

Final Environmental Assessment

Construction and Operation of Armed Forces Reserve Center in Chattanooga, Tennessee

Prepared for



U.S. Army Corps
of Engineers
Mobile District

CH2MHILL

September 2007

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and
U.S. Army Corps of Engineers, Mobile District**

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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 for the United States Army Reserve (USAR) in Tennessee and that a new facility be constructed on approximately 15 acres owned by USAR on property formerly part of the Volunteer Army Ammunition Plant (VAAP). This property, hereafter referred to as the Site, is located on the east side of Chattanooga, Tennessee in Hamilton County. The Site is a parcel shared with the USAR Area Maintenance Support Activity (AMSA), to the north of USAR property occupied by Buildings 228 and 229. 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.

For the USAR in Tennessee, the Commission recommended the closure of the Guerry and the Bonny Oaks USAR Centers in Chattanooga and relocation of displaced units into a new Armed Forces Reserve Center (AFRC) to be constructed on the Site in Chattanooga. This Environmental Assessment (EA) evaluates impacts associated with construction and operation of the new AFRC. The closure of the Guerry and Bonny Oaks Centers is not part of this EA.

ES-2 Proposed Action and Alternatives

Proposed Action (Preferred Alternative)

The preferred alternative is to construct an approximately 48,000-square-foot (sf) AFRC, approximately 8,000 additional square yards (sy) of parking area and a 1,520-sf unheated storage building to support the USAR units being realigned from Guerry and Bonny Oaks USAR Centers in Chattanooga. The maximum number of personnel that would be realigned to the AFRC would be 10 full-time military personnel, 8 full-time civilian personnel, and 230 weekend-only personnel.

The AFRC would be located on the Site to the east of the existing USAR AMSA. Parking associated with the AFRC would be constructed around or beside the facility and may require reconfiguration of the current long-term parking for USAR military vehicles at the AMSA. The AFRC would provide administrative offices, assembly area, arms vault, supply, classroom, learning center, library, communications security training area, locker rooms, latrines, and kitchen space in addition to the recruiting area. Additional support facilities would include site preparation, paving, fencing, security lighting, site signage, storm drainage, military and privately owned vehicle parking, sidewalks, exterior fire protection, and access drives. Collocating with the AMSA will allow for convenient access to the equipment and provide greater ease of access by all associated units.

No Action Alternative

Under the no action alternative, the USAR would not construct the AFRC on the Site. 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.

Alternatives Not Considered in Detail

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

- Close Bonny Oaks USAR Center and Guerry USAR Center and realign personnel into existing buildings owned by USAR south of the Site.
- Construct a new AFRC at a different location within former VAAP property.
- Construct a new AFRC on land not within the former VAAP property.

The reasons these alternatives were considered impracticable are summarized below.

Realign Personnel into Existing USAR Buildings South of the Site

The existing USAR-owned buildings, Buildings 228 and 229, south of the AMSA are aging and in need of rehabilitation. In addition, these structures are not large enough to accommodate all of the USAR units realigning in the Chattanooga area. Inadequate size would constrain the military mission of those units. Therefore, use of the existing buildings and the property on which they are located is not further evaluated.

Construct a New AFRC at a Different Location within the Former VAAP Property

Construction of a new AFRC on another location within the former VAAP property would require that the USAR acquire additional property. This would result in increased costs for due diligence and purchase of a suitable site that would not be incurred under the proposed action. A different location would result in increased travel to reach the AMSA and decreased efficiency of operation. The Site is within a property that was formerly part of the VAAP site and is now being developed as a light industrial park (Enterprise South). This industrial park currently includes five light industries, three of which are adjacent to or in proximity to the Site, and Hamilton County Department of Education facilities, which are adjacent to Bonny Oaks Drive to the south. There are no available parcels in the industrial park adjacent to the Site.

Environmental and socioeconomic impacts of construction and operation would be comparable to those of the proposed action, as the same size buildings and parking area would be constructed. Because the impacts would be comparable and the costs greater, construction of a new AFRC at a different location within the former VAAP is not considered feasible and this alternative is not further evaluated.

Construct a New AFRC on Land Not within the Former VAAP Property

Construction of a new AFRC on land not within the former VAAP property would entail increased implementation costs resulting from land acquisition, as described above for a

different site within the former VAAP property. In addition, travel between the AFRC and the AMSA would result in increased travel to reach the AMSA and decreased efficiency of operation. Environmental and socioeconomic impacts of construction and operation would be comparable to those of the proposed action, as the same size buildings and parking area would be constructed. Because the impacts would be comparable and the costs greater, construction of a new AFRC on land not within the former VAAP property is not considered feasible and this alternative is not further evaluated.

ES-3 Environmental Consequences

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

Consequences of the Preferred Alternative

Implementation of the preferred alternative would result in temporary minor negative impacts to air quality and traffic from construction activities. There would be a temporary increase in noise resulting from construction activities. Short-term minor impacts to surface waters and stormwater control systems may result but implementation of appropriate Best Management Practices (BMPs) and stormwater controls would minimize any short-term impacts and prevent any long-term impacts.

There would be minor displacement of wildlife, including permanent displacement from the project site and temporary displacement from adjoining areas. Animals would be expected to return to the adjacent area when construction was complete and permanently displaced animals would be expected to acclimate to the areas into which they relocated. Any impacts from displacement would be minor. Limited animal mortality could occur, but population level impacts would be negligible.

There would be a temporary minor positive impact to the local economy resulting from construction related jobs and construction-related purchases of supplies and materials.

There would be permanent negative impacts to soils and vegetation, but these impacts would be localized and minor.

There would be no appreciable impacts on solid wastes or hazardous material. There would be no significant impacts to other resource areas. No significant cumulative or indirect impacts would be expected to result from the proposed action.

Consequences of the No Action Alternative

There would be no impacts to 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 environmental impact

statement (EIS) to address the proposed action and a Finding of No Significant Impact (FNSI) should be issued.

TABLE ES-1
Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center

Resource	Environmental and Socioeconomic Consequences	
	No Action	Preferred Alternative
Land Use	No Impact	No Impact
Aesthetics and Visual Resources	No Impact	Less than significant; buildings will be constructed within a developed industrial area.
Air Quality	No Impact	Minor short-term impact from construction related fugitive dust that would be controlled through appropriate BMPs. Minor impact from water heaters and reserve generators.
Noise	No Impact	Less than significant construction-related; appropriate worker safety measures would be implemented; no long-term effects from operation. Nuisance disturbance during construction at nearby residential area possible.
Geology and Soils		
Geology/Topography	No Impact	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.
Soils	No Impact	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Impact	No Impact
Water Resources		
Surface Water	No Impact	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.
Hydrogeology/Groundwater	No Impact	No Impact
Floodplains	No Impact	No Impact
Stormwater	No Impact	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 Impact	Minor adverse impact to common flora.

TABLE ES-1
 Summary of Potential Environmental and Socioeconomic Consequences
Construction and Operation of Armed Forces Reserve Center

Resource	Environmental and Socioeconomic Consequences	
	No Action	Preferred Alternative
Wildlife	No Impact	Minor adverse impact to common fauna.
Wetlands	No Impact	No Impact
Sensitive Species	No Impact	No Impact
Cultural Resources		
Historic Resources	No Impact	No Impact
Archeological Resources	No Impact	No Impact
Native American Resources	No Impact	No Impact
Socioeconomics		
Economic Development	No Impact	No Impact
Demographics	No Impact	No Impact
Housing	No Impact	No Impact
Environmental Justice	No Impact	No Impact
Protection of Children	No Impact	No Impact
Transportation	No Impact	Potential for minor adverse impact during construction. Negligible impacts during operation.
Utilities		
Potable Water	No Impact	Negligible impact during construction and operation
Wastewater	No Impact	Negligible impact during construction and operation.
Energy	No Impact	Negligible impact during construction and operation.
Solid Waste	No Impact	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities. Negligible impact during operation.
Hazardous Materials, Wastes, IRP Sites, and Stored Fuels		
Hazardous/Toxic Materials	No Impact	Less than significant. Common cleaning solvents and waste paints.
Indirect and Cumulative Impacts	No Impact	No significant impacts.

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Contents

Executive Summary	ES-1
ES-1 Introduction.....	ES-1
ES-2 Proposed Action and Alternatives	ES-1
Proposed Action (Preferred Alternative)	ES-1
No Action Alternative.....	ES-2
Alternatives Not Considered in Detail	ES-2
ES-3 Environmental Consequences	ES-3
Consequences of the Preferred Alternative	ES-3
Consequences of the No Action Alternative.....	ES-3
ES-4 Conclusions	ES-3
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	3
1.5 Relevant Statutes and Executive Orders	4
2.0 Description of the Proposed Action	5
2.1 Introduction.....	5
2.2 Implementation Proposed.....	5
3.0 Alternatives	5
3.1 Preferred Alternative	6
3.2 Alternatives Not Considered in Detail	6
3.2.1 Realign Personnel into Existing USAR Buildings South of the Site.....	6
3.2.2 Construct a New AFRC at a Different Location within Former VAAP Property.....	8
3.2.3 Construct a New AFRC on Land Not within the Former VAAP Property.....	8
3.3 No Action Alternative.....	8
4.0 Affected Environment and Consequences	9
4.1 Introduction.....	9
4.1.1 Direct versus Indirect Effects.....	9
4.1.2 Short-Term versus Long-Term Effects	10
4.1.3 Intensity of Effects	10
4.1.4 Significance.....	10
4.1.5 Cumulative Effects	10
4.1.6 Mitigation	11
4.2 Land Use	11
4.2.1 Affected Environment	11
4.2.2 Consequences.....	12
4.3 Aesthetics and Visual Resources	12
4.3.1 Affected Environment	12
4.3.2 Consequences.....	13

4.4	Air Quality	13
	4.4.1 Affected Environment	13
	4.4.2 Consequences.....	15
4.5	Noise.....	16
	4.5.1 Affected Environment	16
	4.5.2 Consequences.....	16
4.6	Geology and Soils	17
	4.6.1 Affected Environment	17
	4.6.2 Consequences.....	18
4.7	Water Resources	18
	4.7.1 Affected Environment	18
	4.7.2 Consequences.....	19
4.8	Biological Resources.....	19
	4.8.1 Affected Environment	19
	4.8.2 Consequences.....	20
4.9	Cultural Resources	21
	4.9.1 Affected Environment	21
4.10	Socioeconomics	21
	4.10.1 Affected Environment	21
	4.10.2 Consequences.....	22
4.11	Environmental Justice and Protection of Children.....	23
	4.11.1 Affected Environment.....	23
4.12	Transportation.....	23
	4.12.1 Affected Environment	23
	4.12.2 Consequences.....	24
4.13	Utilities.....	24
	4.13.1 Affected Environment	24
	4.13.2 Consequences.....	25
4.14	Hazardous and Toxic Substances.....	26
	4.14.1 Affected Environment	26
	4.14.2 Consequences.....	27
4.15	Cumulative Effects Summary	27
4.16	Mitigation Summary	27
5.0	Findings and Conclusions	28
	5.1 Findings	28
	5.1.1 Consequences of the Preferred Alternative	28
	5.1.2 Consequences of the No Action Alternative	29
	5.2 Conclusions	29
6.0	List of Preparers	31
7.0	Distribution List	31
8.0	References	31
9.0	Persons Consulted.....	32
10.0	Acronyms and Abbreviations	33

TABLES

ES-1 Summary of Potential Environmental and Socioeconomic Consequences ES-4
3-1 Proposed Construction Components 6
4-1 NAAQS Critical Pollutants 13
4-2 Socioeconomic Indicators for Region of Influence 21
4-3 EIFS Model Output for the Proposed Construction Project 22
5-1 Summary of Potential Environmental and Socioeconomic Consequences 29

FIGURES

1-1 Project Location Map 2
3-1 Proposed Project Area 7

APPENDICES

- A Copies of Agency Scoping Letters and Responses
- B Air Conformity Model
- C 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 for the United States Army Reserve (USAR) in Tennessee and that a new facility be constructed on approximately 15 acres owned by USAR on property formerly part of the Volunteer Army Ammunition Plant (VAAP). This property, hereafter referred to as the Site, is surrounded by the Enterprise South Industrial Park to the east, west, and north. The Site is a parcel shared with the USAR Area Maintenance Support Activity (AMSA), to the north of USAR property occupied by Buildings 228 and 229. The Hamilton County Department of Education is immediately adjacent to USAR property to the south. The Site is located on the east side of Chattanooga in Hamilton County (Figure 1-1).

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.

