FMS on BGAD

The reasons these alternatives were considered impracticable are summarized below.

Use of other locations on BGAD is constrained by two factors. The presence of significant historical sites associated with the Civil War Battle of Richmond along US 421 presents conflicts for the placement of the proposed facilities and use of other locations along US 421 could result in significant impacts to known historic cultural resources.

BGAD is maintained as a secure facility that provides munitions, chemical defense equipment, and special operations support to DoD actions. The security required to meet the military mission for BGAD precludes placement of the KYARNG facilities on other areas of the installation, as potential recruits would not be able to access the recruiting office.

The Richmond Army Reserve Center is in poor condition and is significantly undersized to support the assigned units' missions. The site is too small to accommodate the needs of the existing and realigning USAR units. A larger facility must be built but adjacent commercial development precludes expansion on-site.

The existing FMS #4 on BGAD was constructed in the early 1940s and does not meet army standards. The structure is deteriorated and beyond economical repair. FMS #4 is used for maintaining equipment in support of the peacetime mission of the 2123rd Transportation Company, 301st Chemical Company, 206th Chemical Battalion Headquarters, and 617th Military Police. FMS #4 is inadequate to meet its current mission because its work bays are too small to support vehicles used by the 2123rd Transportation Company. The combined space in FMS #3 and FMS #4 provides only 25 percent of the needed FMS space.

ES-3 Environmental Consequences

Table ES-1 summarizes the consequences of the preferred alternative, the action alternative, and the no action alternative, which are discussed below.

Table ES-1

Summary of Potential Environmental and Socioeconomic Consequences

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Land Use	No Change from Baseline Conditions	No Impact	No Impact
Aesthetics and Visual Resources	No Change from Baseline Conditions	No Impact	No Impact
Air Quality	No Change from Baseline Conditions	<p>Minor short-term impact from construction related fugitive dust that would be controlled through appropriate BMPs.</p> <p>Minor beneficial impact from improved traffic pattern at entrance and associated reduced vehicle emissions.</p> <p>Minor impact from building and water heaters and reserve generators.</p>	<p>Minor short-term impact from construction related fugitive dust that would be controlled through appropriate BMPs.</p> <p>Minor beneficial impact from improved traffic pattern at entrance and associated reduced vehicle emissions.</p> <p>Minor impact from building and water heaters and reserve generators.</p>

Table ES-1

Summary of Potential Environmental and Socioeconomic Consequences

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Noise	No Change from Baseline Conditions	Less than significant construction-related: appropriate worker safety measures would be implemented; no long-term effects from operation. Nuisance Disturbance at nearby residential area possible.	Less than significant construction-related: appropriate worker safety measures would be implemented; no long-term effects from operation. Nuisance Disturbance at nearby residential area possible.
Geology and Soils			
Geology/Topography	No Change from Baseline Conditions	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.
Soils	No Change from Baseline Conditions	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Change from Baseline Conditions	No Impact	No Impact
Water Resources			
Surface Water	No Change from Baseline Conditions	Approximately 150 feet of intermittent stream would be culverted. Use of appropriate stormwater controls would minimize potential for indirect impacts.	Approximately 200 feet of intermittent stream would be culverted. Use of appropriate stormwater controls would minimize potential for indirect impacts.
Hydrogeology/Groundwater	No Change from Baseline Conditions	No Impact	No Impact
Floodplains	No Change from Baseline Conditions	No Impact	No Impact

Table ES-1

Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Stormwater	No Change from Baseline Conditions	Less than significant: use of appropriate BMPs and stormwater controls would prevent impacts from construction activities. Stormwater controls would be designed to prevent post-construction runoff from exceeding pre-construction runoff.	Less than significant: use of appropriate BMPs and stormwater controls would prevent impacts from construction activities. Stormwater controls would be designed to prevent post-construction runoff from exceeding pre-construction runoff.
Biological Resources			
Vegetation	No Change from Baseline Conditions	Minor adverse impact to common flora.	Minor adverse impact to common flora.
Wildlife	No Change from Baseline Conditions	Minor adverse impact to common fauna.	Minor adverse impact to common fauna.
Wetlands	No Change from Baseline Conditions	Less than significant loss of approximately 0.02 acres of emergent wetland.	No Impact
Sensitive Species	No Change from Baseline Conditions	No Impact	No Impact
Cultural Resources			
Historic Resources	No Change from Baseline Conditions	No Impact	No Impact
Archeological Resources	No Change from Baseline Conditions	No Impact	No Impact
Native American Resources	No Change from Baseline Conditions	No Impact	No Impact
Socioeconomics			
Economic Development	No Change from Baseline Conditions		
Demographics	No Change from Baseline Conditions	No Impact	No Impact
Housing	No Change from Baseline Conditions	No Impact	No Impact
Environmental Justice	No Change from Baseline Conditions	No Impact	No Impact
Protection of Children	No Change from Baseline Conditions	No Impact	No Impact

Table ES-1

Summary of Potential Environmental and Socioeconomic Consequences

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Transportation	Long-term negative (or adverse) impact to traffic flow.	Long-term benefit to traffic flow.	Long-term benefit to traffic flow.
Utilities			
Potable Water	No Change from Baseline Conditions	Minimal Impact, slight increase in demand as water will be purchased from local utility	Minimal Impact, slight increase in demand as water will be purchased from local utility
Wastewater	No Change from Baseline Conditions	Minimal Impact, slight increase in demand for BGAD service; system has capacity and increased flow will provide volume to maintain treatment without use of clean water	Minimal Impact, slight increase in demand for BGAD service; system has capacity and increased flow will provide volume to maintain treatment without use of clean water
Energy	No Change from Baseline Conditions	Minimal Impact, slight increase in demand as electricity will be purchased from local utility	Minimal Impact, slight increase in demand as electricity will be purchased from local utility
Solid Waste	No Change from Baseline Conditions	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities.	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities.
Hazardous Materials, Wastes, IRP Sites, and Stored Fuels			
Hazardous/Toxic Materials	No change in current use on BGAD.	No change in current use on BGAD from construction. Less than significant from minor use quantities of cleaners, solvents, and lubricants associated with operation of AFRC and FMS.	No change in current use on BGAD from construction. Less than significant from minor use quantities of cleaners, solvents, and lubricants associated with operation of AFRC and FMS.
IRP	No Change from Baseline Conditions	No Impact	No Impact
Indirect and Cumulative Impacts	No Change from Baseline Conditions	No Impact	No Impact

Consequences of the Preferred Alternative

Implementation of the preferred alternative would result in minor short-term adverse impacts to air quality from construction, negligible adverse impacts to air quality resulting from operation of reserve generators and building heating and air conditioning, temporary construction-related noise, minor alteration of topography and soils, *de minimus* impacts from construction and post-construction stormwater, minor adverse impacts on common flora and fauna, and minor generation of construction-related waste. The preferred alternative would cause minor encroachment on an emergent wetland, resulting in loss of 0.02 acres of the wetland, and culverting approximately 150 linear feet of intermittent stream. More than 95 percent of the wetland would be unimpacted. The primary hydrologic function of the stream is to convey stormwater runoff from adjacent land to the north and this function would be retained in the project.

Long-term beneficial impacts to transportation would result from the enhanced entry to BGAD from US 421. This modification to the BGAD entry also would result in minor long-term beneficial impacts to air quality resulting from reduced vehicle idle time and associated reduced vehicle emissions associated with improved traffic flow on US 421. There would be no impact to all other resources evaluated in this EA.

Consequences of the Alternative Action

Implementation of the alternative action would result in impacts similar to those of the proposed action. Impacts would differ in that the Alternative action would not impact wetlands, but would result in culverting approximately an additional 50 linear feet of stream.

Consequences of the No Action Alternative

There would be long-term negative impacts to transportation under the no action alternative. There would be no impact to all other resources evaluated in this EA from the no action alternative.

ES-4 Conclusions

Based upon the environmental impact analysis, it has been concluded that no significant environmental or socioeconomic impacts would result from the preferred alternative (proposed action). Therefore, it is not necessary to prepare an EIS to address the proposed action and a FNSI should be issued.

Contents

Executive Summary	ES-1
ES-1 Introduction.....	ES-1
ES-2 Proposed Action and Alternatives	ES-1
ES-3 Environmental Consequences	ES-4
ES-4 Conclusions	ES-8
1.0 Purpose, Need, and Scope	1
1.1 Introduction.....	1
1.2 Purpose and Need	1
1.3 Scope.....	3
1.4 Public Involvement	4
1.5 Relevant Statutes and Executive Orders	5
2.0 Description of the Proposed Action	5
2.1 Introduction.....	5
2.2 Implementation Proposed	6
3.0 Alternatives	6
3.1 Realignment Alternatives.....	6
3.1.1 Preferred Alternative - Locate the AFRC and FMS North of BGAD Main Entrance and Reconstruct the Main Entrance to BGAD.....	6
3.1.2 Alternative Action - Locate AFRC North of BGAD Main Entrance, FMS South of BGAD Main Entrance, and Reconstruct the Main Entrance to BGAD	9
3.2 Alternatives Not Considered in Detail	10
3.2.1 Construct AFRC/FMS at Other Sites on BGAD	10
3.2.2 Rehabilitate and Expand the Richmond Army Reserve Center	10
3.3 No Action Alternative.....	11
4.0 Affected Environment and Consequences	11
4.1 Introduction.....	11
4.1.1 Direct versus Indirect Effects	12
4.1.2 Short-Term versus Long-Term Effects	12
4.1.3 Intensity of Effects	12
4.1.4 Significance.....	12
4.1.5 Cumulative Effects	13
4.1.6 Mitigation	13
4.2 Land Use.....	14
4.2.1 Affected Environment	14
4.2.2 Consequences.....	15
4.3 Aesthetics and Visual Resources	15
4.3.1 Affected Environment	15

4.3.2	Consequences	15
4.4	Air Quality	16
4.4.1	Affected Environment	16
4.4.2	Consequences	18
4.5	Noise	19
4.5.1	Affected Environment	19
4.5.2	Consequences	20
4.6	Geology and Soils.....	21
4.6.1	Affected Environment	21
4.6.2	Consequences	23
4.7	Water Resources	24
4.7.1	Affected Environment	24
4.7.2	Consequences	25
4.8	Biological Resources	26
4.8.1	Affected Environment	26
4.8.2	Consequences	27
4.9	Cultural Resources.....	28
4.9.1	Affected Environment	29
4.9.2	Consequences	31
4.10	Socioeconomics.....	31
4.10.1	Affected Environment	31
4.10.2	Consequences	34
4.11	Transportation	36
4.11.1	Affected Environment	36
4.11.2	Consequences	36
4.12	Utilities.....	37
4.12.1	Affected Environment	37
4.12.2	Consequences	38
4.13	Hazardous and Toxic Substances	39
4.13.1	Affected Environment	39
4.13.2	Consequences	40
4.14	Cumulative Effects Summary.....	40
4.15	Mitigation Summary.....	41
5.0	Findings and Conclusions.....	41
5.1	Findings	41
5.1.1	Consequences of the Preferred Alternative.....	42
5.1.2	Consequences of the Alternative Action	42
5.1.3	Consequences of the No Action Alternative.....	42
5.2	Conclusions.....	42
6.0	List of Preparers.....	45
7.0	Distribution List.....	46
8.0	References	52

9.0	Persons Consulted	53
10.0	Acronyms and Abbreviations	54

TABLES

ES-1	Summary of Potential Environmental and Socioeconomic Consequences.....	ES-4
3-1	Proposed Construction Components	8
4-1	Critical Pollutants within NAAQS.....	16
4-2	Employment in Madison County, Lexington CSA, and Commonwealth of Kentucky	31
4-3	Population of Madison County, Commonwealth of Kentucky, and United States	31
4-4	Per Capita Income of Madison County, Commonwealth of Kentucky, and United States	31
4-5	Population below Poverty Level of Madison County, Commonwealth of Kentucky, and United States.....	32
4-6	Profile of Demographic Characteristics of Madison County, State of Kentucky, and United States.....	33
4-7	Individuals Under the Age of 18 in Madison County, Commonwealth of Kentucky, and United States.....	33
4-8	EIFS Model Output for the Proposed Construction Projects	34
5-1	Summary of Potential Environmental and Socioeconomic Consequences.....	42

FIGURES

ES-1	Proposed Project Area	ES-2
1-1	Project Location Map	2
3-1	Proposed Project Area	7
4-1	Soils and Wetlands - Proposed Project Area	22

APPENDICES

A	Copies of Agency Scoping Letters and Responses
B	Demolition Memorandum of Understanding with Kentucky SHPO
C	Vertebrate Species Documented on BGAD
D	Economic Impact Forecast System

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1.0 Purpose, Need, and Scope

1.1 Introduction

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission (Commission) recommended that certain realignment actions occur at Blue Grass Army Depot (BGAD). BGAD is located approximately 3 miles southeast of Richmond, Kentucky, in central Madison County (Figure 1-1). BGAD provides munitions, chemical defense equipment, and special operations support to the Department of Defense (DoD).

The Commission recommendations were approved by the President on September 23, 2005, and forwarded to Congress. Congress did not alter any of the Commission's recommendations and on November 9, 2005, the recommendations became law. The Commission's recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

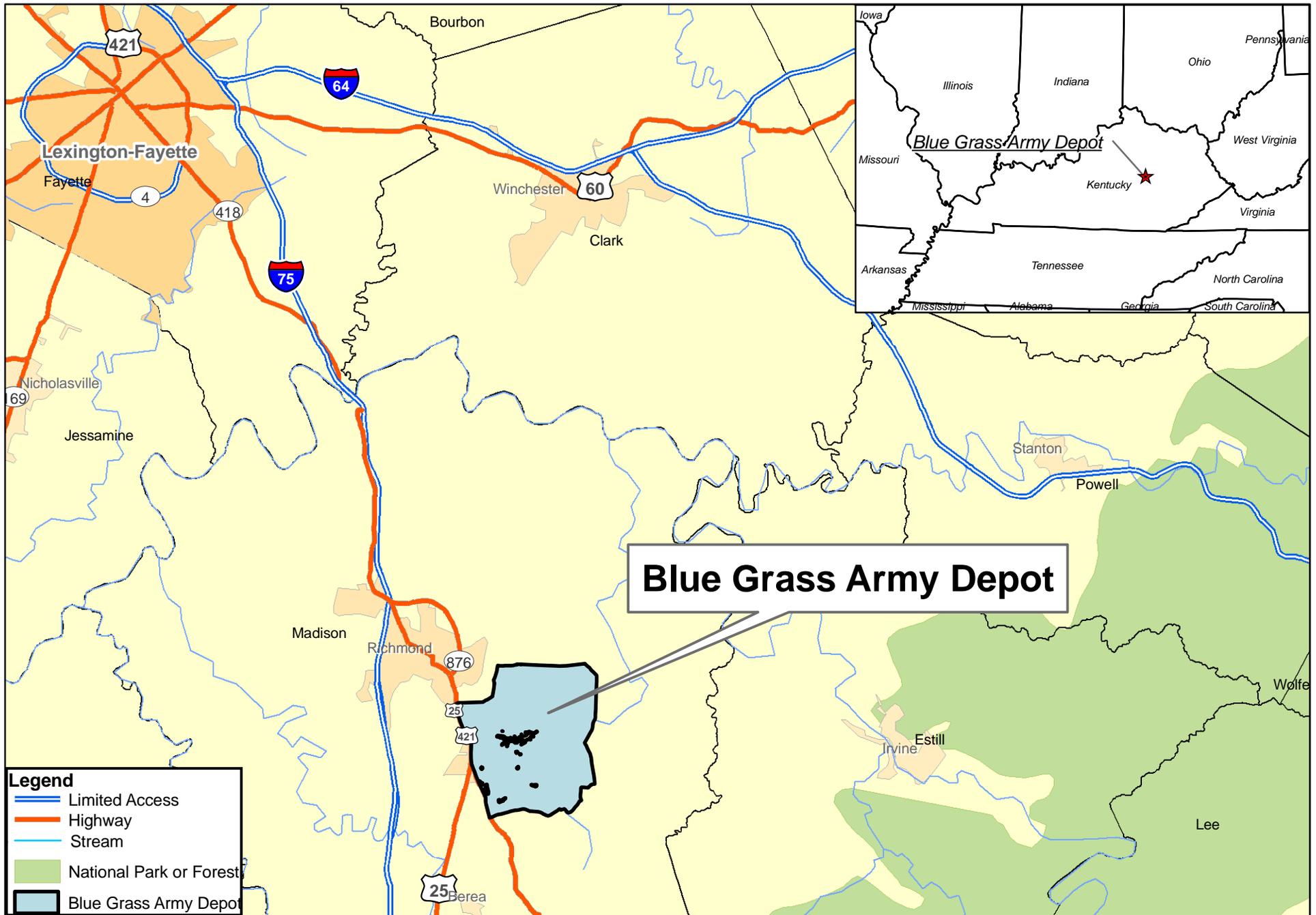
In Kentucky, the Commission recommended the closure of United States Army Reserve (USAR) facilities in Maysville and Richmond. Field Maintenance Shop (FMS) #3, located at the Lexington airport, and FMS #4 at Blue Grass Station, will be closed and consolidated into a new FMS at BGAD. Kentucky Army National Guard (KYARNG) units at Richmond and Lexington will be realigned to BGAD. An Armed Forces Reserve Center (AFRC) and FMS will be constructed to support the realigned units and the entrance to BGAD will be modified.

Implementation of BRAC recommendations at BGAD will require construction of new facilities. This environmental assessment (EA), prepared for the Army and the national Guard Bureau (NGB), analyzes and documents environmental effects associated with the Army's proposed action at BGAD. Details on the proposed action are set forth at Section 2.

1.2 Purpose and Need

The KYARNG has dual missions. The federal mission is to recruit, train and deploy military personnel and units anywhere in the world when ordered by the United States Department of Defense. The Guard also stands ready to assist state agencies and local governments during disasters and emergencies declared by the Governor of the Commonwealth of Kentucky.

The purpose and need for the proposed action is to enhance the ability of the KYARNG and USAR to fulfill their military missions by providing facilities at BGAD with the capabilities to support national defense requirements, meet the peacetime mission requirements, and to meet the cost-saving requirements of BRAC. The proposed action will enhance the ability of the USAR and KYARNG to fulfill their training requirements by allowing them to consolidate units from multiple locations into new centralized facilities.



Blue Grass Army Depot

Legend

- Limited Access
- Highway
- Stream
- National Park or Forest
- Blue Grass Army Depot



Figure 1-1
 Location of Blue Grass Army Depot EA
 Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop
 Richmond, Kentucky

The proposed action will also help alleviate existing military and civilian traffic congestion on United States Highway 421 (US 421) that results from backups as people wait for security clearance to enter BGAD. This congestion disrupts entry to BGAD and interferes with civilian traffic along US 421 that is unrelated to BGAD activities.

The recommendations of the Commission, made in conformance with the provisions of the Defense Base Closure and Realignment Act of 1990, as amended, require the relocation of USAR personnel to BGAD, and construction of support facilities on BGAD. Pursuant to the National Environmental Policy Act of 1969 (NEPA) and its implementing regulations, the Army has prepared this EA to address the environmental and socioeconomic impacts of relocating personnel, increased training activities, and constructing buildings to support realignment. This assessment includes an evaluation of reasonable alternatives.

The KYARNG and the USAR are realigning units as directed by the Commission. The USAR is closing Army Reserve Centers at Maysville and Richmond and realigning units to BGAD. KYARNG units from Lexington and Richmond are being realigned to BGAD. KYARNG Field Maintenance Shops at Lexington (FMS#3) and Bluegrass Station (FMS#4) will be combined in a new facility at BGAD. The proposed action will provide adequate consolidated facilities to support the units and facilities involved in the BRAC action.

The existing KYARNG and USAR facilities in Richmond are located on separate properties that do not allow expansion to house the realigned units. Appropriate facilities must be provided to meet readiness, recruiting and retention and training objectives.

Existing facilities at BGAD are inadequate to support the operational requirements of the realigned KYARNG and USAR units. Therefore, the proposed action is to construct an AFRC and an FMS on BGAD for these units to fulfill the military mission of the KYARNG and the USAR.

The proposed modification to the BGAD entrance would provide access to the AFRC without passing through BGAD security, thus alleviating the existing traffic congestion on US 421. The traffic congestion on US 421 at the entrance to BGAD is hazardous for both BGAD personnel and for citizens of the community. There is an obstructed view for left-turning traffic and no turn lane to allow through traffic to pass. The reconstructed entrance would eliminate the obstructed view, improve on-post efficiency, and also enhance the community through reduced idle time for BGAD personnel and citizens.

1.3 Scope

This EA has been developed in accordance with NEPA and implementing regulations found at 40 Code of Federal Regulations (CFR) Part 1500 through Part 1508 (President's Council on Environmental Quality [CEQ], 2002), and 32 CFR 651 (Office of the Deputy Assistant Secretary of the Army, 2002). Its purpose is to inform decision-makers and the public of the likely environmental consequences of the proposed action and alternatives.

The Defense Base Closure and Realignment Act of 1990 specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installations which have been recommended for closure or

realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected” (Sec. 2905(c)(2)(B), Public Law 101-510, as amended). The Commission’s deliberations and decisions, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for closure or realignment.

This EA identifies, documents, and evaluates the environmental and socioeconomic effects of construction of AFRC and FMS facilities at BGAD, realignment of KYARNG and USAR units and associated personnel to BGAD, and reconstruction of the entrance to BGAD. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action and alternatives.

This EA includes discussion of the potential environmental effects of the construction and routine operation of AFRC and FMS facilities for the USAR units and National Guard units at BGAD. Reasonably foreseeable future needs are assessed in the cumulative impacts/effects section of this EA. Any additional requirements stemming from other military actions will undergo separate NEPA analysis and evaluation.

This EA also considers the potential impacts of the no action alternative, as required by NEPA, to provide a benchmark for comparison of the potential impacts of the proposed action and the alternatives.

1.4 Public Involvement

The Army invites public participation in the proposed federal action through the 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. Initial agency scoping letters were submitted to the United States Fish and Wildlife Service (USFWS) and the Kentucky State Historic Preservation Office (SHPO) (Appendix A).

Public participation opportunities with respect to this EA and decision-making on the proposed action are guided by 32 CFR Part 651. When the environmental analysis is complete, the Final EA and Draft Finding of No Significant Impact (FNSI) will be made available to the public for comment for a period of 30 days. At the end of the 30-day period, the Army will consider all comments submitted by individuals, agencies, and organizations. As appropriate, the Army may then execute the FNSI and proceed with implementation of the proposed action. If it is determined that implementation of the proposed action would result in significant impacts, the Army will publish in the *Federal Register* a Notice of Intent (NOI) to prepare an environmental impact statement (EIS) or not to take the action.

Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA through Blue Grass Army Depot Public Affairs Office, Mr.

Dave Easter, Depot, 2091 Kingston Highway, Building S-2, Richmond, Kentucky 40475-500 or via e-mail to Easter.Dave@bluegrass.army.mil.

1.5 Relevant Statutes and Executive Orders

A decision on whether to proceed with the proposed action depends on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, BGAD is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act, Clean Water Act, Noise Control Act, Endangered Species Act, Migratory Bird Treaty Act, National Historic Preservation Act, Archaeological Resources Protection Act, Resource Conservation and Recovery Act (RCRA), and Toxic Substances Control Act. EOs bearing on the proposed action include EO 11988 (*Floodplain Management*), EO 11990 (*Protection of Wetlands*), EO 12088 (*Federal Compliance with Pollution Control Standards*), EO 12580 (*Superfund Implementation*), EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), EO 13101 (*Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*), EO 13123 (*Greening the Government Through Efficient Energy Management*), EO 13148 (*Greening the Government Through Leadership in Environmental Management*), EO 13175 (*Consultation and Coordination with Indian Tribal Governments*), and EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*). These authorities are addressed in various sections throughout this EA when relevant to particular environmental resources and conditions. The full text of the laws, regulations, and EOs is available on the Defense Environmental Network & Information Exchange Web site at <http://www.denix.osd.mil>.

The means available to Army installation commanders to satisfy their facilities' space requirements are subject to policies set forth in various Army Regulations (ARs). AR 210-20 (*Installation Master Planning*) establishes Army policy to maximize use of existing facilities. The regulation directs that new construction will not be authorized to meet an installation mission that can be supported by existing underutilized and adequate facilities, provided that the use of such facilities does not degrade operational efficiency.

2.0 Description of the Proposed Action

2.1 Introduction

This section describes the Army's preferred alternative for carrying out the Commission's recommendations.

The proposed action is to implement the Commission's recommendation as mandated by the BRAC legislation, Public Laws 101-510 and 107-107. The Commission's recommendation is to:

"Close the Richmond US Army Reserve Center, Maysville US Army Reserve Center and relocate and consolidate those units with Army Reserve units currently on Blue Grass Army Depot into a

new Armed Forces Reserve Center (AFRC) and Field Maintenance Facility (FMS) on Blue Grass Army Depot, KY. The new AFRC shall have the capability to accommodate Kentucky National Guard units located on Blue Grass Army Depot, KY, if the state decides to relocate those National Guard units."

To accomplish this recommendation, the KYARNG is realigning units from Richmond and Lexington and relocating FMSs from Lexington and Bluegrass Station to BGAD. At present there are no facilities on BGAD sufficient to support the KYARNG units that are being realigned to BGAD.

The Proposed action is to construct suitable facilities (an AFRC and FMS) for the KYARNG and USAR on BGAD and to reconstruct the entrance to BGAD to allow access to the AFRC without passing through BGAD security and reduce traffic congestion on US 421..

