

Final

**ENVIRONMENTAL ASSESSMENT  
FOR THE  
REALIGNMENT OF  
KINGSPORT ARMED FORCES RESERVE CENTER,  
KINGSPORT, TENNESSEE  
TO THE  
HOLSTON ARMY AMMUNITION PLANT,  
KINGSPORT, HAWKINS COUNTY, TENNESSEE  
BRAC 2005**



*Prepared for:*

Tennessee Army National Guard

*Prepared by:*

U.S Army Corps of Engineers  
Mobile District  
P.O. Box 2288  
Mobile, AL 36628.

May 2007



**Printed on Recycled Paper**

**DRAFT  
FINDING OF NO SIGNIFICANT IMPACT  
ENVIRONMENTAL ASSESSMENT  
REALIGNMENT OF  
KINGSPORT ARMED FORCES RESERVE CENTER,  
KINGSPORT, TENNESSEE  
TO THE  
HOLSTON ARMY AMMUNITION PLANT,  
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BRAC 2005**

The Defense Base Closure and Realignment (BRAC) Commission, in response to the Defense Base Closure and Realignment Act of 1990, as amended, recommended the establishment of the Armed Forces Reserve Center (AFRC) at the Holston Army Ammunition Plant (HSAAP), Kingsport, Hawkins County, Tennessee. Establishment of the AFRC will involve realigning units from the existing AFRC near Kingsport, which is over 40 years old and has surpassed its capacity. The realignment will involve Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the Tennessee Army National Guard (TNARNG) as well as three U.S. Army Reserve (USAR) units.

Pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations Parts 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA), 42 U.S. Code Section 4321 et seq., as amended, and Army Regulations 200-2 (*Environmental Effects of Army Actions*), the U.S. Army Corps of Engineers, Mobile District, has prepared an Environmental Assessment (EA) and Finding of No Significant Impact (FNSI), which addresses the proposed construction and operation of the AFRC at the HSAAP.

### **Proposed Action**

The proposed action is to construct and operate a new 500-member AFRC at the HSAAP to accommodate the units realigned from the existing AFRC. A new 64,067 square foot (SF) building; 19,958 SF Vehicle Maintenance Shop; parking areas; and 1,570 SF of Organization Storage Unit will be constructed. The new facility will provide administrative, assembly, educational, storage, and physical fitness training facilities to accommodate the TNARNG and three USAR units. The new AFRC is proposed to be constructed on a 30-acre site (known as Site A) that will be leased from the HSAAP. However, at the present time, the construction and operation of the proposed AFRC would encompass only 15 acres, including required security set-backs. The remaining 15 acres would be leased to provide opportunity for future expansion, if the need arises.

### **Alternatives Considered**

Two alternative sites were evaluated during the preparation of the EA, Alternative Site B and Alternative Site D. Both of these sites generally met the site selection criteria, including a minimum of 15 acres and location visible to U.S. Highway 11W. Although Alternative Site B is located adjacent to Site A (the preferred alternative site), it would require extensive earthwork to level the area and require the removal of 15 acres of woodlands. While Alternative Site D has been previously disturbed, it would not afford any potential for future expansion and would be adjacent to residential areas, which would increase the potential for noise and social effects.

This site would also require access through either the Main Gate Road at HSAAP or through a private Venture Park Road, either of which would increase traffic congestion during peak times.

One other site (Alternative Site C) was considered but eliminated from further analyses in part because it would encompass a portion of a closed landfill, which limits the type of construction that can occur on top of the landfill. In addition, the safety explosive arc of a proposed "Suspect Truck Yard" encroaches into this site.

The No Action Alternative has also been carried forward throughout the EA to serve as a baseline for comparison to the other alternatives. No other alternatives, including scheduling, off-installation leasing, and renovations of other buildings the HSAAP, were considered viable.

### **Factors Considered In Determining That No Environmental Impact Statement is Required**

Implementation of the Proposed Action at the preferred site would result in minor, permanent effects to vegetation, wildlife, soils, aesthetics, and land use. The Proposed Action would cause the permanent conversion of 15 acres of disturbed grassland (horse pasture) to hard surfaces and buildings and remove this land from further biological productivity and other uses. Because the proposed location has been disturbed by past agricultural use, and, thus, provides limited wildlife habitat, the loss of 15 acres would be insignificant.

Construction would cause temporary and insignificant increases to noise, air emissions, and soil erosion/sedimentation. Ambient conditions would return upon completion of construction activities. No violations of the region's air standards or the installation's stormwater permit would be expected. Emissions expected to be generated during construction are well below the *de minimis* thresholds for ozone and other pollutants that affect ozone. Best management practices would be implemented to ensure stormwater during and after construction is controlled and downstream sedimentation is either eliminated or is negligible.

No impacts would occur to cultural resources, protected species, prime farmland soils, water quality and supply or other public utilities. Socioeconomic resources would incur beneficial, but insignificant, long-term impacts during the construction activities; however, since the AFRC would only be relocating less than 2 miles from its current location and no increase or decrease in unit strength is associated with the realignment, no other socioeconomic effects would occur. Temporary increases of vehicle traffic would also be expected during the construction period. A traffic signal would need to be installed at the intersection of U.S. Highway 11W and Englewood Avenue to allow safe access to the new AFRC. While traffic patterns would be insignificantly affected by this light, no permanent increases to traffic volumes would be expected.

The cumulative effects of the proposed construction and operation of the AFRC at Alternative Site A and other planned or reasonably foreseeable projects at or near the HSAAP would also be considered insignificant. No other plans for expansion at HSAAP are currently being developed.

### **Conclusions**

Based on information gathered and presented in the EA, it has been determined that the Proposed Action would have no significant direct, indirect or cumulative adverse impacts on the quality of the natural and human environment. Consequently, an Environmental Impact Statement is not required and will not be prepared.

## **Public Comment**

Interested parties are invited to review and comment on the EA and draft FNSI within 30 days of publication of the Notice of Availability, which is scheduled to occur on 19 June 2007. Comments and requests for copies should be addressed to Ms. Pam Wigle, Holston Army Ammunition Plant, Building B159 4509 West Stone Drive, Kingsport, Tennessee 37650. A limited number of copies of the EA are available to fill single copy requests. The EA is available for review at the following public libraries.

Kingsport Public Library  
400 Broad Street  
Kingsport, Tennessee 37660

Mount Carmel Public Library  
100 Main Street East  
Mount Carmel, Tennessee 37645

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Garry McClendon  
LTC, Holston Army Ammunition Plant  
Commander

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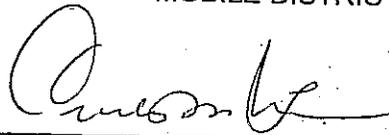
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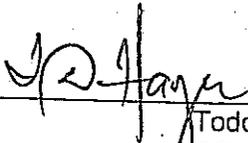
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U.S. ARMY CORPS OF ENGINEERS  
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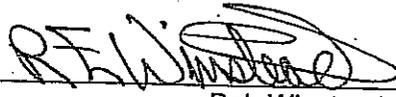
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5-17-07



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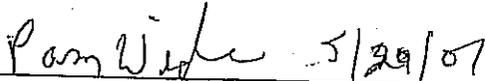
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Mike Mills

HSAAP Chief Engineer

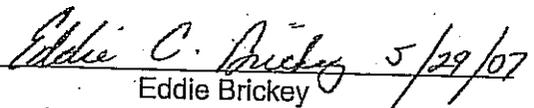
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Pam Wigle

Environmental Coordinator

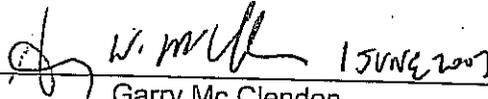
5/29/07



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Commander's Representatives

5/29/07



Garry Mc Clendon

LTC, Holston Army Ammunitions Plant  
Commander

15 JUNE 2007



**LEAD AGENCY:** Mobile District, U.S. Army Corps of Engineers

**TITLE OF PROPOSED ACTION:** Environmental Assessment for the Realignment of Kingsport Armed Forces Reserve Center, Kingsport, Tennessee to the Holston Army Ammunition Plant, Kingsport, Hawkins County, Tennessee, BRAC 2005

**AFFECTED JURISDICTION:** Hawkins County, Tennessee

**PREPARED BY:** Craig A. Wells, LTC, U.S. Army Corps of Engineers, Deputy Commander Mobile District.

**TECHNICAL ASSISTANCE FROM:** Gulf South Research Corporation

**APPROVED BY:** Gary Mc Clendon, LTC, Holston Army Ammunition Plant, Commander

**ABSTRACT:** This Environmental Assessment (EA) addresses the potential effects of the proposed construction and operation of the Armed Forces Reserve Center (AFRC) at the Holston Army Ammunition Plant (HSAAP) as proposed by the Defense Base Closure and Realignment Commission's recommendation. To accommodate the proposed AFRC, a new 64,067 square foot building is proposed to be constructed. In addition, a 19,958 square foot vehicle maintenance shop; 1,150 square foot of Organizational Storage Unit; associated parking facilities; and a stormwater detention basin would also be constructed. The construction would permanently convert approximately 15 acres of disturbed grasslands to hard surfaces. No long-term or significant impacts to prime or unique farmland soils, protected species, cultural resources, water quality, or socioeconomic resources would occur as a result of the Proposed Action. Traffic patterns would be minimally altered by the addition of a traffic signal to allow safe entry to the new AFRC. Temporary and insignificant impacts to air quality and noise would occur during construction activities. Two other alternate sites were evaluated in detail during the preparation of the EA, but were not selected because the sites resulted in greater environmental impacts, did not provide adequate area for future expansion, or was not situated along the frontage of U.S. Highway 11W.