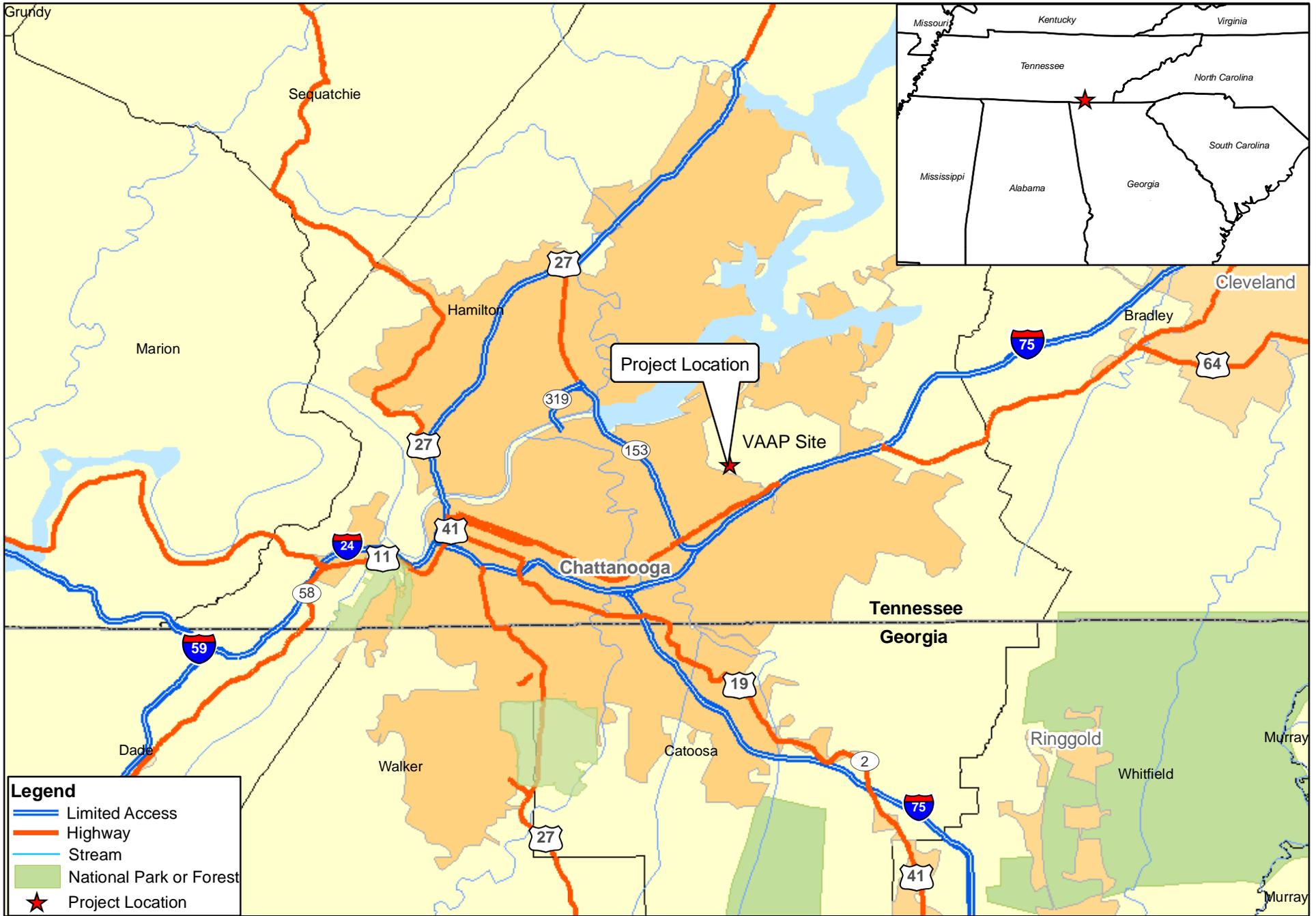
For the USAR in Tennessee, the Commission recommended the closure of the Guerry USAR and the Bonny Oaks USAR Centers in Chattanooga and relocation of displaced units into a new Armed Forces Reserve Center (AFRC) on the Site in Chattanooga.

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

1.2 Purpose and Need

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

The 2005 recommendations of the Commission made in conformance with the provisions of the Defense Base Closure and Realignment Act of 1990, as amended, would require no relocation of USAR personnel, as all affected centers are in Chattanooga, TN. Units would realign within the Chattanooga area. 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 USAR is realigning units as directed by the Commission. The USAR is closing two USAR Centers in Chattanooga and realigning units to a new facility to be constructed on the Site. The proposed action will provide adequate facilities to consolidate and support the units involved in the BRAC action.

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 an AFRC at the Site and realignment of USAR units and associated personnel to the new facility. 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 the AFRC for the USAR units at the Site. 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 State Historic Preservation Office (SHPO) (Appendix A). Responses to the scoping letters and documentation of follow-on coordination with these agencies also are provided in Appendix A.

Public participation opportunities with respect to this EA and decision-making on the proposed action are guided by 32 CFR Part 651. Upon completion of the environmental analysis, the Final EA and Draft Finding of No Significant Impact (FNSI) were made available to the public for comment for a period of 30 days, from 8 September 2007 through 8 October 2007. 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 the Environmental Program Manager, 81st Regional Readiness Command (RRC) at 205.912.6951.

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, USAR 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 Guerry United States Army Reserve Center, Chattanooga, TN, and Bonney Oaks United States Army Reserve Center, Chattanooga, TN, and relocate units into a new Armed Forces Reserve Center (AFRC) on Volunteer Army Ammunition Plant, Chattanooga, TN."

To accomplish this recommendation, the USAR is realigning units from the Guerry and Bonny Oaks USAR centers to a new AFRC that would be constructed on the Site. At present there are no facilities on the Site sufficient to support the USAR units that are being realigned. The maximum number of personnel that would be realigned to the AFRC would be 10 full-time military personnel, 8 full-time civilian personnel, and 230 weekend-only personnel.

The proposed action is to construct suitable facilities (an AFRC) for the USAR on the Site.

2.2 Implementation Proposed

An approximately 48,000-square-foot (sf) AFRC and a 1,520-sf unheated storage building would be constructed to support the USAR units being realigned from Guerry and Bonny Oaks USAR Centers in Chattanooga. The facility would be located on the Site to the east of the AMSA. The new AFRC would have associated parking (approximately 8,000 square yards [sy]) constructed for military and privately owned vehicles. Access to the AFRC would be from the industrial park road to the east of the Site. Because the AFRC would be collocated with the AMSA, no additional shop facilities would be constructed.

3.0 Alternatives

This section presents information on the proposed action and alternatives. The preferred alternative (proposed action) is described in Section 3.1. Section 3.2 describes other

alternatives that were considered early in the NEPA process but were determined to be infeasible. The no action alternative is presented in Section 3.3.

3.1 Preferred Alternative

The preferred alternative is to construct an approximately 48,000-sf AFRC, a 1,520-sf unheated storage building, and an approximately 8,000-sy parking area to support the USAR units being realigned from Guerry and Bonny Oaks USAR Centers in Chattanooga. 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

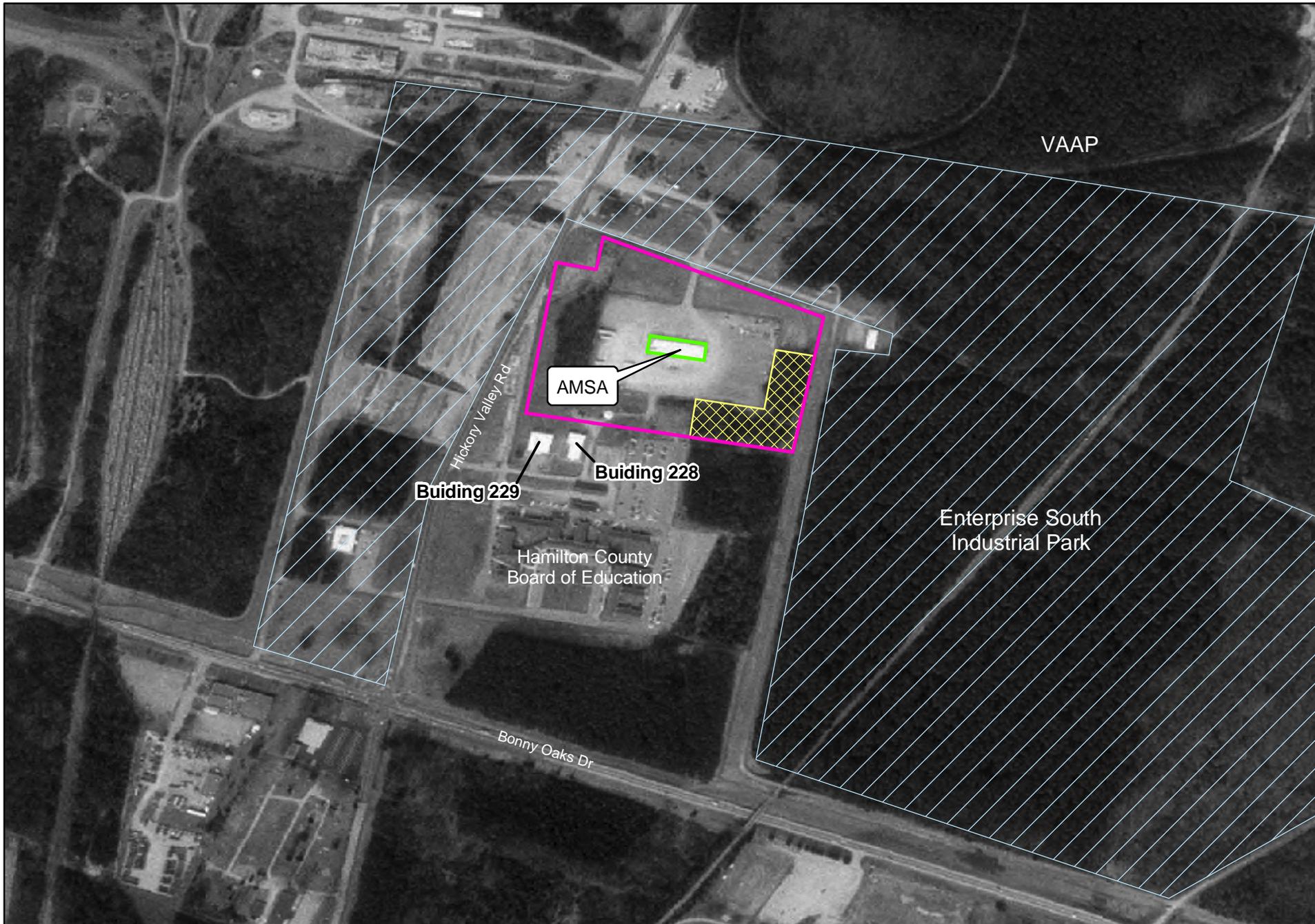
Facility	Approximate Area
Armed Forces Reserve Center	48,000 sf
Unheated Metal Storage Building	1,520 sf
Paved Parking	8,000 sy
TOTAL	Structures: 49,520 sf Parking:8,000 sy

The AFRC would be located on the Site to the east of the AMSA (Figure 3-1). Parking associated with the AFRC would be constructed around or beside the facility and may require reconfiguration of the long-term parking for USAR military vehicles at the AMSA. The AFRC would provide administrative offices, assembly area, arms vault, supply, classroom, learning center, library, communications security training area, locker rooms, latrines, and kitchen space in addition to the recruiting area. Additional support facilities would include site preparation, paving, fencing, security lighting, site signage, storm drainage, military and privately owned vehicle parking, sidewalks, exterior fire protection, and access drives. Collocating with the AMSA would allow for convenient access to the equipment and provide greater ease of access by all associated units.

3.2 Alternatives Not Considered in Detail

3.2.1 Realign Personnel into Existing USAR Buildings South of the Site

The existing USAR-owned buildings, Buildings 228 and 229, south of the AMSA are aging and in need of rehabilitation. In addition, these structures are not large enough to accommodate all of the USAR units realigning in the Chattanooga area. Inadequate size would constrain the military mission of those units. Therefore, use of the existing buildings and the property on which they are located is not further evaluated.



Legend

- Location of Proposed Action
- Industrial Park
- AMSA
- Land Cleared After Date of Photography (2004)



0 250 500 750 1,000
 Feet

Source of Photography:
 Tennessee Spatial Data Server, 2004

Figure 3-1
 Proposed Project Area
 Construction and Operation of Armed Forces Reserve Center
 Chattanooga, Tennessee



3.2.2 Construct a New AFRC at a Different Location within Former VAAP Property

Construction of a new AFRC on another location within the former VAAP property would require that USAR acquire additional property. This would result in increased costs for due diligence and purchase of a suitable site that would not be incurred under the proposed action. A different location also would result in increased travel to reach the AMSA and decreased efficiency of operation. The Site is within a property that was formerly part of the VAAP site, which is now being developed as a light industrial park (Enterprise South). This industrial park currently includes five light industries, three of which are adjacent to or in proximity to the Site, and Hamilton County Department of Education facilities, which are adjacent to Bonny Oaks Drive immediately south of the Site. There are no available parcels in the industrial park adjacent to the existing USAR property.