2.2 Implementation Proposed

An 80,796-square-foot (sf) AFRC and a 34,034-sf FMS would be constructed to support the USAR units currently stationed at BGAD, USAR units being realigned from Maysville and Richmond, KYARNG units from Richmond and Lexington, and FMS shops from Lexington and Bluegrass Station. The two facilities would be located north of the main entrance to BGAD. The new AFRC would have the capacity to support the KYARNG personnel assigned to BGAD. Additionally, the entrance to BGAD would be reconfigured to decrease security-related backups on US 421 and to allow potential recruits and KYARNG/USAR personnel access to the AFRC without processing through BGAD security.

3.0 Alternatives

This section presents information on the proposed action and alternatives. The preferred alternative (proposed action) is described in Section 3.1.1; the alternative location for the FMS is described in Section 3.1.2. Section 3.2 describes other alternatives that were considered early in the NEPA process but were determined to be not feasible. The no action alternative is presented in Section 3.3.

Potential alternatives were screened on the following criteria:

- Feasibility
- Compliance with BRAC Recommendations
- Environmental and Cultural Resource Constraints
- Military Constraints

3.1 Realignment Alternatives

3.1.1 Preferred Alternative – Locate the AFRC and FMS North of BGAD Main Entrance and Reconstruct the Main Entrance to BGAD

The preferred alternative is to construct an 80,796-sf AFRC and a 34,034-sf FMS to support the KYARNG and USAR units being realigned to BGAD. Table 3-1 identifies the components of the proposed facilities and the associated square footage of each component.

TABLE 3-1
Proposed Construction Components
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Facility	Square Footage (unless otherwise noted)
Armed Forces Reserve Center	80,796
Flammable Materials Facility	250
Controlled Waste Facility	300
Unheated Metal Storage Building	4,165
Paved Parking	16,488*
SUBTOTAL	Structures: 85,551 sf Parking:16,488 sy
Field Maintenance Shop	34,034
Flammable Materials Facility	175
Controlled Waste Facility	300
Unheated Metal Storage Building	2,600
Paved Parking	16,472*
SUBTOTAL	Structures: 37,109 sf Parking:16,472 sy
TOTAL	Structures: 122,660 sf Parking:32,960 sy

* Paved Parking is shown in square yards (sy).

The AFRC would be located north of the main entrance to BGAD, with the FMS located northeast of the AFRC (Figure 3-1). The entrance to BGAD would be reconstructed to alleviate traffic congestion on US 421 related to personnel waiting to enter through BGAD security and to allow potential recruits and KYARNG/USAR personnel to access the AFRC without having to pass through BGAD security.

The AFRC would provide administrative, supply, classroom, locker, latrine, and kitchen space in addition to the recruiting area. The FMS would consist of a one-story structure with mechanical and electrical equipment, a locker room, latrine, break/assembly area, physical fitness area, and a work area that would include repair and machine shops. Additional support facilities would include military and privately owned vehicle parking, fencing, sidewalks, exterior fire protection, lighting, access roads, wash platform, fuel storage and dispensing system, and work bays. The FMS is proposed to be collocated with the AFRC to reduce construction costs and allow for convenient access to the equipment of the 2123rd Transportation Company. Collocation would also provide greater ease of access by all associated units.

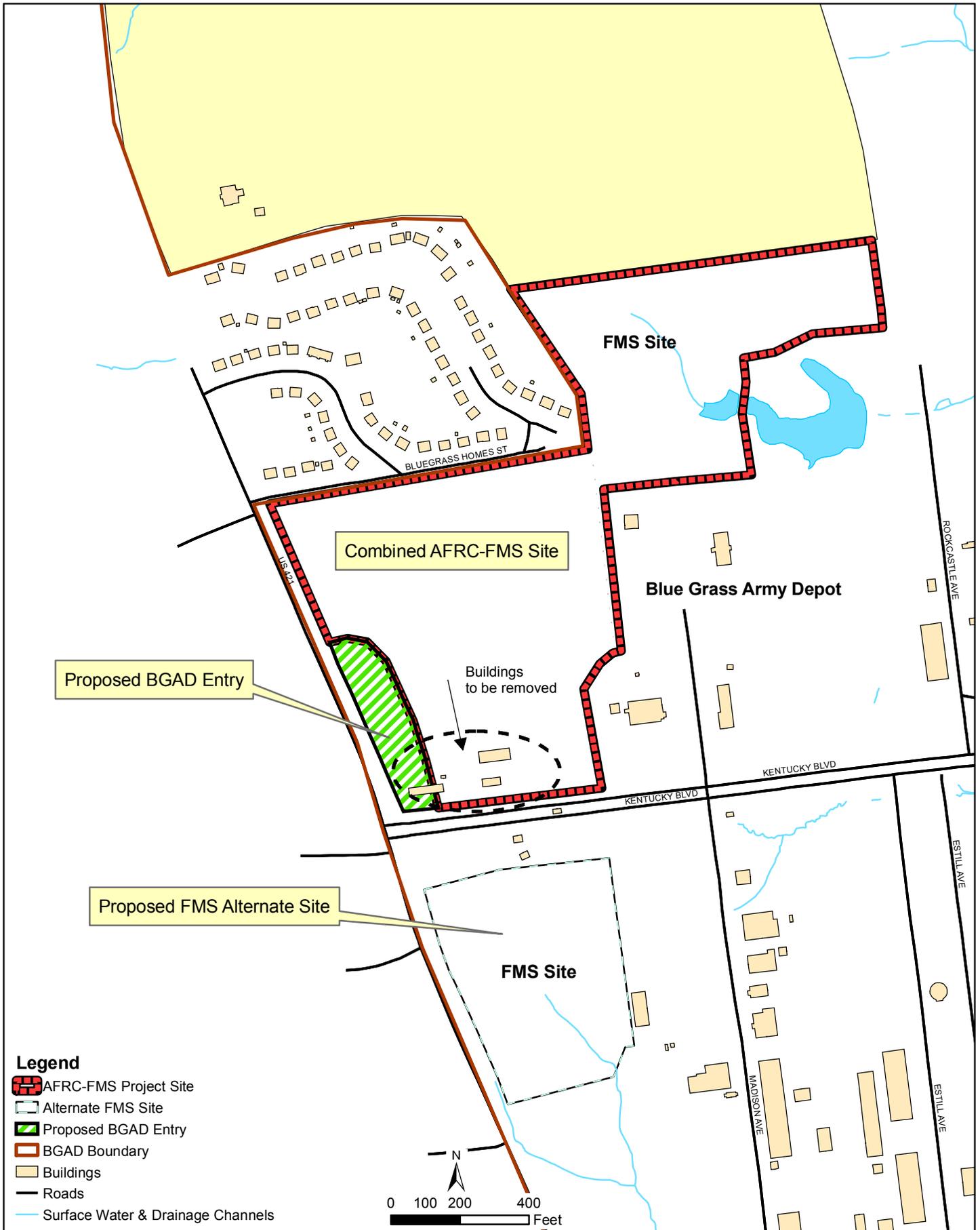


Figure 3-1

Proposed Project Area - Blue Grass Army Depot
 Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop
 Richmond, Kentucky

The new AFRC should be readily accessible and highly visible to the public to support the recruiting missions of the KYARNG and USAR. The BGAD cantonment area along US 421 provides such a site. US 421 is a major thoroughfare easily reached by the public. Locating the AFRC along US 421 would allow the potential recruits and KYARNG/USAR personnel to access the AFRC without having to pass through BGAD security. To enhance operational efficiency, the FMS is proposed to be located adjacent to the AFRC.

At present, there is no turning lane on US 421 at the BGAD entrance. Delays in security processing result in traffic congestion on US 421 during peak hours (6:30 to 8:30 AM and 2:30 to 5:30 PM). As part of the preferred alternative, the entrance to BGAD would be reconfigured. An extended access lane, parallel to US 421, would be constructed on BGAD property (Figure 3-1). The proposed changes to the entrance to BGAD are under design and cost estimates are being developed. This would result in moving the turn from US 421 into BGAD to the north approximately 1,000 feet, eliminating the obstructed view for left turns. Locating the AFRC outside the main BGAD security fence would permit unrestricted access to the AFRC by potential recruits without adversely affecting the logistical, administrative, and recruiting missions of the USAR and KYARNG.

Four buildings currently exist in the proposed project area. These buildings were determined to be obsolete and scheduled for demolition as a single project in November of 2005, independent of the Commission recommendations and development of the proposed action. BGAD consulted with the Kentucky SHPO and obtained a Memorandum of Understanding (MOU) with SHPO that covers demolition of these structures (Appendix B). BGAD previously analyzed the potential impacts of demolition of these four buildings and the Record of Environmental Consideration is provided in Appendix B. The demolition will occur in advance of the proposed action; and, therefore, the demolition of these structures is not included as a component of the proposed action.

3.1.2 Alternative Action – Locate AFRC North of BGAD Main Entrance, FMS South of BGAD Main Entrance, and Reconstruct the Main Entrance to BGAD

Under this alternative, the same facilities as described for the proposed action in Section 3.1.1 would be constructed. The AFRC would be constructed in the same location described under the preferred alternative, but the FMS facility would be constructed south of the main entrance to BGAD (Figure 3-1). The BGAD entrance would be redesigned to enhance traffic flow and to allow access to the AFRC by potential recruits and KYARNG/USAR personnel, as described for the proposed action.

Under this alternative, the AFRC would be placed outside the security fence for BGAD, facilitating access to the recruiting center; however, the FMS would be located inside the security fence and on the opposite side of the road through the main entrance. KYARNG personnel would be required to pass through BGAD security to access their support vehicles and equipment. This arrangement would result in decreased efficiency of KYARNG personnel, would increase the demand on BGAD security staff, and would also result in increased traffic at the BGAD entrance.

3.2 Alternatives Not Considered in Detail

3.2.1 Construct AFRC/FMS at Other Sites on BGAD

Other locations on BGAD were considered for the AFRC and the FMS; however, there are constraints that preclude placement of the AFRC and FMS at other locations within the installation.

The Civil War Battle of Richmond occurred in and around the current location of BGAD. Portions of the battlefield are located on BGAD along US 421 and are to the north and south of the locations considered for the KYARNG facilities in Section 3.1. These historic sites present conflicts for the placement of the proposed facilities and, depending upon the exact location, would likely result in significant impacts to known historic cultural resources.

Access to BGAD from US 421 is heavily controlled because the installation is maintained as a secure facility that provides munitions, chemical defense equipment, and special operations support to DoD actions. The security required to meet the military mission for BGAD precludes placement of the KYARNG facilities on other areas of the installation, as potential recruits would not be able to access the recruiting office.

For the reasons stated above, there are no other viable alternatives to the proposed action within BGAD. Accordingly, other alternative locations within BGAD are not further evaluated.

3.2.2 Rehabilitate and Expand the Richmond Readiness Center

Existing properties in the Richmond area were considered for locating the AFRC and FMS. The USAR Richmond Readiness Center is in poor condition and is significantly undersized to support the assigned units' missions and lacks sufficient parking to meet the need for personal vehicles from the currently assigned units. The current facility is approximately 10,500 sf located in a developed area in downtown Richmond. The site is too small to accommodate the needs of the existing and realigning USAR units, even with one of those units (the 206th Chemical Battalion) being disbanded in 2008. Therefore, a larger facility must be provided. There is no space to expand the existing Richmond KYARNG facility without acquisition of adjacent residential properties. Land acquisition was investigated and determined to be not feasible economically. If personnel are not provided with adequate facilities, the ability to meet readiness, recruiting and retention, and training objectives would be adversely affected. Additionally, use expansion of the Richmond Readiness Center would not comply with the Commission's recommendations.

FMS #3 is a small facility located at the Lexington Airport, making access difficult. Movement to and from FMS #3 creates safety issues for military and civilian traffic.

FMS #4 was constructed on BGAD in the early 1940s, does not meet army standards, is deteriorated and is beyond economical repair. The FMS is currently used for maintaining equipment in support of the peacetime mission of the 2123rd Transportation Company, 301st Chemical Company, 206th Chemical Battalion Headquarters, and 617th Military Police. FMS #4 is not large enough to accommodate current needs; its work bays are too small to support vehicles currently used by the 2123rd Transportation Company. If an upgraded facility is not provided, these military units would struggle to meet their

equipment maintenance missions and the facility would further deteriorate structurally, eventually failing to meet mission requirements.

Combined, FMS #3 and FMS #4 provide less than 25 percent of the space needed to adequately provide support for assigned units (8,611 sf of a needed 37, 109 sf). Because the current facilities are undersized for the realigning KYARNG units and acquisition of additional space is not feasible, rehabilitation and expansion of the Richmond USAR facility are not feasible and this alternative is not further evaluated.

3.3 No Action Alternative

Under the no action alternative, KYARNG would not construct the AFRC and FMS facilities on BGAD and the entrance to BGAD would not be reconstructed. Implementation of the no action alternative would result in units continuing to occupy aging, decentralized facilities that lack the capacity for expansion or consolidation, would impair the ability of units to fulfill their designated missions, and would conflict with the Commission recommendations. Under the no action alternative, the main entrance to BGAD would not be reconstructed and security-related traffic congestion would continue on US 421.

The no action alternative would not address the purpose and need for the proposed action; however, inclusion of the no action alternative serves as a benchmark for evaluation of the potential effects of the proposed federal action. Therefore, the no action alternative is evaluated in detail in this EA.

4.0 Affected Environment and Consequences

4.1 Introduction

This section describes the existing environmental and socioeconomic conditions potentially affected by the proposed action as well as the potential environmental and socioeconomic impacts of implementing the proposed action or alternatives.

This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the proposed action. Baseline conditions represent current conditions.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 651, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts. These include land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics, transportation, utilities, and hazardous and toxic substances.

Subsequent to the description of the components of the affected environment, this section presents the analysis of the direct, indirect, and cumulative environmental and socioeconomic effects that would likely occur with the proposed action or no action alternative and identifies any adverse environmental effects that cannot be avoided through project design.

4.1.1 Direct versus Indirect Effects

The terms “effect” and “impact” are synonymous as used in this EA. Effects may be beneficial or adverse and may apply to the full range of natural, aesthetic, historic, cultural, and economic resources within the project area and also within the surrounding area. Definitions and examples of direct and indirect impacts as used in this document are as follows:

- **Direct Impact.** A direct impact is one that would be caused directly by implementing an alternative and that would occur at the same time and place.
- **Indirect Impact.** An indirect impact is one that would be caused by implementing an alternative that would occur later in time or farther removed in distance but would still be a reasonably foreseeable outcome of the action. Indirect impacts may include induced changes in the pattern of land use, population density, or growth rate, and indirect effects to air, water, and other natural resources and social systems.
- **Relationship between Direct versus Indirect Impacts.** For direct impacts to occur, a resource must be present. For example, if highly erodible soils were disturbed as a direct result of the use of heavy equipment during construction of a home, there could be a direct effect on soils resulting from erosion. This could indirectly affect water quality if stormwater runoff containing sediment from the construction site were to enter a stream.

4.1.2 Short-Term versus Long-Term Effects

Effects are also expressed in terms of duration. The duration of short-term impacts is considered to be 1 year or less. For example, the construction of a building would likely expose soil in the immediate area of construction. However, this effect would be considered short-term because it would be expected that vegetation would re-establish on the disturbed area within a year of the disturbance. Long-term impacts are described as lasting beyond 1 year. Long-term impacts can potentially continue in perpetuity, in which case they would also be described as permanent.

4.1.3 Intensity of Effects

The magnitude of effects of an action must be considered regardless of whether the effects are adverse or beneficial. The following terms are used to describe the magnitude of impacts:

- **No Impact:** The action does not cause a detectable change.
- **Negligible:** The impact is at the lowest level of detection.
- **Minor:** The impact is slight but detectable.
- **Moderate:** The impact is readily apparent.
- **Major:** The impact is severely adverse or exceptionally beneficial.

4.1.4 Significance

In accordance with CEQ regulations and implementing guidance, impacts are also evaluated in terms of whether they are significant. Both short-term and long-term effects are

relevant to the consideration of significance. Significant, as defined in the CEQ regulations for implementing NEPA at 40 CFR 1508.27 requires consideration of context and intensity.

Context requires that significance may be considered with regard to society, the affected region, affected interests, and the locality. The scale of consideration for context varies with the setting and magnitude of the action. A small, site-specific action is best evaluated relative to the location than the entire world.

4.1.5 Cumulative Effects

The most severe environmental degradation may not result from the direct effects of any particular action, but from the combination of effects of multiple, independent actions over time. As defined in 40 *Code of Federal Regulations* (CFR) 1508.7 (Council on Environmental Quality [CEQ] Regulations), a cumulative effect is the

impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Some authorities contend that most environmental effects can be seen as cumulative because almost all systems have already been modified. Principles of cumulative effects analysis are described in the CEQ guide *Considering Cumulative Effects under the National Environmental Policy Act*. CEQ guidance on cumulative impacts analysis states:

For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to affected parties. (CEQ, 2006)

4.1.6 Mitigation

The alternatives considered in this EA could have environmental and socioeconomic impacts resulting from implementation that would require mitigation. Where potentially significant impacts are identified, measures that could be implemented to mitigate the magnitude of impacts will be discussed. Potential mitigation actions could include:

- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action.
- Compensating for an impact by replacing or providing substitute resources or environments.

Where no significant adverse impacts are identified, mitigation measures are not proposed. Absent mitigation, BGAD will implement best management practices (BMPs) and project design features to avoid or minimize unavoidable impacts that are less than significant.

4.2 Land Use

4.2.1 Affected Environment

4.2.1.1 Regional Geographic Setting and Location

BGAD occupies approximately 14,596 acres in Madison County, approximately 3.5 miles southeast of Richmond, Kentucky (population 27,152). Small surrounding communities include Kingston, Speedwell, and Waco. Lexington (population 260,512) is about 20 miles to the north. BGAD is bounded on all sides by private property, primarily consisting of low-density suburban housing, agricultural land, and pasture.

4.2.1.2 Installation Land

BGAD, as with other depots and ammunition facilities, requires significant buffer areas to provide sufficient safety zones around munitions storage sites. Congress authorized the Army to conduct commercial forestry, game management, and agricultural outlease operations within constraints of multiple-use natural resources management to promote active stewardship and allow controlled public access to these lands.

Local farmers and the Kentucky Department of Fish and Wildlife Resources (KDFWR) lease 11,753 acres at BGAD. The buffer zone is cross-fenced to create 10 tracts that range in size from 84 to almost 700 acres. There are also 2 tracts within the administration area and 3 within the ammunition storage area for a total of 15 tracts. These tracts are 5-year leased for agricultural purposes (typically hay production and livestock grazing) or 20-year leased (710 acres to KDFWR) for natural resources management, including habitat management and hunting. Tracts are leased by the general public for hay production or livestock grazing and by the KDFWR for wildlife management/hunting management. In addition, native seed produced by BGAD's remnant grassland stands is harvested from BGAD for grassland restoration efforts, on both BGAD and surrounding private lands. Some types of row crops (such as warm season grass, corn, alfalfa) may be experimentally planted on suitable lands.

The proposed project area is currently vacant with the exception of four small buildings scheduled for demolition. The alternative project site is a vacant grassy and gravel lot.

4.2.1.3 Surrounding Land Use

The surrounding land uses include the agricultural areas and the urban and suburban areas of Richmond, home to Eastern Kentucky University. Madison County is becoming a satellite area for Lexington and Fayette County adjacent to the north across the Kentucky River. The majority of the surrounding land use is primarily agriculture and scattered light industry (Mason & Hanger Group, 2006).

A residential area is located to the north of the proposed AFRC, north of Bluegrass Homes Street, and west of the proposed FMS (Figure 3-1).

4.2.2 Consequences

4.2.2.1 Preferred Alternative

No impact to overall land use at BGAD is expected under the preferred alternative. The proposed locations of the AFRC and the FMS are on open space within the cantonment area of BGAD that would be converted to mission-supporting use. Land uses in both areas are similar to or compatible with adjacent uses on BGAD. Construction and operation of the AFRC and FMS at the proposed locations would not impact land use in the residential area north of Bluegrass Homes Road.

4.2.2.2 Alternative Action

No impact to overall land use at BGAD is expected under the alternative action. The proposed location of the AFRC is on open space that would be converted to mission-supporting use. The alternative location for the FMS is in an area that was previously developed and is currently disturbed. Land uses in both areas are similar to or compatible with adjacent uses on BGAD. Construction and operation of the AFRC at the proposed location and the FMS at the alternate location would not impact land use in the residential area north of Bluegrass Homes Road.

4.2.2.3 No Action Alternative

No impact to overall land use at BGAD is expected under the no action alternative. Under this alternative, no construction would take place and therefore no changes to existing land use would occur.

4.3 Aesthetics and Visual Resources

4.3.1 Affected Environment

The proposed locations of the AFRC and the FMS are currently open space with scattered trees and mowed grass. A portion of the proposed AFRC location has recently been planted with tree seedlings, with the intent to create a visual buffer between BGAD and US 421. A housing area is adjacent to this site on the northern side. There are several warehouse/maintenance buildings immediately east of the site. The alternative location for the FMS site is a vacant grassy gravel lot. Both areas are relatively flat.

4.3.2 Consequences

4.3.2.1 Preferred Alternative

No impacts to aesthetics or visual resources are expected to occur as a result of implementation of the preferred alternative. Exterior building design would be compatible with the other buildings in the cantonment area. Site design would retain as many of the planted tree seedlings as possible, but at present the seedlings, within plastic tree protectors, are a visual detriment. The long-term visual environment would remain one of a military cantonment area rather than a forest façade.

The AFRC and FMS would be visible from US 421, but would be constructed within an already developed area with an array of structures and manmade features that are typical of

a military installation. The new projects would not introduce a noticeable change in this already-modified visual environment.

4.3.2.2 Alternative Action

Impacts to visual resources would be similar to those for the preferred alternative. The arrangement of the constructed facilities would be slightly different, but both facilities would be in the same general area as that for the preferred alternative.

4.3.2.3 No Action Alternative

No impacts to aesthetics or visual resources would occur, as no construction would be done. Conditions would remain as they are. The planted seedlings would be allowed to grow and mature, developing into a forest façade between BGAD and US 421.

4.4 Air Quality

4.4.1 Affected Environment

4.4.1.1 Ambient Air Quality Conditions

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS include two types of air quality standards. Primary standards protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings (EPA, 2006A). EPA has established NAAQS for six principal pollutants, which are called “criteria pollutants” (Table 4-1).

TABLE 4-1
Criteria Pollutants within NAAQS
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Pollutant	Primary Standards ¹	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m ³)	8-hour ²	None
	35 ppm (40 mg/m ³)	1-hour ²	None
Lead	1.5 µg/m ³	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m ³)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM)	50 µg/m ³	Annual ³ (Arithmetic Mean)	Same as Primary
	PM ₁₀	24-hour ²	
	PM _{2.5}	Annual ⁴ (Arithmetic Mean)	Same as Primary
		24-hour ⁵	
Ozone	0.08 ppm	8-hour ⁶	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	

TABLE 4-1

Criteria Pollutants within NAAQS

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Pollutant	Primary Standards ¹	Averaging Times	Secondary Standards
	0.14 ppm	24-hour ²	
		3-hour ²	0.5 ppm (1300 µg/m ³)

¹ ppm = parts per million, µg/m³ = micrograms per cubic meter

² Not to be exceeded more than once per year.

³ 3-year average of the weighted annual mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

⁴ 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

⁵ 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

⁶ 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 0.08 ppm.

Source: <http://www.epa.gov/air/criteria.html> (EPA, 2006A)

Areas that meet the air quality standard for the criteria pollutants are designated as being “in attainment.” Areas that do not meet the air quality standard for one of the criteria pollutants may be subject to the formal rule-making process and designated as being “in nonattainment” for that standard.

Nonattainment areas for some pollutants, including ozone, are further classified as regulated under Subpart 1 or Subpart 2, based on the magnitude of the problem. Subpart 1 (“basic” nonattainment) is applied to those areas where the problem is less severe and contains general requirements for nonattainment areas. Subpart 2 is applied to areas with severe problems and establishes a classification scheme for ozone nonattainment areas with more specific requirements. An area would be classified under Subpart 2 as marginal, moderate, serious, or severe based on the most recent 3 years of data. All other 8-hour ozone nonattainment areas are covered under Subpart 1 (EPA, 2006b).

4.4.1.2 Air Pollutant Emissions at BGAD

Federal regulations at 40 CFR 81 delineate certain air quality control regions (AQCRs), based on population and topographic criteria closely approximating each air basin. The potential influence of emissions on regional air quality would typically be confined to the air basin in which the emissions occur. Therefore, the area that may be influenced by the proposed action is the Bluegrass Intrastate AQCR, which includes the following counties: Anderson, Bourbon, Boyle, Clark, Estill, Fayette, Franklin, Garrard, Harrison, Jessamine, Lincoln, Madison, Mercer, Nicholas, Powell, Scott, and Woodford.

This region is designated as being in attainment for all criteria pollutants.

BGAD has a Title V air permit for routine operations and a separate Title V permit has been obtained for the Blue Grass Chemical Agent -Destruction Pilot Plant (BGCAPP) Facility that is planned for the near term within the BGAD boundary. BGAD is not subject to Prevention of Significant Deterioration (PSD) of air quality requirements (BGAD Environmental Office).

4.4.2 Consequences

4.4.2.1 Preferred Alternative

The proposed action would cause minor, short-term adverse impacts on air quality due to construction activities. These impacts would not be expected to occur past the construction phase; therefore, additional ambient air quality modeling has not been performed. All construction emissions would likely be local and limited to the duration of the construction activities.

During construction, air quality impacts could occur from dust carried offsite and combustion emissions from construction equipment. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind.