**REVIEW PERIOD:** The EA and draft Finding of No Significant Impact are available for review for a period of 30 days. Copies of this document can be obtained from Ms. Pam Wigle, Building B159 4509 West Stone Drive, Kingsport, Tennessee 37650. Ms. Wigle's telephone number is (423) 578-6322. Copies are also available for review at the Kingsport Public Library, 400 Broad Street, Kingsport, Tennessee 37660 and the Mount Carmel Public Library, 100 Main Street East, Mount Carmel, Tennessee 37645. Written comments must be submitted no later than 19 July 2007.

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**EXECUTIVE SUMMARY  
FINAL ENVIRONMENTAL ASSESSMENT  
REALIGNMENT OF  
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BRAC 2005**

**Introduction:** In accordance with the National Environmental Policy Act of 1969 (NEPA), the U.S. Army Corps of Engineers (USACE), Mobile District has prepared this Environmental Assessment (EA) for the realignment of an Armed Forces Reserve Center (AFRC) to the Holston Army Ammunition Plant (HSAAP) in Kingsport, Hawkins County, Tennessee. This EA discusses the potential environmental effects of the proposed construction and operation of the AFRC on the human and natural environment at and surrounding the HSAAP.

**Background/Setting:** The existing AFRC is located approximately 3 miles from downtown Kingsport and within the corporate limits of Kingsport, Tennessee. This facility is nearly 40 years old and is inadequate to fully support the Tennessee Army National Guard (TNARNG) and U.S. Army Reserve (USAR) units that are assigned to this installation.

The HSAAP is located immediately to the west of the existing AFRC. HSAAP began operation (as Holston Ordnance Works) during World War II, with the purpose of manufacturing high explosives in support of the war effort. The installation still produces and stores explosives, but it is currently managed as a Government-Owned Contractor Operated (GOCO) facility. HSAAP is divided into two separate areas, known as Area A and Area B, which are connected by approximately 4 miles of interplant railroad and pipeline. The Proposed Action would occur at Area B, which is comprised of industrial facilities, but also contains a large amount of undeveloped lands.

**Proposed Action:** The establishment of the AFRC at the HSAAP is required by the Defense Base Closure and Realignment Act of 1990, as amended, and the recommendations made by the Defense Base Closure and Realignment Commission:

*“Close the Kingsport Armed Forces Reserve Center (AFRC), the Kingsport Organizational Maintenance Shop (OMS), and the Army Maintenance Support Activity (AMSA), Kingsport, TN, and relocate units into a new Armed Forces Reserve Center and Field Maintenance Shop on Holston Army Ammunition Plant, Kingsport, TN. The new AFRC shall have the capability to accommodate Tennessee National Guard units from the Kingsport Armed Forces Reserve Center, Kingsport, TN, if the state decides to relocate those National Guard units.”*

Establishment of the AFRC would involve realigning units from the existing AFRC in Kingsport to the HSAAP. The existing suitable facilities at the HSAAP are fully occupied. Thus, a new facility is required to accommodate the AFRC.

The new facilities would be approximately 86,284 square feet including appurtenant parking, maintenance and storage facilities and a stormwater detention basin. The entire facility would

require approximately 15 acres. No additional expansion to or demands on training areas or airspace would be required for the Proposed Action. No additional weapons systems would be associated with the establishment or operation of the AFRC.

**Alternatives:** The Proposed Action would occur at Alternative Site A, which is the preferred alternative. Two alternative sites at HSAAP were considered during the preparation of this EA. Alternative Site D was previously used as an Administrative Building and, thus, would result in the least amount of environmental impacts. However, this site only partially satisfies the other site selection criteria and, in particular, does not offer any potential for future expansion and does not provide frontage to U.S. Highway 11W. Alternative Site B met all the site selection criteria; however, development of this site would result in greater environmental impacts and require more extensive earthwork and site preparation.

No other alternatives relative to scheduling, using other existing facilities, or leasing space off-post are viable and, thus, were not addressed in the EA. Use of off-post leased space to meet the AFRC's requirements would involve several major drawbacks. Anti-terrorism/force protection policies specify certain facilities characteristics, such as physical security features. Use of leased space in the private sector would hinder these protection policies and would adversely affect command and control functions, result in higher operational costs, and impair efficient use of resources. No other facilities are available on the installation that could accommodate the requirements of the AFRC.

**Environmental Consequences:** Construction of the AFRC facility at Alternative Site A (preferred alternative) would permanently convert approximately 15 acres of disturbed grassland (horse pasture) to impervious surfaces. Construction would cause temporary and insignificant increases to noise, air emissions, and soil erosion/sedimentation. Ambient conditions would return upon completion of construction activities. U.S. Highway 11W would be minimally altered as a new traffic signal would be required to ensure safe egress and ingress to the new AFRC. Since the existing AFRC is also located along U.S. Highway 11W, however, no increase in local traffic would occur. No impacts would occur to cultural resources, protected species, prime farmland soils, or water quality or supply. Insignificant impacts to wildlife habitat and populations, aesthetic and visual resources, and utilities would occur as a result of the establishment of the AFRC at Alternative Site A. Socioeconomic resources would incur beneficial, but insignificant, long-term impacts during the construction activities; however, since the AFRC would only be relocating less than 2 miles from its current location and no increase or decrease in unit strength is associated with the realignment, no other socioeconomic effects would occur.

Impacts associated with using either of the two alternative sites would be similar as the preferred alternative relative to air quality, noise, soil erosion and regional socioeconomic conditions. Alternative Site B would require that 15 acres of forested land be cleared, resulting in greater impacts to vegetation communities, wildlife and aesthetics. Construction of the AFRC at Alternative Site D would result in slightly greater traffic congestion near the Main Gate of the HSAAP and, because of the juxtaposition adjacent to residential areas, would result in slightly higher impacts to local socioeconomic resources. No impacts to cultural resources, protected species, prime farmland, or water quality and supply would be expected by the construction of the AFRC at either Alternative Site B or Alternative Site D.

**Environmental Protection Measures and Permit Requirements:** All temporarily disturbed sites should be re-seeded as soon as practicable after completion of the construction activities to control erosion and sedimentation. Native vegetation seeds should be used for all re-seeding

activities, in accordance with Section 7(c)(1) of the Endangered Species Act and the installation's Integrated Natural Resources Management Plan.

Wetting solutions, including water, would be applied to disturbed soils within the construction site to control fugitive dust. All construction equipment and material would be properly maintained and stored to reduce air emissions and avoid potential spills of hazardous materials.

If the breeding/nesting season for migratory birds can not be avoided during the initial grubbing and clearing of the site, breeding bird pairs and nests would need to be identified and avoided, in accordance with the Migratory Bird Treaty Act.

A Section 402(b) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges for Construction Activities-Stormwater Pollution Prevention Plan (SWPPP) is the only environmental required permit that has been identified during the preparation of this EA. The SWPPP and Notice of Intent would need to be prepared and submitted by the construction contactor prior to construction. The SWPPP would identify best management practices (BMP) to be implemented for erosion and sedimentation control during construction. If straw bales are used, weed seed-free straw should be used to avoid introduction or expansion of invasive or noxious weeds.

**Conclusion:** The data presented in the EA documents that the best available site for the proposed construction and operation of the AFRC is at the preferred site (Alternative Site A) and that development of this site would result in insignificant adverse impacts to the area's human and natural environment.

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**SECTION 1.0**  
**PURPOSE, NEED, AND SCOPE**





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## **1.0 PURPOSE, NEED, AND SCOPE**

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### **1.1 INTRODUCTION**

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission recommended that certain realignment actions occur at Holston Army Ammunition Plant (HSAAP), Kingsport, Tennessee. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended. The BRAC Commission recommended the closure of the Armed Forces Reserve Center (AFRC) in Kingsport, Hawkins County, Tennessee (east of the HSAAP) and relocation to a new AFRC at the HSAAP:

*“Close the Kingsport Armed Forces Reserve Center (AFRC), the Kingsport Organizational Maintenance Shop (OMS), and the Army Maintenance Support Activity (AMSA), Kingsport, TN, and relocate units into a new Armed Forces Reserve Center and Field Maintenance Shop on Holston Army Ammunition Plant, Kingsport, TN. The new AFRC shall have the capability to accommodate Tennessee National Guard units from the Kingsport Armed Forces Reserve Center, Kingsport, TN, if the state decides to relocate those National Guard units.”*

To enable implementation of this recommendation, the Army proposes to provide necessary facilities to support the existing and future needs of the Tennessee Army National Guard (TNARNG) and the U.S. Army Reserve (USAR) units that use the AFRC. This Environmental Assessment (EA) analyzes and documents environmental effects associated with the Army's Proposed Action at the HSAAP. Details on the Proposed Action are presented in Section 2.

### **1.2 PURPOSE AND NEED**

The purpose of the Proposed Action is to implement the BRAC Commission's recommendation pertaining to the realignment of the existing AFRC to the HSAAP. The need for the Proposed Action is to improve the ability of the Nation to respond rapidly to challenges of the 21<sup>st</sup> Century. The Army's mission is to defend the U.S. and its territories, support National policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the U.S. To carry out these tasks, the Army must adapt to changes in world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The following discusses four major initiatives that contribute to the Army's need for the Proposed Action.

#### **1.2.1 Base Realignment and Closure**

In previous BRAC actions, the explicit goal was to save money and downsize the military in order to reap a “peace dividend.” In the 2005 BRAC, the Department of Defense (DoD) sought to reorganize its installation infrastructure to most efficiently support its forces, increase operational readiness and facilitate new ways of doing business. Thus, BRAC represents more than cost savings. It supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC

recommendations at the HSAAP to achieve the objectives for which Congress established the BRAC process.