Construction on a site not adjacent to the USAR property would not provide the efficiency of operation afforded by collocating the facilities; the distance between the AFRC and the AMSA would result in increased travel and decreased efficiency of operation. The environmental and socioeconomic impacts of construction and operation would be comparable to those of the proposed action, as the same size buildings and parking area would be constructed. Because the impacts would be comparable and the costs greater, construction of a new AFRC at a different location within the former VAAP is not considered feasible, and this alternative is not further evaluated.

3.2.3 Construct a New AFRC on Land Not within the Former VAAP Property

Construction of a new AFRC on land not within the former VAAP property would entail increased implementation costs resulting from land acquisition, as described above for a different site within the former VAAP property. Construction on a site not adjacent to the Site also would not provide the efficiency of operation afforded by collocating the facilities; the distance between the AFRC and the AMSA would result in increased travel and decreased efficiency of operation. Environmental and socioeconomic impacts of construction and operation would be comparable to those of the proposed action, as the same size buildings and parking area would be constructed. Because the impacts would be comparable and the costs greater, construction of a new AFRC on land not within the former VAAP property is not considered feasible and this alternative is not further evaluated.

3.3 No Action Alternative

Under the no action alternative, the USAR would not construct the AFRC on the Site. 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.

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 also 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 989, 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.

Following 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 one 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 one 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 rather 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 CFR 1508.7 (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 adverse impacts are identified, measures that could be implemented to mitigate the magnitude of impacts are 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, USAR will implement Best Management Practices (BMPs) and project design features to avoid impacts 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

The Site is located at 6511 Bonny Oaks Drive in Hamilton County, TN on the northeastern side of the Chattanooga metropolitan area. The Site is within the city limits of Chattanooga and to the northwest of Interstate Highway 75 (I-75) (USAR, 1999). The Site is near the intersection of Bonny Oaks Road and Hickory Valley Road and is located adjacent to Hamilton County Department of Education facilities.

4.2.1.2 Project Site

The proposed project site is a USAR Center property that occupies approximately 15 acres. The property houses a USAR AMSA and long-term parking for USAR military vehicles. The AMSA is a 14,430-sf 2-story concrete block building with brick and metal exteriors (USAR, 1999). The AMSA is in the center of the property and is surrounded on three sides by pavement and gravel. Around the paved and graveled area is maintained lawn. On the western side of the property is a small woodlot that has been partially cleared and now is

dominated by northern red oak of approximately 12-inch diameter at breast height (dbh). The north, east, and west sides of the property are bordered by roads.

The proposed AFRC and its associated parking would be constructed on the Site, adjacent to the AMSA building. Current military vehicle parking would be reconfigured to accommodate the new facility. The location of the preferred alternative comprises a paved area, lawn, and small woodlot.

4.2.1.3 Surrounding Land Use

The area surrounding the Site consists primarily of early successional woods and a light industrial park. The zoning is designated Industrial/Commercial (USAR, 1999).

4.2.2 Consequences

4.2.2.1 Preferred Alternative

No impact to overall land use in the region is expected under the preferred alternative. The proposed location of the AFRC is entirely within USAR property on land intended to support the military mission of the USAR. The surrounding area, which also was formerly part of the VAAP, is now being developed into the Enterprise South Industrial Park on the east, north, and west. The Hamilton County Department of Education is immediately adjacent to the Site to the south. Any undeveloped land remaining within the Enterprise South development will eventually be converted to light industry regardless of whether the proposed action is implemented.

A small isolated woodlot on the west side of the Site would likely be cleared as part of the proposed action. This woodlot has been partially cleared and grubbed in the past, presumably to support construction of the AMSA or to provide overflow vehicle parking. Conversion of the small (approximately 1.5-acre) woodlot to vehicle parking would be a negligible impact on regional land use. The AFRC would be consistent with the Industrial/Commercial zoning designation. Construction and operation of the AFRC would not have any effects on surrounding properties.

4.2.2.2 No Action Alternative

No impact to overall land use would result under the no action alternative. Under this alternative, no construction would take place and no changes to existing land use would occur.

4.3 Aesthetics and Visual Resources

4.3.1 Affected Environment

The proposed location of the AFRC is open space with maintained lawn and gravel parking areas. There is a small open woodlot west of the AMSA. The surrounding land includes developed industrial park and early successional woods.

4.3.2 Consequences

4.3.2.1 Preferred Alternative

Negligible 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 AMSA building.

The AFRC would be visible from Hickory Valley Road, but would be constructed within an already developed area with an array of structures and manmade features typical of a light industrial area. The new buildings and parking area would not introduce a noticeable change in the already modified visual environment.

4.3.2.2 No Action Alternative

Conditions would remain as they are under the no action alternative. No impact to the aesthetics or visual resources would result from the no action alternative, since the alternative would not involve any construction or land clearing activities.

4.4 Air Quality

4.4.1 Affected Environment

4.4.1.1 Ambient Air Quality Conditions

The Clean Air Act (CAA) 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, 2007a). EPA has established NAAQS for six principal pollutants, which are called “criteria pollutants” (Table 4-1).

TABLE 4-1
NAAQS Criteria Pollutants
Construction and Operation of Armed Forces Reserve Center

Pollutant	Primary Standards ^a	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m ³)	8-hour ^b	None
	35 ppm (40 mg/m ³)	1-hour ^b	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 ^c (Arithmetic Mean)	Same as Primary
	PM ₁₀	150 µg/m ³	24-hour ^b
	PM _{2.5}	15.0 µg/m ³	Annual ^d (Arithmetic Mean)
	65 µg/m ³	24-hour ^e	

TABLE 4-1
 NAAQS Criteria Pollutants
Construction and Operation of Armed Forces Reserve Center

Pollutant	Primary Standards ^a	Averaging Times	Secondary Standards
Ozone	0.08 ppm	8-hour ^f	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	
	0.14 ppm	24-hour ^b	
		3-hour ^b	0.5 ppm (1300 µg/m ³)

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

^b Not to be exceeded more than once per year.

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

^d 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.

^e 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.

^f 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, 2007a)

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, 2007b).

4.4.1.2 Air Pollutant Emissions in the Vicinity

The Site is located within the jurisdiction of the Chattanooga-Hamilton County Air Pollution Control Board (APCB). The City has historically suffered from poor air quality due to its industrial base and the occurrence of temperature inversions in the area (Potomac-Hudson Engineering, Inc., 1999).

The EPA designated Hamilton County, which includes the City of Chattanooga, as a non-attainment area for 2.5-micron particulate matter (PM 2.5) in 2005 and as a Subpart 1 Early Action Compact (EAC) area for 8 hr-ozone. The primary source of PM 2.5 is power plants in the region. The primary sources of ozone are power plants and vehicles. The APCB is in the process of creating a State Implementation Plan (SIP) for PM 2.5. The EAC coalition is actively working to improve to the ozone emission level by enacting four voluntary clean air initiatives that focus on industry and on vehicles.

Section 176(c)(1) of the CAA, also known as the General Conformity Rule, prohibits the Federal Government from conducting, supporting, or approving any actions that do not conform to an EPA-approved SIP. A conformity review must be performed when a Federal action generates air pollutants in a region that has been designated a nonattainment or maintenance area for one or more NAAQS. Under the review, the proposed action is evaluated to determine whether it would jeopardize the attainment status of a region or aggravate the non-attainment problem.

4.4.2 Consequences

4.4.2.1 Preferred Alternative

For the proposed action, air pollutant emissions and air quality impacts associated with the proposed action were modeled and compared to *de minimus* thresholds. The results indicated that the *de minimus* thresholds would not be exceeded. The record of non-applicability for the review is contained in Appendix B.

The proposed action would cause minor, short-term 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 shifting of personnel to the Site would not be expected to increase the vehicle emissions. The new employees would have no appreciable change in driving time because they would be relocated from existing USAR Centers in Chattanooga and remain within the same Air Quality Control Region (AQCR). Any increase in driving time would be negligible.

Minor permanent sources of air emissions would be created by the proposed action, including building heating units, water heaters, and reserve generators. These small sources would result in no more than a *de minimus* impact on air quality.

4.4.2.2 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.

4.5 Noise

4.5.1 Affected Environment

Noise is measured in sound pressure units called decibels (dB). 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). Sound pressure decreases with distance from the source. Typically, the amount of noise is halved as the distance from the source doubles (EPA, 1974).

The proposed project site is in an urban/suburban area adjacent to the AMSA and an active industrial park. Noise levels in the proposed project location reflect the existing land use and the adjacent roadway. Noise levels in the proposed project area would be expected to range from 60 to 70 dBA, which is typical of commercial areas near roads with heavy traffic (Cowan, 1999).

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. Because of the timing of the construction-related noise

(weekdays during the day), persons outdoors could experience nuisance level noise that could interfere with normal conversations. During operation, noise levels would be expected to be comparable to those found in business and commercial areas, typically ranging from 50 dB to 60 dB (The Engineering Toolbox, 2007). Inside of buildings, the construction noise would not be noticeable other than as a minor inconvenience. The minor, temporary impacts from construction noise would be less than significant.

Construction workers would use hearing protection and would follow Occupational Safety and Health Administration (OSHA) standards and procedures. No negative health impacts would result from construction-related noise.

Long-term operation of the AFRC would not cause a noticeable increase in area noise, as operation would be consistent with surrounding light industrial and commercial operations. No significant impacts from noise would result from operation of the AFRC.

4.5.2.2 No Action Alternative

Under the no action alternative, there would be no construction and no change from existing conditions. No impacts from noise would result, as no construction would occur.

4.6 Geology and Soils

4.6.1 Affected Environment

4.6.1.1 Geologic and Topographic Conditions

The underlying geology of the Site consists of the Knox group. There are two sub sections within the Knox group on the property: Copper Ridge - dolomite and Maynardville - limestone (Potomac-Hudson Engineering, Inc., 1999).

The topography on the Site is generally level with very little change in elevation across the Site. The property slopes slightly down to the west. The Site has been graded to create buildings and public areas (Potomac-Hudson Engineering, Inc., 1999).

4.6.1.2 Soils

The soil associations on the Site are Fullerton cherty silt loam and Arents (i.e., deeply mixed) soils. Fullerton soils covered 60 percent of the project area, prior to grading to establish the AMSA (Potomac-Hudson Engineering, Inc., 1999). The Fullerton series consists of very deep, well drained, cherty soils that formed in residuum weathered from cherty limestone or dolomite. These soils are on gently sloping to very steep uplands (National Cooperative Soil Service [NCSS], 2007).

Arents soils consist of Alderwood soils that have been so disturbed by plowing, spading, or other methods of moving by humans (e.g., through urbanization) that they no longer can be classified with the Alderwood series (King Conservation District, 2007).

4.6.1.3 Prime Farmland

The Site is mostly developed and is unsuitable for farming. No prime farmland occurs on the Site.

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 acres of land would be disturbed during construction and approximately 4 acres would be converted from pervious or partially pervious surfaces to impervious surfaces. The majority of the construction would occur on previously developed land, and continued development of this land 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 practical. Therefore, potential impacts to geological resources as a result of the preferred alternative would be minimal.

4.6.2.2 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

There are no natural streams on the Site. However, the property does contain several ephemeral drainage swales that convey and detain precipitation and runoff.

Lakes

There are no lakes or impoundments on the Site.

4.7.1.2 Hydrogeology /Groundwater

Groundwater at the Site occurs in a continuous bedrock aquifer and in perched zones in the soil residuum. The bedrock aquifer consists of limestone, dolomite, and calcareous shale. Groundwater flow occurs under unconfined to semiconfined conditions and generally traverses in an easterly direction before diverting to the north or south (Potomac-Hudson Engineering, Inc., 1999). There are no known drinking water wells in the immediate area of the Site.

4.7.1.3 Floodplains

Floodplains must be managed in accordance with EO 11988, *Floodplain Management*, 24 May 1977. 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.

The Site is above any designated flood elevations and is not within a designated floodplain.

4.7.1.4 Coastal Zone

The Site is not located within a coastal zone.

4.7.2 Consequences

4.7.2.1 Preferred Alternative

Construction activities would result in soil disturbance and loss of vegetative cover. These activities could result in runoff to receiving waters located off the property, or in impacts to water quality through transport of sediment and soil-bound pollutants causing turbidity and sedimentation. Increased runoff from an unvegetated site could result in hydrologic impacts, such as channelization and erosion.