BMPs that would be implemented during construction to reduce or eliminate fugitive dust emissions would include the following:

- *Sprinkling/Irrigation.* Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, which ultimately could increase the dust problem. Mechanical removal of mud from tires would be implemented if necessary.
- *Vegetative Cover.* In areas not expected to handle vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch.* Mulching can be a quick and effective means of dust control for recently disturbed areas.

No substantial changes in air quality from the baseline conditions would be likely with implementation of the preferred alternative. Fugitive dust would increase in the immediate area during construction, but impacts would be temporary and minor. Dust abatement measures discussed above would limit the direct and secondary creation of dust.

Emissions would be generated by engine exhaust from construction workers' personal vehicles and off-road construction equipment, including earth-moving equipment, cranes, and trucks. The emissions would primarily consist of nitrogen oxides (NO_x), sulfur dioxide (SO₂), PM, carbon monoxide (CO) and volatile organic compounds (VOCs), which are typical of the emissions commonly observed at construction sites and would not extend past the construction period. The construction associated with the proposed action is similar in magnitude to the construction of a typical small strip mall and would result in a negligible short-term impact to local air quality.

The addition of approximately 35 new employees at BGAD could increase the vehicle emissions; however, the vast majority of these employees would have no appreciable change in driving time because they would remain within the same AQCR; this increase

would likely be negligible. Monthly training activities would result in increased vehicle traffic, but this would be limited to weekends (Mason & Hanger Group, 2006). Any impacts would be temporary and minor.

Minor permanent sources of air emissions would be created by the proposed action, including building heating units, water heaters, and reserve generators; however, these small sources would result in no more than a *de minimus* impact on air quality. Reserve generators would require prior notification to the BGAD Environmental Office. This would allow BGAD to coordinate with the Kentucky Department for Air Quality (DAQ) for any updates required to the post's Title V permit.

The reconstruction of the entrance to BGAD would result in reduced traffic congestion on US 421, which would result in reduced military and civilian vehicle emissions in the region. Military traffic would flow more smoothly into and out of BGAD, resulting in less engine idle and lower total emissions. Civilian congestion on US 421 to and from Richmond would be reduced with similar impacts on civilian vehicle emissions. The improvement in regional air quality would be permanent and minor.

4.4.2.2 Alternative Action

The alternative action consists of changing the location of the FMS facility. Under this alternative, impacts to air emissions would be the same as those of the preferred alternative.

4.4.2.3 No Action Alternative

Under the no action alternative, existing air pollutant emissions associated with the operation of active buildings would remain. No emissions due to construction or added vehicle traffic would occur. There would be no change to the entrance of BGAD and traffic backups would continue. There would be no reduction in vehicle emissions from improved traffic flow.

4.5 Noise

4.5.1 Affected Environment

For determination of impacts to human receptors, noise measurements are weighted to increase the contribution of noises within the normal range of human hearing and decrease the contribution of noises outside the normal range of human hearing. Human hearing is best approximated by using an A-weighted scale (dBA). When sound pressure doubles, the dBA level increases by 3. Psychologically, most humans perceive a doubling of sound as an increase of 10 dBA (EPA, 1974; Danish Wind Industry Association, 2003). Sound pressure decreases with distance from the source. Typically, the amount of noise is halved as the distance from the source doubles (EPA, 1974; Danish Wind Industry Association, 2003).

The BGAD cantonment area is located in a rural area with no nearby industrial production or mining activities. Noise levels in the location of the preferred alternative reflect the small office environment of the cantonment area and the highways adjacent to it. Noise levels in the cantonment area would be expected to range from 60 to 70 dBA, which is typical of commercial areas near roads with heavy traffic (Cowan, 1999). BGAD has an open air

munitions demolition area, although it is not near the proposed project area). The residential area north of Bluegrass Homes Street is adjacent to the proposed action site.

4.5.2 Consequences

4.5.2.1 Preferred Alternative

Minor short-term adverse impacts to noise from construction activities would be likely from implementation of the preferred alternative. The noise impacts would be restricted to the daylight hours during weekdays. Noise levels would be increased in the residential area north of Bluegrass Homes Street during construction. The noise increase would be most noticeable during clearing and grading activities. Because of the timing of the construction-related noise (weekdays during the day), persons outdoors at the nearby houses could experience nuisance level noise that could interfere with normal conversations. Inside of homes, the noise could be a minor nuisance and result in a need to increase the sound level of televisions and radios. The minor, temporary impacts from construction noise would be less than significant.

No negative health impacts would result from construction-related noise.

Routine operation of the FMS would result in intermittent vehicle noise that could be audible in the adjacent subdivision. These noises typically would be limited to normal daytime working hours and could result in minor nuisance disturbance.

Training activities would occur on weekends, with increased noise associated with that training activity; however, these actions would occur during daytime hours, of short duration, and typically remote from potentially sensitive receptors. Operation of the AFRC and FMS would not appreciably alter the noise environment. There could be a long-term reduction in traffic noise resulting from improved traffic flow following reconstruction of the BGAD entrance and reduced vehicle idling on US 421 adjacent to the cantonment area.

4.5.2.2 Alternative Action

The alternative action consists of changing the location of the FMS facility. Under this alternative, impacts of noise from construction activities would be similar to those of the preferred alternative. Noise levels would be slightly greater in the BGAD cantonment area, as the construction site for the FMS would be nearer the cantonment, but they would be reduced at the residential area north of Bluegrass Homes Street, as the FMS construction and operation would be more distant from the houses.

4.5.2.3 No Action Alternative

No impacts to noise from construction activities would be likely from the no action alternative, as no construction would occur and there would be no increase in training.

4.6 Geology and Soils

4.6.1 Affected Environment

4.6.1.1 Geologic and Topographic Conditions

The geology of the BGAD area consists of limestone, dolomite, shale, and recent alluvium. The Ashlock formation occurs in central and western BGAD and is composed of limestone. The Drakes formation is dolomite and occurs throughout BGAD. The Brassfield Dolomite is found in small areas along the southeastern boundary. Additional rocks composed of shale and dolomite from the Silurian and Devonian periods are found as remnants along the southeastern boundary (BGAD, 2005). Structural features in the area include the Tate Creek Fault, which crosses the northwestern boundary and swings southeastwardly. A splinter fault branches from the Tate Creek Fault and passes under the western part of Lake Vega. BGAD lies in Seismic Risk Zone No. 1 (BGAD, 2005).

Sinkholes, which form by the dissolution of subsurface limestone, occur on BGAD. One small sinkhole occurs near the project site.

BGAD is part of the Outer Bluegrass Region. It is level to gently sloping and moderately well-drained. Elevations range from 850 feet along Muddy Creek to 1,040 feet above sea level at several places in the southwestern portion of BGAD. Most slopes exceeding 15 percent on BGAD are associated with drainage channels or man-made terraces (BGAD, 2005). Rock depth is generally 3-9 feet below the surface, with rock outcrops occasionally occurring on steep slopes and bluffs. Level areas and gentle slopes typically have a soil overburden.

Both the proposed and the alternative project areas are relatively flat (Mason & Hanger Group, 2006). A small sinkhole is located in the general project vicinity, within the area proposed for the AFRC.

4.6.1.2 Soils

There are four major soil associations found on BGAD: Lowell-Faywood-Cynthiana (rock outcrop), Shelbyville-Mercer-Nicholson, Beasley-Brassfield-Otway, and Lawrence-Mercer-Robertsville (BGAD, 2005). Mercer silt loam soils are found in the northern portion of the proposed project area and the southern part of the alternate FMS location. Newark silt loam occurs within the majority of the proposed project area, including the area proposed for redesigning the BGAD entrance. Nicholson silt loam occurs within the northern part of the alternate FMS location (Figure 4-1).

Mercer soils have a silt loam or silty clay loam topsoil with a silty clay loam subsoil formed partly in loess and partly in clayey residuum from phosphatic limestones. Mercer soils are moderately well-drained with a fragipan typically at a depth of 30 inches on BGAD. Permeability is slow and slopes range from 0 to 12 percent. (BGAD, 2005; Natural Resources Conservation Service [NRCS], 2006).

Newark soils consist of very deep, somewhat poorly drained soils formed in mixed alluvium from limestone, shale, siltstone, sandstone, and loess. Slope ranges from 0 to 3 percent. Permeability is moderate (NRCS, 2006).

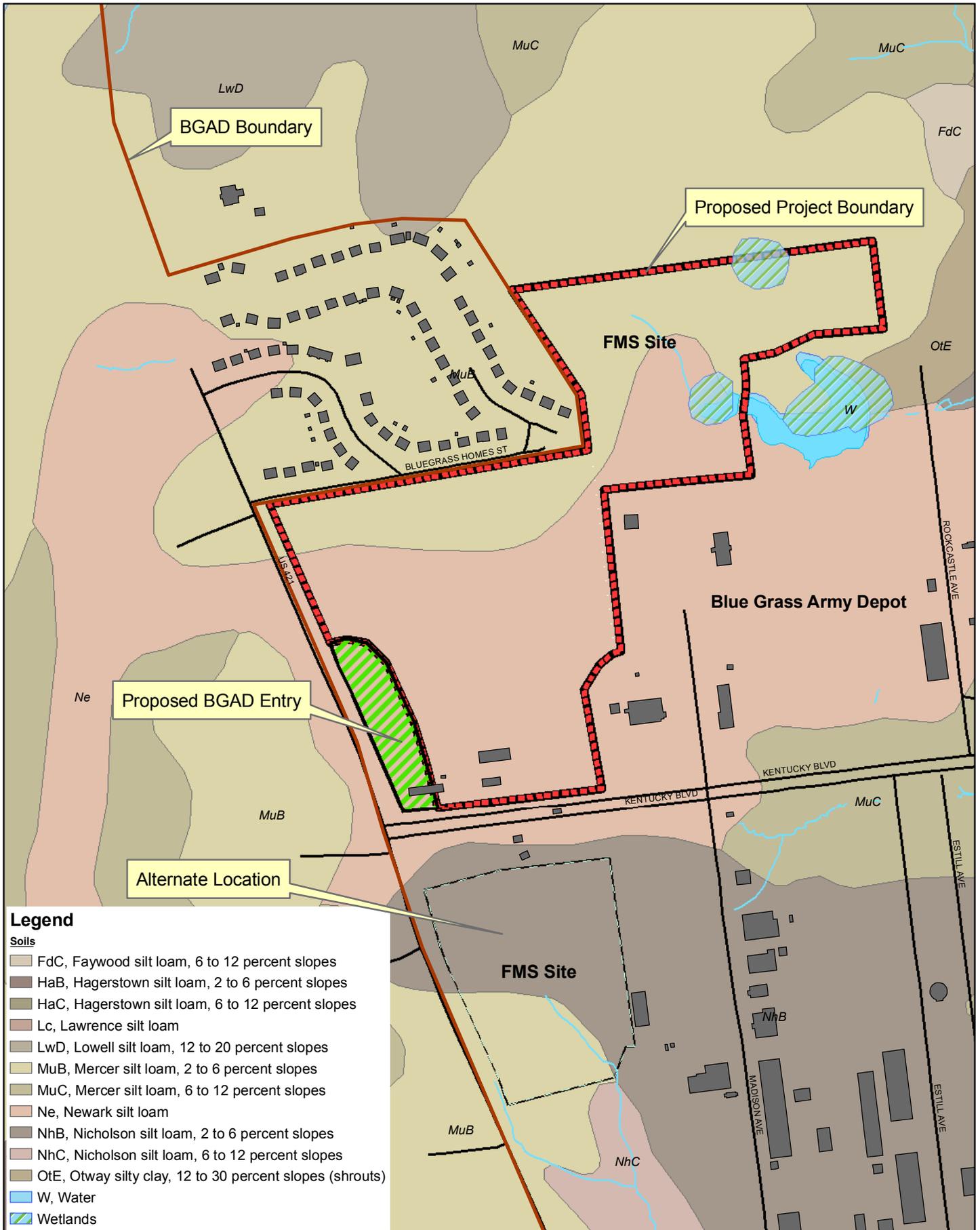


Figure 4-1

Soils and Wetlands - Proposed Project Area - Blue Grass Army Depot
 Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop
 Richmond, Kentucky

The Nicholson series consists of very deep, moderately well drained soils with a fragipan occurring between 16 and 30 inches in the subsoil. The soils formed in a mantle of loess or silty material underlain by residuum of limestone, calcareous shale, and siltstone. Nicholson soils typically occur on upland ridgetops with slopes ranging from 0 to 20 percent. Permeability is moderate above the fragipan and slow or very slow in the fragipan (NRCS, 2006).

4.6.1.3 Prime Farmland

There are hay and cattle leases on BGAD, but none within the proposed project areas (email correspondence from Mr. Greg Lawson, Directorate of Services & Support, Real Property Office, BGAD, 2006). Much of the land on BGAD has been designated prime farmland including virtually all of the Battle of Richmond area (BGAD, 2004). The proposed project area contains no lands designated as prime farmland (Crystal Renfro, USDA NRCS, personal communication, June 5, 2006).

The alternate site proposed for the FMS contains an area of soil that would be considered prime farmland, but this part of the site has been paved and is no longer suitable for the prime farmland designation (Crystal Renfro, USDA NRCS, personal communication, June 5, 2006).

4.6.2 Consequences

4.6.2.1 Preferred Alternative

Minor impacts would be likely from implementation of the preferred alternative. Under the preferred alternative, up to approximately 8 to 10 acres of land would be disturbed as a result of construction. The majority of the construction proposed would occur on previously developed land and continued development of these parcels would not cause significant impacts to natural soils. There are no special qualities associated with the soils or geologic resources at these sites. Implementation of construction BMPs would minimize impacts associated with erosion. These BMPs would include, but not be limited to, installation of silt fencing and sediment traps, and revegetation of disturbed areas as soon as possible, as appropriate. Therefore, potential impacts to geological resources as a result of the preferred alternative would be minimal.

Site design would avoid the sinkhole and prevent the sinkhole from impacting structures. Site design also would address the possibility of new sinkholes forming or the existing sinkhole enlarging. BMPs implemented during construction to control erosion and sedimentation and post-construction stormwater BMPs would minimize the potential for impacts to the sinkhole by preventing silt and sediments from entering the sinkhole. Site design would result in stormwater being diverted to the BGAD stormwater system and away from the sinkhole, minimizing the potential for future expansion of the sinkhole or additional subsidence.

4.6.2.2 Alternative Action

The impacts of the alternative action would be the same as for the preferred alternative.

4.6.2.3 No Action Alternative

Under the no action alternative, none of the proposed construction or demolition activities would occur, and there would be no new impacts to geological and soil resources.

4.7 Water Resources

4.7.1 Affected Environment

4.7.1.1 Surface Water

Streams

BGAD is drained by headwater tributaries of Big Muddy, Otter, and Silver Creeks within the Kentucky River basin. Most streams on BGAD flow intermittently and are generally dry during late summer and early fall, with pools remaining in deeper parts of the streams. A segment of Muddy Creek has been impounded to create Lake Vega. An unnamed intermittent tributary of Muddy Creek flows across the center of the proposed FMS site. Another unnamed tributary named intermittent stream flows from the center of the alternate FMS site to the southeastern corner of that site. No other streams are within the project area.

Lakes

There are three major lakes on BGAD, but none are within the proposed project areas. Lake Vega, the largest impoundment on BGAD (BGAD, 2005), is a 135-acre lake that is located in the central portion of BGAD. Lake Gem is a 35-acre lake located in the southwestern corner of BGAD on a tributary of Hayes Fork Creek. Lake Buck is a 15-acre lake located in the southwestern corner of BGAD (BGAD, 2005). A small un-named pond lies partially within the area proposed for the FMS, extending into the southeastern portion of the FMS site. Numerous small ponds to provide water for livestock and wildlife are present on BGAD but outside the project area (BGAD 2005).

4.7.1.2 Hydrogeology /Groundwater

BGAD is underlain by Upper Ordovician limestone, which is generally limited as a groundwater source. Most wells in the region do not produce over 100 gallons per minute (gpm) and are not reliable for any purposes other than domestic use. Wells and springs in the area are likely to go dry in late summer and early fall (BGAD, 2005).

Based on groundwater maps prepared by the Bluegrass Area Development District, wells in and around BGAD should yield from less than 100 gpm up to approximately 500 gpm. No water level data are available from wells or borings on BGAD (BGAD, 2005).

Floodplains

Floodplains must be managed in accordance with EO 11988, Floodplain Management. Floodplains are low, typically flat areas adjoining surface waters including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year. The magnitude of a floodplain depends on numerous factors, including the size of the watercourse, size of the watershed, topography adjacent to the watercourse, soils and geology, and density of development in the watershed and adjoining the watercourse (BGAD, 2005).

Areas classified as riparian and floodplain habitats are small and confined to narrow bands along first-, second-, and third-order streams throughout BGAD. There are no floodplains along the headwater streams within the project area.

Coastal Zone

BGAD is not located within a coastal zone.

4.7.2 Consequences

4.7.2.1 Preferred Alternative

Minor impacts to water resources would occur as a result of implementing the preferred alternative. An intermittent stream flows through the proposed FMS site. As this intermittent channel is the primary conduit for stormwater runoff from the land to the north of the site, the flow path would be maintained. This stream would be culverted for approximately 150 linear feet to allow construction of the FMS. All other existing water resources would be avoided during the building design phase. Culverting approximately 150 linear feet of intermittent stream would be a less than significant impact as the water conveyance capacity of the channel would not be reduced.

A construction stormwater permit, required of all land-disturbing activities greater than 1 acre in size, will be obtained from the Kentucky Division of Water prior to initiation of clearing and grading activities associated with construction. The construction contractor must comply with all requirements of the construction stormwater permit to minimize the potential for construction-related stormwater to impact downstream water resources through increased turbidity, siltation, and erosion. Compliance may include installation and maintenance of appropriate stormwater BMPs to minimize impacts associated with erosion following precipitation. These BMPs could include, but not be limited to, installation of silt fencing and sediment traps, and revegetation of disturbed areas as soon as possible.

Post-construction stormwater controls, which may include infiltration and detention areas, would be included in the facility design to control levels of stormwater runoff to minimize the potential for downstream impacts to water resources and also minimize the potential for incidental runoff entering the spring.

4.7.2.2 Alternative Action

The impacts of the alternative action would be similar to those for the preferred alternative. An intermittent stream flows through the alternate FMS site. This stream would be culverted for approximately 200 linear feet to allow construction of the FMS. All other existing water resources would be avoided during the building design phase. Culverting approximately 200 linear feet of intermittent stream would be a less than significant impact as the water conveyance capacity of the channel would not be reduced.

Construction and post-construction stormwater controls would be the same as described for the preferred alternative.

4.7.2.3 No Action Alternative

Under the no action alternative, none of the proposed construction or demolition activities would occur, and there would be no new impacts to water resources.

4.8 Biological Resources

4.8.1 Affected Environment

4.8.1.1 Vegetation

Vegetation of the Bluegrass Region typically consists of fragmentary forest dominated by sugar maple and black walnut on moist sites. Oak, hickory, and ash dominate on drier sites while red cedar and honey locust are the predominate trees on the driest sites.

BGAD has two plant communities that are listed as Natural Communities of Kentucky by the Kentucky State Nature Preserves Commission (KSNPC): Bluegrass Mesophytic Cane Forest and Calcareous Mesophytic Forest. Eleven botanically significant areas were located during a 2-year study by Eastern Kentucky University (BGAD, 2005). None of these areas are within the proposed project area.

The proposed project area is mowed grass and sparsely wooded field, except for the cluster of buildings scheduled for demolition in the southwest corner of the site. Seedling trees have been planted in portions of this site along US 421. The alternate site for the FMS is a vacant grass and gravel lot (Mason & Hanger Group, 2006).

4.8.1.2 Wildlife

The fauna of BGAD is well documented. A variety of faunal surveys and studies have been conducted on BGAD, beginning in 1982. Appendix C provides a list of vertebrate species documented as occurring at BGAD through these studies.

4.8.1.3 Sensitive Species

The federally threatened bald eagle (*Haliaeetus leucocephalus*) has been observed on BGAD, but the species has not been documented nesting on the facility (BGAD, 2005). No other federally listed species have been documented on BGAD, though BGAD does have potentially suitable habitat for two federally endangered bats: the Indiana bat (*Myotis sodalis*) and the gray bat (*Myotis grisescens*).

Seven avian species of concern in the Central Hardwoods Bird Conservation Region occur on BGAD: the short-eared owl (*Asio flammeus*), red-headed woodpecker (*Melanerpes erythrocephalus*), wood thrush (*Hylocichla mustelina*), prairie warbler (*Dendroica discolor*), cerulean warbler (*Dendroica cerulea*), Louisiana waterthrush (*Seiurus motacilla*), and Henslow's sparrow (*Ammodramus henslowii*) (BGAD, 2005).

Plant surveys by KSNPC in 1994 documented the running buffalo clover (*Trifolium stoloniferum*), which is listed as endangered by USFWS and threatened by the Commonwealth of Kentucky. Subsequent surveys have identified the continued presence of running buffalo clover on BGAD. No previous surveys have identified running buffalo clover within 0.5 mile of the project area (BGAD, 2005). The proposed project area and the alternate FMS location are generally unsuitable for running buffalo clover habitat because these areas are completely open and lack a tree canopy.

A letter was sent to the USFWS to determine the known locations of any federally listed threatened or endangered plant or animal species within the project area. USFWS responded on May 31, 2006 (Appendix A).

KDFWR lists 14 faunal, state-listed species that are known from Madison County. Of these, the northern leopard frog (*Rana pipiens*), Henslow's sparrow, and great blue heron (*Ardea herodias*) are known to occur on BGAD. All three species are classified as species of special concern.

There are no KSNPC-listed mammals or reptiles known to occur on BGAD (BGAD, 2005). The northern leopard frog (special concern) is the only KSNPC-listed amphibian known to occur on BGAD. The following KSNPC-listed birds have been observed on BGAD: pied-billed grebe (*Podilymbus podiceps*), bald eagle, northern shoveler (*Anas clypeata*), short-eared owl, great egret (*Ardea alba*), spotted sandpiper (*Actitis macularia*), least flycatcher (*Empidonax minimus*), vesper sparrow (*Pooecetes gramineus*), black-crowned night heron (*Nycticorax nycticorax*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), blackburnian warbler (*Dendroica fusca*), blue-winged teal (*Anas discors*), hooded merganser (*Lophodytes cucullatus*), common moorhen (*Gallinula chloropus*), great blue heron, sharp-shinned hawk (*Accipiter striatus*), dark-eyed junco (*Junco hyemalis*), bank swallow (*Riparia riparia*), rose-breasted grosbeak (*Pheucticus ludovicianus*), Henslow's sparrow, bobolink (*Dolichonyx oryzivorus*), and the sedge wren (*Cistothorus platensis*) (BGAD, 2005).

Plant surveys by KSNPC in 1994 documented the spinulose wood-fern (*Dryopteris carthusiana*), which is listed as special concern by Kentucky, on BGAD, but there is no listing by the USFWS for this species (BGAD, 2005).

4.8.1.4 Wetlands

The USFWS completed a wetlands inventory of BGAD in 2000 (BGAD, 2005). This inventory identified 235 acres of Palustrine wetland habitat and 145 acres of Lacustrine, unconsolidated bottom, deepwater habitat. Palustrine forested wetlands predominated (48 percent of total wetlands). Linear wetlands totaled 74 miles and were primarily associated with streams. Water regimes range from permanently inundated to seasonally flooded.

Two emergent wetlands occur within the proposed site for the FMS. One of these is associated with the margin of the unnamed pond and the other is located along an ephemeral drainage (Figure 4-1).

4.8.2 Consequences

4.8.2.1 Preferred Alternative

Minor impacts to common flora and fauna would result from implementation of the preferred alternative. Indirect impacts would be associated with loss of habitat and temporary displacement during construction. No federally or state-listed plant or animal species or communities are known to occur within the project area and no impacts to such species are anticipated. All tree removal will be during the time of year established by FWS as safe for removal because the Indiana bat would not be using trees for roosting habitat. The small sinkhole in the general area of the AFRC does not provide suitable habitat for either the gray bat or Indiana bat. Construction and post-construction stormwater BMPs

will be implemented to minimize the potential for incidental impact to the subsurface system. Surveys conducted in 2004 and 2005 found no running buffalo clover in the area where the AFRC and FMS would be constructed. Because of the poor quality habitat resulting from no tree canopy cover, running buffalo clover is unlikely to occur in the proposed project area. Therefore, no direct impacts to running buffalo clover are anticipated. Impacts would be confined to the immediate project area and would not affect the nearest known population of running buffalo clover, more than 0.5 mile from the site.

Minor impacts to wetlands would result from implementation of the preferred alternative. Two wetland areas occur within the general area proposed for the FMS and site design will avoid encroachment on these areas to the extent practicable. The wetland in the southeast corner of the proposed FMS area would be avoided completely. The wetland located along the northern boundary of the proposed FMS area would be partially filled. Most of this wetland lies within the mandatory force protection set-back from the perimeter and that portion would not be impacted. A small part of this wetland extends into the area that would be paved under the proposed action. The wetland loss would be 0.02 acres of emergent cat-tail wetland, which would be less than significant. Approximately 95 percent of the impacted wetland would remain undisturbed and would continue to provide the comparable ecological functions following implementation of the project. Additional wetlands in the project vicinity and region would remain unimpacted.

All required permits would be obtained prior to impacting the wetland. All permit conditions would be implemented to minimize impacts. A wetland delineation would be conducted prior to any ground-disturbing activities to determine the actual acreage to be affected. Except for the unavoidable impact to approximately 0.02 acres of emergent wetland, wetlands would be avoided during construction and BMPs implemented to control stormwater runoff would minimize the potential for incidental impacts to wetlands.

4.8.2.2 Alternative Action

There would be no wetland impacts resulting from implementation of the alternative action.

4.8.2.3 No Action Alternative

Under the no action alternative, construction activities would not occur and there would be no new impacts to biological resources.