### **1.2.2 Army Transformation and the Army Modular Force**

On October 12, 1999, the Secretary of the Army and the Chief of Staff articulated a vision about people, readiness, and transformation of the Army to meet challenges emerging in the 21<sup>st</sup> Century and the need to be able to respond more rapidly to different types of operations requiring military action. The strategic significance of land forces continues to lie in the Army's ability to fight and win the Nation's wars and in providing options to shape the global environment to the benefit of the U.S. and its allies. Transformation responds to the Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the Army published its *Programmatic Environmental Impact Statement (EIS) for Army Transformation* for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the Army will conduct a series of transformation activities affecting virtually all aspects of Army doctrine, training, leader development, organizations, installations, material, and soldiers. On April 11, 2002, the Army issued a Record of Decision reflecting its intent to transform the Army. This EA evaluates a Proposed Action, in accordance with the transformation process, which is designed to provide the U.S. with combat forces that are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.

### **1.2.3 Integrated Global Presence and Basing Strategy (IGPBS)**

At the request of the Chairman of the Joint Chiefs of Staff, combatant commanders submitted a series of recommendations for overseas basing plans for their respective areas of responsibility. The recommendations were part of an interagency assessment of the DoD's long-term overseas force projection and basing needs. The assessment resulted in a series of recommendations known as the IGPBS, which outlines the size, character, and location of long-term overseas forces. On the basis of the IGPBS results, the Secretary of Defense announced that some forces currently based overseas would return to the U.S. over a period of years. The 2005 BRAC recommendations take into account, and adopt some of the basing recommendations of the IGPBS.

### **1.2.4 Installation Sustainability**

On October 1, 2004, the Secretary of the Army and the Chief of Staff issued *The Army Strategy for the Environment*. The strategy focuses on the interrelationships of mission, environment, and community. A sustainable installation simultaneously meets current and future mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. A sustained natural environment is necessary to allow the Army to train and maintain military readiness.

## **1.3 SCOPE**

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, (40 Code of Federal Regulations [CFR] Parts 1500–1508), and the Army's environmental implementing regulations, *Environmental Analysis of Army Actions* (32 CFR Part 651). Its purpose is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and alternatives.

## 1.4 PUBLIC INVOLVEMENT

The Army invites public participation in 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.

Public participation opportunities with respect to this EA and decision-making on the Proposed Action are guided by 32 CFR Part 651. The EA and draft Finding of No Significant Impact (FNSI) has been made available to the public for 30 days beginning 19 June 2007. At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the Proposed Action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementation of the Proposed Action. If it is determined prior to issuance of a final FNSI that implementation of the Proposed Action would result in significant impacts, the Army will publish in the *Federal Register* a notice of intent to prepare an environmental impact statement, commit to mitigation actions sufficient to reduce impacts below significant levels, or not 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 Public Information Officer at the HSAAP by calling Ms. Nancy Gray at 423-578-6285.

## 1.5 IMPACT ANALYSIS PERFORMED

This EA identifies, documents, and evaluates environmental effects of the construction and operation of the AFRC at HSAAP, Kingsport, Tennessee to accommodate the proposed realignments from the existing Kingsport AFRC. HSAAP is located in the northeastern corner of the state of Tennessee, west of the city of Kingsport (Figure 1-1). HSAAP is divided into two separate areas, known as Area A and Area B, which are connected by approximately 4 miles of interplant railroad and pipeline. The Proposed Action would occur at Area B, which is comprised of industrial facilities, but also contains a large amount of undeveloped lands (Figure 1-2). Although the AFRC will be closed and the units and activities realigned to the HSAAP, those actions and the impacts at the existing AFRC are not addressed herein.

The existing conditions at HSAAP and the surrounding community, as well as the potential effects of constructing and operating the AFRC at HSAAP are described in Section 4.0, Affected Environment and Consequences. Conditions in 2006 are considered the baseline for the existing conditions, as described in the EA. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the Proposed Action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action.

The Defense Base Closure and Realignment Act of 1990 specifies that the NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated" (Sec. 2905(c)(2)(A), Public Law 101-510, as amended). The law further specifies that in applying the provisions of the NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been