The State of Tennessee requires that NOIs for National Pollutant Discharge Elimination System (NPDES) Stormwater Construction Permits be filed with the Tennessee Department of Environment and Conservation (TDEC) for all projects disturbing 1 or more acres. BMPs, as discussed relative to potential soils impacts above in Section 4.6.2.1, and onsite stormwater controls would be implemented to reduce or eliminate runoff from the Site to avoid or minimize impacts to nearby waters. Any construction-related water quality and hydrologic impacts would be minor and temporary.

The preferred alternative would result in the conversion of approximately 4 acres of pervious or partially pervious surfaces to impervious surface. The addition of impermeable surfaces through the construction of new buildings and paved surfaces would result in a decrease in infiltration over the ground surface and could result in an increase in stormwater runoff. Impacts to the quality of water resources could occur as the result of an increase in stormwater runoff. The design of buildings and parking area would include post-construction stormwater controls, such as detention areas and infiltration areas, designed to minimize or eliminate the effects of increased runoff. Any post-construction stormwater impacts would be expected to be negligible.

4.7.2.2 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

An investigation on April 18, 2007, indicated that the Site contains one small woodlot, approximately 1.5 acres in size, that has been partially cleared and currently is dominated by northern red oak with an average 12-inch dbh. The rest of the Site is occupied by AMSA, associated vehicle parking areas, and graded areas featuring maintained lawn.

4.8.1.2 Wildlife

There is limited wildlife use of the woodlot and wooded areas adjacent to the Site. The industrial park has little wildlife use.

4.8.1.3 Sensitive Species

No portion of the Site has been designated as critical habitat under the Endangered Species Act (Potomac-Hudson Engineering, Inc., 1999). The property contains maintained lawn and one small woodlot that has been partially cleared. Because of the relatively small size of the dominant trees (12-inch dbh) and the degree of understory disturbance, the woodlot does not provide potentially suitable habitat for sensitive species that may occur in Hamilton County.

4.8.1.4 Wetlands

An inspection on April 18, 2007, indicated no wetlands on the Site. Inspections conducted in April 1998 and January 1999 indicated no wetlands on immediately adjoining properties (USAR, 1999).

4.8.2 Consequences

4.8.2.1 Preferred Alternative

Impacts to common flora and fauna would result from implementation of the preferred alternative. Indirect impacts would be associated with loss of habitat. The project would result in clearing an approximately 1.5-acre woodlot and converting approximately 8 acres of currently undeveloped land into two buildings, pavement, and associated landscaped areas. Appropriate BMPs would be implemented to reduce potential indirect impacts from stormwater runoff to downslope offsite habitats.

Incidental wildlife mortality could result during construction disturbance, but any losses would not threaten local populations. Any impacts would be negligible.

In letter dated 21 June 2007 USFWS identified concerns for potential impacts to large-flowered skullcap (*Scutellaria montana*), a federally threatened plant species known to occur on portions of the VAAP, but not from the area of the Site. A copy of the letter is included in Appendix A. No plants of the genus *Scutellaria* were observed on the during Site investigations and the degree of disturbance to the approximately 1.5-acre woodlot resulting from past grading and understory removal actions has made the remaining habitat unsuitable for large-flowered skullcap. No other federally or state-listed plant or animal species are known to occur within the project area and the habitat is not suitable to support these sensitive species. Therefore, no impacts to large-flowered skullcap or other federally or state-listed species are anticipated.

There would be no wetland impacts because no wetlands occur within or adjacent to the proposed project site.

4.8.2.2 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

4.9.1 Affected Environment

No properties of architectural, historic, or archeological significance are located within or adjacent to the Site (USAR, 1999). The Site is within a larger area surrounded by the Enterprise South Industrial Park. No impacts to cultural resources would occur under either alternative and these resources are not further discussed. A letter from Tennessee SHPO dated 3 August 2007 concurring that no impacts would occur is included in Appendix A.

4.10 Socioeconomics

4.10.1 Affected Environment

The economic Region of Influence (ROI) for the proposed action is defined as the Chattanooga, Tennessee-Georgia (TN-GA) Metropolitan Statistical Area (MSA). The urban core of the MSA is the City of Chattanooga and the MSA consists of the surrounding areas with commuting ties to the city: Catoosa County, GA; Dade County, GA; Walker County, GA; Hamilton County, TN; Marion County, TN; and Sequatchie County, TN.

There would be no change in jobs or personnel, and minimal changes in operational costs (if any), since the USAR is simply moving operations sites from within approximately 5 miles of the proposed AFRC site. There would be no relocation of personnel from outside the immediate area or the ROI.

Because there would be no long-term change in population or employment within the ROI, the discussion of socioeconomic impacts is limited to the short-term economic effects of construction activities. Table 4-2 presents baseline socioeconomic indicators for the ROI, for purposes of comparison.

TABLE 4-2
Socioeconomic Indicators for Region of Influence
Construction and Operation of Armed Forces Reserve Center

	2005 Population	2004 Employment ^a	2004 Total Earnings ^a	2002 Sales ^b
Chattanooga, TN-GA MSA	492,126	302,827	\$11,575,642	\$8,748,773

Notes:

^aBy place of work

^bAccommodation and food services, wholesale trade, and retail trade – sales of establishments with payroll in 2002

Sources:

US Census Bureau, 2007 - State and County QuickFacts (<http://www.bea.gov/regional/index.htm>)

US Bureau of Economic Analysis, 2007, Regional Economic Information System (<http://quickfacts.census.gov/qfd/>)

The population has increased approximately 4.2 percent in the MSA since 2000. Employment has remained relatively unchanged from 2000 to 2004 (decreasing

approximately 0.2 percent), while the unemployment rate increased from 3.4 percent to 4.5 percent during that time period (Bureau of Labor Statistics [BLS], 2007).

4.10.2 Consequences

4.10.2.1 Preferred Alternative

Short-term minor beneficial effects to the regional economy can be expected from the construction activities required to implement the proposed action. The expenditures and employment associated with the construction project would increase sales volume, employment, and income in the ROI. These economic benefits would be temporary, lasting only for the duration of construction activity.

The regional economic effects of the proposed action were assessed using the Economic Impact Forecast System (EIFS) developed by the U.S. Army Construction Engineering Research Laboratory (CERL). Use of this model provides a consistent method for evaluating socioeconomic impacts associated with Army BRAC actions nationwide (U.S. Army Corps of Engineers [USACE], 1994).

It is estimated that construction costs to implement the proposed action would be approximately \$7.9 million (in FY08 dollars), including labor and materials. Approximately 60 full-time-equivalent construction jobs, with associated construction wages, would be created by the construction project (see Appendix C).

Table 4-3 presents estimates of both the direct effects of construction activities and induced effects in related industrial sectors that would be affected by construction expenditures and employment. The percentage increase in sales volume, income, employment, and local off-post population would be relatively minor and would fall well within the range of historical fluctuations in those economic parameters as represented by the rational threshold values (RTVs) for the region. A range of positive and negative changes, which are calculated by the EIFS model based on historical trends in the region, within which a project can affect the local economy without creating a significant impact. See Appendix C for additional information.

The multiplier effect would result in direct and induced employment of 139 jobs in sectors supplying the construction industry within the ROI (Table 4-3). This employment level corresponds to approximately 0.05 percent of regional baseline employment (see Table 4-2). Additional income associated with the direct and induced jobs would be about \$5 million. Suppliers in the ROI would experience a short-term increase in the sale of construction-related materials and provision of services.

TABLE 4-3
EIFS Model Output for the Proposed Construction Project
Construction and Operation of Armed Forces Reserve Center

Indicator	Projected Change	Percentage Change	RTVs	
			Positive	Negative
Direct Sales Volume	\$5,183,129			
Total Sales Volume	\$17,207,990	0.10%	13.16 %	-7.76 %

TABLE 4-3
EIFS Model Output for the Proposed Construction Project
Construction and Operation of Armed Forces Reserve Center

Indicator	Projected Change	Percentage Change	RTVs	
			Positive	Negative
Direct Income	\$2,944,848			
Total Income	\$5,101,331	0.05%	11.65 %	-4.96 %
Direct Employment	83			
Total Employment	139	0.05%	3.85 %	-4.04 %
Local Population	\$5,183,129			
Local Off-base Population	\$17,207,990	0.10%	1.3 %	-0.87 %

4.10.2.2 No Action Alternative

Under the no action alternative, there would be no short-term increase in construction-related jobs and wages, and no associated increase in local sales of construction-related materials. Therefore, the no action alternative would have no effect on socioeconomics.

4.11 Environmental Justice and Protection of Children

4.11.1 Affected Environment

No residences are near the proposed project location and no long-term change in employment or demographics in the region would occur. Thus, there would be no potential for environmental justice or protection of children issues under either the proposed action or the no action alternative.

4.12 Transportation

4.12.1 Affected Environment

The Site is easily accessible by I-75. I-75 is a connector to Atlanta, GA, toward the southeast and to Knoxville, TN, toward the northeast. State route 317 (Bonny Oaks Drive) is an east/west roadway primarily serving traffic to and from I-75 (Potomac-Hudson Engineering, Inc., 1999). The entrance to the Site is on Discovery Drive, which intersects with Hickory Valley Road just north of the intersection of Bonny Oaks Drive and Hickory Valley Road.

The Site is to the east of downtown Chattanooga. Nearby roads do not experience heavy congestion. A traffic signal controls the flow of traffic at the Bonny Oaks Drive/Hickory Valley Road intersection.

4.12.2 Consequences

4.12.2.1 Preferred Alternative

As part of the proposed action, employees/military personnel would be reassigned from Guerry AFRC, approximately 5 miles away, to the Site. Additional personnel would move from an existing USAR facility located south of the AMSA, but not within the 15-acre parcel where the AFRC would be located. The maximum number of personnel that would be realigned to the AFRC would be 10 full-time military personnel, 8 full-time civilian personnel, and 230 weekend-only personnel. The roads serving the area are sufficient to accommodate the full development of Enterprise South and can accommodate the maximum realignment. Because these units already are stationed in the vicinity of the project and no units are being enlarged or created, there would be no overall change in demand on the traffic infrastructure. The minor increase in traffic in the immediate project area associated with the preferred alternative would not disrupt traffic flow or result in changes to traffic patterns. Any operational impacts on traffic would be negligible.

Construction traffic would have a short-term minor impact on traffic on adjacent roads. Construction-related traffic would increase during construction hours on roads leading to the proposed site. If sections of road have to be temporarily closed during construction, traffic control procedures, including flaggers and posted detours, would minimize impacts to traffic flow. Any such impacts would be temporary and minor.

4.12.2.2 No Action Alternative

Under the no action alternative, none of the proposed increase in personnel would occur and there would be no impacts to transportation.

4.13 Utilities

4.13.1 Affected Environment

4.13.1.1 Potable Water Supply

Potable water is supplied by the Tennessee American Water Company (TAWC). TAWC provides service to Hamilton County and four surrounding counties. Through its surface water treatment plant, TAWC has the capacity to supply 65 million gallons per day (mgd) from its water source, the Tennessee River (Potomac-Hudson Engineering, Inc., 1999).

4.13.1.2 Wastewater System

Wastewater is discharged to the City of Chattanooga sewerage system (Potomac-Hudson Engineering, Inc., 1999). The wastewater is treated at Moccasin Bend Wastewater Treatment Plant (City of Chattanooga, 2007) and discharged to the Tennessee River.

4.13.1.3 Stormwater System

The stormwater system includes onsite grading, storm sewer pipes, and detention swales. An unnamed drainage ditch located offsite conveys stormwater to Poe Creek (Environmental Enterprise Group, Inc., 2004).

4.13.1.4 Energy Sources

Electrical power is supplied by the Tennessee Valley Authority (TVA) through a tap from its Chickamauga-Sequoyah transmission line (Potomac-Hudson Engineering, Inc., 1999).

Natural gas is supplied by the Chattanooga Gas Company (Potomac-Hudson Engineering, Inc., 1999).

4.13.1.5 Communications

Telephone service infrastructure is provided by Bell South/AT&T (Potomac-Hudson Engineering, Inc., 1999).

4.13.1.6 Solid Waste

USAR refuse is collected by a private contractor. Refuse is currently sent to the Summit Landfill in Hamilton County. If the Summit Landfill fills and is closed, the refuse will be sent to the Birchwood Landfill (Potomac-Hudson Engineering, Inc., 1999).

4.13.1.7 Emergency Services/Community Services

The Chattanooga Police Department (CPD) provides service to the project area. The headquarters station is located at 3410 Amnicola Highway (Potomac-Hudson Engineering, Inc., 1999).

The Chattanooga Fire Department (CFD) provides service to the project area. The two CFD stations closest to the Site are Station #6 and #8. Station #6 is on Bonny Oaks Drive near Route 153. Station #8 is on Hickory Valley Road near Route 11 (Potomac-Hudson Engineering, Inc., 1999).