4.9 Cultural Resources

Within this section, the terms “significant” and “significance” are used in the context of the NEPA and the National Historic Preservation Act (NHPA). When referring to structures, objects, or artifacts, the terms are used as defined in 36 CFR Part 800 for the NHPA. When referring to impacts, the terms are applied relative to their meaning under the NEPA.

Regulations implementing Section 106 of the NHPA, 36 CFR Part 800.8, encourage the coordination of two processes: (1) the review of possible impacts to the environment under NEPA and (2) the assessment of effects of undertakings required under the NHPA. It is the intent of BGAD that this EA support both of these independent reviews.

4.9.1 Affected Environment

Cultural resources are defined in AR 200-4, Cultural Resources Management, Headquarters, Department of the Army, as:

- Historic Properties, protected through the NHPA
- Archaeological Resources, protected through the Archaeological Resources Protection Act (ARPA)
- Cultural Items, as specified in the Native American Graves Protection and Repatriation Act (NAGPRA)
- Sacred Sites, as referenced in the American Indian Religious Freedom Act (AIRFA) and Executive Order 13007
- Collections of artifacts and records pertaining to them as directed in 36 CFR 79

Cultural resources that would be potentially impacted by a proposed action are historic properties and archaeological resources. The Area of Potential Effect (APE) for purposes of compliance with Section 106 of the NHPA includes the immediate vicinity of the proposed construction, where direct effects of the construction might affect historic properties. The APE also includes adjacent areas where the setting of existing historic structures may be compromised as a result of construction. Additionally, there could be long-term indirect impacts to cultural or archeological resources resulting from increased human use of an area following implementation of the project.

BGAD adopted an *Integrated Cultural Resources Management Plan (ICRMP)* in 2002 to guide installation activities and ensure proper management of all cultural resources on BGAD. BGAD has entered into a Programmatic Agreement (PA) with the Kentucky SHPO which allows BGAD to conduct undertakings without formal SHPO consultation under certain circumstances such as in areas that were previously disturbed, or in areas within existing road rights-of-way.

4.9.1.1 Prehistoric and Historic Background

The cultural resources chronology for what is now the Commonwealth of Kentucky includes the Paleo-Indian, Archaic, Woodland, and Fort Ancient periods. The *Blue Grass Army Depot CRMP* completed by New South Associates and Tetra-Tech in 2002 provides a detailed description of the history of BGAD during these periods (New South Associates, 2002). The following sections provide a brief summary of the prehistoric and historic background of BGAD.

The Paleo-Indian Period is regarded as the first cultural occupation in North America and extended from 10,500 B.C. to 7,500 B.C. This was followed by the Archaic Period, which lasted from 7,500 B.C. until 800 B.C. The beginning of the Archaic Period was marked by changes in technological and subsistence patterns, with a continual trend of increased population numbers and defined territories. The Woodland Period (800 B.C.- A.D. 1000) is marked by the appearance of ceramics. The Fort Ancient Period, characterized by hunting and gathering societies, persisted from approximately A.D. 1000 until A.D. 1750, when Europeans settled in the region and displaced indigenous cultures.

Between 1540 and 1730, direct and indirect European contact with indigenous peoples of the Bluegrass area led to major changes. During the mid- to late 1600s, a period of marked depopulation occurred. By the early 1700s, repopulation of the area was underway and continued until the mid-1700s, when indigenous people were again subjected to population reductions or displacement.

During and after the Civil War, the Bluegrass region suffered less economically than other parts of the South due to the importance of livestock raising. The turn-of-the-century and post-World War I periods brought utilities and improved roads/streets to urban areas. Rural areas typically lacked these amenities until the 1930s. The beginning of the World War II era brought new prosperity to the region due in part to the building of BGAD.

4.9.1.2 Cultural Resource Inventories and Section 106 Consultants

A Phase I cultural resources investigation of the 23-acre project area was conducted in 2006 by Brockingham and Associates, Inc. in compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended 2004) and the Archaeological Resources Protection Act of 1989. The archaeological survey included shovel testing, surface inspection, and walkover at 20-meter intervals across the entire 23-acre project area as well as systematic metal detection across 8 of the 23 acres that abut the delineated Civil War battle of Richmond area.

No evidence of the Battle of Richmond was discovered during the survey. Three cultural resources were encountered:

- A historic artifact scatter representing the remains of rural farm and residential structures condemned and razed at the time of the Army's land acquisition ca. 1943
- A small collection of militaria
- A prehistoric isolate composed of a single piece of lithic debitage (waste material produced during the manufacturing of stone tools)

None of these resources are recommended to be eligible for the National Register, as they do not satisfy the criteria established for listing. No further work is recommended regarding these items. The SHPO has concurred with these findings (Appendix A).

4.9.1.3 Native American Resources

There were several Native American groups within the state and region, although no group has claimed special ties to BGAD lands. These groups include the Shawnee, the six nations of the Iroquois (Cayuga, Mohawk, Oneida, Onondaga, Seneca, and the Tuscarora), the Cherokee, and the Creek. Native American tribes contacted with regard to this EA are identified in Section 7.0.

In the case of inadvertent discovery the KYARNG will notify BGAD and follow either BGAD standard operating procedure number 5 for inadvertent discovery, as defined in the BGAD ICRMP (BGAD, 2002), KYARNG standard operating procedure number 4 for inadvertent discovery, as defined in the KYARNG ICRMP (KYARNG, 2003), or as specified in the Memorandum of Understanding between BGAD and the Eastern Band of Cherokee Indians (Appendix A).

4.9.2 Consequences

4.9.2.1 Preferred Alternative

No significant negative impacts to architectural resources would be likely as a result of implementation of the proposed action. No buildings listed, eligible for listing, or potentially eligible for listing on the NRHP occur in the project area.

No significant negative impacts to archaeological resources would be likely as a result of implementation of the proposed action. A Phase I cultural resources investigation of the 23-acre project area was conducted in 2006. No resources were found that were potentially eligible for the National Register. A letter of concurrence was received from SHPO dated June 5, 2006 stating that no Historic Properties exist within the proposed project area (Appendix A). Therefore, no impacts to cultural resources are expected from implementation of the proposed action.

4.9.2.2 Alternative Action

No significant negative impacts to cultural resources would occur as a result of implementation of the alternative action. The proposed southern location of the FMS has been heavily disturbed by previous construction activity; therefore, according to the MOA between BGAD and the SHPO, no formal consultation is required prior to construction within this area.

4.9.2.3 No Action Alternative

Under the no action alternative, none of the proposed construction activities would occur and there would be no impacts to cultural resources.

4.10 Socioeconomics

4.10.1 Affected Environment

Richmond-Madison County is a growing part of the Lexington-Fayette-Frankfort-Richmond Combined Statistical Area (Lexington CSA), as defined by the Office of Management and Budget in December 2005 (U.S. Census Bureau, 2006a). The Lexington CSA is defined as the Region of Influence (ROI) for evaluating regional economic impacts of the proposed action at BGAD.

4.10.1.1 Economic Development

The Richmond-Madison County area is undergoing economic expansion. In the past three years, three companies relocated manufacturing facilities to the county, creating approximately 100 jobs through the investment of approximately \$2,800,000. In addition, 19 companies expanded, creating approximately 200 new jobs through an investment of approximately \$20,000,000 (Kentucky Cabinet for Economic Development, 2006).

Table 4-2 presents the total employment in Madison County, Lexington CSA, and the Commonwealth of Kentucky. The Lexington CSA accounts for 13 percent of total employment in the Commonwealth.

TABLE 4-2

Employment in Madison County, Lexington CSA, and Commonwealth of Kentucky,
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	2001	2004	Percent of KY
Madison County	37,565	39,640	2%
Lexington CSA	299,988	301,957	13%
Kentucky	2,305,386	2,332,840	100%

Source: U.S. Bureau of Economic Analysis (2006)

Richmond-Madison County has lower unemployment (4.8%) than the Lexington CSA (5.1%), the Commonwealth of Kentucky (6.1%), and the United States (5.1%) (Kentucky Cabinet for Economic Development, 2006).

4.10.1.2 Demographics

Table 4-3 presents the population for Madison County and the ROI (the Lexington CSA).

TABLE 4-3

Population of Madison County and Lexington CSA for 2001 and 2005, and Projected for 2010
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	Estimated 2001 Population	Estimated 2005 Population	Projected 2010 Population
Madison County	72,408	76,677	83, 859
Lexington CSA	621,255	650,659	689,736

Source: Kentucky Cabinet for Economic Development, 2006

Table 4-4 presents the per capita income for Madison County, Lexington CSA, the Commonwealth of Kentucky, and the United States. Madison County and the Commonwealth of Kentucky both have lower per capita incomes than the national mean (USCB, 2000).

TABLE 4-4

Per Capita Income of Madison County, Lexington CSA, Commonwealth of Kentucky, and United States
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	2000 Per Capita Income	2004 Per Capita Income
Madison County	\$20,170	\$22,160
Lexington CSA	\$30,254	\$32,722
Kentucky	\$24,412	\$27,265
United States	\$29,845	\$33,050

Source: U.S. Bureau of Economic Analysis (2006)

4.10.1.3 Housing

There are 11,857 housing units in the City of Richmond. Approximately 9% or 1,060 are vacant and available for personnel moving into the area (Richmond Chamber of Commerce, 2006).

There are no military family housing units or schools on BGAD. Some unaccompanied soldiers periodically reside in the Reserve billeting area. These areas are not located near the project area.

4.10.1.4 Quality of Life

Table 4-5 presents the number of individuals in Madison County, the Commonwealth of Kentucky and the nation who live below the poverty level. The percentage of individuals who live below the poverty level is higher in Madison County and Kentucky than the nation as a whole.

TABLE 4-5
Population below Poverty Level of Madison County, Commonwealth of Kentucky, and United States
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	Individuals Living Below the Poverty Level	Percent
Madison County	10,952	16.8 %
Lexington CSA	80, 141	12.9%
Kentucky	621,096	15.8 %
United States	33,899,812	12.4 %

Source: U.S. Census Bureau (2000)

4.10.1.5 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994), requires federal agencies to achieve environmental justice "to the greatest extent practicable" by identifying and addressing "disproportionately high adverse human health or environmental effects of...activities on minority populations and low income populations." Table 4-6 displays the demographics for Madison County, the Commonwealth of Kentucky, and the United States. The percentage of each race for Madison County and Kentucky as compared to the total for each race in the United States is shown in parentheses below each count.

TABLE 4-6

Profile of Demographic Characteristics of Madison County, Commonwealth of Kentucky, and United States
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Other Race	Two or More Races
Madison County	65,918	3,150	196	510	15	240	843
Lexington CSA	503,465	83,745	1,180	15,283	186	7,517	9,879
Kentucky	3,640,889	295,994	8,616	29,744	1,460	22,623	42,443
United States	211,460,626	34,658,190	2,475,956	10,242,998	398,835	15,359,073	6,826,228

Source: U.S. Census Bureau (2000)

4.10.1.6 Protection of Children

BGAD follows the guidelines specified for the protection of children in EO 13045 – *Protection of Children from Environmental Health Risks and Safety Risk* (Federal Register: April 23, 1997, Volume 62, Number 78). This EO requires that federal agencies make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks. Table 4-7 presents the number of individuals in Madison County, the Commonwealth of Kentucky and the nation who are below the age of 18. The percentage of individuals who are below the age of 18 is higher in Madison County and Kentucky than in the nation as a whole.

TABLE 4-7

Individuals Under the Age of 18 in Madison County, Commonwealth of Kentucky, and United States
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Geographic Area	Individuals Under the Age of 18	Percent
Madison County	15,512	25.7 %
Lexington CSA	132,327	21.3%
Kentucky	994,818	24.6 %
United States	33,899,812	12.4 %

Source: U.S. Census Bureau (2000)

4.10.2 Consequences

4.10.2.1 Preferred Alternative

The addition of approximately 35 full-time personnel at BGAD would be a negligible impact on socioeconomic conditions of the region. The proposed action would result in relocation of 16 military and 2 civilian jobs into the region, the remaining jobs would just be relocated within the region. The slight increase in full-time jobs would have a *de minimus* impact on the regional economy. The additional training that would occur at BGAD is already occurring in the region and would not result in any changes to the regional economy.

The expenditures and employment associated with construction at BGAD would result in minor beneficial effects to the regional economy that would cease when construction is complete. The U.S. Army's Economic Impact Forecast System (EIFS) model is used to assess the economic effects of base realignment and closure recommendations. Results are compared to Rational Threshold Values (RTVs) to evaluate the significance of these effects in relation to the regional economy. RTVs are positive and negative percent changes in population, employment, sales volume and income that represent an acceptable range around the maximum historic fluctuations within the ROI over the last 20 years or so. The EIFS model, its inputs, outputs, and significance measures are discussed in more detail in Appendix D.

Approximately 65 percent of the total construction cost of \$24.7 million would be spent during the peak year (2007). The project would produce approximately 150 full-time equivalent construction jobs. Table 4-8 displays the rate of direct and total economic growth (which includes induced growth) in the industrial sectors affected by those expenditures and construction jobs, as estimated by the EIFS model.

It is anticipated that economic effects associated with the proposed construction projects would be experienced mostly in the ROI and it is this geographical area for which effects are reported.

The proposed action would be confined to BGAD and would not disproportionately impact minority or low income populations. The proposed action would not create any environmental health or safety risks for children.

TABLE 4-8
EIFS Model Output for the Proposed Construction Projects
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Indicator	Projected Change	Percentage Change	RTV Range
Direct Sales Volume	\$13,800,820	--	--
Total Sales Volume	\$51,753,060	0.23%	11.42% to -7.57%
Direct Income	\$6,731,007	--	--
Total Income	\$13,698,310	0.11%	10.16% to -6.35%
Direct Employment	215	--	--
Total Employment	399	0.11%	3.16% to -3.79%
Local Population	0		
Local Off-base Population	0	--	1.22% to -0.5%

4.10.2.2 Alternative Action

The impacts of the alternative action would be the same as for the proposed action.

4.10.2.3 No Action Alternative

There would be no socioeconomic impacts resulting from the no action alternative.

4.11 Transportation

4.11.1 Affected Environment

The entrance to BGAD is located along the eastern side of US 421 and leads onto Kentucky Boulevard. Currently, traffic often backs up on US 421, a two-lane high-speed roadway. There are poor line-of-sight conditions and no turning lane for the current entrance. This situation causes traffic hazards to those entering BGAD and traveling along US 421.

Madison County has almost 42,000 daily commuters to and from work. Approximately 10,500 Madison County residents commute to another county for work, while approximately 7,500 Madison County jobs are held by persons who live in another county. Approximately 24,000 additional Madison County workers reside within the county (Kentucky Cabinet for Economic Development, 2006).

4.11.2 Consequences

4.11.2.1 Preferred Alternative

A long-term moderate beneficial impact to traffic conditions at the entrance to BGAD would be expected under the proposed action. The proposed action would provide a new multi-lane entrance into the facility north of the current entrance onto a portion of the proposed AFRC site. This would allow a staging area off of US 421 for vehicles waiting to enter the facility, thus reducing backup on US 421 during peak hours. The proposed modification would provide access to the AFRC without passing through BGAD security, thus alleviating the existing traffic congestion on US 421. The traffic congestion on US 421 at the entrance to BGAD is hazardous for both BGAD personnel and for citizens of the community. There is an obstructed view for left-turning traffic and no turn lane to allow through traffic to pass. The reconstructed entrance would eliminate the obstructed view, improve on-post efficiency, and also enhance the community through reduced idle time for BGAD personnel and citizens.

As part of the proposed action, 32 full-time and approximately 460 part-time employees/military personnel would be relocated to BGAD. The full-time employees would increase the amount of traffic entering BGAD daily; however, based on the improved entrance, this would be a minor and less than significant impact on traffic or transportation at BGAD or on US 421. The part-time personnel would be associated primarily with weekend training, when the traffic load entering BGAD would be reduced. Additionally, the trainees would be spread across four weekends each month, resulting in a maximum of approximately 120 trainees on any given weekend. The increased weekend traffic is not expected to have a significant impact on traffic and transportation at BGAD or on US 421.

The addition of approximately 35 additional workers with associated commutes would result in an increase of less than 0.1 percent in daily commuters traveling in Madison County. This would be a negligible impact on traffic flow in Madison County.

4.11.2.2 Alternative Action

The impacts of the alternative action would be the same as for the proposed action.

4.11.2.3 No Action Alternative

A long-term negative impact to traffic conditions at the entrance to BGAD would be expected under the no action alternative. Under the no action alternative, the entrance to BGAD would not improve, entry to BGAD would continue to be disrupted, and interference with civilian traffic along US 421 that is unrelated to BGAD activities would continue.

4.12 Utilities

4.12.1 Affected Environment

4.12.1.1 Potable Water Supply

BGAD has its own source of potable water, primarily Lake Vega. BGAD would supply fire protection water to the facilities through existing hydrants. Potable water for the AFRC and FMS would be supplied by Madison County.

4.12.1.2 Wastewater System

BGAD owns and operates its own sewer system. The BGAD system would provide sanitary sewer service to the AFRC and FMS (Mason & Hanger Group, 2006).

4.12.1.3 Storm Water System

The Kentucky Department of Environmental Protection has issued BGAD a general permit for stormwater point sources on the installation. Point source stormwater is directed into ditches and ponds and eventually flows into Muddy Creek, which is a tributary of the Kentucky River.

4.12.1.4 Energy Sources

There is an existing 3-phase overhead line located across US 421 from the proposed project area. Kentucky Utilities Corporation would provide electrical power to the AFRC and FMS. Columbia Gas would provide natural gas to the AFRC and FMS (Mason & Hanger Group, 2006).

A geothermal heat pump system is proposed as the primary heating, ventilation, and air conditioning (HVAC) source for the buildings. A vertical closed loop well field is envisioned, which would require a significant number of vertical boreholes, tied together through a distribution system, with isolating headers and piping. Approximately 2 to 3 acres would be required for this well field. Closed loop well fields may be placed under areas designated for parking where site space is limited (Mason & Hanger Group, 2006).

4.12.1.5 Communications

Telephone service is provided by Bell South via a telephone cable installed along US 421. Adelphia provides high speed internet access via a T1 line and cable television to BGAD (Mason & Hanger Group, 2006).

4.12.1.6 Solid Waste

Solid waste disposal is currently contracted through BFI Waste Services, LLC, a subsidiary of Allied Waste Services. Construction debris is disposed of at local/regional landfills that accept construction wastes.

4.12.1.7 Emergency Services

BGAD has fire, rescue and emergency medical services available for the AFRC and FMS. The AFRC and FMS would be linked into the BGAD emergency communications system via a transmitter.

Security for the site would be provided by the KYARNG and local Madison County and City of Richmond police services.

4.12.2 Consequences

4.12.2.1 Preferred Alternative

A long-term minor beneficial impact on utilities would be expected under the preferred alternative. New construction would require that new utilities, including energy, communications, water, and sewer, be installed.

The increased demand for electricity from the Kentucky Utilities Corporation and natural gas from Columbia Gas to supply the AFRC and FMS would not unduly burden the existing supply.

There would be increased demand on the BGAD wastewater treatment system, but this system has excess capacity and is capable of providing service to the AFRC and FMS. The additional flow provided by the AFRC and FMS will allow BGAD to reduce the introduction of clean water to the system to maintain treatment volumes. When the KYARNG use will be highest (weekends) BGAD personnel will not be on the installation.

The BGAD fire protection system has excess capacity and can provide service to the AFRC and FMS without reduction of service ability to other areas.

Post-construction stormwater controls would also need to be included. Providing fire, rescue and emergency medical services to the AFRC and FMS would require no additional resources for the BGAD Fire Department, and (because of the proximity) services for the AFRC and FMS would be delivered more efficiently than if provided by county services.

4.12.2.2 Alternative Action

The impacts of the alternative action would be the same as for the proposed action.

4.12.2.3 No Action Alternative

No impact to utilities would result under the no action alternative.

4.13 Hazardous and Toxic Substances

4.13.1 Affected Environment

4.13.1.1 Hazardous Substance Use, Storage, and Disposal

BGAD is primarily a munitions and chemical protection equipment storage facility. Activities involving hazardous substances, including hazardous wastes, are managed in compliance with BGAD's RCRA Hazardous Waste Storage Permit.

The ammunition supply and storage area is BGAD's largest land use and comprises nearly two-thirds of the installation acreage. The ammunition storage area is systematically laid out in groups of earth-covered magazine structures ("igloos") that are spaced to ensure safe storage of ammunition. The ammunition storage area also contains facilities for testing and maintenance of ammunition, as well as facilities to detonate obsolete ammunition (demilitarize). Safety and security are maintained by buffer zones.

The BGAD boundary fence establishes a safe distance between the public and ammunition operations. A second fence in the interior of BGAD further separates ammunition operations from the public. The buffer zone is the area between these two fences. Ammunition operations are not conducted in the buffer zone; however, this buffer zone is used by BGAD for compatible purposes such as wildlife management, forest management, agricultural outleasing, and hunting.

The BGCAPP Facility has been permitted, but is not yet constructed. Once this facility is operational, BGAD will conduct pilot testing on disposal of chemical weapons.

Hazardous wastes generated from painting operations, de-painting operations, and other maintenance activities are disposed off site according to federal regulations. Hazardous waste generated during daily operation is stored in the depot's two permitted hazardous waste storage igloos and ninety-day storage area until disposed off site. The conventional munitions are recycled, disposed on and off site. Hazardous wastes at BGAD are stored, transported, and disposed of in accordance with state and federal regulations.

BGAD also stores and transports munitions and other devices containing radioactive materials in accordance with Headquarters U.S. Army Field Support Command Nuclear Regulatory Commission (NRC) License (SUC-1380), which authorizes the activities at BGAD. BGAD provides training and annual refresher courses on the proper handling and storage of these materials for personnel handling items containing radioactive materials. Periodic, as well as annual, leak tests are performed on the storage areas containing radioactive materials and the individual munitions or devices containing radioactive materials, in accordance with the NRC license. There is a small amount of radioactive waste generated at BGAD. This waste is stored in a central location until it is collected by a contractor and transported off-base to an approved disposal site.

BGAD holds a permit from the Commonwealth of Kentucky for the storage of non-chemical weapons hazardous materials and for the storage of chemical munitions and associated hazardous wastes. This permit became effective in October 2005 and continues through September 30, 2014.

4.13.1.2 Site Contamination and Cleanup

There are no Installation Restoration Program (IRP) sites in the location of the preferred alternative.

4.13.2 Consequences

4.13.2.1 Preferred Alternative

Construction of the preferred alternative is not expected to generate hazardous or toxic substances, nor change the manner in which existing hazardous or toxic substances are generated, stored, or disposed on BGAD.

Operation of the AFRC and FMS would result in use or generation of small amounts of regulated substances, including cleaning solvents, mineral spirits, and oils and lubricants for vehicles and equipment. All hazardous and toxic substances that would be used or generated would be handled and disposed of in compliance with BGAD's RCRA Hazardous Waste Storage Permit. Any hazardous wastes generated would be transferred from the AFRC or OMS to the BGAD hazardous waste storage igloos inside the fence for ultimate disposal.

The only interaction with BGAD hazardous and toxic substances handling and storage would occur at the hazardous waste storage igloos. There would be no impacts to the preferred alternative from ongoing or planned operations at BGAD and implementation of the preferred alternative would not impact ongoing or planned operations at BGAD.

4.13.2.2 Alternative Action

The impacts of the alternative action would be the same as for the proposed action.

4.13.2.3 No Action Alternative

No impact to hazardous or toxic substances would be likely as part of the no action alternative. The no action alternative would not increase or decrease the existing generation or use of hazardous or toxic substances on BGAD, nor would it change the manner in which existing hazardous or toxic substances are stored or disposed.

4.14 Cumulative Effects Summary

The proposed action has limited potential to interact with future or recently completed projects at BGAD or in the Richmond Area. The three buildings within the proposed AFRC site would be demolished in advance of implementation of the proposed action and, when the demolition is completed, there would be no interaction with other projects. Once operational, there would be minimal interaction among AFRC/FMS personnel and BGAD staff. There would be no change in the relationship of the AFRC and the non-military community, just a relocation of the services by approximately 3 miles. All potential impacts, except for traffic on US 421, would be limited to the BGAD facility and would not extend into the surrounding community.

There would be a loss of prime farmland through conversion to AFRC, FMS, and associated parking areas; however, this prime farmland is not currently in crop production or active

pasture and is not used for agricultural purposes. No impact on food production would result from loss of prime farmland on BGAD.

The BGCAPP Facility is planned for the secure portion of BGAD. This facility disposes of munitions currently stored at BGAD. The potential impacts of construction and operation of this facility have already been evaluated. The BGCAPP Facility would be remote from the proposed action and would not have direct interaction with construction and operation of the AFRC and OMS. The spatial separation of the two projects would preclude interaction of construction impacts. The operation of the BGCAPP Facility would have only air emissions as a potential impact, and these emissions would be regulated under the Title V air permit issued for the facility. Compliance with the Title V Air Permit would prevent cumulative or incremental effects from operation of the BGCAPP Facility and the proposed action.

4.15 Mitigation Summary

Implementation of the proposed action would not result in significant impacts to the environmental or socioeconomic resources. Because all impacts are less than significant, no mitigation is proposed. This section summarizes the procedures and project design features that would be implemented as part of the proposed action to avoid or minimize impacts to the greatest extent possible.

BGAD would obtain any required permits, approvals, or certifications prior to implementing construction activities.

Personnel conducting construction activities would strictly adhere to all applicable occupational safety requirements during construction activities.