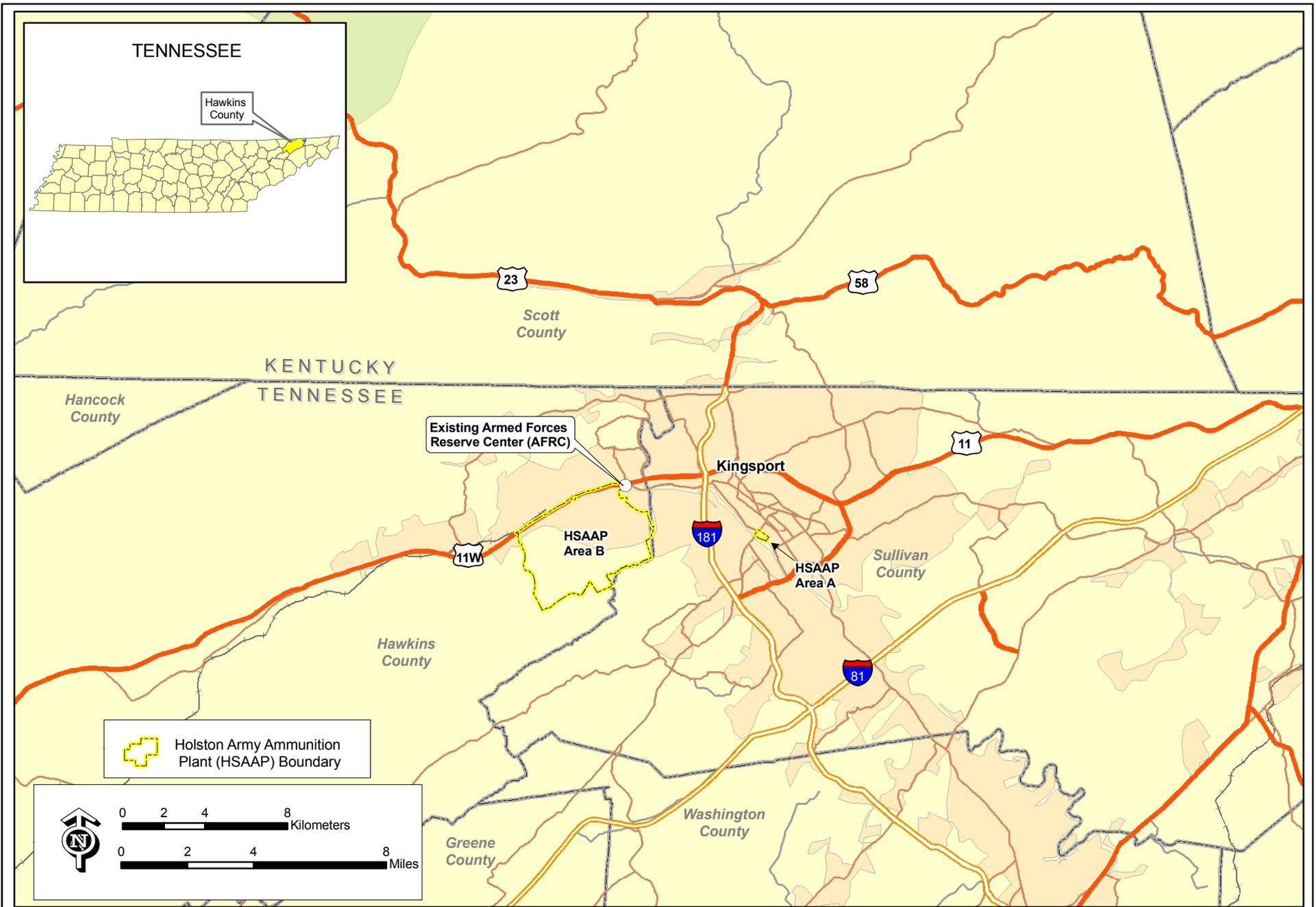


Figure 1-1: Vicinity Map

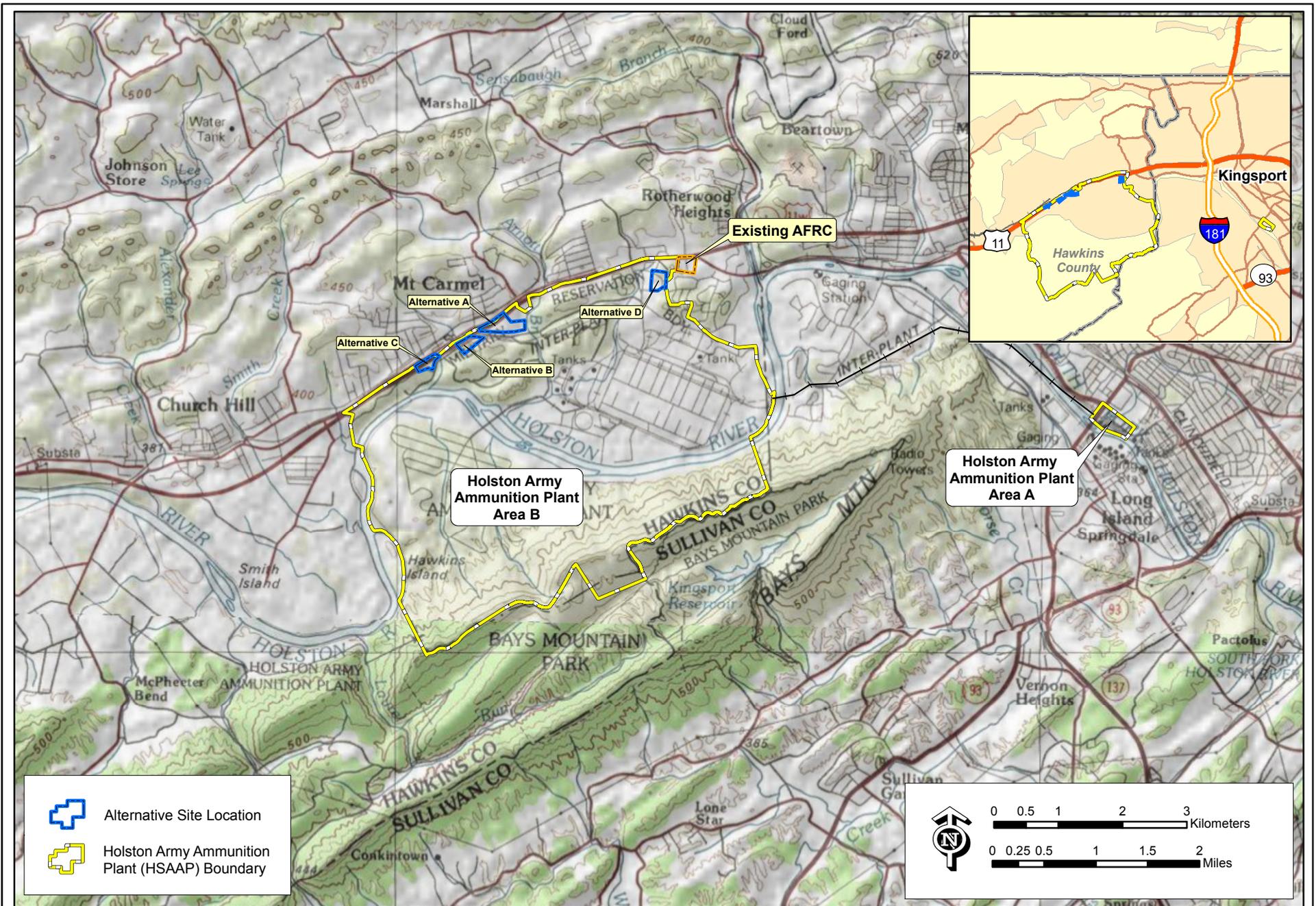


Figure 1-2: HSAAP Site Map

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

## 1.6 REGULATORY FRAMEWORK

A decision on whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, the Army is guided by relevant statutes (and their implementing regulations) and Executive Orders (EO) that establish standards and provide guidance on environmental and natural resources management and planning. Construction and operation of the AFRC at the HSAAP requires compliance with the Federal regulations and EOs presented below in Table 1-1. The current compliance status is also presented.

**Table 1-1. Summary of Relevant Regulations Including Potential Permits or Licensing Requirements**

Issue	Action Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status	Status of Compliance with Relevant Laws and Regulations
<b>FEDERAL</b>				
Sound/ Noise	Noise Control Act of 1972 (42 USC 4901 et seq.), as amended by Quiet Communities of 1978 (P.L. 95-609)	United States Environmental Protection Agency (EPA)	Compliance with surface carrier noise emissions	Full compliance would be achieved upon implementation of construction activities.
Air	Clean Air Act and amendments of 1990 (42 USC 7401-7671q) 40 CFR 50, 52, 93.153(b)	EPA	Compliance with National Ambient Air Quality Standards (NAAQS) and emission limits and/or reduction measures	Full compliance; emissions would be below <i>de minimis</i> thresholds.
Water	Clean Water Act of 1977 (33 USC 1342) 40 CFR 122	USEPA and Tennessee Department of Environment and Conservation (TDEC)	Section 402(b) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges for Construction Activities-Stormwater Pollution Prevention Plan (SWPPP)	SWPPP and Notice of Intent would be prepared prior to construction. Full compliance will be achieved prior to implementation of construction activities
	Executive Order 11988 (Floodplain Management), as amended by Executive Order 12608	Water Resources Council, Federal Emergency Management Agency (FEMA), CEQ	Compliance	Full compliance.
	Executive Order 11990 (Protection of Wetlands), as amended by Executive Order 12608	U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS)	Compliance	Full compliance

Table 1-1, continued

Issue	Action Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status	Status of Compliance with Relevant Laws and Regulations
	Clean Water Act of 1977 (33 USC 1341 et seq.)	USACE and TDEC	Section 401/404 Permit	Wetlands would be avoided; no permit required.
	Coastal Zone Management Act of 1972 (16 USC 1456[c]) Section 307	National Oceanic and Atmospheric Administration	Compliance	HSAAP is not within the coastal zone.
<b>Soils</b>	Resource Conservation and Recovery Act of 1976 (42 USC 6901-6992k), as amended by Hazardous and Solid Waste Amendments of 1984 (P.L. 98-616; 98 Stat. 3221)	EPA	Proper management, and in some cases, permit for remediation	Full compliance would be achieved prior to implementation of construction activities
<b>Soils</b>	Comprehensive, Environmental Response, Compensation, Liability Act of 1980 (42 USC 9601-9675), as amended by Emergency Planning and Community Right-To-Know-Act of 1986 (42 USC 11001 et seq.) Release or threatened release of a hazardous substance	EPA	Development of emergency response plans, notification, and cleanup	Full compliance.
	Farmland Protection Policy Act of 1981 (7 USC 4201 et seq.) 7 CFR 657-658 Prime and unique farmlands	Natural Resource Conservation Service (NRCS)	NRCS determination via Form AD-1006	Full compliance since no prime farmland soils occur at any of the proposed sites.
<b>Natural Resources</b>	Endangered Species Act of 1973, as amended (16 USC 1531-1544)	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures	Full compliance since no protected species would be impacted.
	Migratory Bird Treaty Act of 1918	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures	Full compliance would be achieved upon implementation of construction activities. Identification of nests or nesting activities would be required if initial grubbing and clearing can not avoid nesting season.
	Bald and Golden Eagle Act of 1940, as amended	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, obtain permit	No effects to bald or golden eagles; full compliance.
<b>Health and Safety</b>	Occupational Safety and Health Act of 1970	Occupational Safety and Health Administration (OSHA)	Compliance with guidelines including Material Safety Data Sheets	Full compliance would be achieved upon implementation of construction activities.

Table 1-1, continued

Issue	Action Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status	Status of Compliance with Relevant Laws and Regulations
<b>Cultural/ Archaeo- logical</b>	National Historic Preservation Act of 1966	Advisory Council on Historic Preservation through State Historic Preservation Officer (SHPO)	Section 106 Consultation	Full compliance has been achieved. Concurrence of no adverse effect provided by Tennessee SHPO.
	Archaeological Resources Protection Act of 1979	Affected land-managing agency	Permits to survey and excavate/ remove archaeological resources on Federal lands; Native American tribes with interests in resources must be consulted prior to issue of permits	Full compliance.
<b>Cultural/ Archaeo- Logical</b>	EO 13175 ( <i>Consultation and Coordination with Indian Tribal Governments</i> )	Bureau of Indian Affairs	Coordinate directly with Tribes claiming cultural affinity to project areas	Full compliance
<b>Social/ Economic</b>	Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) of 1994	EPA	Compliance	Full compliance since no minority or low income populations would be affected and no significant impact has been identified.
	EO 13045 ( <i>Protection of Children from Environmental Health Risks and Safety Risks</i> )	EPA	Compliance	Full compliance since no children would be exposed to the construction activities.
	EO 13101 ( <i>Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition</i> )	EPA	Compliance	Full compliance
	EO 13123 ( <i>Greening the Government Through Efficient Energy Management</i> )	EPA	Compliance	Full compliance
	EO 13148 ( <i>Greening the Government Through Leadership in Environmental Management</i> )	EPA	Compliance	Full compliance

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>.

***SECTION 2.0***  
***PROPOSED ACTION***

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## 2.0 PROPOSED ACTION

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### 2.1 INTRODUCTION

The BRAC Commission approved the following DoD recommendation concerning HSAAP:

*“Close the Kingsport Armed Forces Reserve Center (AFRC), the Kingsport Organizational Maintenance Shop (OMS), and the Army Maintenance Support Activity (AMSA), Kingsport, TN, and relocate units into a new Armed Forces Reserve Center and Field Maintenance Shop on Holston Army Ammunition Plant, Kingsport, TN. The new AFRC shall have the capability to accommodate Tennessee National Guard units from the Kingsport Armed Forces Reserve Center, Kingsport, TN, if the state decides to relocate those National Guard units.”*

Therefore, the Proposed Action is to construct and operate a new AFRC at the HSAAP to accommodate the closure and realignment of the existing AFRC near Kingsport.

### 2.2 PROPOSED IMPLEMENTATION

To comply with the BRAC Commission’s recommendations and Congress’ mandate, a new 500-member AFRC would be constructed at HSAAP. The new AFRC would include administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the TNARNG as well as three USAR units. Buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks, landscaping and stormwater detention basin. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed (Table 2-1). All other associated infrastructure (e.g., plumbing, electrical systems; heating, ventilation, and air conditioning [HVAC] systems; and anti-terrorism/force protection [AT/FP] systems) would also be provided. The AT/FP measures would include, but not limited to, a 200-foot wide buffer zone around the site and a perimeter security fence. The Vehicle Maintenance Shop will also contain a 10,000-gallon double-walled concrete above-ground storage tanks (AST) for heating and aviation fuel (JP8). The AST would also be equipped with a containment liner.