The Hamilton County School System has a total of 81 public schools, including 65 elementary and middle schools, 13 high schools, 2 vocational schools, and 1 special education school. The Hamilton County Department of Education facilities are adjacent to the Site (Potomac-Hudson Engineering, Inc., 1999).

The Chattanooga area is served by six full-service hospitals (Potomac-Hudson Engineering, Inc., 1999).

The Chattanooga Department of Parks and Recreation manages approximately 60 public parks throughout the City. Facilities nearest the Site include Washington Hills Recreation Center to the west and the Tyner Recreation Center and Silverdale playground to the south (Potomac-Hudson Engineering, Inc., 1999 and Chattanooga, 2007).

4.13.2 Consequences

4.13.2.1 Preferred Alternative

Construction would require extensions and connections for utilities, including energy, communications, water, and sewer. Negligible disruptions to utilities would occur at the AMSA during construction. The Site is located within an industrial park setting. Utility infrastructure (e.g. energy, communications, water and sewer) is in place to support full development of the industrial park. System capacity and supply would not be unduly

burdened by operation of a building with predominantly office-related and weekend uses. Any impacts would be negligible.

There would be no adverse impact to the emergency/community services listed above. The personnel needed for the construction would already be in the area. There would be no change in number of jobs or demographics.

Solid waste would be generated during construction of the new buildings and paved areas. This material would be recycled to the extent practical, and the remainder would be sent to the regional solid waste landfill. The typical construction wastes would be within the capacity of the local and regional waste disposal facilities.

Post-construction stormwater controls would be constructed to ensure that the stormwater system could handle the additional runoff from increased impervious surfaces.

4.13.2.2 No Action Alternative

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

4.14 Hazardous and Toxic Substances

4.14.1 Affected Environment

4.14.1.1 Hazardous Waste Use, Storage, and Disposal

Current and historical use of hazardous materials on the Site has been limited to operation of the AMSA. In 1999 an environmental baseline study was conducted by the USAR to determine environmental liabilities, including storage tanks and hazardous substances. The AMSA building is used as a vehicle maintenance shop (USAR, 1999). Petroleum, oils, lubricants, gasoline, transmission fluid, brake fluid, and antifreeze are used in the 12 bay shop on a daily basis. These materials could spill during routine maintenance of the vehicles. The AMSA trench drain system, which extends through the center of the shop, and the indoor wash rack facility are routed to an onsite oil-water separator (OWS). The OWS discharges into City's sanitary sewer system. (Environmental Enterprise Group, Inc., 2005).

A 10,000-gallon gasoline underground storage tank (UST) and a 500-gallon oil UST were located on the Site but have been removed. The USAR received confirmation of No Further Investigation needed from the Tennessee Department of Environment and Conservation in 2001 regarding these tank closures. A 500-gallon diesel aboveground storage tank (AST) is currently located on the Site and has been operated without release of petroleum or hazardous substances (USAR, 1999).

The USAR implements an Installation Spill Prevention, Control, and Countermeasures Plan (SPCCP) that provides guidance concerning the containment and cleanup of spills (for all types of hazardous materials) identified in the Installation Spill Contingency Plan (Environmental Enterprise Group, Inc., 2005).

4.14.2 Consequences

4.14.2.1 Preferred Alternative

Construction of the preferred alternative may result in generation of minor levels of common hazardous substances, including cleaning solvents and waste paints. Operation of the new AFRC could result in generation of small amounts of solvents, paints, and cleaners for building maintenance. All such materials would be handled, used, and disposed of in accordance with applicable laws and restrictions. Any impacts on or from hazardous materials would be negligible.

4.14.2.2 No Action Alternative

Under the no action alternative, none of the proposed construction would occur and there would be no impacts from hazardous and toxic substances.

4.15 Cumulative Effects Summary

The proposed action would not interact with other past, present, or reasonably foreseeable future actions to generate cumulative impacts. Operation of the facility would not interact with other projects, as the units that would be assigned to the AFRC already operate in the Chattanooga area.

The construction activity would be small and would not prevent other construction projects in Chattanooga and Hamilton County from being completed. Construction would be limited to the Site in an area currently surrounded by roads or other development and would not interact with offsite projects with regard to stormwater runoff and erosion. The *de minimus* air emissions from construction would not result in cumulative deterioration of air quality when combined with the effects of other projects.

No jobs would be created or lost and no personnel would relocate into or out of the area. Commute times would not change appreciably. As a result, there would be no potential for interaction effects with regard to socioeconomic resources.

4.16 Mitigation Summary

No significant adverse impacts would result from the proposed action and no mitigation is proposed. This section summarizes the procedures and project design features that would be implemented to avoid or minimize impacts to the extent practical.

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

Personnel conducting construction and/or demolition activities would strictly adhere to all applicable occupational safety requirements during construction activities.

Some unavoidable impacts could result from implementation of the proposed action, including generation of fugitive dust from construction areas, construction-related noise nuisance, and soil and water impacts from stormwater runoff. Specific project design

features would be implemented to minimize or eliminate impacts or to reduce the nuisance level of impacts.

Measures that would be implemented to reduce or eliminate fugitive dust emissions would include the 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 activities would be limited to weekdays and daylight hours to minimize disturbance to potentially sensitive receptors.

Appropriate BMPs would be implemented and maintained to minimize the potential for stormwater runoff during construction to cause soil and streambank erosion, and subsequently contribute to water quality degradation through increased sedimentation and turbidity. BMPs could include, but not be limited to, use of silt fencing and sediment traps and revegetation/mulching of disturbed areas as soon as practical.

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 temporary minor negative impacts to air quality and traffic from construction activities. A temporary elevation in area noise would also result from generation of construction-related noise.

There would be minor displacement of wildlife, including permanent displacement from the project site and temporary displacement from adjoining areas. Animals would be expected to return to the adjacent area when construction was complete and permanently displaced animals would be expected to acclimate to the areas into which they relocated. Any impacts from displacement would be minor. Limited animal mortality could occur, but population level impacts would be negligible.

There would be a temporary minor positive impact to the local economy resulting from construction-related jobs and construction-related purchases of supplies and materials.

Permanent negative impacts to soils and vegetation would occur, but these impacts would be localized and minor.

There would be no appreciable impacts on solid wastes or hazardous material. No impacts to other resource areas would occur. No significant cumulative or indirect impacts would be expected to result from the proposed action.

5.1.2 Consequences of the No Action Alternative

Under the no action alternative, none of the proposed construction would occur and there would be no impacts, positive or negative, to any of the resource areas.

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

Resource	Environmental and Socioeconomic Consequences	
	No Action	Preferred Alternative
Land Use	No Impact	No Impact
Aesthetics and Visual Resources	No Impact	Less than significant; buildings would be constructed within a developed industrial area.
Air Quality	No Impact	Minor short-term impact from construction-related fugitive dust that would be controlled through appropriate BMPs. Minor impact from water heaters and reserve generators.
Noise	No Impact	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 Impact	Less than significant: minor topographic alteration of previously cleared and graded site through re-clearing and re-grading for site preparation.
Soils	No Impact	Less than significant: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Impact	No Impact
Water Resources		
Surface Water	No Impact	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.
Hydrogeology/Groundwater	No Impact	No Impact
Floodplains	No Impact	No Impact

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

Resource	Environmental and Socioeconomic Consequences	
	No Action	Preferred Alternative
Stormwater	No Impact	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 Impact	Minor adverse impact to common flora.
Wildlife	No Impact	Minor adverse impact to common fauna.
Wetlands	No Impact	No Impact
Sensitive Species	No Impact	No Impact
Cultural Resources		
Historic Resources	No Impact	No Impact
Archeological Resources	No Impact	No Impact
Native American Resources	No Impact	No Impact
Socioeconomics		
Economic Development	No Impact	No Impact
Demographics	No Impact	No Impact
Housing	No Impact	No Impact
Environmental Justice	No Impact	No Impact
Protection of Children	No Impact	No Impact
Transportation	No Impact	Potential for minor adverse impact during construction. Negligible impacts during operation.
Utilities		
Potable Water	No Impact	Negligible Impact during construction and operation.
Wastewater	No Impact	Negligible Impact during construction and operation.
Energy	No Impact	Negligible Impact during construction and operation.
Solid Waste	No Impact	Less than significant: typical construction wastes that would be within the capacity of local and regional waste disposal facilities. Negligible Impact during operation
Hazardous Materials, Wastes, IRP Sites, and Stored Fuels		
Hazardous/Toxic Materials	No Impact	Less than significant. Common cleaning solvents and waste paints.
Indirect and Cumulative Impacts	No Impact	No significant impacts

6.0 List of Preparers

David Dunagan/Editor/29 years experience/Master of Arts

Laura Galloway/GIS Specialist/ 7 years experience/Bachelor of Science

Ginny Farris/Project Planner/24 years experience/Bachelor of Arts

Rob Price/Environmental Scientist/12 years of experience/Master of Science; Master of Public Affairs

Rich Reaves/Environmental Scientist/14 years of experience/PhD.

Russell Short/Senior Project Manager/28 years of experience/Master of Science

Betsy Zimmerman/Staff Scientist/2 years of experience/Bachelor of Science

7.0 Distribution List

Tennessee Historical Commission

United States Army Corps of Engineers, Mobile District

United States Army Installation Management Command

United States Army Reserve, 81st Regional Readiness Command

United States Fish and Wildlife Service, Cookeville Ecological Services Field Office

8.0 References

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9.0 Persons Consulted

Tennessee Historical Commission, Mr. Joe Garrison

United States Army Reserve, 81st Regional Readiness Command, Ms. Karen White – Environmental Program Manager

United States Army Reserve, 81st Regional Readiness Command, Ms. Kristie Welch – FAST 1 Environmental Manager

10.0 Acronyms and Abbreviations

AFRC	Armed Forces Reserve Center
AMSA	Area Maintenance Support Activity
APCB	Chattanooga-Hamilton County Air Pollution Control Board
AR	Army Regulation
AST	Aboveground Storage Tank
AQCR	Air Quality Control Region
BLS	Bureau of Labor Statistics
BMP	Best Management Practice
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CEQ	President's Council on Environmental Quality
CERL	Construction Engineering Research Laboratory
CFD	Chattanooga Fire Department
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CPD	Chattanooga Police Department
dB	Decibel
dBA	A-weighted Decibel Level
dbh	Diameter at Breast Height
EA	Environmental Assessment
EAC	Early Action Compact
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EO	Executive Order
FNSI	Finding of No Significant Impact
MSA	Metropolitan Statistical Area
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NCSS	National Cooperative Soil Service
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NO _x	Nitrogen Oxides

NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
OWS	oil-water separator
PM	Particulate Matter
ppm	Parts per Million
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
RRC	Regional Readiness Command
RTV	Rational Threshold Value
sf	Square Feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SPCCP	Spill Prevention, Control, and Countermeasures Plan
sy	Square Yards
TAWC	Tennessee American Water Company
TDEC	Tennessee Department of Environment and Conservation
TVA	Tennessee Valley Authority
USACE	U.S. Army Corps of Engineers
USAR	United States Army Reserve
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VAAP	Volunteer Army Ammunition Plant

Appendix A

Copies of Agency Scoping Letters and Responses



DEPARTMENT OF THE ARMY
HEADQUARTERS, 81ST REGIONAL READINESS COMMAND
255 WEST OXMOOR ROAD
BIRMINGHAM, ALABAMA 35209-6383

REPLY TO
ATTENTION OF:

May 16, 2007

Office of Deputy Chief of Staff, Engineer

Mr. Jim Widlak
Cookeville Ecological Services Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501

Dear Mr. Widlak:

The U.S. Army and U.S. Army Reserve (USAR) are preparing an Environmental Assessment (EA) to address potential environmental and socioeconomic impacts of actions recommended under the 2005 Base Closure and Realignment Law (commonly referred to as BRAC). Under BRAC, the Guerry and the Bonney Oaks USAR Centers in Chattanooga, Tennessee, would be closed and the displaced units would be relocated into a new Armed Forces Reserve Center (AFRC) that would be constructed on USAR property on the Volunteer Army Ammunition Plant site in Hamilton County, Tennessee. The EA will analyze only the potential impacts resulting from construction and operation of the new AFRC; the potential impacts of the closure of the facilities at the two existing USAR Centers (Guerry and Bonney Oaks) are being addressed separately.

The proposed action would include construction of a new Armed Forces Reserve Center with associated parking areas. All work would be confined to the approximate 14-acre property currently owned by the USAR at 6511 Bonny Oaks Drive in Hamilton County, TN. The USAR property houses the USAR Area Maintenance Support Activity (AMSA) and long-term parking for USAR military vehicles. 6511 Bonny Oaks Drive is adjacent to Hamilton County Department of Education facilities.