Generation of fugitive dust is unavoidable during construction. Specific project design features that would be implemented to minimize or eliminate impacts from fugitive dust include use of sprinkling, irrigation, or mulching to prevent generation of airborne dust and the use of revegetation and mulching as soon as work is complete to minimize the exposure of bare soil.

Construction-related noise would occur, but would be limited to weekdays and daylight hours to minimize disturbance to residents living north of Bluegrass Homes Road.

Appropriate BMPs that would be implemented and maintained to minimize the potential for stormwater runoff and resultant downstream impacts to water quality during construction could include, but would not be limited to, use of silt fencing and sediment traps, and revegetation/mulching of disturbed areas as soon as possible.

5.0 Findings and Conclusions

5.1 Findings

Table 5-1 summarizes the consequences of the preferred alternative and the no action alternative. The following sections provide a summary of the anticipated impacts of each alternative.

5.1.1 Consequences of the Preferred Alternative

Implementation of the preferred alternative would result in minor short-term adverse impacts to air quality from construction, negligible adverse impacts to air quality resulting from operation of reserve generators and building heating and air conditioning, temporary construction-related noise, minor alteration of topography and soils, *de minimus* impacts from construction and post-construction stormwater, minor adverse impacts on common flora and fauna, and minor generation of construction-related waste. The preferred alternative would cause minor encroachment on an emergent wetland, resulting in loss of 0.02 acres of the wetland, and culverting approximately 150 linear feet of intermittent stream. More than 95 percent of the wetland would be unimpacted. The primary hydrologic function of the stream is to convey stormwater runoff from adjacent land to the north and this function would be retained in the project.

Long-term beneficial impacts to transportation would result from the enhanced entry to BGAD from US 421. This modification to the BGAD entry also would result in minor long-term beneficial impacts to air quality resulting from reduced vehicle idle time and associated reduced vehicle emissions associated with improved traffic flow on US 421. There would be no impact to all other resources evaluated in this EA.

5.1.2 Consequences of the Alternative Action

Implementation of the alternative action would result in impacts similar to those of the proposed action. Impacts would differ in that the Alternative action would not impact wetlands, but would result in culverting approximately an additional 50 linear feet of stream.

5.1.3 Consequences of the No Action Alternative

There would be long-term negative impacts to transportation under the no action alternative. There would be no impact to all other resources evaluated in this EA from the no action alternative.

5.2 Conclusions

Based upon the findings presented above, it has been concluded that no significant environmental or socioeconomic impacts would result from the preferred alternative (proposed action). Therefore, it is not necessary to prepare an EIS to address the proposed action and a FNSI should be issued.

TABLE 5-1
Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Land Use	No Change from Baseline Conditions	No Impact	No Impact
Aesthetics and Visual Resources	No Change from Baseline Conditions	No Impact	No Impact

TABLE 5-1

Summary of Potential Environmental and Socioeconomic Consequences

Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Air Quality	No Change from Baseline Conditions	<p>Minor short-term impact from construction related fugitive dust that would be controlled through appropriate BMPs.</p> <p>Minor beneficial impact from improved traffic pattern at entrance and associated reduced vehicle emissions.</p> <p>Minor impact from building and water heaters and reserve generators.</p>	<p>Minor short-term impact from construction related fugitive dust that would be controlled through appropriate BMPs.</p> <p>Minor beneficial impact from improved traffic pattern at entrance and associated reduced vehicle emissions.</p> <p>Minor impact from building and water heaters and reserve generators.</p>
Noise	No Change from Baseline Conditions	<p>Less than significant construction-related: appropriate worker safety measures would be implemented; no long-term effects from operation.</p> <p>Nuisance Disturbance at nearby residential area possible.</p>	<p>Less than significant construction-related: appropriate worker safety measures would be implemented; no long-term effects from operation.</p> <p>Nuisance Disturbance at nearby residential area possible.</p>
Geology and Soils			
Geology/ Topography	No Change from Baseline Conditions	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.
Soils	No Change from Baseline Conditions	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Change from Baseline Conditions	No Impact	No Impact
Water Resources			
Surface Water	No Change from Baseline Conditions	Approximately 150 feet of intermittent stream would be culverted. Use of appropriate stormwater controls would minimize potential for indirect impacts.	Approximately 200 feet of intermittent stream would be culverted. Use of appropriate stormwater controls would minimize potential for indirect impacts.
Hydrogeology/ Groundwater	No Change from Baseline Conditions	No Impact	No Impact
Floodplains	No Change from Baseline Conditions	No Impact	No Impact

TABLE 5-1

Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Stormwater	No Change from Baseline Conditions	Less than significant: use of appropriate BMPs and stormwater controls would prevent impacts from construction activities. Stormwater controls would be designed to prevent post-construction runoff from exceeding pre-construction runoff.	Less than significant: use of appropriate BMPs and stormwater controls would prevent impacts from construction activities. Stormwater controls would be designed to prevent post-construction runoff from exceeding pre-construction runoff.
Biological Resources			
Vegetation	No Change from Baseline Conditions	Minor adverse impact to common flora.	Minor adverse impact to common flora.
Wildlife	No Change from Baseline Conditions	Minor adverse impact to common fauna.	Minor adverse impact to common fauna.
Wetlands	No Change from Baseline Conditions	Less than significant loss of approximately 0.02 acres of emergent wetland.	No Impact
Sensitive Species	No Change from Baseline Conditions	No Impact	No Impact
Cultural Resources			
Historic Resources	No Change from Baseline Conditions	No Impact	No Impact
Archeological Resources	No Change from Baseline Conditions	No Impact	No Impact
Native American Resources	No Change from Baseline Conditions	No Impact	No Impact
Socioeconomics			
Economic Development	No Change from Baseline Conditions		
Demographics	No Change from Baseline Conditions	No Impact	No Impact
Housing	No Change from Baseline Conditions	No Impact	No Impact
Environmental Justice	No Change from Baseline Conditions	No Impact	No Impact
Protection of Children	No Change from Baseline Conditions	No Impact	No Impact
Transportation	Long-term negative impact to traffic flow.	Long-term benefit to traffic flow.	Long-term benefit to traffic flow.

TABLE 5-1

Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center and Field Maintenance Shop

Resource	Environmental and Socioeconomic Consequences		
	No Action	Preferred Alternative	Action Alternative
Utilities			
Potable Water	No Change from Baseline Conditions	Minimal Impact, slight increase in demand as water will be purchased from local utility	Minimal Impact, slight increase in demand as water will be purchased from local utility
Wastewater	No Change from Baseline Conditions	Minimal Impact, slight increase in demand for BGAD service; system has capacity and increased flow will provide volume to maintain treatment without use of clean water	Minimal Impact, slight increase in demand for BGAD service; system has capacity and increased flow will provide volume to maintain treatment without use of clean water
Energy	No Change from Baseline Conditions	Minimal Impact, slight increase in demand as electricity will be purchased from local utility	Minimal Impact, slight increase in demand as electricity will be purchased from local utility
Solid Waste	No Change from Baseline Conditions	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities.	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities.
Hazardous Materials, Wastes, IRP Sites, and Stored Fuels			
Hazardous/Toxic Materials	No change in current use on BGAD.	No change in current use on BGAD from construction. Less than significant from minor use quantities of cleaners, solvents, and lubricants associated with operation of AFRC and FMS.	No change in current use on BGAD from construction. Less than significant from minor use quantities of cleaners, solvents, and lubricants associated with operation of AFRC and FMS.
IRP	No Change from Baseline Conditions	No Impact	No Impact
Indirect and Cumulative Impacts	No Change from Baseline Conditions	No Impact	No Impact

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9.0 Persons Consulted

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Frankfort Ecological Services Field Office
U.S. Fish and Wildlife Service
3671 Georgetown Road
Frankfort, KY 40601

David L. Morgan
Executive Director and State Historic Preservation Officer
State Historic Preservation Office
300 Washington Street
Frankfort, KY 40601

Crystal Renfro
USDA NRCS

Kenneth Brown
BGAD Master Planning

Alan R. Colwell
BGAD Natural Resources

Nathan White
BGAD Cultural Resources

Ramesh Melarkode
BGAD Environmental

Phillip Williams
BGAD Environmental

William Durfee
BGAD Fire and Emergency Services

James Bastin
BGAD Fire and Emergency Services

Greg Lawson
BGAD Real Property Office

Faith Fiene
KYARNG, Environmental Program Manager

Thomas W. Fugate
KYARNG, NEPA/Cultural Resources

Lieutenant John Barger
KYARNG, Facility Operations

Lieutenant Joseph W. Sloan
KYARNG, Master Planning

10.0 Acronyms and Abbreviations

A.D.	Anno Domini
AFRC	Armed Forces Reserve Center
AIRFA	American Indian Religious Freedom Act
AR	Army Regulations
ARPA	Archaeological Resources Protection Act
AQCRs	Air Quality Control Regions
BC	Before Christ
BGAD	Blue Grass Army Depot
BMP	Best Management Practice
BRAC	Base Realignment and Closure
CEQ	President's Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSA	Combined Statistical Area
DAQ	Department for Air Quality
dB	decibel

dBA	A-weighted decibel level
DoD	Department of Defense
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EPA	U.S. Environmental Protection Agency
EO	Executive Order
FNSI	Finding of No Significant Impact
FMS	Field Maintenance Shop
KDFWR	Kentucky Department of Fish and Wildlife Resources
KSNPC	Kentucky State Nature Preserves Commission
KYARNG	Kentucky Army National Guard
Lexington CSA	Lexington-Fayette-Frankfort-Richmond Combined Statistical Area
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NO _x	Nitrogen Oxides
PM	Particulate Matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RTV	Rational Threshold Value
sf	square feet
SHPO	State Historic Preservation Offices
SO ₂	Sulfur Dioxide
sy	square yards
US 421	United States Highway 421
VOC	Volatile Organic Compound

Appendix A

Agency Scoping

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CH2MHILL

CH2M HILL
2127 University Park Drive
Suite 360
Okemos, MI 48864
Tel 517.347.3404
Fax 517.347.3793

May 2, 2006

Mr. Lee Andrews
Field Supervisor - Frankfort Ecological Services Field Office
U.S. Fish and Wildlife Service
3671 Georgetown Road
Frankfort, KY 40601

Subject: BRAC Environmental Assessment (EA) at Bluegrass Army Depot, Kentucky

Dear Mr. Andrews:

CH2M HILL is currently assisting Blue Grass Army Depot (BGAD) with preparation of an Environmental Assessment (EA) for construction of permanent facilities (Armed Forces Reserve Center and Field Maintenance Shop) for the Kentucky Army National Guard (KYARNG) that will be located east of Highway 421 and north of the main entrance to BGAD. The EA is being prepared in accordance with Council on Environmental Quality regulations to comply with the National Environmental Policy Act of 1969.

This letter is being sent as part of the agency scoping for the EA. This letter requests your input with regard to any issues of concern to the U.S. Fish and Wildlife Service (USFWS) relevant for consideration in the NEPA analysis.

The KYARNG is realigning personnel as directed by the BRAC Committee. KYARNG units from Lexington, Bluegrass Station, and Richmond are being realigned to BGAD. Implementation of the proposed action will provide BGAD with adequate facilities to consolidate and support the reserve units currently assigned to BGAD, the KYARNG units from Richmond U.S. Army Reserve Centers, the Lexington Field Maintenance Shop #3, and the Bluegrass Station Field Maintenance Shop #4. The existing facilities for the Richmond KYARNG are incapable of supporting the full complement of realigned units. Existing facilities at BGAD are located on a hillside upon which there is no room for future expansion to house the realigned units. KYARNG must provide appropriate facilities for its units to meet readiness, recruiting and retention, and training objectives.

This letter is not a request for consultation with the USFWS. Any consultation that may be required as a result of the proposed project would be handled directly by Bluegrass Army Depot. If you have any questions please give me a call at (517) 347-3138 ext. 36.

Sincerely,

CH2M HILL

Laura Haught
Environmental Scientist



United States Department of the Interior

FISH AND WILDLIFE SERVICE

3761 Georgetown Road
Frankfort, Kentucky 40601

May 31, 2006

Ms. Laura Haught
Environmental Scientist
CH2MHill, Inc.
2127 University Park Drive
Suite 360
Okemos, Michigan 48864

Subject: FWS #06-0832; BRAC Environmental Assessment at Blue Grass Army Depot,
Madison County, Kentucky

Dear Ms. Haught:

Thank you for your correspondence of May 2, 2006, regarding the preparation of an Environmental Assessment for construction of permanent facilities (Armed Forces Reserve Center and Field Maintenance Shop) for the Kentucky Army National Guard (KYARNG) at Blue Grass Army Depot (BGAD), Madison County, Kentucky. The KYARNG is realigning personnel so that units from Lexington (Field Maintenance Shop #3), Bluegrass Station (Field Maintenance Shop #4), and Richmond (U.S. Army Reserve Center) will be stationed at BGAD. Your letter requested a response from our office with regard to any issues of concern relevant for consideration in the NEPA analysis. We have reviewed your information and offer the following comments.

Information available to the Service does not indicate that wetlands exist in the vicinity of the proposed project. However, our wetland determination has been made in the absence of a field inspection and does not constitute a wetland delineation for the purposes of Section 404 of the Clean Water Act. The Corps of Engineers should be contacted if other evidence, particularly that obtained during an on-site inspection, indicates the potential presence of wetlands or other jurisdictional waters (e.g., streams).

Running buffalo clover (*Trifolium stoloniferum*), a federally endangered plant species, is known to occur on BGAD and may occur within the proposed project site. The species occupies habitats ranging from stream banks and low mesic (moderately moist) forests to lawns and cemeteries. The population on BGAD represents the largest concentration of patches in Kentucky and is very significant with regard to the overall recovery of the species. You should survey the project area to determine the presence or absence of this species in an effort to determine if potential impacts to this species are likely. A qualified biologist, and preferably one who holds the appropriate collection permits for this species, must undertake such surveys, and we would appreciate the opportunity to approve the biologist's survey plan prior to the survey being undertaken and to review all survey results, both positive and negative. If this species is identified, we request written notification of such occurrence(s) and further

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coordination and consultation with you. We suggest that a qualified botanist survey the site during the growing season to determine the presence or absence of this species and that you coordinate with us to determine the adequacy of measures to protect it.

Roosting and foraging habitat for the endangered Indiana bat (*Myotis sodalis*) and endangered gray bat (*Myotis grisescens*) may exist within the proposed project area. Based on this information, we believe that: (1) forested areas in the vicinity of and on the project area may provide potentially suitable summer roosting and foraging habitat for the Indiana bat and potentially suitable foraging habitat for the gray bat (if suitable roosting sites are present); and (2) caves, rockshelters, and abandoned underground mines in the vicinity of and on the project area may provide potentially suitable winter hibernacula habitat for the Indiana bat and/or potentially suitable summer roosting and winter hibernacula habitat for the gray bat. Our belief that potentially suitable habitat may be present, and possibly occupied by one or both of these species, is based on the information provided in your correspondence, the fact that much of the project site and surrounding areas contain forested habitats that are within the natural ranges of these species, and our knowledge of the life history characteristics of these species.

The Indiana bat utilizes a wide array of forested habitats, including riparian forests, bottomlands, and uplands for both summer foraging and roosting habitat. Indiana bats typically roost under exfoliating bark, in cavities of dead and live trees, and in snags (i.e., dead trees or dead portions of live trees). Trees in excess of 16 inches diameter at breast height (DBH) are considered optimal for maternity colony roosts, but trees in excess of 9 inches DBH appear to provide suitable maternity roosting habitat. Male Indiana bats have been observed roosting in trees as small as 3 inches DBH.

Prior to hibernation, Indiana bats utilize the forest habitat around the hibernacula, where they feed and roost until temperatures drop to a point that forces them into hibernation. This "swarming" period lasts, depending on weather conditions in a particular year, from about September 15 to about November 15. This is a critical time for Indiana bats, since they are acquiring additional fat reserves and mating prior to hibernation. Research has shown that bats exhibiting this "swarming" behavior will range up to five miles from chosen hibernacula during this time. For hibernation, the Indiana bat prefers limestone caves, sandstone rockshelters, and abandoned underground mines with stable temperatures of 39 to 46 degrees F and humidity above 74 percent but below saturation.

Gray bats roost, breed, rear young, and hibernate in caves year round. They migrate between summer and winter caves and will use transient or stopover caves along the way. For hibernation, the roost site must have an average temperature of 42 to 52 degrees F. Most of the caves used by gray bats for hibernation have deep vertical passages with large rooms that function as cold air traps. Summer caves must be warm, between 57 and 77 degrees F, or have small rooms or domes that can trap the body heat of roosting bats. Summer caves are normally

located close to rivers or lakes where the bats feed. Gray bats have been known to fly as far as 12 miles from their colony to feed.

Because we have concerns relating to these species on this project and due to the lack of occurrence information available on these species relative to the proposed project area, we would typically recommend the following relative to Indiana bats and gray bats:

1. Based on the presence of numerous caves, rockshelters, and underground mines in Kentucky, we believe that it is reasonable to assume that other caves, rockshelters, and/or abandoned underground mines may occur within the project area, and, if they occur, they could provide winter habitat for Indiana bats. Therefore, we recommend that you survey the project area for caves, rockshelters, and underground mines, identify any such habitats that may exist on-site, and avoid impacts to those sites pending an analysis of their suitability as Indiana bat habitat by this office.
2. We also recommend that you only remove trees within the project area between October 15 and March 31 in order to avoid impacting summer roosting Indiana bats. However, if any Indiana bat hibernacula are identified on the project area or are known to occur within 10 miles of the project area, we recommend you only remove trees between November 15 and March 31 in order to avoid impacting Indiana bat swarming behavior.
3. The proposed project could disturb foraging habitat for gray bats along Muddy Creek and its tributaries. We recommend that you provide information to this office regarding the potential for the proposed project to cause sedimentation or other degradation of instream habitats, causing a reduction in aquatic insects (a major food item for gray bats).

If these recommendations cannot be incorporated as project conditions, then you should survey the project area to determine the presence or absence of these species within the project area in an effort to determine if potential impacts to these species are likely. A qualified biologist who holds the appropriate collection permits for these species must undertake such surveys, and we would appreciate the opportunity to approve the biologist's survey plan prior to the survey being undertaken and to review all survey results, both positive and negative. If any Indiana or gray bats are identified, we request written notification of such occurrence(s) and further coordination and consultation with you. Surveys would not be necessary if sufficient site-specific information was available that showed: (1) that there is no potentially suitable habitat within the project area or its vicinity or (2) that the species would not be present within the project area or its vicinity due to site-specific factors.

Thank you for the opportunity to comment on this proposed action. If you have any questions regarding the information that we have provided, please contact Dr. Michael Floyd of my staff at (502) 695-0468.

Sincerely,

A handwritten signature in black ink that reads "Michael A. Andrews, Jr. acting for". The signature is written in a cursive style.

Virgil Lee Andrews, Jr.
Field Supervisor



CH2M HILL
2127 University Park Drive
Suite 360
Okemos, MI 48864

May 5, 2006

David L. Morgan
Executive Director and State Historic Preservation Officer
The State Historic Preservation Office
300 Washington Street
Frankfort, KY 40601
USA

Subject: BRAC Environmental Assessment (EA) at Bluegrass Army Depot, Kentucky

Dear Mr. Morgan:

CH2M HILL is currently assisting Blue Grass Army Depot (BGAD) with preparation of an Environmental Assessment (EA) for construction of permanent facilities (Armed Forces Reserve Center and Field Maintenance Shop) for the Kentucky Army National Guard (KYARNG) that will be located east of Highway 421 and north of the main entrance to BGAD. The EA is being prepared in accordance with Council on Environmental Quality regulations to comply with the National Environmental Policy Act of 1969.

The KYARNG is realigning personnel as directed by the BRAC Committee. KYARNG units from Lexington, Bluegrass Station, and Richmond are being realigned to BGAD. Implementation of the proposed action will provide BGAD with adequate facilities to consolidate and support the reserve units currently assigned to BGAD, the KYARNG units from Richmond U.S. Army Reserve Centers, the Lexington Field Maintenance Shop #3, and the Bluegrass Station Field Maintenance Shop #4. The existing facilities for the Richmond KYARNG are incapable of supporting the full complement of realigned units. Existing facilities at BGAD are located on a hillside upon which there is no room for future expansion to house the realigned units. KYARNG must provide appropriate facilities for its units to meet readiness, recruiting and retention, and training objectives.

Two of the three sites considered in the EA had been previously evaluated for cultural resources, but the third site had not. Because of the proximity of the third site to the Battle of Richmond area, a Phase I cultural resources investigation of the proposed site was conducted by Brockington and Associates, Inc. The draft report (*Phase I Cultural Resources Survey In Support of 2005 BRAC Activities at the Bluegrass Army Depot*) of that investigation is included for your review.

Please send any comments to me and I will provide those comments to Brockington and Associates, Inc. I appreciate your effort to review this document.

Sincerely,

CH2M HILL

A handwritten signature in blue ink that reads "Rich Reaves".

Rich Reaves

enclosure



CH2M HILL
2127 University Park Drive
Suite 360
Okemos, MI 48864

June 29, 2006

Lori Stahlgren
The State Historic Preservation Office
300 Washington Street
Frankfort, KY 40601
USA

Subject: Revised Draft Report of Findings: Phase I Cultural Resources Survey in Support of 2005 BRAC Activities at Bluegrass Army Depot

Dear Ms. Stahlgren:

CH2M HILL is assisting Blue Grass Army Depot (BGAD) with preparation of an Environmental Assessment for construction of permanent facilities (Armed Forces Reserve Center and Field Maintenance Shop) for the Kentucky Army National Guard that will be located east of Highway 421 and north of the main entrance to BGAD.

Two of the three sites considered in the EA had been previously evaluated for cultural resources, but the third site had not. Because of the proximity of the third site to the Battle of Richmond area, a Phase I cultural resources investigation of the proposed site was conducted by Brockington and Associates, Inc. The draft report (*Phase I Cultural Resources Survey In Support of 2005 BRAC Activities at the Bluegrass Army Depot*) of that investigation was submitted for review by The State Historic Preservation Office (SHPO) on May 5, 2006. Brockington and Associates, Inc. (Brockington) received comments on the draft report and have addressed those comments in the attached report; *Revised Draft Report of Findings: Phase I Cultural Resources Survey In Support of 2005 BRAC Activities at the Bluegrass Army Depot*. We also have attached a copy of a letter from Jim Pritchard, of Brockington, that identifies the previous comments from your agency and the responses to those comments.

The previous reviewer of this document is no longer with SHPO. You were identified in correspondence Brockington received regarding the document and, therefore, we are submitting the revised draft report to you. Please review the comment responses provided and determine whether additional responses are necessary. Please provide me with any additional requests and I will pass those along to Brockington. If the responses provided are sufficient, Brockington will prepare the final report for submittal to your office. I appreciate your effort to review this document and anticipate receipt of a letter of concurrence with the findings of the report.

Sincerely,

CH2M HILL

A handwritten signature in black ink that reads "Rich Reaves".

Rich Reaves

enclosures

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Rich Reaves

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115 Perimeter Center Place NE

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Atlanta GA 30346

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cellular: 770-827-5186

facsimile: 770-604-9183

26 June 2006

RE: Response to Comments to a draft report entitled *Phase I Cultural Resources Survey In Support of 2005 BRAC Activities at the Bluegrass Army Depot Contract No. W91278-06-D-0014; Task Order No. 0001* produced by Brockington & Associates, Inc., U.S. Army Corps of Engineers, Mobile District

Rich,

Below, please find comments provided to Brockington and Associates from Kentucky Heritage Council Reviewer Sarah Miller. Sarah's comments regarding the Draft Report are enumerated (Items 1 through 7). Affirmative responses to these comments are provided in italics.

- 1) Include address, phone number, fax number and name the client(s) on the title page and include Brockington's fax number.

Information regarding client and contractor contact details are provided on the title page as requested.

- 2) Delete line numbers from entire report.

Line numbering was provided for ease of edit of the Draft Report and has been removed for the Final Report.

- 3) Do not show map locations of sites outside the APE (Figure 4 pg. 28)

Site 15MA445 has been removed from all maps, as it falls outside the APE. We left site 15MA445 in the site discussion and stated that the site is not shown as per SHPO instructions.

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- 4) Include the methodology for the metal detector survey and shovel probe excavation within the field methods section.

This was originally included in section 5.3 (Survey Coverage) of the Field Methods chapter (Chapter 5). Metal detection and shovel testing methods have been augmented/clarified in this same section.

- 5) The reinternment of artifacts at the site or project area is not acceptable. All artifacts recovered need to be collected, taken to the lab for cleaning, analysis, photographs and drawings if necessary, and storage. A protocol for deaccessioning artifacts only after the report has been accepted is currently being developed jointly by KHC, KYTC, and OSA. The process has been used by few consultants thus far and requires meticulous recording processes in the field as well as in the lab. For the sake of this report, note the collection strategy in Field Methods as not all artifacts were collected. On pg. 46, qualify that only collected artifacts were curated at the Webb Museum and quantify the amount reinterred at the site.

We accept that reinternment is not common, but thought it an acceptable approach in this case. From now on, such decisions will be coordinated with SHPO. In the Draft Report, Brockington and Associates discussed why and how this was done (in the Materials Recovered section) and stated clearly that only the single bullet at the site was collected. Regarding the last sentence in the comment, we have qualified that only collected artifacts shall be curated at the W.S. Museum of Anthropology, University of Kentucky via our standing curation agreement.

- 6) Insert individual site maps for each site into the report. For example, the sites depicted on Figure 10 need to be enlarged on separate maps (the specs call for individual maps of sites) to show the details of each site including the location of all shovel probes, location of all buildings on the site, and label the probes to link with provenience information in the site description. Check Figure 10 for redundancies in legend (negative probes), and it is unclear why all the positive probes are off the grid of the probe locations indicated on the map.