**Table 2-1. Proposed Construction Projects**

<b>Project No.</b>	<b>Facility</b>	<b>Square Feet</b>
64842	Armed Forces Reserve Center	64,076
64842	Vehicle Maintenance Shop	19,958
64842	Organizational Unit Storage	1,150
64842	Flammable Material Storage	500
64842	Controlled Waste Storage	600
<b>Total</b>		<b>86,284</b>

The total area expected to be disturbed by the Proposed Action is approximately 15 acres. However, approximately 30 acres would be leased from HSAAP to provide required security set-back or buffers and to accommodate future expansion potential, should the need arise. The footprint of the AFRC within the 30-acre site is illustrated in Figure 2-1. These inactivation

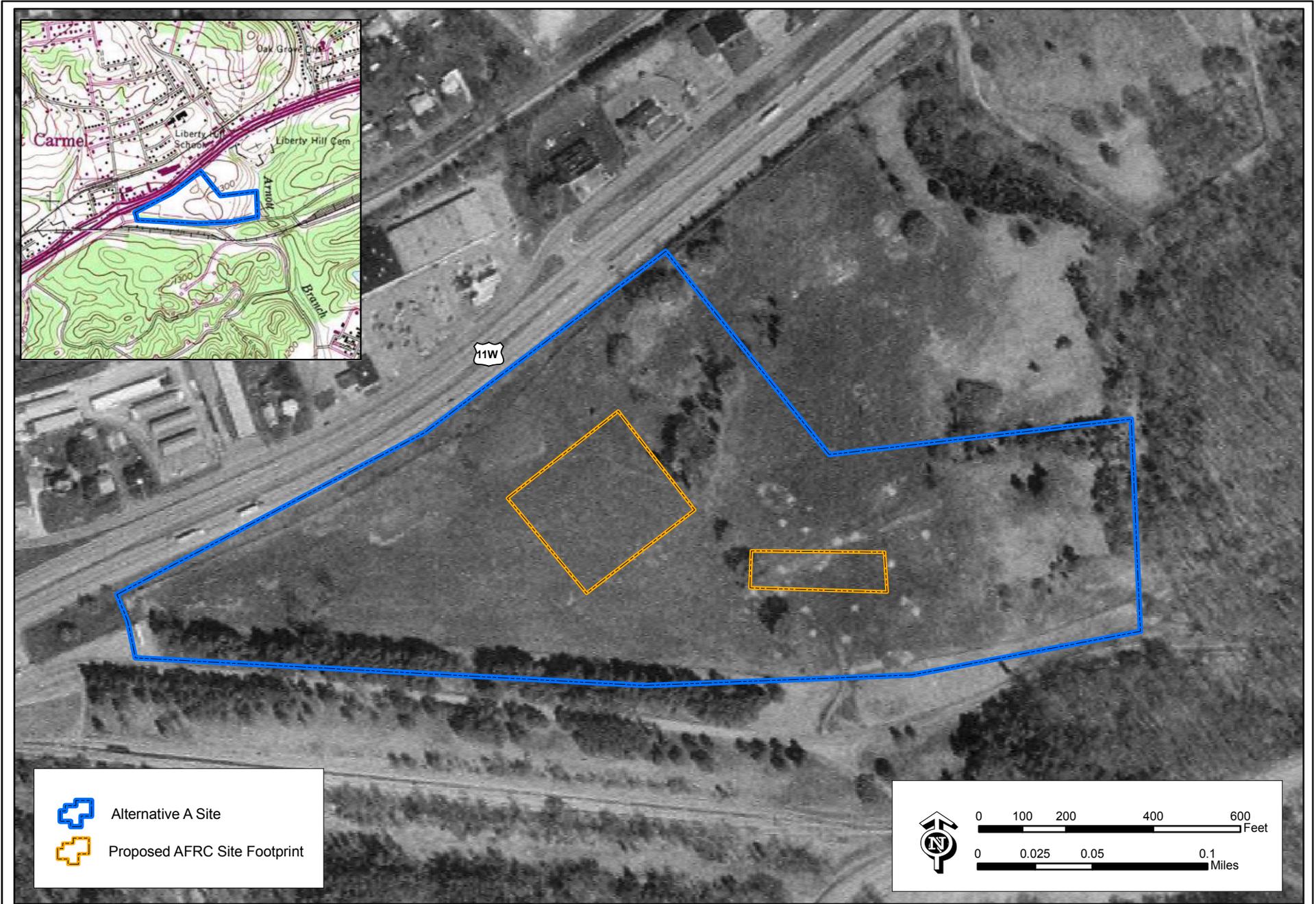


Figure 2-1: Proposed AFRC Site Footprint

and realignment actions, beginning in Fiscal Year (FY) 2007, support the Army modular force and transformation.

### **2.2.1 Force Structure**

Force structure refers to the numbers, size, and composition of units comprising Army forces. BRAC Commission recommendations concerning the closure and realignment of the Kingsport AFRC do not change force structure at Kingsport AFRC. Thus, there would be no reduction or addition of active duty and civilian personnel.

### **2.2.2 Garrison Facilities**

Implementation of the Proposed Action would require the construction of a 500-member AFRC at the HSAAP that would include administrative, educational, storage, vehicle maintenance, library, and support areas. New construction projects would provide approximately 86,284 SF of space.

Since there would be no changes in force structure relative to this action, no additional family housing would be required as a result of this action. The closure and realignment of the Kingsport AFRC is within 2 miles of the proposed location on the HSAAP, so there would be no change in housing needs. No demolition would be required as a result of the Proposed Action.

### **2.2.3 Training Facilities**

There would be no change to training range size or operations, or airspace demands as a result of the Proposed Action. Units that use the Kingsport AFRC would continue to train at Camp Shelby, Mississippi, Fort Stewart, Georgia, and Fort Campbell, Kentucky.

### **2.2.4 Weapon Systems**

There would be no weapon systems used at the HSAAP as a result of the Proposed Action.

### **2.2.5 Schedule**

Under the BRAC law, the Army must initiate all realignments no later than September 15, 2007, and complete all realignments not later than September 15, 2011. Implementation of the Proposed Action would occur over a span of approximately 3 years. Facilities construction would be synchronized to meet the needs, on a priority basis, of units being relocated from overseas. Construction of the proposed facility is anticipated to begin the third quarter of FY 2009 and be completed in the third quarter of FY 2011. The realignment would be completed by the end of FY 2011.

### **2.2.6 Siting**

General selection criteria used to identify suitable sites for new construction include consideration of compatibility between the functions to be performed and the installation land use designation for the site, adequacy of the site for the function required, proximity to related activities, distance from incompatible activities, availability and capacity of roads, efficient use of property, development density, potential future mission requirements, and special site characteristics, including environmental incompatibilities. Specific selection criteria relative to the AFRC site at HSAAP included the need to have road frontage along U.S. Highway 11W, a minimum of 15 acres, ability to provide the required security set-back or buffers, and avoidance of the explosive safety arcs as designated by HSAAP.

In addition to the proposed site [Preferred Alternative (Site A)], three alternative sites were evaluated (Figure 2-2). However, one site (Alternative Site C) has been eliminated from further consideration in this EA, as discussed later in Section 3.5.3.

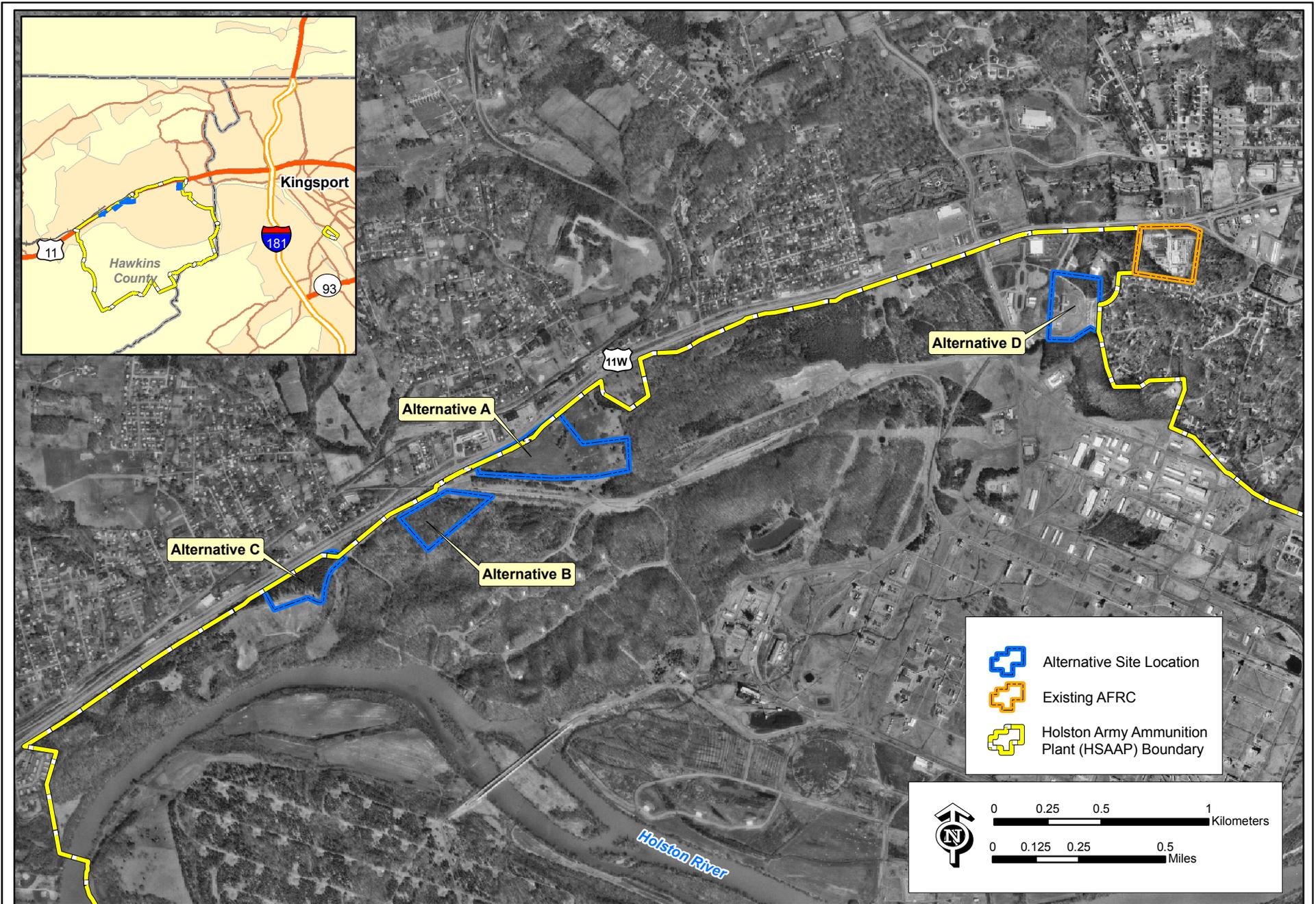


Figure 2-2: Alternative Project Sites

The proposed site (Preferred Alternative Site A) is located in the north central portion of the installation along U.S. Highway 11W (see Figure 2-2). Alternative Site B is located adjacent to the proposed site and Alternative Site D is located in the northeast corner of the HSAAP. Both of these sites would satisfy most of the general and site-specific selection criteria discussed above and, thus, are carried forward for analysis. Alternative Site B contains a small buffer strip between it and U.S. Highway 11W; however, it would still be visible from the highway, which is the desired effect.