There are no streams on the property and most of the site has been cleared and is either developed for the AMSA or graded and maintained as mowed lawn. The property contains one small woodlot that has been partially cleared and now is dominated by northern red oak of approximately 12-inch diameter at breast height. Because of the lack of potentially suitable habitat, the USAR anticipates no potential impacts to protected species from the proposed work.

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. 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 separately. Your office will be provided with a copy of the EA upon its completion for

further review and comment. If your office has any questions or concerns, please contact Ms. Karen White, 81st RRC Environmental Program Manager, at (205) 912-6951 or karen.white8@us.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Holthaus", with a long horizontal flourish extending to the right.

James A. Holthaus
Facility Management Officer
Deputy Chief of Staff,
Installation Management



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

RECEIVED
JUL - 2 2007

June 21, 2007

Mr. James Holthaus
Department of the Army
Headquarters, 81st Regional Readiness Command
255 West Oxmoor Road
Birmingham, Alabama 35209-6383

Subject: Scoping process for development of an Environmental Assessment (EA), construction of an Armed Forces Reserve Center (AFRC) at the Volunteer Army Ammunition Plant (VAAP), Hamilton County, Tennessee.

Dear Mr. Holthaus:

U.S. Fish and Wildlife Service biologists have reviewed your description of the subject proposed action. The proposed AFRC would be constructed at a 14-acre site at 6511 Bonny Oaks Drive. We understand that this site does not contain streams. Most of the site has been cleared and is developed or in mowed grass, although the amount of property that remains undisturbed is not clear. Please consider the following comments as the EA is prepared.

As discussed during previous coordination with other entities within the Department of the Army, the large-flowered skullcap (*Scutellaria montana*), a federally threatened plant, has been found on the grounds of the VAAP. Given the unknown level of proposed disturbance and lack of detail regarding the subject construction site, we are unsure of the potential for disturbance of this species. We recommend that, in the EA, you describe the proposed construction in greater detail and provide a map of the area to be disturbed. If potentially suitable habitat for the large-flowered skullcap exists in the project impact area, the site should be surveyed for this species during the appropriate time of the year by a qualified biologist, and the results coordinated with this office. Further, any proposed plant survey plans and specific actions to address potential impacts to the large-flowered skullcap should be included in the EA.

Thank you for this opportunity to provide input for the scoping process. We look forward to further coordination regarding the large-flowered skullcap. Please contact David Pelren of my staff at 931/528-6481 (ext. 204) if you have questions about these comments.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor



DEPARTMENT OF THE ARMY
HEADQUARTERS, 81ST REGIONAL READINESS COMMAND
255 WEST OXMOOR ROAD
BIRMINGHAM, ALABAMA 35209-6383

REPLY TO
ATTENTION OF:

May 16, 2007

Office of Deputy Chief of Staff, Engineer

Mr. Herbert Harper
Deputy Director
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. Harper:

The U.S. Army and U.S. Army Reserve (USAR) are preparing an Environmental Assessment (EA) to address potential environmental and socioeconomic impacts of actions recommended under the 2005 Base Closure and Realignment Law (commonly referred to as BRAC). Under BRAC, the Guerry and the Bonney Oaks USAR Centers in Chattanooga, Tennessee, would be closed and the displaced units would be relocated into a new Armed Forces Reserve Center (AFRC) that would be constructed on USAR property on the Volunteer Army Ammunition Plant site in Hamilton County, Tennessee. The EA will analyze only the potential impacts resulting from construction and operation of the new AFRC; the potential impacts of the closure of the facilities at the two existing USAR Centers (Guerry and Bonney Oaks) are being addressed separately.

The proposed action would include construction of a new Armed Forces Reserve Center with associated parking areas. All work would be confined to the approximate 14-acre property currently owned by the USAR at 6511 Bonny Oaks Drive in Hamilton County, TN. The USAR property houses the USAR Area Maintenance Support Activity (AMSA) and long-term parking for USAR military vehicles. 6511 Bonny Oaks Drive is adjacent to Hamilton County Department of Education facilities.

There are no streams on the property and most of the site has been cleared and is either developed for the AMSA or graded and maintained as mowed lawn. The property contains one small woodlot that has been partially cleared. No buildings would be demolished as a result of the proposed work. The USAR anticipates no adverse impacts to cultural resources as a result of the proposed action. The USAR implements an inadvertent discovery process on all work and your agency would be contacted for coordination and guidance should any artifacts or remains be discovered during project work.

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 Tennessee Historical Commission relevant for consideration in the NEPA analysis. This letter is not a request for consultation with your agency. Any consultation that may be required as a result of the proposed project would be handled separately. Your office will be provided with a copy of the EA upon its completion for further review and comment. If your office has any questions or concerns, please contact Ms. Karen White, 81st RRC Environmental Program Manager, at (205) 912-6951 or karen.white8@us.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Holthaus", with a long horizontal flourish extending to the right.

James A. Holthaus
Facility Management Officer
Deputy Chief of Staff,
Installation Management



TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

RECEIVED

JUN 01 2007

May 30, 2007

Mr. James A. Holthaus
HQ 81st Regional Readiness Command
255 W. Oxmoor Rd.
Birmingham, Alabama, 35209-6383

RE: DOD, GUERRY/BONNEY OAKS USAR CENTERS, CHATTANOOGA, HAMILTON COUNTY

Dear Mr. Holthaus:

In response to your request, received on Tuesday, May 22, 2007, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

Considering available information, we find that the project as currently proposed MAY AFFECT PROPERTIES THAT ARE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES. You should continue consultation with our office, designated consulting parties and invite them to participate in consultation, and provide us with appropriate survey documentation for review and comment. Please direct questions and comments to Joe Garrison (615) 532-1550-103. We appreciate your cooperation.

Sincerely,

Richard G. Tune
Interim Executive Director and
Deputy State Historic
Preservation Officer

RGT/jyg

CH2MHILL TELEPHONE CONVERSATION RECORD

Phone No.: 615.532.1550.103

Date: July 16, 2007

Call From: Joe Garrison, Tennessee Historical Commission

Time: 07:40 AM

Message Taken By: Rich Reaves

Subject: Chattanooga BRAC AFRC Construction

I spoke with Mr. Garrison regarding his letter of May 30, 2007, which stated that the Tennessee Historical Commission (TNC) found that the construction of the AFRC and associated parking "MAY AFFECT PROPERTIES THAT ARE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES". The purpose of the call was to get clarification of that finding and identify specific issues of concern to TNC.

Mr. Garrison stated that TNC could not concur on the project having no effect to cultural resources without receiving the location plotted on a USGS 7.5 minute topographic quadrangle map to compare with TNC records and receiving site photographs for review of the site and surrounding area.

I told Mr. Garrison that we would provide him with the requested materials. Mr. Garrison said that if his review of the materials turned up nothing, he would issue a letter of concurrence for the project.



DEPARTMENT OF THE ARMY
HEADQUARTERS, 81ST REGIONAL READINESS COMMAND
255 WEST OXMOOR ROAD
BIRMINGHAM, ALABAMA 35209-6383

REPLY TO
ATTENTION OF:

July 18, 2007

Office of Deputy Chief of Staff, Engineer

Mr. Joe Garrison
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. Garrison:

On May 22, 2007 your office received a scoping letter from the U. S. Army Reserve (USAR) requesting input from your agency regarding an upcoming Environmental Assessment (EA) for a proposed construction project on USAR property that is part of the former Volunteer Army Ammunition Plant (VAAP) site in Hamilton County, Tennessee. The EA will only analyze the potential impacts resulting from construction and operation of the new Armed Forces Reserve Center (AFRC). The potential impacts of the closure of the two existing USAR Centers (Guerry and Bonny Oaks) are being addressed separately.

The proposed action would include construction of a new AFRC with associated parking areas. All work would be confined to the approximate 14-acre property currently owned by the USAR at 6511 Bonny Oaks Drive in Hamilton County, TN. The USAR property currently houses the USAR Area Maintenance Support Activity (AMSA) and long-term parking for USAR military vehicles. The USAR property is within a larger portion of the former VAAP site that is being developed as a light industrial park (Enterprise South). This industrial park currently houses five light industries; three of which are adjacent to or in proximity to the USAR property and Hamilton County Department of Education facilities, which are adjacent and to the south of the USAR property.

There are no streams on the property and most of the site has been cleared and is either developed for the AMSA or graded and maintained as mowed lawn. The property contains one small woodlot that has been partially cleared and grubbed. No buildings would be demolished as a result of the proposed work. The USAR anticipates no adverse impacts to cultural resources as a result of the proposed action. The USAR implements an inadvertent discovery process on all work and your agency would be contacted for coordination and guidance should any artifacts or remains be discovered during project work.

In a telephone conversation with Rich Reaves of CH2M HILL on July 16, 2007, you stated that the Tennessee Historical Commission needed additional information to evaluate the project. Specifically, you requested:

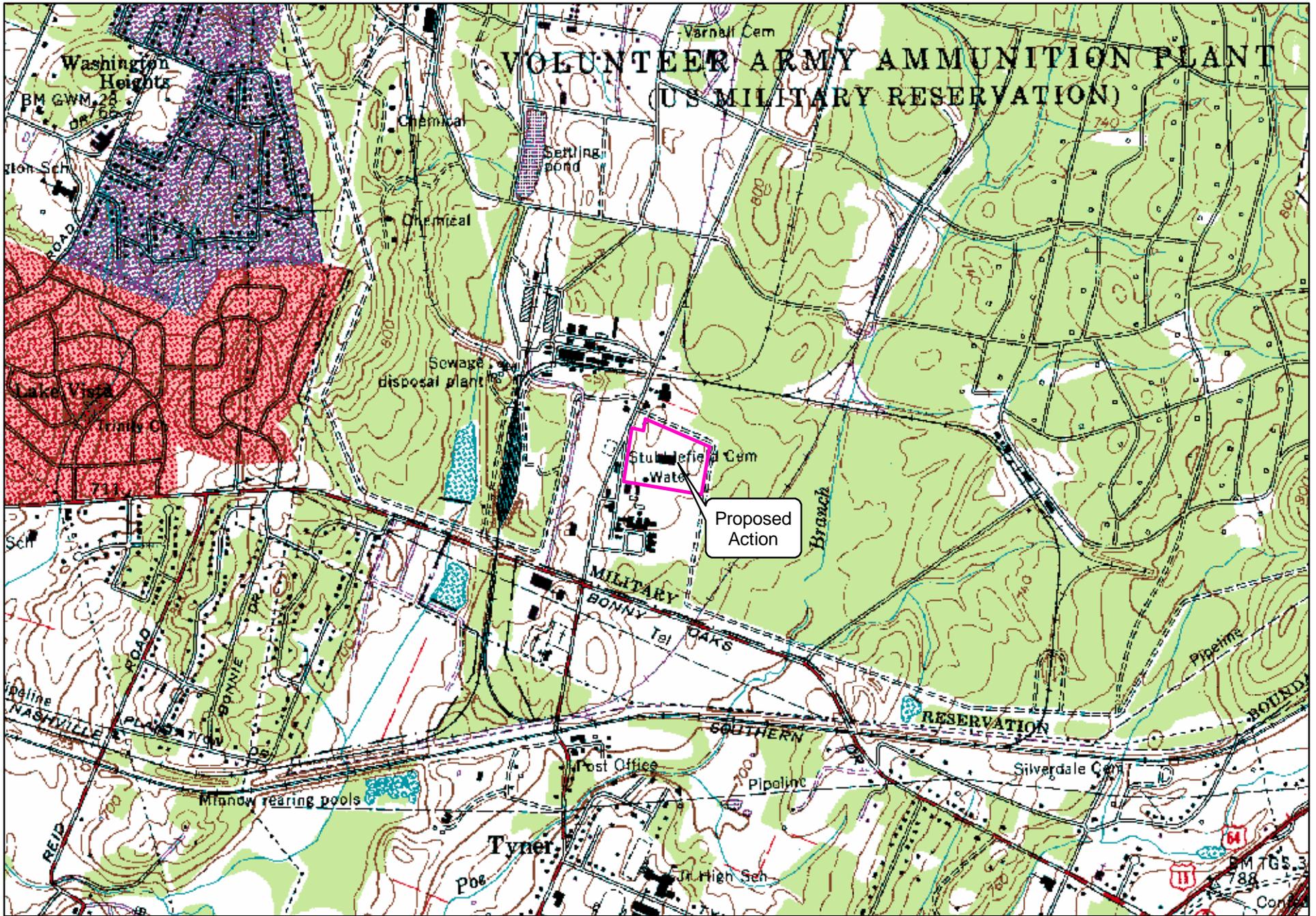
- The proposed project location identified on a 7.5 minute USGS topographic quadrangle map.
- Photographs depicting the site and the surrounding areas.