We have revised site maps as appropriate. Figure 9 now shows only the isolate and site 15MA444, while Figure 10 is now simply a site map for site 15MA444 that shows all positive and negative tests within the site boundary. No individual site map is provided for the isolate and no mapping will be provided for 15MA445 (at SHPO request).

- 7) For each site, provenience information (suggest an artifact table) to link materials recovered with the site map, and number of total shovel probes must be provided in the site description. For 15Ma444, describe both disturbed and intact profiles of shovel probes as mentioned on pg 51. Provide provenience

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information for illustrated shovel probe (pg 51) and it is unclear why Figure 11 is labeled "intact" while the description says there is no intact soil at this location. The shovel probe profile should demonstrate the disturbance to the area. Probe profiles should include scale. Figure 12 seems to replicate Figure 11 (Also check typo in Figure 12 label in site number).

Figure 10 now provides provenience info. The total number of shovel tests is now provided in site description. Please note that no disturbed profile will be shown and Figure 11 says that it is intact simply because, as the text states, there are no intact tests in the site area and that a typical (intact) profile for the surrounding area is shown. This, also, is why the profile is the same as Figure 12, because it represents an intact profile looks like for the general area. We have not added a scale to the shovel test profiles, but the measurements provided (0-35 and 35-45cmts) are sufficiently clear and scaled. The typo mentioned in Figure 12 has been corrected.

The accompanying hard copy of the Revised Draft Report should be submitted to the Kentucky Heritage Council (SHPO) for review and concurrence as soon as possible. It is our understanding that the Draft Report Reviewer is no longer employed with the SHPO and, as such, it is highly recommended that a copy of this comment/response letter be forwarded for ease of review of our revisions. This should serve to expedite review and concurrence with our findings.

As always, Rich, it is a pleasure to work with you and others at CH2MHill. If you have any questions regarding protocol regarding submittal, or if you have any questions regarding the Revised Draft Report, please do not hesitate to contact me on my cell (404) 683-0428 or via email at jimpritchard@brockington.org

Sincerely,



James C. Pritchard, RPA
Senior Archaeologist
Brockington and Associates, Inc.
www.brockington.org



**COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL**

Ernie Fletcher
Governor

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George Ward
~~XXXXXXXXXX~~
Secretary

David L. Morgan
Executive Director and
State Historic Preservation Officer

June 5, 2006

Mr. Rich Reaves
115 Perimeter Center Place NE
Suite 700
Atlanta, GA 30346

RE: "Phase I Cultural Resources Survey In Support of 2005 BRAC Activities at the Bluegrass Army Depot" by James Pritchard

Dear Mr. Reaves:

The State Historic Preservation Office has received for review and approval a draft of the above referenced archaeological report. The survey resulted in the documentation of two new archaeological sites (15Ma444 and 15Ma445) and an isolated prehistoric flake. As a result of his investigation the author found none of the sites to be eligible for listing on the National Register of Historic Places. As such the proposed project will not impact any National Register properties or sites. In accordance with 36CFR Part 800.4 (d) of the Advisory Council's revised regulations our finding is that there are no Historic Properties present within the undertaking's area of potential impact. Therefore, we have no further comments and the Agency Official's responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process is fulfilled.

Should you have any questions, feel free to contact Lori Stahlgren of my staff at (502) 564-7005, extension 118.

Sincerely,

David Morgan
Kentucky Heritage Council and
State Historic Preservation Officer

cc. George Crothers
Nathan White
James Pritchard

**MEMORANDUM OF UNDERSTANDING
BETWEEN
BLUE GRASS ARMY DEPOT, KENTUCKY
AND THE
EASTERN BAND OF CHEROKEE INDIANS**

WHEREAS, the parties herein intend to provide procedures for informal consultation and communication, protection of information, and better performance of their duties as stewards of information and protection of federal land; and,

WHEREAS, Blue Grass Army Depot, Kentucky has federal stewardship and management responsibilities for land owned by the United States of America and a mission which includes storage of military materials, training, and related activities; and,

WHEREAS, such activities may have an affect on properties included or potentially eligible for the National Register of Historic Places that are of religious or cultural significance to the Eastern Band of Cherokee Indians; and

WHEREAS, Blue Grass Army Depot, Kentucky has consulted with the Eastern Band of Cherokee Indians, a federally recognized tribe, on a government to government basis; and,

WHEREAS, the signatories to this Memorandum of Understanding (MOU) recognize that the Eastern Band of Cherokee Indians possesses a unique experience and oral history to identify and evaluate historic properties of religious and cultural significance; and,

WHEREAS, through the use of this MOU, the signatories intend to keep the lines of communication open as partners and stewards of the land; and

WHEREAS, no portion of this MOU should be interpreted to limit the rights, duties, or responsibilities as may be implemented under federal statutes, regulations, policies, Executive memoranda or Executive orders and related documents;

NOW, THEREFORE, Blue Grass Army Depot, Kentucky and the Eastern Band of Cherokee Indians agree that communication between the parties shall be as follows:

I. ROUTINE COMMUNICATION

- A. The parties intend to continue consultation as ongoing stewards of the land. The parties have periodically scheduled fact-to-face meetings. However, it is necessary that consultation continue in absence of, or in between, such meetings to continue the relationship between the parties or deal with immediate issues. This section does not alter this intent, but defines the means of interim communications and less formal consultation for those periods in which more formal consultation is impractical.
- B. The parties agree that the preferred method of communication between periodic meetings shall be telephone or electronic mail. In the event this means fails, the parties shall use the U.S. Mail system.
- C. Without limiting any right to communicate after this period, the parties *intend* to reply within thirty (30) days to an issue that is raised during routine communication. In the absence of a reply, the parties intend to reasonably move forward at the expiration of 45 days from the first routine communication as though no objections or expressions of concern were received. Again, this simply states the intent of the parties to reasonably act, but in no way limits rights that may be present in law.
- D. The parties agree to maintain the confidentiality of all information pertaining to cultural properties where possible, but limited to the boundaries of applicable law. The parties shall take all reasonable measure to preclude disclosure of confidential Native American properties.
- E. Blue Grass Army Depot and the Eastern Band of Cherokee Indians shall provide the appropriate information for each representative of the entity. For nation-to-nation formal consultation, the Blue Grass Army Depot Commander and the Eastern Band of Cherokee Indians Principal Chief shall be the respective representatives. For interim, ongoing, and non-formal face-to-face meetings between more formal consultations, each party shall provide a point of contact. This information is provided at Attachments A and B. The Blue Grass Army Depot Commander and the Eastern Band of Cherokee Indians Principal Chief shall advise the other of changes due to election or other changes in their respective organizations affecting this representative or point of contact.
- F. The Eastern Band of Cherokee Indians does not waive any rights to review information available by law. However, for the economy of assets, not all information must be regularly sent to the Eastern Band of Cherokee Indians. The parties agree that the following information does not require notification from Blue Grass Army Depot to the Eastern Band of Cherokee Indians.
1. While retained in its regular records, and available for review, the Eastern Band of Cherokee Indians does not require notice or the following information be provided as a matter of course:
 - a. any proposed undertaking which would be "categorically excluded" in accordance with the National Environmental Policy Act (NEPA) and 32 CFR Part 651, and would not involve the disturbance of any soil, which

has not been previously disturbed, unless the undertaking may affect a known property included or potentially eligible for the National Register of Historic Places that is of religious or cultural significance to the Eastern Band of Cherokee Indians;

- b. Any proposed undertaking in which the area of potential effects has been surveyed for historic properties and no eligible or potentially eligible properties, or human remains or cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) – 25 U.S.C. 30001 and 43 CFR Part 10, were identified.
2. The following information shall be forwarded to the Eastern Band of Cherokee Indians by the communication means herein"
 - a. Any proposed undertaking for which the preparation of an environmental assessment (EA) or environmental impact statement (EIS) is required;
 - b. Any proposed undertaking that will disturb any soil, which has not been previously disturbed, and has not been surveyed for historic properties.
 - c. Any proposed undertaking that may affect a known property included or potentially eligible for the National Register of Historic Places that is of religious or cultural significance to the Eastern Band of Cherokee Indians, or may affect human remains or cultural items as defined in the NAGPRA.
 - d. Any discovery of a historic property that pre-dates European contact, made as a result of a soil disturbing activity. This will provide the Eastern Band of Cherokee Indians an opportunity to consult on whether the discovered materials are of cultural significance.
 3. The following information will be provided by U.S. Mail at all times:

-Confirmation of formal face-to-face consultation between the Blue Grass Army Depot Commander and the Eastern Band of Cherokee Indians Principal Chief.

II. SPECIAL COMMUNICATION

A. Procedures for Inadvertent Discoveries of or Intentional Excavation of human remains or cultural items, as defined in the Native American Graves Protection and Repatriation Act (NAGPRA), are as follows:

1. The Eastern Band of Cherokee Indians shall be notified first by the provisions of paragraph I.B. above, and by U.S. Mail. This provides a documented accounting of notice.

2. The parties understand that by the sensitivity and timeliness of responding to Inadvertent Discoveries, telephone communication is a necessity.
 3. Blue Grass Army Depot shall take all reasonable means to protect and safeguard the human remains or cultural items outlined in the Integrated Cultural Resources Management Plan (ICRMP). (See attached Appendix A).
 4. Claims for any repatriation as a result of the Inadvertent Discovery shall be resolved in accordance with 43 C.F.R. Part 10.
- B. Procedures for the discovery of human remains are as follows:
1. The individuals making the discovery shall first contact the appropriate law enforcement agency and the Cultural Resources Manager, both of whom shall immediately notify the Blue Grass Army Depot Commander. If the remains constitute a crime scene, all applicable laws and procedure apply.
 2. If not a crime scene, Blue Grass Army Depot shall notify the Eastern Band of Cherokee Indians by the communication provision of Inadvertent Discoveries in paragraph II. A above.

III. OTHER

- A. Nothing in this MOU shall be interpreted to alter the requirements of the National Historic Preservation Act (NHFA) or the NAGPRA, or their implementing regulations. In the event any portion of this MOU is deemed contradictory to law or regulation, only that contradictory portion becomes void. The sole contradictory issue does not vitiate the entire agreement. The parties should consult to resolve that contradictory issue with the intent to reform that portion to make it compliant with the applicable law or regulation, and the remaining portions of the MOU remain in full force and effect.
- B. Nothing in this MOU shall be construed as limiting or affecting the legal authority of either party, nor does it commit either party to exceed their available appropriations. Commitments made from this MOU are subject to the availability of funds. However, each party will make a good faith effort to fund any action necessary for the implementation of this MOU.
- C. This MOU is executed as of the last date shown below and expires no later than five years thereafter. The parties may renew or extend this MOU by appropriate signature by all parties. This MOU can be unilaterally terminated by either party upon a 90 day written notice to the Blue Grass Army Depot Commander or Eastern Band of Cherokee Indians Principal Chief, respectively.
- D. Terms used in this MOU are defined according to federal authority. Where federal authority may provide conflicting definitions, the prevailing document's definition is used. By means of example a statutory definition is binding over a regulatory definition.

E. Contact information for the Eastern Band of Cherokee Indians is found at Attachment A. Contact Information for Blue Grass Army Depot, Kentucky is found at Attachment B

This agreement shall become effective upon the signature of both authorized parties.

Michel Hicks
Principal Chief of the Eastern Band of Cherokee Indians

Date

Martin A. Jacoby
COL, OD
Commanding

Date

ATTACHMENT A

CHEROKEE NATION POINT OF CONTACT

Dr. Richard Allen
Tribal Historic Preservation Office
Tahlequah, Oklahoma 74464

Telephone: 918-456-0671
FAX:

Email address: rallen@cherokee.org

ATTACHMENT B

BLUE GRASS ARMY DEPOT CONTACT

Alan R. Colwell
Natural Resources Specialist
Richmond, KY 40475
Richmond, Kentucky 40475

Telephone: 859-779-6328
FAX:

Email address: Alan.Colwell@bluegrass.army.mil

Appendix A

Excerpt from Blue Grass Army Depot Integrated Cultural Resources Management Plan (ICRMP)

5.9.5 Standard Operating Procedure #5

INADVERTENT DISCOVERY OF ARCHAEOLOGICAL DEPOSITS OVERVIEW

Archaeological investigation methods are designed to discover material evidence of past cultural activities. It is possible, however, that buried archaeological deposits may remain undetected during the survey process, only to be exposed by later construction or other ground-disturbing activities.

POLICY

In the event that archaeological deposits are encountered during any construction or excavation activities, the activity shall stop and the CRM shall be notified. Because of the potential of each archaeological deposit to contain Native American human remains or cultural materials, failure to report discovery of archaeological deposits may result in violation of NAGPRA, ARPA, and other related federal and state laws resulting in fines and penalties against BGAD and its commander. If it is determined that human remains encountered during a project are not of Native American origin, the Security Police should be notified immediately. The Installation Security Officer will contact the county medical examiner or coroner for further disposition.

PROCEDURES

When notified of the possible discovery of archaeological deposits or material, the CRM will visit the discovery site within 1 working day of notification to examine the discovered material and any in situ deposits. A determination of NAGPRA, ARPA, and NHPA compliance will be made by the CRM upon identification of the discovered material as archaeological or historic in origin. If the CRM determines that the site contains human remains, funerary objects, sacred objects, or objects of cultural patrimony, the procedures in SOP #8 of this ICRMP will be implemented. If the objects are determined to be not covered under NAGPRA, the procedures outlined in this SOP will be followed:

If, upon examination, the discovered materials are clearly of European-American origin, the CRM will conduct a test of the discovery site, following procedures outlined in SOP #6. The test will include evaluation of the primary context of the deposit, probable age, and assessment of significance to determine National Register eligibility.

If, upon examination of the recovered material, it appears that the discovered deposits are of natural origin and not of paleontological significance, the CRM shall advise the project manager that they may proceed with project activities.

If archaeological materials are present and disturbance has been limited, the CRM will

recommend that the activity be relocated to avoid the site until compliance with the Section 106 process and evaluation for National Register eligibility may be completed. If the activity cannot be relocated, the CRM shall consult with the Kentucky SHPO. Unless the activity is of the nature of an actual emergency (natural disaster or declaration of war), site activity must stop until consultation with the Kentucky SHPO and/or Council is completed. Failure to cease activities that intentionally destroy archaeological deposits prior to evaluation and determination of National Register eligibility in accordance with 36 CFR Part 800 may result in fines and penalties under ARPA against the project manager and in some instances the Installation Commander. The CRM will contact the Kentucky SHPO to obtain concurrence on the National Register eligibility of the site. If both the Kentucky SHPO's representative and the CRM agree that the discovered archaeological deposit is not eligible for the National Register, the correspondence will be documented. The CRM may then advise the project manager to proceed with project activities, although the CRM will monitor the remainder of excavation activities to ensure that National Register-eligible deposits are protected. If, in the opinion of either the Kentucky SHPO or the CRM, the recovered materials are of insufficient quantity or otherwise nondiagnostic to make a valid assessment of National Register eligibility, an emergency mitigation plan may be developed by the CRM, in consultation with the Kentucky SHPO. Further ground-disturbing activities in the immediate site vicinity shall be halted pending the accomplishment of the emergency mitigation plan. The CRM may request that a Kentucky SHPO representative be present on site to consult directly on the assessment of the site's National Register eligibility. The Kentucky SHPO may choose to send a representative to observe the emergency mitigation plan without prior request by the Army; however, access to the site by non-Army personnel must be approved by and coordinated with the CRM. If the site is determined eligible, or if the Army and the Kentucky SHPO cannot reach an agreement on determination of eligibility, the following alternative actions are available:

- Reconsider relocating the project to avoid adverse effect. (This is always the preferred course of action.)
- Develop an MOA with the Kentucky SHPO that specifies the scope and extent of data recovery required to mitigate the project impact.
- In the event that BGAD and the SHPO cannot reach an agreement on eligibility, BGAD must request a final determination of eligibility from the Keeper of the National Register. Where data recovery (mitigation) is limited in scope and such action is amenable to the Kentucky SHPO, the Army may elect to proceed without development of an MOA. All aspects of data recovery will be fully documented and reported to the Kentucky SHPO in the form of a written report at the termination of data recovery efforts. When recovery of human remains is considered likely, the Army shall comply with NAGPRA and related federal and state law. Such procedures will be coordinated with the Kentucky SHPO and Native American tribes that may be culturally affiliated to the human remains or other items covered under NAGPRA. When the recovery of human remains is considered likely, the Army shall comply with NAGPRA and related federal law. Such procedures will be coordinated with the Kentucky SHPO and Native American Tribes that may be culturally affiliated to the human remains or

other items covered by NAGPRA. Further, it must be noted that there are instances (such as in the case of the discovery of human remains of undetermined origin, or the lease of buildings and/or structures) in which compliance with state law is requisite, even on a federal installation. At any time in which the BGAD CRM is uncertain as to the applicability of state law, the JAG, or appropriate installation legal representatives, should be consulted for guidance to insure full and proper legal compliance at all levels. The Army may elect to comply with 36 CFR Part 800.13, developing and implementing actions that take into account the effects of the undertaking on the property and requesting comments of both the Kentucky SHPO and the Council (as appropriate). Section 106 and 36 CFR Part 800 do not require the federal agency to stop work on the undertaking. However, depending on the nature of the property and the undertaking's apparent effects on it, the agency official shall make reasonable efforts to avoid or minimize harm to the property until the requirements of 36 CFR Part 800 are met.

SYNOPSIS

The following synopsis of this SOP shall be made known on all proposed actions and excavation permit approval forms:

- There is always the potential for previously unidentified archaeological deposits not discovered during the initial inventory process. If archaeological materials are discovered during construction or excavation activities, the CRM shall be notified and the materials shall undergo review as required under the NHPA.
- In the event that Native American human remains or cultural items are discovered, federal law directs specific procedures that must be followed and establishes criminal and civil penalties for noncompliance. If human remains are encountered, all project activity on or near the discovery site shall cease immediately. The human remains shall be protected from further disturbance and the CRM notified immediately.

5.9.8 Standard Operating Procedure #8

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT OVERVIEW

This procedure implements the provisions of the NAGPRA; Public Law 101-601 (25 U.S.C. 3001-3013); *U.S. Army Guidelines for Consultation with Native Americans, Native Alaskans, and Native Hawaiians*; and as amended 43 CFR Part 10, Native American Graves Protection and Repatriation Regulations. NAGPRA mandates that federal land managers must consult with federally recognized Indian tribes regarding planned excavations on federal lands, and establishes procedures that federal agencies must follow in the event of inadvertent discovery of Native American human remains and cultural items. It is important to note that NAGPRA only applies to human remains that can be culturally associated with a modern Native American group, and that are not identified as the remains of a historic settler, murder victim, etc. The statute provides a mechanism for determining the disposition for such human remains or cultural items. NAGPRA also forbids the sale of Native American human remains or of cultural items obtained in violations of the statute.

BGAD shall initiate consultation with the federally recognized tribes identified in Appendix I. In addition, BGAD shall provide a Summary Report, as required by NAGPRA (Section 6), to each of these tribes. The purpose of this consultation is to establish BGAD's NAGPRA responsibilities and address installation land management activities that could result in the inadvertent discovery and disinterment of Native American human remains or cultural items, to establish standard consultation procedures, and provide for the determination of custody, treatment, and disposition of cultural items. BGAD is addressing NAGPRA, Section 3-related issues on the installation on a case-by-case basis since no human remains have been found to date. The sections of this SOP describe procedures to be followed in the event of inadvertent discovery of Native American human remains or associated cultural items. Chapter 7.0 of this document presents a Native American consultation management plan.

POLICIES

AR 200-4 states that the Installation Commander must ensure that intentional excavation and response to any inadvertent discovery of NAGPRA-related cultural items are carried out in compliance with all applicable statutory and regulatory requirements of NAGPRA, ARPA, and the NHPA. Compliance with one statutory requirement, therefore, may not satisfy other applicable requirements. All BGAD activities will strictly avoid the disturbance of human burials, whether marked or unmarked. In all instances where avoidance is not possible, BGAD shall consult, as outlined by NAGPRA, with the Native American tribes that may be culturally affiliated with the remains or items, on a case-by-case basis. Under no circumstances will any BGAD activity be allowed to proceed if it will intentionally disturb a known burial site until such time as consultation between BGAD and the Native American tribes is completed in accordance with 25 U.S.C. Section 3002(d) Sec. 3. The BGAD Counsel will vigorously enforce NAGPRA where illegal trafficking in Native American human remains, associated funerary objects, unassociated funerary objects, sacred objects, or objects of cultural patrimony can be proven. In accordance with 43 CFR Part 10.3 and AR 200-4, the Installation Commander shall take reasonable steps to determine whether a planned activity may result in the intentional excavation or inadvertent discovery of cultural items from BGAD. When it is determined that these cultural items, which are covered under NAGPRA as determined by BGAD in consultation with Native American representatives, may be encountered and, prior to issuing approval to proceed with the activity, the Commander shall carry out the consultation procedures and planning requirements at 43 CFR Parts 10.3, 10.4, and 10.5 as part of the intentional excavation or inadvertent discovery of cultural items, a written Plan of Action must be prepared in accordance with 43 CFR Part 10.5(e). If there is no CA in effect that sets forth agreed upon procedure for inadvertent discovery, then the installation must comply with 43 CFR Part 10.4(a-3). Such compliance measures include but are not limited to notifications as described below, cessation of the on-going activity for 30 days in the area of discovery, protection of the discovery, consultation with Native American tribes culturally affiliated with the discovery in accordance with 43 CFR Part 10.5 and preparation of a written Plan of Action. The Installation Commander must ensure that all authorizations to carry

out activities on installation lands include a requirement for the holder of the authorization to notify the CRM immediately upon the inadvertent discovery of cultural items and to protect such discoveries until applicable compliance procedures are satisfied (AR 200-4 [2-5{d}]). For all activities undertaken on lands managed by BGAD, the general policy shall be strict avoidance of all human burials, whether marked or unmarked, whenever possible.

INTENTIONAL ARCHAEOLOGICAL EXCAVATIONS

In accordance with 43 CFR Part 10.3(b) the intentional excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony from federal or tribal lands (after November 16, 1990) is permitted only if:

- The objects are excavated or removed following the requirements of the ARPA and its implementing regulations
- The objects are excavated after consultation with or, in the case of tribal lands, consent of, the appropriate Native American tribe or Native Hawaiian organization pursuant to Part 10.5
- The disposition of the objects is consistent with their custody as described in Part 10.6
- Proof of the consultation or consent is shown to the federal agency official (i.e., Installation Commander) or other official (CRM) responsible for the issuance of the required permit. As stated previously in accordance with 43 CFR Part 10.3(c), the Installation Commander must take reasonable steps to determine whether a planned activity may result in the excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony from federal lands. Any Native American tribe likely to be culturally affiliated with the expected or inadvertently discovered human remains or associated cultural items must be notified.

INADVERTENT DISCOVERY NOTIFICATION PROCEDURES

The BGAD employee or contractor who inadvertently discovers human remains must notify the responsible federal official (i.e., the Installation Commander or CRM, in accordance with 43 CFR Part 10.4[b]). Certification of receipt of notification by the Installation Commander or his/her designated representative (CRM) initiates the 30-day waiting period that must be observed unless a pre-existing CA is in force with the federally recognized Native American tribe(s) who have cultural affiliation with BGAD as established by the U.S. Indian Claim Commission final report-1978. If the inadvertent discovery occurred in connection with an on-going activity on BGAD, the person providing the initial notice described above must stop the activity in the area of the inadvertent discovery and make a reasonable effort to protect the human remains, funerary objects, or objects of cultural patrimony discovered inadvertently. Upon having received notification of the actual or potential disturbance or the discovery of a human burial site, human remains, or burial goods, BGAD shall, as soon as possible, but no later than 3 working days after receipt of the notification with respect to federal lands described in 43 CFR Part 10.4(b-d):

Take immediate steps, if necessary, to further secure and protect inadvertently discovered human remains, funerary objects, sacred objects, or objects of cultural patrimony, including, as appropriate, stabilization or covering. Report the receipt of such notification by telephone, with written confirmation, to the appropriate Native American tribe contacts and the proper Kentucky state agencies as deemed necessary by the BGAD CRM. The notification shall include pertinent information as to kinds of human remains, funerary objects, sacred objects, or objects of cultural patrimony discovered inadvertently, their condition, and the circumstances of their inadvertent discovery. If written notification is provided by certified mail, the return receipt constitutes evidence of the receipt of the written notification by the Native American tribes.

Based upon the information received from the person providing initial notification of the burial discovery, BGAD shall additionally inform the appropriate Kentucky state agencies as to the exact location and state (condition) of the human burial site, human remains, or burial goods of which notification was received, for the purpose of obtaining their assistance (through a records search) in the possible identification of the deceased. In the event that BGAD or appropriate state of Kentucky agency (Medical Examiner) duly designated representative have reason to suspect that the burial contains a victim of a recent prosecutable crime or accidental death, the proper military authorities and BGAD Counsel office will be notified.

INADVERTENT DISINTERMENT PROCEDURES

The human burial site or its exposed contents must be initially examined by the BGAD CRM to attempt to determine the lineal descendants (next-of-kin) or to determine race and age of the remains, if possible, using relevant available and solicited information (e.g., plat, maps, records, interviews with tribal members and landowners knowledgeable of the site in question, associated funerary objects). This initial examination must be conducted in consultation with the Native American tribes. If a presumption as to Native American lineal descendancy (next-of-kin), or a determination of race and age can be ascertained based upon location, historical data and any associated funerary objects, this information must be used to determine disposition of the human burial site, human remains, or burial goods by BGAD and the Native American tribes. The human remains and associated burial goods may be further examined within a scope of study developed in consultation with the duly designated Native American tribe representative.