Construction of the AFRC at the Alternative Site A has been coordinated with the installation physical security plan and all AT/FP measures would be included. The exact footprint of the facility has not been developed as yet; however, it is expected that no more than 15 acres would be required for construction of the AFRC, regardless of the site selected. Selection of Site A or Site B would also require a traffic signal to be installed at the junction of U.S. Highway 11W and Englewood Avenue; which would provide access to these sites. The Alternative Site A and Alternative Site B would both provide land for potential future expansion. Alternative Site D would be accessed through the main gate entrance or through a commercial access point. This site would not afford expansion opportunities.

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***SECTION 3.0***  
***ALTERNATIVES***





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## **3.0 ALTERNATIVES**

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### **3.1 INTRODUCTION**

In addition to the Alternative Site A (Preferred Alternative), the No Action Alternative and two alternative sites were considered during the preparation of this EA. These alternatives as well as other alternative approaches and sites that were eliminated early in the planning process are discussed in the following paragraphs.

### **3.2 NO ACTION ALTERNATIVE**

CEQ regulations require inclusion of the No Action Alternative. Under the No Action Alternative, the AFRC would not be established at HSAAP. However, since this realignment has been mandated by Congress and the President, the No Action Alternative would serve only as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated.

### **3.3 Alternative Site B**

Alternative Site B (see Figure 2-2) is a 23-acre parcel of land located adjacent to Alternative Site A, on the west side of a railroad spur that services HSAAP. This site is totally forested and contains numerous small drainages. Use of this site would require clearing the forest from the entire site and modifying the railroad crossing. Clearing the site of all the timber would result in additional environmental impacts, including potential effects to endangered species. In addition, the site contains limited level ground, which would require extensive earthwork. Utilities would have to be brought into the site. As mentioned in Section 2.2.6, a traffic signal would need to be installed on U.S. Highway 11W to allow safe access to this site. Still, this site generally meets the site selection criteria described in Section 2.0 and, thus, is carried forward for analysis.

### **3.4 Alternative Site D**

Alternative Site D is located in the northeast portion of the HSAAP and set back from U.S. Highway 11W approximately 500 feet. This site was the former Administrative Building and is approximately 15 acres. The site does not provide frontage to U.S. Highway 11W as desired; rather, access to this site would require a shared entrance via either the HSAAP Main Entrance, or through Venture Park Road (through private venture firms' access roads). Although Alternative Site D contains sufficient acreage to construct the AFRC, it has limited potential for expansion due to its location and the surrounding developments, including residential areas to the east. This site would not require extensive earthwork, however, and most utilities are present at the site. Therefore, Alternative Site D will be carried forward for analysis.

## **3.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION**

### **3.5.1 Use of Other Facilities to Accommodate Realigned Units**

The HSAAP has considered all means of accommodating the proposed realignment using or renovating existing space as well as off-post space that is available for leasing. Use of off-post leased space to meet the Kingsport AFRC's requirements would involve several major drawbacks. AT/FP policies specify certain facilities characteristics, such as physical security features, security set-back or buffers from roadways, and "hardened" construction. Implementation of these measures would substantially increase the cost of leasing and might be prohibited by lessors, further complicating the potential to use leased space. Consequently, use

of leased space in the private sector and having personnel and equipment both on-post and off-post would adversely affect command and control functions, result in higher operational costs, and impair efficient use of resources. For these reasons, use of leased space is not feasible and is not further evaluated in this EA.

Construction of new facilities is driven by the need to ensure adequate space is available for mission requirements. The existing facility space at the HSAAP is, with very minor exception, fully utilized for current mission requirements and is incompatible with the types of facilities required by the AFRC. As a consequence, new construction at the HSAAP is required, and the alternative to use or renovate existing facilities is not discussed further in this EA.

### **3.5.2 Schedule**

Alternatives for scheduling of proposed realignment actions are principally affected by three factors: the availability of facilities to house realigned personnel and functions, efforts to minimize potential disruption of mission activities based on the number of personnel involved in the relocation or the amount of work to be performed, and early realization of benefits to be gained by completion of the realignments. In most cases, minor shifts in schedule would not produce different environmental results.

The schedule for implementation of the Proposed Action must balance facilities construction timeframes, planned arrival dates of inbound units and stand-up dates of newly-established units, all within the 6-year limitation of the BRAC law. Realignment earlier than that shown in the schedule discussed above is not feasible in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained and would disrupt mission activities. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

### **3.5.3 Other Alternative Sites**

Development of Alternative Site C was constrained by the presence of a closed land fill. The land above the land fill could only be used for parking and/or storage. This site would also require some timber to be removed, which would increase environmental impacts, and would require construction of a new access from U.S. Highway 11W. In addition, the HSAAP has plans to develop a new explosive test site, known as the Suspect Truck Yard, and a portion of Alternative Site C would fall within the safety buffer for the proposed test site. For all these reasons, this site was eliminated from further consideration.

**SECTION 4.0**  
***AFFECTED ENVIRONMENT AND CONSEQUENCES***





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## 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

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### 4.1 INTRODUCTION

This section of the EA describes the natural and human environment that exists at and surrounding the HSAAP, and the potential effects to those resources as a result of the construction and operation of the AFRC. Only those parameters that have the potential to be affected by the proposed construction and operation are described, as per CEQ guidance (40 CFR 1501.7 [3]). Therefore, resources and items, such as climate, air space, coastal zone, energy sources, communication systems, and solid waste, are not addressed for the following reasons:

- Climate—the proposed project would not affect, nor be affected by, climate.
- Air space—the proposed project does not involve any additional aircraft training and thus air space would not be affected.
- Coastal zone—the project site is not located within a coastal zone
- Energy sources—slight increases in energy consumption would occur during the construction of the AFRC facility. However, the majority of the energy demands at HSAAP would be met by the same regional grid as currently provided at Kingsport AFRC. In addition, the design of the AFRC would include materials and measures to reduce energy consumption in accordance with Army policies and Federal energy reduction requirements and goals.
- Communication systems—the project would have negligible additional demand or other impact on local or regional communication systems.
- Solid waste—construction and operation of the AFRC would not result in increased production of solid waste in the region, since the personnel would be realigned from the Kingsport AFRC located less than 2 miles away.

An impact (consequence or effect) is defined as a modification to the human or natural environment that would result from the implementation of an action. The impacts can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action (secondary, indirect, or synergistic effects). The effects can be temporary (short-term), long lasting (long-term), or permanent. For purposes of this EA, temporary effects are defined as those that would last less than 3 years after completion of the action. Long-term impacts are defined as those that would last up to 20 years. Permanent impacts would require an irretrievable commitment of resources.

Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. The significance of the impacts presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge, and/or best professional opinions of the authors of the EA. The significance of the impacts on each resource will be described as significant, moderate, minimal, insignificant (or negligible), or no impact. Significant impacts are those effects that would result in substantial changes to the environment and should receive the greatest attention in the decision-making process.

## **4.2 LAND USE**

### **4.2.1 Affected Environment**

#### ***4.2.1.1 Regional Setting***

The HSAAP is located in the northeastern corner of Tennessee, approximately 10 miles west of downtown Kingsport, Tennessee. Kingsport is a city of 39,000 residents (U.S. Army 2000). The HSAAP is bound to the north by U.S. Highway 11W and is also easily accessible from Interstate Highways 181 and 81. The three alternative sites are all located within Hawkins County, Tennessee.

#### ***4.2.1.2 Installation Land Use***

The installation was first opened at the start of World War II, as Holston Ordnance Works. High explosives were manufactured here to support the war. The installation was placed on standby status in 1945 until 1949 when munitions were needed for the Korean War. Since its reactivation, the HSAAP has continued its production of high explosives. The HSAAP covers approximately 6,025 acres of land. Most of the installation is categorized as industrial use, though there are unimproved, natural areas (Figure 4-1).

#### ***4.2.1.3 Current and Planned Development***

There is a base modernization plan which includes numerous updates to existing facilities on the HSAAP; however, no other new construction is planned for the HSAAP in the reasonably foreseeable future (Pearson 2007).

### **4.2.2 Environmental Consequences**

#### ***4.2.2.1 Preferred Alternative (Site A)***

Construction of the AFRC at the Alternative Site A (Preferred Site) would permanently convert approximately 30 acres of leased horse pasture to military use, including about 15 acres to impervious pavement and buildings. Use of this site would require termination of the current lease and the permanent loss of \$2,100 annually to the natural resources program that is generated by the lease. The types of training, manufacturing, testing and administrative uses at the HSAAP would not change as a result of the construction and operation of the AFRC at Site A. The use of the proposed site location is consistent with the installation's mission, policies and plans and, thus, is considered an insignificant impact to land use.

#### ***4.2.2.2 Alternative Site B***

The construction of the AFRC at Alternative Site B would permanently convert approximately 15 acres of upland deciduous forest to impervious pavement and buildings.

The permanent loss of 15 acres of forest would impact future revenue through the sale of timber. These revenues provide funds for conservation and land management programs at the HSAAP through the Army's conservation reimbursable fund. Consequently, the type and extent of future natural resources projects would be impacted by the loss of this timber.