The USAR requests clarification of the “may affect” finding provided in the scoping letter response from the Tennessee Historical Commission, dated May 30, 2007. Please review the enclosed map and photographs and provide any specific issues the Commission may have relevant to the NEPA analysis. Your office will be provided with a copy of the EA upon its completion for further review and comment. If your office has any questions or concerns, please contact Ms. Karen White, 81st RRC Environmental Program Manager, at (205) 912-6951 or karen.white8@us.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Holthaus", with a long horizontal flourish extending to the right.

James A. Holthaus
Facility Management Officer
Deputy Chief of Staff,
Installation Management



Legend

Location of Proposed Action

0 750 1,500 2,250 3,000 Feet



Source: USGS 7.5 Minute
Quadrangle; East Chattanooga

Figure 1
Proposed Project Area
Construction and Operation of Armed Forces Reserve Center
Chattanooga, Tennessee



View across proposed AFRC site from the east edge of property.



View across western portion of proposed AFRC Site from north edge of property.



View of AMSA on western portion of property.



Sign for industrial Park proposed AFRC site is located within.



View off-property to the east from east edge of property.



View off-property to northeast from NE corner of property



View off-property to north from north property boundary



View off-property to south from SE corner of property



View off-property to NW from NW corner of property



View off-property to west from western edge of property



View of western side of AMSA, looking south to Department of Education buildings



View of western part of Department of Education buildings south of AMSA



View to east across Department of Education buildings south of AMSA, woods south of proposed AFRC site visible in background



August 3, 2007

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

Mr. James A. Holthaus
HQ 81st Regional Readiness Command
255 W. Oxmoor Rd.
Birmingham, Alabama, 35209-6383

RE: DOD, NEW AFRC/GUERRY AND BONNY OAKS, CHATTANOOGA, HAMILTON COUNTY

Dear Mr. Holthaus:

In response to your request, received on Tuesday, July 24, 2007, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

After considering the documents you submitted, we determine that **THERE ARE NO NATIONAL REGISTER OF HISTORIC PLACES LISTED OR ELIGIBLE PROPERTIES AFFECTED BY THIS UNDERTAKING.** We have made this determination either because of the specific location, scope and/or nature of your undertaking, and/or because of the size of the area of potential effect; or because no listed or eligible properties exist in the area of potential effect; or because the undertaking will not alter any characteristics of an identified eligible or listed property that qualify the property for listing in the National Register or alter such property's location, setting or use. Therefore, we have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may find additional information concerning the Section 106 process and the Tennessee SHPO's documentation requirements at <http://www.tennessee.gov/environment/hist/federal/sect106.shtm>. You may direct questions or comments to Joe Garrison (615) 532-1550-103. This office appreciates your cooperation.

Sincerely,


E. Patrick McIntyre
Executive Director and
State Historic Preservation Officer

EPM/jyg

Appendix B

Air Conformity Model

General Conformity – Record of Non-Applicability

Project/Action Name: Construction and Operation of Armed Forces Reserve Center at Chattanooga, Tennessee

Project/Action Identification Number:

Project/Action Point of Contact: Richard Reaves, CH2M HILL

Begin Date: October 2008

End Date: September 2009

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this action because total direct and indirect VOC, NO_x, SO₂, and PM-2.5 are below the conformity threshold values established at 40 CFR 93.153 (b) and this action is not considered regionally significant under 40 CFR 93.153(i).

Supporting documentation and emission estimates are attached.

SIGNED _____

JAMES A. HOLTHAUS
DEPUTY CHIEF OF STAFF
INSTALLATION MANAGEMENT
FACILITY MANAGEMENT OFFICER

TABLE OF CONTENTS

1.0	PROPOSED ACTION	3
2.0	CALCULATION OF EMISSIONS FROM NEW MOBILE SOURCES	4
2.1	Military Tactical Vehicles	4
2.2	Personal Vehicle Use.....	4
2.3	Construction-Related Emissions	4
3.0	CONCLUSION	6

LIST OF ATTACHMENTS

Attachment 1: Model Results

GENERAL CONFORMITY REVIEW (GCR)
CONSTRUCTION AND OPERATION OF ARMED FORCES RESERVE CENTER
AT CHATTANOOGA, TENNESSEE

1.0 PROPOSED ACTION

From October 2008 through September 2009, the U.S. Army Reserve (USAR) proposes to construct an Armed Forces Reserve Center (AFRC) on USAR property on the east side of Chattanooga, Tennessee.

A facility is needed to house personnel from USAR units that are being realigned as a result of September 2005 Defense Base Closure and Realignment Commission recommendations:

- Guerry USAR Center in Chattanooga, TN
- Bonny Oaks USAR Center in Chattanooga, TN

No pre-existing buildings or facilities will be demolished, and no new significant stationary sources will be added to the site during the project. The general conformity review for this project pertains only to construction-related emissions and facility space heating. The emissions types of interest are volatile organic compounds (VOCs), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and particulate matter less than 2.5 micrometers in diameter (PM-2.5).

2.0 CALCULATION OF EMISSIONS FROM NEW MOBILE SOURCES

With the exception of one-time construction-related emissions, no new mobile sources are expected from the proposed project.

2.1 Military Tactical Vehicles

A comparison of military ground vehicles use before and after the project implementation is shown in Table A. Note that a HMMWV is a High Mobility Multipurpose Wheeled Vehicle and a LDGV is a Light Duty Gasoline Vehicle. The HMMWV runs on JP-8 fuel (a jet fuel similar to diesel) and the LDGV runs on motor gasoline (MOGAS).

TABLE A. CURRENT AND PROJECTED MILITARY TACTICAL VEHICLE USE <i>Construction and Operation of Armed Forces Reserve Center</i>			
Equipment Type	Current Number	Projected Number	Increase/Decrease
HMMWV	21	21	0
LDGV	1	1	0

As shown in Table A, the project will neither increase nor decrease the number of vehicles. Additionally, the vehicles are currently stored at the USAR Area Maintenance Support Activity on Bonny Oaks Road and are used for convoy training in the Chattanooga area. This mission and annual mileage for each vehicle will not change with the move to the new AFRC. Therefore, emissions from military tactical vehicles will not be considered in this report.

2.2 Personal Vehicle Use

The proposed project will not increase the number of permanently assigned personnel or the number of Reserve personnel from the total number of permanently assigned personnel and Reserve personnel at Guerry and Bonny Oaks USAR Centers. It is assumed that the overall driving distances for the soldiers will not significantly increase as the AFRC site is relatively close to the existing USAR Centers.

2.3 Construction-Related Emissions

The proposed project will include a 48,000-square-foot (sf) AFRC, a 1,520-sf storage building, and an additional 8,000-sy of paved parking. Paved parking will serve military and privately owned vehicles.

The U.S. Air Force Air Conformity Application Model (ACAM), version 4.3.3, was used to estimate construction-related emissions and facility space heating emissions. For construction related-emissions, ACAM splits facility construction into two phases; Phase 1 is grading and Phase 2 is the actual construction activity. The following data were input into the model:

- Square ft Office/Employment Units – 49,520 sf

- Duration of Phase 1 - 50 days
- Gross Area to be Graded - 2.79 acres (includes proposed buildings and parking area)
- Soil Piles - covered or watered twice daily
- Loads - Secure Cover
- Exposed Surface/Grading - watered frequently, keeping soil moist at all times
- Truck Hauling Road - unpaved and watered twice daily
- Start Date of Construction - 4th Quarter 2008
- Duration of Phase 2- 315 days
- Total Acres Paved with Asphalt - 1.68 (parking area)

The model calculates emissions for the following activities:

- Grading Equipment Emissions (pounds/day, assume 1 grader, 1 wheeled and 1 tracked loader/grader per 10 acres. All equipment is diesel powered and used 6 hours per day)
- Emissions Due to Construction Worker Trips (based on 0.42 trip per 1000 sf-day and emission factors)
- Stationary Equipment Emissions (based on sf to be constructed during Phase 2, assume 2 pieces of gasoline-powered equipment per 10,000 sq feet, equipment used 6 hours per day, and equipment average horsepower of 10 hp each)
- Mobile Equipment Emissions (mobile equipment used during Phase 2 construction, assume 2 pieces of diesel-powered equipment per 10,000 sf and equipment used 6 hours per day)
- Grading Operations Emissions (pounds/day, assume one storage pile on 1/5 of an acre per 10 acres graded, 3 pieces of heavy equipment per day per 10 acres graded)
- Architectural Coating Emissions (based on square root of gross sf of non-residential building space)
- Daily VOC Emissions from Asphalt paving (based on total acres to be paved)
- Facility Heating (based on heating energy requirement and emission factors for natural gas)

Based on ACAM, a total one-time increase of 15.8 tons of NO_x, 1.87 tons of SO₂, 3.12 tons of VOCs, and 2.00 tons of PM-10 would be expected over the 12-month life of the construction project (see Attachment 1). The annual average increase in emissions from heating the proposed AFRC would be 0.22 ton per year of NO_x, 0.01 ton per year of VOCs, and 0.02 ton per year of PM-10 (see Attachment 1). PM-10 emission factors were conservatively used to estimate emissions of PM-2.5.

3.0 CONCLUSION

Total emissions generated by the AFRC project are expected to include a one-time release of 15.8 tons NO_x, 1.87 tons SO₂, 3.12 tons VOCs, and 2.00 tons PM-10/PM2.5 due to construction-related emissions, as well as an ongoing increase of 0.22 ton/year NO_x, 0.01 ton/year VOC, and 0.02 ton/year PM-10/PM-2.5. These increases are well below the conformity threshold values. Therefore, a general conformity review is deemed unnecessary at this time.

Attachment 1 Model Results

USAF Air Conformity Applicability Model

Emissions Summary Information

Scenario: Proposed Action - Chattanooga Army Reserve Center

Emissions Summary Report For 2008

SOURCE CATEGORY	Emissions, Ton/Year					
	CO	NOX	SO2	VOC	PM10	PM2.5
Area Sources						
Other Phase II Const. - Workers Trips	0.11	0.01	0.00	0.01	0.00	0.00
Other Phase I Const. - Grading Ops.	0.00	0.00	0.00	0.00	0.78	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Mobile Equip.	0.79	1.89	0.23	0.17	0.15	0.00
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.02	0.00	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00	0.00
Other Phase I Const. - Grading Equip.	0.04	0.14	0.01	0.02	0.01	0.00
Other Phase II Const. - Stationary Equip.	5.37	0.14	0.01	0.20	0.00	0.00
Total	6.31	2.18	0.26	0.42	0.95	0.00
Grand Total	6.31	2.18	0.26	0.42	0.95	0.00

USAF Air Conformity Applicability Model

Emissions Summary Information

Scenario: Proposed Action - Chattanooga Army Reserve Center

Emissions Summary Report For 2009

SOURCE CATEGORY	Emissions, Ton/Year					
	CO	NOX	SO2	VOC	PM10	PM2.5
Area Sources						
Other Phase II Const. - Mobile Equip.	5.29	12.62	1.56	1.15	1.02	0.00
Other Phase II Const. - Non-Res. Arch. Ctgs.	0.00	0.00	0.00	0.16	0.00	0.00
Other Phase II Const. - Res. Arch. Ctgs.	0.00	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. - Stationary Equip.	35.89	0.93	0.05	1.34	0.03	0.00
Other Phase II Const. - Workers Trips	0.75	0.04	0.00	0.05	0.01	0.00
Other Phase II Const. - Acres Paved	0.00	0.00	0.00	0.00	0.00	0.00
Total	41.93	13.59	1.61	2.70	1.05	0.00
Point Sources						
Other Const. - Facility Heating	0.04	0.06	0.00	0.00	0.00	0.00
Total	0.04	0.06	0.00	0.00	0.00	0.00
Grand Total	41.97	13.65	1.61	2.70	1.05	0.00

USAF Air Conformity Applicability Model

Emissions Summary Information

Scenario: Proposed Action - Chattanooga Army Reserve Center

Emissions Summary Report For 2010

SOURCE CATEGORY	Emissions, Ton/Year					
	CO	NOX	SO2	VOC	PM10	PM2.5
Point Sources						
Other Const. - Facility Heating	0.18	0.22	0.00	0.01	0.02	0.00
Total	0.18	0.22	0.00	0.01	0.02	0.00
Grand Total	0.18	0.22	0.00	0.01	0.02	0.00

USAF Air Conformity Applicability Model

Proposed Action Support Facilities Information

Non-Aircraft Facilities Construction

Scenario: Proposed Action - Chattanooga Army Reserve Center

Proposed Action Support Facilities For 2008

		Phase 1										Phase 2	
No Residential Units	Space (sq ft)	Area Graded (sq ft)	No. Days	Soil Piles Covered	Auto Watered	Exposed Surface Water	Kept Moist	Free-board	Covered board	Un-paved	Haul Roads Paved	No. Days	Paved (acres/yr)
Multi	Single	Comm/Retail. Office/Emp.											
0	0	0	50	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	315	1.65
Army Reserve Center													
0	0	49520	50	2.79	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	315	1.65
Grand Total		0	0	49520	50	2.79						315	1.65

Appendix C

Economic Impact Forecast System

APPENDIX C

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.