Disposition must be in accordance with NAGPRA and the procedures described herein. Within a period designated by NAGPRA from the time BGAD has provided notification to the Native American tribes of the actual or potential disturbance or the discovery of a human burial site, human remains, or burial goods, the BGAD CRM and the Native American tribe representative(s) shall commence initial examination of any culturally affiliated human remains not associated or suspected of a crime or accidental death, as determined above, which are the subject of the notification and undertake exclusively the following activities: If it cannot be determined by means of such initial examination that the human remains are either Native American or non-Native American, the proper measures as stated in NAGPRA will be used to determine cultural affiliation.

If it is determined by initial examination that the human remains are non-Native American and nontribal, the remains will be further examined by the BGAD CRM and

the BGAD law enforcement personnel. Further study and final disposition of these remains will be at the discretion of BGAD. The remains will be turned over to the proper legal authorities if it is determined that a recent crime was committed or suspected. Law enforcement and health officials will recover any remains resulting from a recent prosecutable crime or accidental death (i.e., drowning).

REPATRIATION

In accordance with NAGPRA Section 7:

- If, pursuant to Section 5 (of NAGPRA), the cultural affiliation of Native American human remains and associated funerary objects with a particular Native American tribe is established, then BGAD, upon the request of a known lineal descendant of the Native American or of the tribe or organization shall expeditiously return such remains and associated funerary objects.

- If, pursuant to Section 6, the cultural affiliation with a particular Native American tribe is shown with respect to unassociated funerary objects, sacred objects or objects of cultural patrimony, then BGAD, upon the request of the Native American tribe shall expeditiously return such objects.

The return of cultural items shall be in consultation with the requesting lineal descendant or tribe or organization to determine the place and manner of delivery of such items.

Where cultural affiliation of Native American human remains and funerary objects has not been established in an inventory, then, upon request, such remains and cultural objects shall be expeditiously returned where the requesting Indian tribe can show cultural affiliation by a preponderance of the evidence based upon *geographical, kinship, biological, archaeological, anthropological, linguistic, folkloric, oral tradition, historical, or other relevant information or*

expert opinion. Sacred objects and objects of cultural patrimony shall be expeditiously returned when:

- The requesting party is the direct lineal descendant of an individual who owned the sacred object
- The requesting Native American tribe can show that the object was owned or controlled by the tribe or organization
- The requesting Native American tribe can show that the sacred object was owned or controlled by a member thereof, if there are no identifiable lineal descendants.

In addition, according to NAGPRA Section 7, the return of culturally affiliated Native American cultural items to the lineal descendant or Native American tribe will be done so expeditiously unless the items are indispensable for completion of a specific scientific study, the outcome of which would be of major benefit to the United States. The cultural items shall be returned no later than 90 days after the completion date of the scientific study. Also, BGAD shall share what information it does possess regarding the object in question with the known lineal descendant or Indian tribe to assist in making a claim. Where there are multiple requests for repatriation of any cultural item and, after complying with the requirements of this Act, BGAD cannot clearly determine which requesting party is the most appropriate claimant, BGAD may retain such item until the requesting parties agree upon its

disposition or the dispute is resolved pursuant to this Act's provisions or a court of competent jurisdiction. If the cultural affiliation of human remains cannot be established pursuant to these regulations, the human remains must be considered culturally unidentifiable. Museum and federal agency officials must report the inventory information regarding such human remains in their holdings to the Departmental Consulting Archeologist who will transmit this information to the Review Committee. The Review Committee is responsible for compiling an inventory of culturally unidentifiable human remains in the possession or control of each museum and federal agency and for recommending to the Secretary specific actions for disposition of such human remains. Any person who fails to make a timely claim prior to the repatriation or transfer of human remains, funerary objects, sacred objects, or objects of cultural patrimony is deemed to have irrevocably waived any right to claim such items pursuant to the regulations or the Act. A "timely claim" means the filing of a written claim with BGAD prior to the time the particular human remains, funerary objects, sacred objects, or objects of cultural patrimony at issue are duly repatriated or disposed of to a claimant by BGAD in accordance with 43 CFR Part 10. Any person who wishes to contest actions taken by BGAD, Indian tribes with respect to the repatriation and disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony is encouraged to do so through informal negotiations to achieve a fair resolution of the matter. The Review Committee may aid in this regard by facilitating the informal resolution of disputes relating to 43 CFR Part 10. Any recommendation, finding, report, or other action of the Review Committee is advisory only and not binding on any person.

INADVERTENT DISINTERMENT- RECOVERY, RESTORATION, AND REINTERMENT PROCEDURES

When human remains are not associated with a recent crime and are determined to be culturally affiliated with the Native American tribes, the tribal representative, in consultation with the BGAD CRM, shall make a determination as to whether the burial can be adequately and safely restored and protected in situ or whether, in the alternative, the contents of the burial should be disinterred completely and reinterred in another location. Each restoration and reinterment, as such, shall provide an opportunity for appropriate tribal religious ceremony or ceremonies. If it is determined, in consultation with the Indian tribes duly designated representative, that the disturbed burial can be adequately and safely restored and protected in situ, the BGAD CRM shall, as soon as practicable, ensure the burial to be backfilled, stabilized, and protected from further disturbance by the human activities or natural processes that caused the disturbance in the first instance. If feasible, culturally affiliated Native American tribes will be encouraged to participate. If, on the other hand, it is determined that the in situ restoration of the burial is not feasible, the Native American tribes shall, as soon as practicable and subsequent to the completion of any study conducted on the contents of the burial at the direction of the CRM and pursuant to any existing CA or the law and its governing regulation, cause the disinterred human remains and any and all burial goods to be interred on Native American lands within the boundaries of the

appropriate Native American reservation or lands, as determined by the Native American tribes. BGAD shall reroute construction, to the extent feasible, to leave human remains in place and unharmed. For the purposes of this SOP, a standard avoidance distance of 200 feet around any burial site will be recognized and complied with by BGAD.

Where construction rerouting is not feasible, the CRM, in consultation with the Native American tribes duly designated representative and the Kentucky State office having such jurisdiction shall remove the remains and associated funerary objects to a safe location for study and preparation for reburial and repatriation, employing standard archaeological field study and recordation procedures and techniques. BGAD may resume construction in the vicinity as soon as the CRM certifies that the remains and burial goods have been properly and safely removed.

CONSULTATION

BGAD will not provide details of any burial disturbance to any public, private or government media. Upon invitation, BGAD will attend Native American tribal meetings for the purposes of discussing NAGPRA-related issues. Native American groups and lineal descendants may oppose the display of human remains and cultural items and the publication of information through photographs, informational brochures, or scientific studies. Such concerns may also extend to documentation associated with the human remains and cultural items, as well as excavation records, site maps, and reports. The manner in which human remains and cultural items are curated and transported for repatriation purposes are important issues that may require consultation with Native Americans. Consultation is particularly important in repatriation cases to ensure respect of cultural traditions and sensitivities. It is important to note that some Native American tribes did not practice reburial of human remains, which has caused a dilemma concerning how to repatriate human remains. However, some Native American tribes have developed policy and procedures for handling repatriation and reburial. The Installation Commander should request information on these policies and procedures before the need for consultation arises. Reburial of human remains and other cultural items is often the form of treatment for repatriated items that is preferred by Native American tribes, and often reburial is preferred to occur at or near the location (i.e., usually, the archaeological site) where the remains were originally excavated. This is an issue for the Installation Commander's decision. Allowing reburial of cultural items repatriated under NAGPRA on the installation would generate a requirement to protect the reburial area from damage in perpetuity. Reburial is not specifically required under NAGPRA; however, it is a means of treatment for repatriated remains that many tribes prefer and the Installation Commander may be faced with such requests upon repatriation.

Appendix B
Demolition Memorandum of Understanding with
Kentucky SHPO

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**MEMORANDUM OF AGREEMENT
BETWEEN
THE BLUE GRASS ARMY DEPOT
AND
THE KENTUCKY STATE HISTORIC PRESERVATION OFFICER
CONCERNING THE MANAGEMENT OF CULTURAL RESOURCES
AT THE BLUE GRASS ARMY DEPOT**

WHEREAS, The Blue Grass Army Depot (BGAD) in consultation with the Kentucky State Historic Preservation Officer (SHPO) has determined that U.S. Army activities on the BGAD may affect properties included in or eligible for inclusion on the National Register of Historic Places (NRHP); and,

WHEREAS, it has been determined that measures to appropriately identify and manage historic properties on the BGAD may be best accomplished through development of a Memorandum of Agreement (MOA) setting forth mechanisms whereby BGAD can establish alternative procedures for complying with Section 106 of the National Historic Preservation Act (NHPA) consistent with Army Regulation 200-4; and,

WHEREAS, BGAD requested the comments of the Advisory Council on Historic Preservation (Advisory Council) pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 USC 470) as amended, and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800);

WHEREAS, the BGAD also has a responsibility under the NHPA to consult with federally recognized tribes who may have an interest in the management of cultural sites having cultural or religious significance to them. This will be accomplished by means of a separate, but complementary, MOA(s) between the United States Army and Tribe(s) and in consultation with the SHPO.

NOW, THEREFORE, BGAD and the SHPO agree that this undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of any activities on historic resources at BGAD.

STIPULATIONS

I. Standards and Procedures for Administration of this Agreement

A. Professional Qualifications

The BGAD will ensure that all historic preservation work carried out pursuant to this Memorandum of Agreement, including work by outside consultants, will be performed by or under the direct supervision of a person or persons meeting at a minimum the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-9) (hereafter, a preservation professional) and who has been approved by the Kentucky SHPO. The BGAD will consult with the SHPO to determine and ensure that the preservation professionals responsible for carrying out the projects and programs covered by this Agreement meet the Secretary of Interior's Standards. It is understood that activities supervised or conducted by such professionals will be within their areas of professional expertise. The Kentucky SHPO may assist BGAD in this matter by providing technical assistance from qualified professional historians or architectural historians in the review of plans and specifications of proposed activities affecting identified National Register or eligible properties.

B. BGAD Cultural Resource Manager

The Blue Grass Army Depot shall carry out its Section 106 responsibilities by employment of a qualified preservation professional who will serve as the BGAD Cultural Resource Manager. The Cultural Resource Manager will be responsible for implementation of this Memorandum of Agreement and will oversee all preservation work carried out under its terms. The BGAD may also contract with outside consultants who, in the opinion of both the BGAD Cultural Resource Manager and SHPO, meet the Secretary of the Interior's Standards and the SHPO's Specifications, including the requirement for regional experience. The BGAD has entered into a Memorandum of Understanding with the Daniel Boone National Forest, in order that BGAD can retain qualified archaeologists to supplement BGAD cultural resource management staff.

C. Professional Standards for Field Work and Cultural Resource Assessment Reports

The BGAD will ensure that all historic, architectural, or archaeological surveys, testings, documentation, recordation, data recovery or any other investigations performed or carried out to locate, evaluate, or mitigate historic and archaeological properties pursuant to this Memorandum of Agreement are carried out in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48FR 44716-44740) (hereafter, the

Secretary's Standards) and the SHPO's most current *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (hereafter, the SHPO's Specifications).

II. REVIEW OF UNDERTAKINGS

A. Blue Grass Army Depot shall conduct a review of planned undertakings to determine their potential to affect identified and unidentified historic properties. BGAD undertakings shall be classified as either Exempt Undertakings or Review Undertakings according to the following provisions:

1. Undertakings causing little or no ground disturbance and which meet the conditions listed in Stipulation III (B) are Exempt Undertakings and require no further review by the Kentucky SHPO.
2. Review Undertakings shall include all undertakings not meeting the requirement for Exempt Undertakings. Undertakings classified as Review Undertakings shall be treated following the procedures outlined in Stipulation V.

III. UNDERTAKINGS REQUIRING NO FURTHER REVIEW

A. Management of BGAD land involves many undertakings that are unlikely to have an affect on properties eligible for inclusion on the National Register of Historic Places. Exempt Undertakings shall be reviewed for Section 106 purposes within BGAD by the BGAD Cultural Resource Manager but without further review by the Advisory Council or SHPO.

B. The following activities will be treated as Exempt Undertakings on BGAD:

1. Special use actions that take place within existing road rights-of-way. These actions may include overhead or buried transmission lines, power pole placement or replacement, and/or access along BGAD roads into adjacent private lands.
2. Chainsaw and/or herbicide site preparation on existing, previously harvested timber stands and utility Rights-of-ways.
3. Routine maintenance of historic buildings (painting, etc.), provided any repairs or replacements use in-kind materials
4. Hand planting of tree seedlings without mechanical site prep methods.
5. Routine ordinance storage area site maintenance involving non-ground disturbing activities such as replacement of barriers or signs, regravelling or repaving of roads and parking areas, maintenance of an existing recreation

area, and hazard tree removal when a skidder is used unless within a known historic property boundary or archaeological site.

6. Road closures unless within a known historic property boundary or archaeological site.
7. Wildlife and Silvicultural Stand Improvement; both Mid-story and Over-story removal done by hand and mowing and fertilizing using mechanical equipment.
8. Cutting of firewood that shall not require either heavy equipment or new access roads.
9. Prescribed burns, if it can be determined that no structures, cemeteries or archaeological sites are present within the burn area. This exclusion does not apply to proposed fire lines built by mechanical equipment, which must be surveyed for impacts on archaeological resources. The BGAD Cultural Resource Manager will monitor any mop-up operations.
10. Improvements consisting of hand planting stream bank stabilization, sediment sampling, and channel improvement where the channel work is restricted to the existing stream channel.
11. Setting or replacing individual power poles or posts unless within a known historic property boundary or archaeological site.
12. Geophysical seismic monitoring unless within a known historic property boundary or archaeological site.
13. Transfer of use authorization from one authority to another when an action such as a boundary adjustment necessitates changing a right-of-way or easement from one federal authority to another.
14. Undertakings within areas that have been extensively disturbed in the past (e.g. pipeline corridors or ordinance storage igloos).
15. For public safety, removal of hazard trees for 1 ½ tree height along each road using skidders or cable unless within a known archaeological site or historic property.
16. Routine maintenance and emergency maintenance of currently existing sub-grade utility and sewer lines.
17. Trenching done with a Ditch Witch, resulting in a ditch less than a foot wide unless within a known historic property boundary or archaeological site.

IV. UNDERTAKINGS REQUIRING REVIEW

- A.** The Blue Grass Army Depot shall conduct comprehensive inventories on all undertakings, which have potential for ground disturbance or which do not meet the requirements of Exempt Undertakings. Undertakings, where known National Register or potentially eligible sites occur within or immediately adjacent to the project impact area, shall not be handled as Exempt Undertakings.
- B.** Examples of Review Undertakings include, but are not limited to: timber sales, land exchanges, fire lines, mineral exploration projects, wildlife ponds/openings construction and establishment, rehabilitation or demolition of buildings or other structures over 50 years old, road and trail construction or reconstruction, and new construction of buildings or other structures.

V. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

- A.** Prior to implementation, undertakings requiring review will be treated as follows:
 - 1.** The Area of Potential Effect (APE) will be established by the BGAD Cultural Resource Manager, in consultation with the SHPO.
 - 2.** A Phase I intensive survey of the APE will be conducted by an archeologist in accordance with the procedures and standards specified in Section I-A, B, and C above.
- B.** The BGAD will submit two copies of the survey report to the SHPO for review and comment. The SHPO will respond in writing within 30 days, unless a longer time is agreed to by the BGAD.
 - 1.** If the survey determines no sites are present or sites are present but are not considered eligible for the National Register and the SHPO concurs, the undertaking may continue.
 - 2.** If the survey identifies potentially eligible sites, and the SHPO concurs, these will either be avoided and preserved in place or mitigated as provided in Stipulation VI.
- C.** If a Phase II investigation is needed to establish site boundaries or National Register eligibility, the investigations will be carried out in accordance with Stipulation 1-A, B, and C. BGAD will submit two report copies to the SHPO for review and comment. The SHPO will respond in writing within 30 days, unless a longer time is agreed to by BGAD.

VI. MITIGATION MEASURES

- A.** Where an undertaking cannot avoid impacts to a property listed on or considered eligible for listing on the National Register BGAD will mitigate the site as follows:

In consultation with the SHPO, the BGAD Cultural Resource Manager shall prepare all necessary documentation and plans as may be defined in 36 CFR Part 800 and attendant sections and subsections. These plans may include but are not limited to measures for mitigation of adverse effects through data recovery, curation, recordation, stabilization, restrictive deed covenants, relocation and/or rehabilitation. For data recovery projects the BGAD Cultural Resource Manager shall develop a research design and data recovery plan. Minimally, these shall address relevant research questions identified in the archaeological component of Kentucky's Historic Preservation Plan.

1. The plans and documentation shall be provided to the SHPO for review, and the SHPO will provide comments within 30 working days of receipt of the required documentation. BGAD will ensure that SHPO recommendations are incorporated in the documentation. If no comments are received within the 30-day review period BGAD will contact the SHPO to verify that no comments will be forthcoming.
 2. If the SHPO concurs with the BGAD Cultural Resource Manager's assessment and recommendations, mitigation shall proceed. If the SHPO objects to BGAD recommendations, BGAD and the SHPO will meet and attempt to resolve any objections. If the objections cannot be resolved, the BGAD recommendations will be submitted along with SHPO comments to the Advisory Council for review pursuant to Stipulation XI of this MOA.
- B.** When approved by the SHPO, the BGAD Cultural Resource Manager may substitute another listed, eligible or potentially significant site(s) for treatment in accordance with Stipulation VI-A above if it is determined that the substituted site(s) may offer similar or greater potential to yield archaeological or historic information than the impacted site.
1. Sites considered for substitution pursuant to this stipulation may not include those threatened by other BGAD undertakings and the level of investigations and data recovery will be equivalent to what would have been required if no substitution occurred.
 2. Mitigation of a substituted site should occur on approximately the same schedule that investigation of the original impacted site would have

occurred. If for any reason evaluation or mitigation of a substituted site cannot occur concurrent with implementation of the undertaking under review, the BGAD Cultural Resource Manager must consult with the SHPO and plan for sufficient funds to conduct the investigations at a later date acceptable to the SHPO.

3. Sites known to contain human burials are not subject to substitution under this provision.
4. If BGAD and the SHPO agree to the investigation of a substituted site, no further treatment of the impacted site will be required for the undertaking being reviewed. However, BGAD will continue to manage the impacted site if, upon completion of the undertaking, the impacted site retains sufficient integrity to qualify for listing on the National Register.
5. Investigation of alternative sites in accordance with this stipulation is not to be considered as evidence of, or substitution for, BGAD meeting its responsibilities pursuant to Section 110 of the National Historic Preservation Act.

C. The BGAD or SHPO may propose additional forms of alternate or off-site mitigation when adverse impacts to National Register listed or eligible sites cannot be avoided. Upon concurrence of both parties, the mitigation will be implemented by the BGAD.

VII. CULTURAL RESOURCE MANAGEMENT PLAN AND ANNUAL REPORT

- A. In consultation with the SHPO, the Cultural Resource Manager will develop and implement an Integrated Cultural Resource Management Plan (ICRMP), including a Cultural Resource Overview, for the BGAD.
- B. On an annual basis, the BGAD shall prepare an Annual Heritage Resources Report (Annual Report). Annual Reports covering the fiscal year shall be submitted to the SHPO for review and comment. The reporting procedure shall consist of the following:
 1. The Cultural Resource Overview section of the Annual Report will be a synthesis of archaeological investigations at BGAD with discussions of investigations of special interest.
 2. A management summary of the activities conducted on BGAD during the previous fiscal year, including summaries of the types and distributions of undertakings, the known probable effects of those actions on historic properties, and the actions planned and/or implemented to identify, protect and manage those resources.

3. The management summary shall include a table of sites, site types, cultural affiliation, National Register status, and treatment for each site investigated during the year.
 4. A discussion and summary of undertakings, which were surveyed, but no sites were found.
 5. Status of any mitigation, protection and preservation measures recommended or implemented during the previous year.
 6. Discussion of information collected during the investigations, which may serve to update, modify or refine the BGAD cultural resource management plan.
 7. Maps, representative photographs, tables of artifacts, artifact illustrations, and other pertinent information.
 8. Summary of cultural materials and records curated during the fiscal year and where curated.
- B.** Within six weeks of submission of the Annual Report, BGAD and SHPO staffs will meet informally and discuss the ICRMP for BGAD. At that time, the BGAD Cultural Resource Manager and SHPO staffs will determine whether modifications, alterations, deletions or extensions to the terms of the MOA are appropriate. If needed, either agency may call additional meetings.

VIII. CURATION

The Blue Grass Army Depot shall ensure that all artifacts and other cultural materials recovered during survey, testing, or data recovery projects are curated annually at a facility that meets the minimum standards for curation established by the Secretary of the Interior and that has been approved by the SHPO as a curation facility. SHPO approved curation facilities in Kentucky include the William S. Webb Museum of Anthropology at the University of Kentucky, University of Louisville Archaeological Survey, and Murray State University Anthropology Program Museum. Loan-back arrangements for display or other educational purposes may be negotiated by BGAD with the curation facility.

IX. RESOURCES DISCOVERED DURING PROJECT DEVELOPMENT

Any previously identified or unidentified archaeological or historic property, which is impacted or discovered during an undertaking, will be recorded and protected by BGAD, followed by immediate consultation with the SHPO. With the exception of cultural resources identified in conjunction with wildland fire suppression activities the BGAD shall halt work in the area of any actual or potential damage to the cultural resource pending completion of such consultation and development of a SHPO approved cultural

resource treatment plan. For those cultural resources identified in conjunction with wildland fire suppression activities consultation with the SHPO regarding treatment of the archaeological or historical property will be conducted after the firefighter's safety and their ability to contain and limit the spread of fire can be ensured.

X. ADDITIONAL PROVISIONS

- A.** The BGAD shall consult with the SHPO and other qualified professionals when questions arise from unusual survey or testing results.
- B.** The BGAD assures that all historic preservation work accomplished on federally owned lands owned or managed by BGAD will be consistent with the State Historic Preservation Plan.
- C.** The SHPO reserves the right to monitor all cultural resource activities at BGAD to ensure compliance with the National Historic Preservation Act.
- D.** Situations not specifically covered in this agreement will be handled under applicable sections of the Advisory Council's regulations.
- E.** The BGAD, in consultation with the SHPO, will continue to update its ICRMP and Cultural Resource Overview.

XI. DISPUTE RESOLUTION

- A.** At any time a dispute should arise, the Parties shall first attempt to resolve it between them.
- B.** At any time during the implementation of the measures stipulated in the MOA, should an objection to any such measures be raised by the BGAD or SHPO, and not resolved, the matter shall be referred to the Advisory Council for further comment and dispute resolution pursuant to 36 CFR Part 800.9(a). Any Advisory Council comment provided in response to such a request will be taken into account by BGAD with reference only to the subject of the dispute; BGAD's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

XII. MODIFICATION, EXTENSION, OR TERMINATION OF AGREEMENT

- A.** This Memorandum of Agreement may be amended or modified at any time through mutual consent of the signatories. If amended or modified, the Advisory Council will be notified and provided with a copy of the amended or modified Agreement.
- B.** Either party to this MOA may terminate it by providing 30 days notice to the other party, provided that both parties will consult during the period prior to

termination to seek an agreement, amendments or other actions that would avoid termination.

- C. In the event this Memorandum of Agreement is terminated, or the BGAD fails to carry out its terms, BGAD will comply with 36 CFR 800.3 through 36 CFR Part 800.13 for all undertakings at BGAD.
- D. This MOA will continue in force through calendar year 2007, when it will be reviewed by BGAD and the SHPO for possible modification, termination, or extension. If not renewed or extended, this Memorandum of Agreement terminates on December 31, 2007. No extension or modification will be effective unless all parties to the MOA have agreed to it in writing.

Execution of this Memorandum of Agreement evidences that the Blue Grass Army Depot has afforded the Advisory Council a reasonable opportunity to comment on its programs and their efforts on cultural resources at Blue Grass Army Depot, and that the Blue Grass Army Depot has taken into account the effects of its activities on cultural and historic resources.

BLUE GRASS ARMY DEPOT

BY: _____

NAME, TITLE

Date: _____

9-28-04

KENTUCKY STATE HISTORIC PRESERVATION OFFICER

BY: _____

David L. Morgan, Director
Kentucky Heritage Council

Date: _____

9-23-04

MEMORANDUM FOR RECORD

SUBJECT: Demolition of Buildings S-23, 24, 25, 32 and ATM the Blue Grass Army Depot (BGAD), Richmond, Kentucky 40475

RECORD OF ENVIRONMENTAL CONSIDERATION

1. **Project Title:** Demolition of Buildings S-23, 24, 25, 32 and ATM

2. **Brief Description:** Blue Grass Army Depot proposes to demolish Buildings S-23, S-24, S-25, 32 and ATM. Demolition of buildings that are excess or surplus is required under the Facility Reduction Program if facilities are "not suitable" to Housing Urban Development (HUD) for the homeless under McKinney Act guidelines. Should HUD consider any of these structures "suitable", the facilities would have to be removed from the installation by HUD entities. Generally, this is not cost effective, and disposal will be accomplished through demolition. HUD determination should be accomplished NLT 30 Nov 05.

3. **Anticipated date and/or duration of proposed action:** Anticipated date of November 30, 2005.

4. **Reasons for Using Record of Environmental Consideration (REC):**

This area is categorically excluded under the provision of CX C-2, AR 200-2, and Appendix B to Part 651 Section II. The categorical exclusion is listed below:

(CX C-2) "Demolition of non-historic buildings, structure, or other improvements and disposal of debris therefrom, or removal of a part thereof for disposal, in accordance with applicable regulations, including those regulations applying to removal of asbestos, polychlorinated biphenyls (PCBs), lead-based paint, and other special hazard items. (REC required.)"