In addition, Alternative Site B has historically been used for hunting. Loss of this site for hunting purposes would eliminate approximately 10 hunting opportunities from each of the HSAAP hunts, resulting in additional losses of \$2,000 to \$4,000 per year for conservation programs. This reduction in hunting opportunities would also adversely affect the installation's ability to control deer populations at the HSAAP.

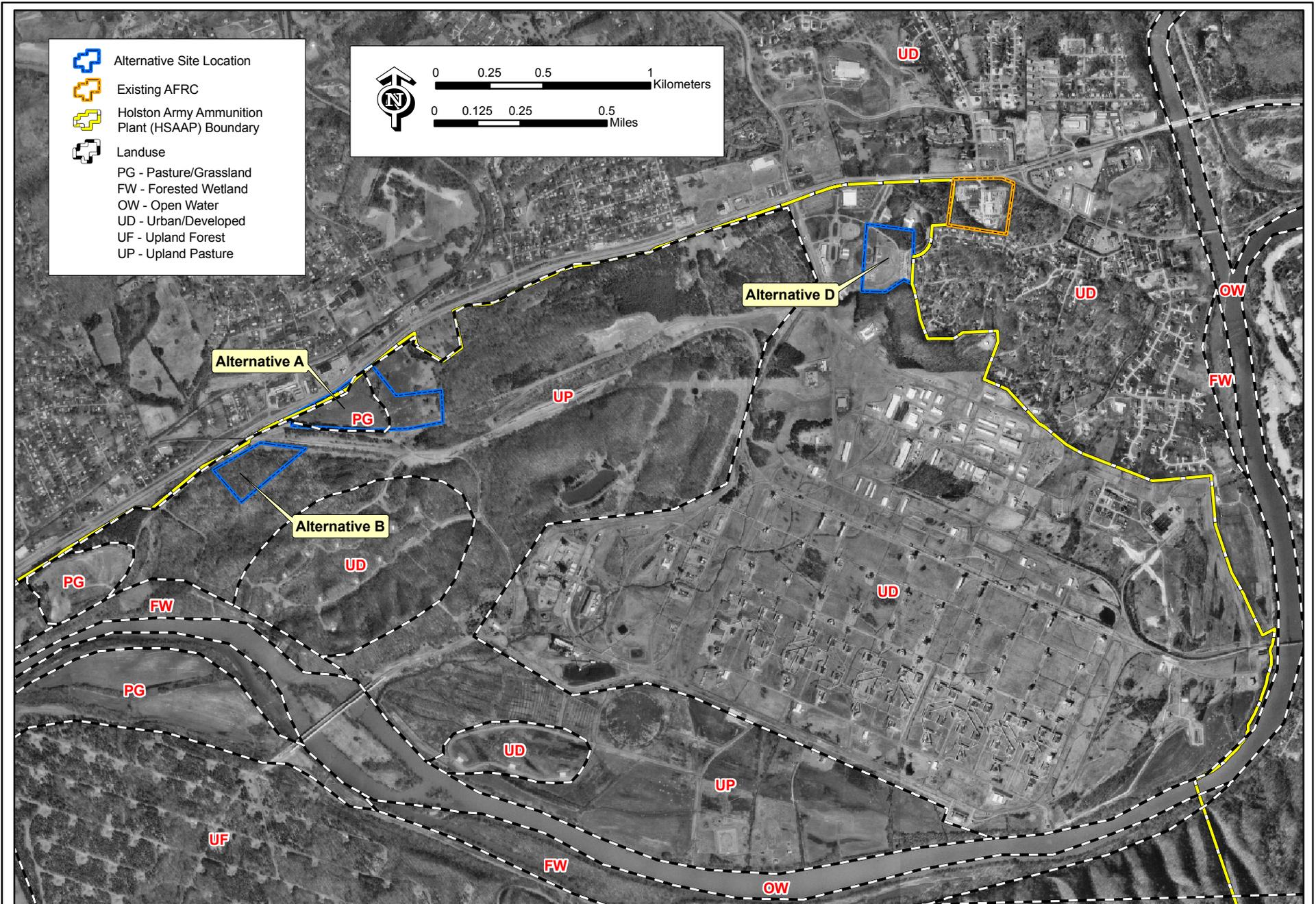


Figure 4-1: Land Use near HSAAP

#### **4.2.2.3 Alternative Site D**

The construction of the AFRC at Alternative Site D would not impact land use. The site is currently categorized as urban or developed. The types of training, manufacturing, testing and administrative uses at the HSAAP would not change as a result of the construction and operation of the AFRC at Site D. The use of the proposed site location is consistent with the installation's mission, policies and plans and, thus, is considered an insignificant impact to land use.

#### **4.2.2.4 No Action Alternative**

No direct short-term changes in land use to the proposed construction sites would occur under the No Action Alternative.

### **4.3 AESTHETICS AND VISUAL RESOURCES**

#### **4.3.1 Affected Environment**

The HSAAP is a limited-access industrial site; however, many peripheral areas visible by the public remain undeveloped. These undeveloped or natural areas have aesthetic value to citizens in the area. The upland hardwood forests and pastures on rolling hills are typical viewsheds in the Cumberland Mountains and Cumberland Plateau. Areas on the HSAAP which may include aesthetic resources include: the reservoir, the cottonwood area near the Holston River, upland oak-chestnut and pine forests (*i.e.*, Alternative Site B), and agricultural lease areas (*i.e.*, the Preferred Alternative Site A). The reservoir area is a 4-acre stormwater storage pond which attracts wintering waterfowl and other wildlife. The cottonwood area is a 51-acre parcel adjacent to the Holston River known for its mature cottonwood (*Populus deltoides*) forest and black walnut (*Juglans nigra*) plantations (U.S. Army 2000). The most prominent feature at the HSAAP is Bay's Mountain, which occurs in the southeastern portion of the installation. This area supports a high diversity of plant and animal species and affords numerous recreational opportunities.

#### **4.3.2 Environmental Consequences**

##### **4.3.2.1 Preferred Alternative (Site A)**

Construction and operation of the AFRC at the proposed site would eliminate approximately 15 acres of horse pastures and permanently replace these acres with pavement and hard structures. The proposed AFRC site would be located on the north side of the cantonment area and increase the developed area of the entire installation. Areas to the north of Highway 11W are also developed, which would ameliorate the adverse effect of the additional construction of the AFRC, south of the highway. Temporary construction areas would need to be immediately replanted with native vegetation to avoid additional long-term or permanent adverse effects to the area's aesthetic resources. Nonetheless, because of the small amount of acreage impacted, the land uses surrounding the HSAAP, and distance of the proposed site to the aesthetic resources described above, the permanent and temporary effects of the construction and operation of the AFRC at Alternative Site A would not be considered significant.

##### **4.3.2.2 Alternative Site B**

Construction and operation of the AFRC at Alternative Site B would eliminate approximately 15 acres of upland hardwood forest and permanently replace these acres with pavement and hard structures. Although Alternative Site B is also located along U.S. Highway 11W, impacts to aesthetics would be greater than those associated with Alternative Site A since use of this site would involve clear cutting 15 acres of mature forest. Temporary construction areas would need to be immediately replanted with native vegetation to avoid additional long-term or permanent adverse effects to the area's aesthetic resources. Nonetheless, because of the

small amount of acreage impacted, the land uses surrounding the HSAAP, and the distance of the proposed site to the aesthetic resources, the permanent and temporary effects of the construction and operation of the AFRC at Alternative Site B would not be considered significant.

#### **4.3.2.3 Alternative Site D**

Alternative Site D is completely within the boundary of HSAAP and not visible from U.S. Highway 11W; however, a neighborhood is situated immediately to the east of the Alternative Site D. Temporary impacts would be expected during the construction phase, and permanent impacts to the visual quality of the surrounding areas would be expected during operation. Temporary impacts would include, but are not limited to increased construction vehicles, equipment, and supply storage. Permanent impacts would include additional industrial operations near the neighborhood. Nonetheless, because of the small amount of acreage impacted, the land uses surrounding the HSAAP, and the historical use of the proposed site for military construction projects, the permanent and temporary effects of the construction and operation of the AFRC at Alternative Site D would not be considered significant.

#### **4.3.2.4 No Action Alternative**

Implementation of the No Action Alternative would allow the construction sites to remain in the current conditions, at least for the short-term. The proposed site would continue to be maintained grassland with limited visual qualities.

### **4.4 AIR QUALITY**

#### **4.4.1 Affected Environment**

Hawkins County and portions of other surrounding counties are classified as a non-attainment area for the 8-hour ozone standard. Ozone pollution near the ground is the most widespread air quality problem in the U.S. The public in nearly 100 major cities in the U.S. is periodically exposed to harmful concentrations of ozone. The biggest concern with high ozone concentrations is the damage it causes to human health and vegetation. High concentrations of ozone can cause shortness of breath, coughing, wheezing, headaches, nausea, and throat and lung irritation. Citizens who suffer from lung diseases like bronchitis, pneumonia, emphysema, asthma, and colds have even more trouble breathing when the air is polluted. These effects can be worse for anyone who spends significant periods of time exercising or working outdoors.

#### **4.4.2 Environmental Consequences**

##### **4.4.2.1 Preferred Alternative (Site A)**

Temporary increases in air pollution would occur from the use of heavy equipment during the construction period. Fugitive dust (PM-10) and combustible emissions from construction equipment engines are expected to temporarily increase during the first 12 to 18 months of the project. Due to the short duration of the construction project, any increases or impacts on ambient air quality are expected to be short-term and minor.

Calculations were performed to estimate the total air emissions from the new construction activities. Calculations were made for standard construction equipment such as bulldozers, excavators, front end loaders, back hoes, cranes, and dump trucks. Assumptions were made regarding the type of equipment, duration of the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used, including about 80 construction vehicles per day that would access the site. The assumptions and resulting calculations are presented in Appendix A.