Definitions

Change in Local Expenditures: Dollar value of expenditures for all services and supplies that are related to the action. This figure is entered by the user when the local purchases are not known. The system then computes an estimated value for the local purchases. Items supplied by General Services Administration (GSA) or Defense Logistics Agency (DLA) are not normally included in expenditures. A negative value is entered for a decrease in activity and a positive value is used if there is an expansion.

Change in Civilian Employment: Number of civilian personnel affected by the action. These are separated or newly added civilian employees. Personnel shifted from one position to another within the same geographic area should not be included. Enter a positive number for an increase or a negative number for a decrease.

Average Income of Affected Civilian Personnel: Average annual gross (before tax) income of civilian personnel affected by the military action. Average income figures are entered as positive numbers. Income, in EIFS, is a broader concept than just the wages and salaries of employees. Consideration should also be given, if possible, to income earned from second jobs, working dependents, unearned income (i.e. interest, dividends, and rents), etc.

Percent of Civilians Expected To Relocate: The actual value will vary depending on work force composition and local availability of labor in the required skill categories. If the employees affected generally are clerical, professional, or highly skilled technical personnel, then it is likely that some of these workers will move to or from other geographic areas. If the action involves a large number of personnel, the proportion of those relocating is also likely to increase.

Change in Military Employment: Number of military personnel affected by the military action. These are the transferred (out of the region) or newly added military personnel. Personnel shifted from one position to another on post or within the same geographic area should not be included. Enter a positive number for an expansion or a negative number for a decrease.

Average Income of Affected Military Personnel: Average annual gross (before tax) income of all military personnel affected by the military action.

Percent of Military Living On-post: Percentage of affected military personnel residing on post.

Employment Multiplier: The export-employment multiplier based on the location quotient methodology.

Income Multiplier: The export-income multiplier based on the location quotient methodology.

Sales Volume - Direct: Direct change in business activity attributable to the military action. This represents the change in sales volume at local retail and wholesale service establishments where civilian and military personnel spend their wages and salaries and where local procurements are made. Housing expenditures are also included in this variable.

Sales Volume - Induced: Induced change in local business volume due to the military action. Defined as the difference between total change and direct change of local business volume.

Sales Volume - Total: Total change in local business volume due to the military action. Business volume is defined as local business activity or sales and is the sum of total retail and wholesale trade sales, total selected service receipts, and value added by manufacturing.

Employment - Direct: Direct change in local employment due to the military action. These are establishments that are initially affected by the military action.

Employment - Total: Total change in local employment due to the military action. This not only includes the direct and secondary changes in local employment, but also includes those military and civilian personnel who are initially affected by the military action.

Income - Direct: Direct change in local wages and salaries due to the military action. This is assumed to be earnings of the employees in local retail, wholesale, and service establishments that are initially affected by the military action.

Income - Total (place of work): Total change in local wages and salaries earned in the area due to the military action. This is the sum of the direct and secondary changes in wages and salaries plus the income of the civilian and military personnel affected by the military action.

Income - Total (place of residence): Total change in local personal income of residents due to the military action. This not only includes the direct and secondary changes in local personal income, adjusted for commuting patterns, but also includes the income of the civilian and military personnel initially affected by the military action.

EIFS REPORT

PROJECT NAME

AFRC at Volunteer Army Ammunition Plant, TN

STUDY AREA

13047 Catoosa, GA
 13083 Dade, GA
 13295 Walker, GA
 47065 Hamilton, TN
 47115 Marion, TN
 47153 Sequatchie, TN

FORECAST INPUT

Change In Local Expenditures	\$4,707,840
Change In Civilian Employment	59
Average Income of Affected Civilian	\$39,913
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	3.32	
Income Multiplier	3.32	
Sales Volume - Direct	\$5,183,129	
Sales Volume - Induced	\$12,024,860	
Sales Volume - Total	\$17,207,990	0.10%
Income - Direct	\$2,944,848	
Income - Induced)	\$2,156,484	
Income - Total(place of work)	\$5,101,331	0.05%
Employment - Direct	83	
Employment - Induced	56	
Employment - Total	139	0.05%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	13.16 %	11.65 %	3.85 %	1.3 %
Negative RTV	-7.76 %	-4.96 %	-4.04 %	-0.87 %

RTV DETAILED**SALES VOLUME**

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1057836	4622743	0	0	0
1970	1127136	4655072	32329	-93529	-2.01
1971	1235442	4892350	237279	111421	2.28
1972	1408563	5394796	502446	376588	6.98
1973	1575386	5687143	292347	166489	2.93
1974	1707645	5549846	-137297	-263155	-4.74
1975	1788818	5330678	-219169	-345027	-6.47
1976	2015394	5683411	352733	226875	3.99
1977	2249215	5937928	254517	128659	2.17
1978	2592749	6378163	440235	314377	4.93
1979	2798016	6183615	-194547	-320405	-5.18
1980	2947627	5718397	-465219	-591077	-10.34
1981	3151450	5546552	-171845	-297703	-5.37
1982	3249981	5394968	-151584	-277442	-5.14
1983	3397565	5470080	75111	-50747	-0.93
1984	3699178	5696734	226654	100796	1.77
1985	3940724	5871679	174945	49087	0.84
1986	4219426	6160362	288683	162825	2.64
1987	4670021	7238532	1078170	952312	13.16
1988	5048972	6866602	-371930	-497788	-7.25
1989	5214425	6726608	-139994	-265852	-3.95
1990	5501489	6766832	40224	-85634	-1.27
1991	5615742	6626575	-140256	-266114	-4.02
1992	5981552	6818969	192394	66536	0.98
1993	6426836	7133788	314819	188961	2.65
1994	6756839	7297386	163598	37740	0.52
1995	7114460	7470183	172796	46938	0.63
1996	7477105	7626647	156464	30606	0.4
1997	7909526	7909526	282879	157021	1.99
1998	8219484	8055094	145568	19710	0.24
1999	8786879	8435404	380309	254451	3.02
2000	9301306	8650215	214811	88953	1.03

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1205483	5267961	0	0	0
1970	1306617	5396328	128368	-75556	-1.4
1971	1441637	5708883	312554	108630	1.9
1972	1633914	6257890	549008	345084	5.51
1973	1838656	6637548	379657	175733	2.65
1974	2022257	6572335	-65213	-269137	-4.09
1975	2178758	6492699	-79636	-283560	-4.37
1976	2450848	6911391	418692	214768	3.11
1977	2722594	7187648	276257	72333	1.01
1978	3112135	7655852	468204	264280	3.45
1979	3418397	7554658	-101195	-305119	-4.04
1980	3723650	7223881	-330776	-534700	-7.4
1981	4087717	7194382	-29499	-233423	-3.24
1982	4322157	7174780	-19601	-223525	-3.12
1983	4543236	7314610	139830	-64094	-0.88
1984	4960348	7638936	324326	120402	1.58
1985	5311948	7914803	275867	71943	0.91
1986	5660417	8264209	349406	145482	1.76
1987	6183489	9584408	1320199	1116275	11.65
1988	6713307	9130098	-454310	-658234	-7.21
1989	7114060	9177137	47040	-156884	-1.71
1990	7551984	9288940	111803	-92121	-0.99
1991	7806098	9211195	-77745	-281669	-3.06
1992	8372915	9545123	333928	130004	1.36
1993	8925162	9906930	361807	157883	1.59
1994	9343017	10090459	183529	-20395	-0.2
1995	9859502	10352477	262018	58094	0.56
1996	10391480	10599309	246833	42909	0.4
1997	10822134	10822134	222825	18901	0.17
1998	11424299	11195813	373679	169755	1.52
1999	11956680	11478413	282599	78675	0.69
2000	12681221	11793536	315123	111199	0.94

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	171218	0	0	0
1970	172090	872	-3195	-1.86
1971	174931	2841	-1226	-0.7
1972	186170	11239	7172	3.85
1973	196963	10793	6726	3.41
1974	197397	434	-3633	-1.84
1975	190009	-7388	-11455	-6.03
1976	196737	6728	2661	1.35
1977	201410	4673	606	0.3
1978	211507	10097	6030	2.85
1979	214932	3425	-642	-0.3
1980	208790	-6142	-10209	-4.89
1981	206866	-1924	-5991	-2.9
1982	200544	-6322	-10389	-5.18
1983	199766	-778	-4845	-2.43
1984	207780	8014	3947	1.9
1985	212939	5159	1092	0.51
1986	219946	7007	2940	1.34
1987	230347	10401	6334	2.75
1988	236666	6319	2252	0.95
1989	241970	5304	1237	0.51
1990	245154	3184	-883	-0.36
1991	244445	-709	-4776	-1.95
1992	247029	2584	-1483	-0.6
1993	256425	9396	5329	2.08
1994	263874	7449	3382	1.28
1995	269050	5176	1109	0.41
1996	275962	6912	2845	1.03
1997	278908	2946	-1121	-0.4
1998	286191	7283	3216	1.12
1999	294999	8808	4741	1.61
2000	301356	6357	2290	0.76

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	369584	0	0	0
1970	372113	2529	-831	-0.22
1971	380419	8306	4946	1.3
1972	387034	6615	3255	0.84
1973	395063	8029	4669	1.18
1974	398683	3620	260	0.07
1975	401552	2869	-491	-0.12
1976	405890	4338	978	0.24
1977	411025	5135	1775	0.43
1978	415992	4967	1607	0.39
1979	423664	7672	4312	1.02
1980	427429	3765	405	0.09
1981	430519	3090	-270	-0.06
1982	427203	-3316	-6676	-1.56
1983	423243	-3960	-7320	-1.73
1984	424137	894	-2466	-0.58
1985	424535	398	-2962	-0.7
1986	424816	281	-3079	-0.72
1987	429335	4519	1159	0.27
1988	433218	3883	523	0.12
1989	434018	800	-2560	-0.59
1990	433718	-300	-3660	-0.84
1991	437902	4184	824	0.19
1992	441576	3674	314	0.07
1993	447416	5840	2480	0.55
1994	452845	5429	2069	0.46
1995	458090	5245	1885	0.41
1996	462090	4000	640	0.14
1997	466756	4666	1306	0.28
1998	470131	3375	15	0
1999	473820	3689	329	0.07
2000	477102	3282	-78	-0.02

Source:

Example DD 1391 for Armed Forces Reserve Center
 (for similar AFRC facility, Nashville TN) (February 2003)

	<u>Project cost</u>	<u>Escalated Project cost :</u> <i>assumes 1% annual inflation from 2003 until 2008</i>	
Primary Facilities	\$5,384,000		
Supporting Facilities	\$2,296,000		
TOTAL CONSTRUCTION COST	\$7,680,000	\$7,992,000	for EIFS
Contingencies (5.0%)	\$384,000		
Supervision, Inspection and Overhead	\$460,000		
TOTAL FEDERAL REQUEST	\$8,524,000		
TOTAL FEDERAL REQUEST ROUNDED	\$8,530,000		
CONSTRUCTION AWARD	n/a	<i>assume all construction costs</i>	
CONSTRUCTION START	n/a	<i>expended within one calendar</i>	
CONSTRUCTION COMPLETION DATE	n/a	<i>year</i>	
Total construction	<u>calc</u>	<u>MSA avg wage</u>	<u>FTEs</u>
Labor	\$2,350,080	\$39,913	59
Materials/services	\$4,707,840		

Construction Labor and Materials Requirements

	Labor	Materials
TOTAL CONSTRUCTION ACTIVITY	34.2%	57.8%
NEW CONSTRUCTION	30.6%	61.3%
Hotels & Motels	29.2%	63.8%
Industrial Buildings	38.0%	56.8%
Office Buildings	33.8%	61.3%
Garages & Service Stations	33.1%	59.0%
Stores & Restaurants	35.9%	61.9%
Amusement & Recreation Buildings	35.0%	60.5%
Local Transit Facilities	29.6%	63.0%
Other nonbuilding facilities	33.0%	60.6%

Source: US Army Corps of Engineers, EIFS model documentation (calculated %'s)
 and BEA, Detailed Input-Output Structure of the US Economy (base data)