5. POC for this action is Phillip Williams at extension 6532.

- 2 Encls
- 1. Scope of Work
- 2. Site Location Map


 TODD G. WILLIAMS
 BGAD Environmental Coordinator

5 Oct 2005
 Date


 ALLEN FINCHAM
 Acting Director of Public Works

5 Oct 2005
 Date


 RICHARD J. MASON, JR.
 COL, OD
 Commanding

6 Oct 2005
 Date

Williams, Phillip (PKI)

From: Lawson, Greg
Sent: Monday, October 03, 2005 8:19 AM
To: Williams, Phillip (PKI)
Cc: Williams, Todd (PKI)
Subject: Purpose for Demolition of Buildings 23, 24, 25, and 32.

Phillip,

The following are statements directly from the McKinney Act Federal Property Checklist.

Current Status: Buildings are considered Surplus.

These buildings are located within fence line near installation's main gate. Due to security requirements, building occupants have been relocated to other facilities on BGAD.

Demolition of buildings that are excess or surplus is required under the Facility Reduction Program if facilities are "not suitable" to HUD for the homeless under McKinney Act guidelines. Should HUD consider any of these structures "suitable", the facilities would have to be removed from the installation by HUD entities. Generally, this is not cost effective, and disposal will be accomplished through demolition. HUD determination should be accomplished nlt 30 Nov 05.

GD Lawson
Greg Lawson
DPW, Real Property Office
Blue Grass Army Depot
(859)779-6443

This Building Previously Relocated



	Scale: 0 25 50 100 feet	Coordinate System: KY State Plane South, FIPS 1602	Units: Feet	Date: Sept 28, 2005
Horizontal Datum: NAD 83		Path: H:\GIS\ChrisH\Projects\Building_Demo.mxd	Created By: JCH	

BGAD Planned Building Demolition



Legend
■ Demo Buildings

VICINITY MAP:



Appendix C
Vertebrate Species Documented on BGAD

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APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Mammals	
Eastern fox squirrel	<i>Sciurus niger</i>
Gray squirrel	<i>Sciurus carolinensis</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Raccoon	<i>Procyon lotor</i>
Coyote	<i>Canis latrans</i>
Red fox	<i>Vulpes vulpes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Striped skunk	<i>Mephitis mephitis</i>
Woodchuck	<i>Marmota monax</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>
Virginia opossum	<i>Didelphis virginiana</i>
Muskrat	<i>Ondatra zibethicus</i>
Beaver	<i>Castor canadensis</i>
River Otter	<i>Lontra canadensis</i>
Bobcat	<i>Felis rufus</i>
Mink	<i>Mustela vison</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Eastern mole	<i>Scalopus aquaticus</i>
Eastern harvest mouse	<i>Reithrodontomys humulis</i>
White-footed mouse	<i>Peromyscus leucopus</i>
House mouse	<i>Mus musculus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Prairie vole	<i>Microtus ochrogaster</i>
Woodland vole	<i>Microtus pinetorum</i>
Southern bog lemming	<i>Synaptomys cooperi</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>
Short-tailed shrew	<i>Blarina carolinensis</i>
Southeastern shrew	<i>Sorex longirostris</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Least shrew	<i>Cryptotis parva</i>
Big brown bat	<i>Eptesicus fuscus</i>
Red bat	<i>Lasiurus borealis</i>
Northern bat	<i>Myotis septentrionalis</i>
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Reptiles	
Black rat snake	<i>Elaphe o. obsoleta</i>
Box turtle	<i>Terrapene carolina</i>
Eastern garter snake	<i>Thamnophis sirtalis</i>
Northern water snake	<i>Nerodia sipedon</i>
Rough green snake	<i>Opheodrys aestivus</i>
Black king snake	<i>Lampropeltis getulus niger</i>
Red-eared slider	<i>Trachemys scripta elegans</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Black racer	<i>Coluber constrictor</i>
Eastern spiny softshell	<i>Apalone spinifera</i>
Stinkpot	<i>Sternothaerus odoratus</i>
Common map turtle	<i>Graptemys geographica</i>
Amphibians	
Bullfrog	<i>Rana catesbeiana</i>
Cave salamander	<i>Eurycea lucifuga</i>
Green frog	<i>Rana clamitans</i>
Fowler's toad	<i>Bufo woodhouseii</i>
Northern slimy salamander	<i>Plethodon glutinosus</i>
Pickerel frog	<i>Rana palustris</i>
Stream-side salamander	<i>Ambystoma barbouri</i>
Jefferson's salamander	<i>Ambystoma jeffersonianum</i>
Spotted salamander	<i>Ambystoma maculatum</i>
Marbled salamander	<i>Ambystoma opacum</i>
Ravine salamander	<i>Plethodon richmondi</i>
Cricket frog	<i>Acris crepitans</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Cope's gray treefrog	<i>Hyla chrysoscelis</i>
Spring peeper	<i>Pseudacris crucifer</i>
Southern two-lined salamander	<i>Eurycea cirrigera</i>
Red-spotted newt	<i>Notophthalmus viridescens</i>
Northern leopard frog	<i>Rana pipiens</i>
Birds	
Mute Swan	<i>Cygnus olor</i>
Tundra Swan	<i>Cygnus columbianus</i>
Canada Goose	<i>Branta canadensis</i>
Snow Goose	<i>Chen caerulescens</i>
Greater White-fronted Goose	<i>Anser albifrons</i>
Wood Duck	<i>Aix sponsa</i>
Green-winged Teal	<i>Anas crecca</i>
American Widgeon	<i>Anas americana</i>
American Black Duck	<i>Anas rubripes</i>
Mallard	<i>Anas platyrhynchos</i>
Northern Shoveler	<i>Anas clypeata</i>
Blue-winged Teal	<i>Anas discors</i>
Northern Pintail	<i>Anas acuta</i>
Gadwall	<i>Anas strepera</i>
Redhead	<i>Aythya americana</i>
Ring-necked Duck	<i>Aythya collaris</i>
Canvasback	<i>Aythya valisineria</i>
Lesser Scaup	<i>Aythya affinis</i>
Common Goldeneye	<i>Bucephala clangula</i>
Bufflehead	<i>Bucephala albeola</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Common Merganser	<i>Mergus merganser</i>
Red-breasted Merganser	<i>Mergus serrator</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Ruffed Grouse	<i>Bonasa umbellus</i>
Wild Turkey	<i>Meleagris gallopavo</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Northern Bobwhite Quail	<i>Colinus virginianus</i>
Common Loon	<i>Gavia immer</i>
Red-necked Grebe	<i>Podiceps grisegena</i>
Horned Grebe	<i>Podiceps auritus</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Great Blue Heron	<i>Ardea herodias</i>
Green-backed (Striated) Heron	<i>Butorides striata</i>
Great Egret	<i>Casmerodius alba</i>
Turkey Vulture	<i>Cathartes aura</i>
Black Vulture	<i>Coragyps atratus</i>
Osprey	<i>Pandion haliaetus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Rough-legged Hawk	<i>Buteo lagopus</i>
Northern Harrier	<i>Circus cyaneus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
American Kestrel	<i>Falco sparverius</i>
American Coot	<i>Fulica americana</i>
Common Moorhen	<i>Gallinula chloropus</i>
Sora	<i>Porzana carolina</i>
Sandhill Crane	<i>Grus canadensis</i>
Killdeer	<i>Charadrius vociferus</i>
Spotted Sandpiper	<i>Actitis macularius</i>
Semipalmated Sandpiper	<i>Calidris pusilla</i>
Least Sandpiper	<i>Calidris minutilla</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Common Snipe	<i>Gallinago gallinago</i>
American Woodcock	<i>Scolopax minor</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Solitary Sandpiper	<i>Tringa solitaria</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Bonaparte's Gull	<i>Larus philadelphia</i>
Forster's Tern	<i>Sterna forsteri</i>
Mourning Dove	<i>Zenaida macroura</i>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Short-eared Owl	<i>Asio flammeus</i>
Great Horned Owl	<i>Bubo virginianus</i>
Eastern Screech Owl	<i>Megascops asio</i>
Common Nighthawk	<i>Chordeiles minor</i>
Chimney Swift	<i>Chaetura pelagica</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Northern Flicker	<i>Colaptes auratus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Eastern Wood Pewee	<i>Contopus virens</i>
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>
Least Flycatcher	<i>Empidonax minimus</i>
Acadian Flycatcher	<i>Empidonax vireescens</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Yellow-throated Vireo	<i>Vireo flavifrons</i>
Warbling Vireo	<i>Vireo gilvus</i>
White-eyed Vireo	<i>Vireo griseus</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Philadelphia Vireo	<i>Vireo philadelphicus</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
American Crow	<i>Corvus brachyrhynchos</i>
Blue Jay	<i>Cyanocitta cristata</i>
Horned Lark	<i>Eremophila alpestris</i>
Barn Swallow	<i>Hirundo rustica</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Purple Martin	<i>Progne subis</i>
Bank Swallow	<i>Riparia riparia</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
Carolina Chickadee	<i>Poecile carolinensis</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Sedge Wren	<i>Cistothorus platensis</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
House Wren	<i>Troglodytes aedon</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Veery	<i>Catharus fuscescens</i>
Gray-cheeked Thrush	<i>Catharus minimus</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Wood Thrush	<i>Hylocichla mustelina</i>
Eastern Bluebird	<i>Sialia sialis</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Brown Thrasher	<i>Toxostoma rufum</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Bay-breasted Warbler	<i>Dendroica castanea</i>
Cerulean Warbler	<i>Dendroica cerulea</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Prairie Warbler	<i>Dendroica discolor</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Yellow-throated Warbler	<i>Dendroica dominica</i>
Blackburnian Warbler	<i>Dendroica fusca</i>
Magnolia Warbler	<i>Dendroica magnolia</i>
Palm Warbler	<i>Dendroica palmarum</i>
Chestnut-sided Warbler	<i>Dendroica pennsylvanica</i>
Yellow Warbler	<i>Dendroica petechia</i>
Cape May Warbler	<i>Dendroica tigrina</i>
Black-throated Green Warbler	<i>Dendroica virens</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Yellow-breasted Chat	<i>Icteria virens</i>
Black and White Warbler	<i>Mniotilta varia</i>
Kentucky Warbler	<i>Oporornis formosus</i>
Prothonotary Warbler	<i>Protonotaria citrea</i>
Louisiana Waterthrush	<i>Seiurus motacilla</i>
American Redstart	<i>Setophaga ruticilla</i>
Blue-winged Warbler	<i>Vermivora pinus</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Hooded Warbler	<i>Wilsonia citrina</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Summer Tanager	<i>Piranga rubra</i>
Henslow's Sparrow	<i>Ammodramus henslowii</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Swamp Sparrow	<i>Melospiza georgiana</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
Song Sparrow	<i>Melospiza melodia</i>
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>
Vesper Sparrow	<i>Pooecetes gramineus</i>
Chipping Sparrow	<i>Spizella passerina</i>
Field Sparrow	<i>Spizella pusilla</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>

APPENDIX C
Vertebrate Species Documented on BGAD

Common Name	Scientific Name
Northern Cardinal	<i>Cardinalis cardinalis</i>
Blue Grosbeak	<i>Passerina caerulea</i>
Indigo Bunting	<i>Passerina cyanea</i>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Dickcissel	<i>Spiza americana</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Baltimore (Northern) Oriole	<i>Icterus galbula</i>
Orchard Oriole	<i>Icterus spurius</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Common Grackle	<i>Quiscalus quiscula</i>
Eastern Meadowlark	<i>Sturnella magna</i>
American Goldfinch	<i>Carduelis tristis</i>
House Finch	<i>Carpodacus mexicanus</i>
Purple Finch	<i>Carpodacus purpureus</i>
House Sparrow	<i>Passer domesticus</i>

Source: *Integrated Natural Resource Management Plan and Environmental Assessment*. BGAD 2005

Appendix D
Economic Impact Forecast System

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APPENDIX D

ECONOMIC IMPACT FORECAST SYSTEM

THE NEED FOR SOCIOECONOMIC IMPACT ASSESSMENT

Assessing socioeconomic impacts that result from Army actions can be one of the more controversial issues related to the realignment or closure of an installation. The economic and social well-being of a local community can be dependent upon the activities of the installation, and disruptions to the status quo can become politically charged and emotion-laden. The objective of a socioeconomic analysis of Army actions is an open, realistic, and documented assessment of the potential effects.

The requirement to assess socioeconomic impacts in environmental assessments (EAs) or environmental impact statements (EISs) has been a source of legal discussion since the passage of the National Environmental Policy Act (NEPA). Although NEPA is predominately oriented toward the biophysical environment, court decisions have supported the need for analyzing socioeconomic impacts when they are accompanied by biophysical impacts.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army developed the Economic Impact Forecast System (EIFS) with the assistance of many academic and professional economists and regional scientists to address the economic impacts pursuant to NEPA and to measure the significance of the impacts. As a result of its designed applicability, and in the interest of uniformity, the Assistant Secretary of the Army (Installations, Logistics, and Environment) (ASA [IL&E]) mandates using EIFS in the NEPA assessment of base realignment and closure recommendations. EIFS is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS, in its current form, exists as a World Wide Web-based application. The application resides on a Web server hosted by the US Army Corps of Engineers, Mobile District. The EIFS model is available to U.S. government employees, contractors, and other people who have an approved login and password. Military planners, analysts and their contractors are authorized to access the EIFS application for the purpose of preparing the 2005 Base Realignment and Closure Act (BRAC) National Environmental Policy Act (NEPA) documentation.

As currently configured, EIFS provides:

- Selected statistics about the socioeconomic characteristics of any county or any multi-county area in the United States, including metropolitan statistical areas, and planning commission regions.
- An analytical process for estimating the magnitude and significance of potential socioeconomic effects of proposed military activities in these areas.

THE EIFS IMPACT MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used for estimating the impacts resulting from Army-related changes in local expenditures and employment. In calculating the multipliers, EIFS uses the economic base model approach that 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/EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its basic sector; for example, a dollar increase in local expenditures due to an expansion of a military installation. EIFS estimates its multipliers using a “location quotient” approach, which is based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The EIFS model produces output that includes:

- Change in total sales by local businesses
- Change in total income
- Change in total employment
- Change in total population
- The significance of these changes

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the rational threshold values (RTV) enable the user to evaluate the significance of the impacts. This analytical tool shows the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, employment, income, and population. The evaluation identifies a range of positive and negative changes, within which a project can affect the local economy without creating a significant impact.

The techniques have two major strengths: (1) they are specific to the region under analysis and (2) they are based on actual historical time series data for the defined region. The use of the EIFS impact model in combination with the RTV has proven very successful in addressing perceived socioeconomic impacts. The EIFS model and the significance-measuring techniques are theoretically sound and have been reviewed on numerous occasions.

RTVs are positive and negative percent changes that establish an acceptable range around the maximum historic percentage fluctuations in the ROI. The average yearly decreases or increases in the ROI are obtained by analyzing regional data for the last 16 to 19 years, depending on data availability. For each variable (sales volume, employment, income, and population), the current time-series data available from the U.S. Bureau of Economic Analysis (BEA) for the ROI is used. The average annual change is calculated as the difference between the first and last observations in the particular data set, divided by the

number of years in the time series (see RTV tables, following). The maximum percent positive and negative deviations from that average are the basis for the RTVs.

Negative RTVs are percentages of the maximum negative deviations. These percentages are weighted to reflect the severity of potential impacts on individuals. Population changes are the most heavily weighted, at 50 percent, followed by employment and personal income changes (67 percent); changes in sales volume receive the least weight (75 percent). Using population as an example, if the greatest historic negative deviation from the annual average population change in the ROI was -0.952 percent, a population decrease of more than half of that (-0.476 percent) would be considered significant.

Positive RTVs represent the maximum positive historical fluctuation in the ROI, because of the generally positive connotations of economic growth. If the maximum historic positive deviation from annual average employment growth was 2.368 percent, an increase of more than 2.368 percent would be considered significant in the ROI.

EIFS REPORT

PROJECT NAME

BGAD Construction Peak Year

STUDY AREA

(Lexington-Fayette—Frankfort—Richmond, KY Combined Statistical Area)

21011 Bath, KY
21049 Clark, KY
21067 Fayette, KY
21073 Franklin, KY
21113 Jessamine, KY
21151 Madison, KY
21165 Menifee, KY
21173 Montgomery, KY
21203 Rockcastle, KY
21209 Scott, KY
21239 Woodford, KY

FORECAST INPUT

Change In Local Expenditures	\$9,841,715
Change In Civilian Employment	148
Average Income of Affected Civilian	\$33,272
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3.75	
Income Multiplier	3.75	
Sales Volume - Direct	\$13,800,820	
Sales Volume - Induced	\$37,952,250	
Sales Volume - Total	\$51,753,060	0.23%
Income - Direct	\$6,731,007	
Income - Induced)	\$6,967,307	
Income - Total(place of work)	\$13,698,310	0.11%
Employment - Direct	215	
Employment - Induced	184	
Employment - Total	399	0.11%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.42 %	10.16 %	3.16 %	1.22 %
Negative RTV	-7.57 %	-6.35 %	-3.79 %	-0.5 %

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	\$986,565	\$4,311,289	\$0	\$0	0
1970	\$1,058,231	\$4,370,494	\$59,205	(\$158,919)	-3.64
1971	\$1,167,671	\$4,623,977	\$253,483	\$35,359	0.76
1972	\$1,293,442	\$4,953,883	\$329,906	\$111,782	2.26
1973	\$1,469,220	\$5,303,884	\$350,001	\$131,877	2.49
1974	\$1,631,852	\$5,303,519	(\$365)	(\$218,489)	-4.12
1975	\$1,764,871	\$5,259,316	(\$44,203)	(\$262,327)	-4.99
1976	\$2,038,275	\$5,747,935	\$488,620	\$270,496	4.71
1977	\$2,273,274	\$6,001,444	\$253,508	\$35,384	0.59
1978	\$2,555,168	\$6,285,713	\$284,270	\$66,146	1.05
1979	\$2,899,948	\$6,408,885	\$123,172	(\$94,952)	-1.48
1980	\$3,102,859	\$6,019,547	(\$389,339)	(\$607,463)	-10.09
1981	\$3,365,582	\$5,923,424	(\$96,122)	(\$314,246)	-5.31
1982	\$3,548,250	\$5,890,095	(\$33,329)	(\$251,453)	-4.27
1983	\$3,836,639	\$6,176,989	\$286,894	\$68,770	1.11
1984	\$4,329,982	\$6,668,172	\$491,183	\$273,059	4.09
1985	\$4,649,257	\$6,927,393	\$259,221	\$41,097	0.59
1986	\$4,925,959	\$7,191,900	\$264,507	\$46,383	0.64
1987	\$5,397,061	\$8,365,444	\$1,173,544	\$955,420	11.42
1988	\$5,788,109	\$7,871,828	(\$493,616)	(\$711,740)	-9.04
1989	\$6,206,941	\$8,006,954	\$135,125	(\$82,999)	-1.04
1990	\$6,798,020	\$8,361,565	\$354,611	\$136,487	1.63
1991	\$7,067,304	\$8,339,418	(\$22,146)	(\$240,270)	-2.88
1992	\$7,625,587	\$8,693,169	\$353,751	\$135,627	1.56
1993	\$7,979,270	\$8,856,990	\$163,821	(\$54,303)	-0.61
1994	\$8,248,307	\$8,908,172	\$51,182	(\$166,942)	-1.87
1995	\$8,767,205	\$9,205,565	\$297,393	\$79,269	0.86
1996	\$9,376,736	\$9,564,271	\$358,706	\$140,582	1.47
1997	\$10,026,397	\$10,026,397	\$462,126	\$244,002	2.43
1998	\$10,759,784	\$10,544,589	\$518,192	\$300,068	2.85
1999	\$11,499,126	\$11,039,161	\$494,572	\$276,448	2.5
2000	\$12,141,130	\$11,291,251	\$252,090	\$33,966	0.3

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	\$1,196,494	\$5,228,679	\$0	\$0	0
1970	\$1,280,602	\$5,288,886	\$60,208	(\$229,670)	-4.34
1971	\$1,407,974	\$5,575,577	\$286,691	(\$3,187)	-0.06
1972	\$1,565,605	\$5,996,267	\$420,690	\$130,812	2.18
1973	\$1,760,018	\$6,353,665	\$357,398	\$67,520	1.06
1974	\$1,980,467	\$6,436,518	\$82,853	(\$207,025)	-3.22
1975	\$2,167,508	\$6,459,174	\$22,656	(\$267,222)	-4.14
1976	\$2,474,233	\$6,977,337	\$518,163	\$228,285	3.27
1977	\$2,775,001	\$7,326,003	\$348,666	\$58,788	0.8
1978	\$3,151,887	\$7,753,642	\$427,639	\$137,761	1.78
1979	\$3,562,155	\$7,872,363	\$118,721	(\$171,157)	-2.17
1980	\$3,931,521	\$7,627,151	(\$245,212)	(\$535,090)	-7.02
1981	\$4,411,638	\$7,764,483	\$137,332	(\$152,546)	-1.96
1982	\$4,721,707	\$7,838,033	\$73,551	(\$216,327)	-2.76

1983	\$5,073,036	\$8,167,588	\$329,555	\$39,677	0.49
1984	\$5,744,140	\$8,845,975	\$678,387	\$388,509	4.39
1985	\$6,108,728	\$9,102,005	\$256,029	(\$33,849)	-0.37
1986	\$6,363,652	\$9,290,932	\$188,927	(\$100,951)	-1.09
1987	\$6,879,945	\$10,663,914	\$1,372,982	\$1,083,104	10.16
1988	\$7,356,975	\$10,005,486	(\$658,428)	(\$948,306)	-9.48
1989	\$7,942,527	\$10,245,860	\$240,373	(\$49,505)	-0.48
1990	\$8,669,549	\$10,663,545	\$417,686	\$127,808	1.2
1991	\$9,140,326	\$10,785,584	\$122,039	(\$167,839)	-1.56
1992	\$9,802,999	\$11,175,419	\$389,835	\$99,957	0.89
1993	\$10,202,051	\$11,324,277	\$148,858	(\$141,020)	-1.25
1994	\$10,593,266	\$11,440,728	\$116,451	(\$173,427)	-1.52
1995	\$11,280,696	\$11,844,730	\$404,003	\$114,125	0.96
1996	\$12,042,114	\$12,282,956	\$438,226	\$148,348	1.21
1997	\$12,866,419	\$12,866,419	\$583,463	\$293,585	2.28
1998	\$13,833,146	\$13,556,483	\$690,064	\$400,186	2.95
1999	\$14,524,488	\$13,943,508	\$387,025	\$97,147	0.7
2000	\$15,596,530	\$14,504,773	\$561,265	\$271,387	1.87

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	181,416	0	0	0
1970	184,339	2,923	-3,860	-2.09
1971	188,588	4,249	-2,534	-1.34
1972	194,868	6,280	-503	-0.26
1973	208,240	13,372	6,589	3.16
1974	214,753	6,513	-270	-0.13
1975	209,669	-5,084	-11,867	-5.66
1976	220,926	11,257	4,474	2.03
1977	228,033	7,107	324	0.14
1978	239,513	11,480	4,697	1.96
1979	246,898	7,385	602	0.24
1980	244,699	-2,199	-8,982	-3.67
1981	244,849	150	-6,633	-2.71
1982	245,074	225	-6,558	-2.68
1983	251,790	6,716	-67	-0.03
1984	263,116	11,326	4,543	1.73
1985	269,472	6,356	-427	-0.16
1986	278,399	8,927	2,144	0.77
1987	285,101	6,702	-81	-0.03
1988	295,689	10,588	3,805	1.29
1989	303,454	7,765	982	0.32
1990	310,306	6,852	69	0.02
1991	311,900	1,594	-5,189	-1.66
1992	318,525	6,625	-158	-0.05
1993	326,529	8,004	1,221	0.37
1994	332,235	5,706	-1,077	-0.32
1995	348,598	16,363	9,580	2.75
1996	358,693	10,095	3,312	0.92
1997	369,872	11,179	4,396	1.19
1998	381,072	11,200	4,417	1.16
1999	391,001	9,929	3,146	0.8
2000	398,480	7,479	696	0.17

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	358,487	0	0	0
1970	367,533	9,046	2,558	0.7
1971	376,597	9,064	2,576	0.68
1972	387,703	11,106	4,618	1.19
1973	395,243	7,540	1,052	0.27
1974	406,701	11,458	4,970	1.22
1975	410,876	4,175	-2,313	-0.56
1976	419,485	8,609	2,121	0.51
1977	427,827	8,342	1,854	0.43
1978	432,543	4,716	-1,772	-0.41
1979	439,993	7,450	962	0.22
1980	443,487	3,494	-2,994	-0.68
1981	446,378	2,891	-3,597	-0.81
1982	448,861	2,483	-4,005	-0.89
1983	451,672	2,811	-3,677	-0.81
1984	453,576	1,904	-4,584	-1.01
1985	459,437	5,861	-627	-0.14
1986	464,149	4,712	-1,776	-0.38
1987	468,957	4,808	-1,680	-0.36
1988	473,186	4,229	-2,259	-0.48
1989	475,454	2,268	-4,220	-0.89
1990	482,127	6,673	185	0.04
1991	489,166	7,039	551	0.11
1992	498,819	9,653	3,165	0.63
1993	508,529	9,710	3,222	0.63
1994	516,173	7,644	1,156	0.22
1995	523,245	7,072	584	0.11
1996	531,724	8,479	1,991	0.37
1997	539,203	7,479	991	0.18
1998	548,481	9,278	2,790	0.51
1999	557,780	9,299	2,811	0.5
2000	566,092	8,312	1,824	0.32

***** End of Report *****