The total air quality emissions were calculated to determine the applicability of the General Conformity Rule. The General Conformity rule applies to areas that have been designated as a non-attainment zone for an air pollutant, such as the Johnson City-Kingsport-Bristol area. Regulations set forth in 40 CFR 51 Subpart W-Determining Conformity of the General Federal Action to State or Federal Implementation Plans determine if additional permits are needed. According to 40 CFR 51.853(b), Federal actions require a Conformity Determination for each pollutant where the total of direct and indirect emissions in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)(1) or (2). A summary of the total emissions are presented in Table 4-1. As can be seen from this table, the proposed construction activities do not exceed *de minimis* thresholds and, thus, do not require a Conformity Determination.

**Table 4-1. Total Air Emissions (tons/year) from Construction Activities vs. the *de minimis* Levels**

<b>Pollutant</b>	<b>Total</b>	<b><i>de minimis</i> Thresholds</b>
Nitrogen Oxides (NO <sub>x</sub> )	47.12	100
Sulphur Dioxide (SO <sub>2</sub> )	3.04	100
Volatile Organic Carbon (VOC)	3.72	50

Source: 40 CFR 51.853 and GSRC

The proposed AFRC building would not require any back-up generators. Impacts from combustible air emissions from commuting to work are expected to be the same as those that currently exist. The existing AFRC facility is located less than 2 miles away and located in the same air shed. The primary difference in the commute would be that the work destination would be in a different location in the same county. Similarly, on-site operations such as air conditioners or air compressors would not increase emissions to the region's air shed, relative to the current operations at the existing AFRC.

Construction workers would temporarily increase the combustible emissions in the air shed during their commute to and from work. These emissions were calculated in the air emission analysis and are included in the totals in Table 4-1.

**4.4.2.2 Alternative Site B**

Air quality impacts from combustible emissions from the construction and operation of the proposed AFRC at Alternative Site B would be similar to those described for the Preferred Alternative Site A.

**4.4.2.3 Alternative Site D**

Air quality impacts from combustible emissions from the construction and operation of the proposed AFRC at Alternative Site D would be similar to those described for the Preferred Alternative Site A.

**4.4.2.4 No Action Alternative**

The HSAAP would continue to operate as it does now and remain in compliance under the No Action Alternative.

## 4.5 NOISE

### 4.5.1 Affected Environment

Noise is generally described as unwanted sound, which is identified by either objective effects (hearing loss, damage to structures, etc.) or subjective judgments (community annoyance). Sound is represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Sound levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise measurement recommended by the EPA and has been adopted by most Federal agencies (EPA 1974). A-weighted decibels (dBA) are used to express the relative loudness of sounds in air as perceived by the human ear (Generac Power Systems, Inc. 2004). A-weighting is necessary to compare the effects of sounds on the human body, because the human ear is less sensitive at low frequencies than at high frequencies. Several examples of noise levels in dBA are listed in Table 4-2. A DNL of 65 dBA is most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like construction. Areas exposed to DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by EPA as a level below which there are effectively no adverse impacts (EPA 1974).

**Table 4-2. A-Weighted (dBA) Sound Levels of Typical Noise Environments**

dBA	Overall Level	Noise Environment
120	Uncomfortably Loud (32 times as loud as 70 dBA)	Military jet takeoff at 50 feet
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 feet
90	Very Loud	Heavy-duty truck, average traffic
80	Loud (2 times as loud as 70 dBA)	Propeller plane flyover at 1,000 feet Diesel truck 40 mph at 50 feet
70	Moderately loud	Freeway at 50 feet from pavement edge Vacuum cleaner (indoor)
65	Moderately loud	Gas powered generator
60	Relatively quiet (1/2 as loud as 70 dBA)	Air conditioning unit at 10 feet Dishwasher at 10 feet (in door)
50	Quiet (1/4 as loud as 70 dBA)	Large transformers Small private office (in door)
40	Very quiet (1/8 as loud as 70 dBA)	Bird calls Lowest limit of urban ambient sound
10	Extremely quiet (1/64 as loud as 70 dBA)	Just audible
0	Threshold of hearing	

Source: Wyle Research Corporation 1992

As discussed previously, the HSAAP is surrounded by other commercial and light industrial facilities. As such, the installation is subjected to various noises such as vehicle traffic, heavy equipment and aircraft. Other noise sources, including training, ordnance manufacturing facilities, ordnance testing and detonation, and heavy equipment occur on the installation.

However, the vegetation surrounding the complex and the vast natural areas that generally buffer the installation attenuate much of the noise generated off and on the installation.

## **4.5.2 Environmental Consequences**

### **4.5.2.1 Preferred Alternative (Site A)**

Temporary and minimal increases in noise would occur during the construction of the AFRC. The construction activities potentially causing elevated noise levels within the project area would include diesel and gasoline powered generators, trucks, and construction equipment. As indicated in Table 4-2 above, heavy duty trucks generate a noise level of approximately 90 dBA at 50 feet. Attenuation to 65 dBA would occur at a distance of approximately 800 to 1,000 feet depending on climatic conditions, topography, vegetation, and man-made barriers (Generac Power Systems, Inc. 2004). Noise levels for other types of construction equipment range from the loudest, tractors and backhoes (70 to 95 dBA) to pumps and generators (65 to 85 dBA) (Bugliarello *et al.* 1976). The only sensitive noise receptors located within 2,000 feet of the proposed site are the Mount Carmel Elementary School, which is north of U.S. Highway 11W and the Mount Carmel Cemetery, which is located 1320 feet to the east of Alternative Site A. The distance from the construction site and the intervening hills, trees, highway, rail road track would attenuate the noise from the construction site. This attenuation would reduce construction noise to insignificant levels and insulate the school and cemetery from noise impacts. During the winter, when the trees are bare of leaves, the buffering effect would be reduced. However, visitation to and services at the cemetery would occur sporadically. Therefore, only temporary effects to noise sensitive receptors would occur and no long-term significant impact to ambient noise levels would result from the construction of the proposed AFRC.

Operation of the AFRC at this site would result in slight increases in ambient noise levels within the immediate site. The construction and operation of the AFRC at Alternative Site A would be expected to add up to 50 full-time military and civilian employees to the daily commuting traffic on a given weekday, although these personnel are currently commuting to the AFRC located only 2 miles to the east. Most of the activity at the AFRC would occur during weekends, when other base traffic is substantially reduced. If all of the Reserve units are on post on the same weekend, up to 500 National Guard, Reservists and civilians could commute to the installation. Therefore, operation of the AFRC at this site would be expected to contribute to or increase the base's ambient noise from 7:00 AM to 6:00 PM on Saturday and Sunday. Weekend AFRC noise emissions would include training activities which are not expected to reach levels that exceed 65 dBA. The construction noise would typically occur during 8:00 AM to 5:00 PM Monday through Friday.

### **4.5.2.2 Alternative Site B**

Impacts to ambient noise levels associated with the construction and operation of the AFRC at Alternative Site B would be similar as those described for Alternative Site A.

### **4.5.2.3 Alternative Site D**

Impacts to ambient noise levels associated with the construction and operation of the AFRC at Alternative Site D would be similar to those described for Alternative Site A. However, due to the proximity of this site to residential areas to the east and the private venture firms to the north, there is a greater potential of annoyance during the construction period.

### **4.5.2.4 No Action Alternative**

Implementation of the No Action Alternative would cause no temporary or long-term increases to the ambient noise levels.

## 4.6 GEOLOGY AND SOILS

### 4.6.1 Affected Environment

The HSAAP is situated in the heart of the Appalachian Mountains, formed during a series of orogenic events in the Paleozoic resulting from the collision of the African and North American tectonic plates. The folded Appalachian Mountains are composed of near-shore and marine deposits that were uplifted and folded by the orogenies. Rocks in the Kingsport vicinity are of Cambrian - Ordovician age, deposited between 400 and 600 million years ago (Harris 2006), and consist of dolomite, limestone, shale, siltstone and sandstone. The topography resulting from the orogenic uplift and subsequent erosion is referred to as the valley and ridge physiographic province.

Depth to bedrock in the area is fairly shallow, and heavy construction may require blasting or mechanical removal of rock to construct foundations. Six soil types are present within the three alternative sites, as depicted in Figure 4-2. These soils include:

- Dewey silt loam, Dunmore silt loam, Emory silt loam, Clarksville cherty silt loam (Site A);
- Dunmore silt loam, Talbott-Rock outcrop complex (Site B); and
- Dunmore silt loam, Holston-Urban land complex (Site D).

Dewey soils are composed of deep, reddish, well-drained soils with a reddish clay in the subsurface at a depth from 8 to 24 inches. Dunmore soils consist of deep, well-drained soils on hillsides in limestone valleys with subsurface yellowish-red clay at depths from 11 to 36 inches. Emory soils consist of deep, well-drained, dark brown soils found on benches or foot-slopes along drainages and depressions. Clarksville soils are composed of cherty, deep, well-drained soils on narrow ridge crests and steep, west-facing slopes.

Holston-Urban soils are used to describe the heavily disturbed and filled soils associated with the industrial complex at the HSAAP. Talbott-Rock complex soils are located between massive limestone rock outcrops, and consist of moderately deep, clayey red soils formed in material weathered from limestone (USDA, SCS 1979). The adjacent limestone outcrops develop a "karst" topography, which may include significant eroded caves and depressions as a result of fresh water dissolution of the exposed limestone.

The Farmland Protection Policy Act of 1990 defines prime farmland as "...land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, labor, and without intolerable soil erosion." Unique farmland is defined as "...land, other than prime farmland, that is used for the production of specific high-value food and fiber crops, such as, citrus, nuts, olives, cranberries, fruits, and vegetables." None of the soils within or near the three alternative sites are considered prime farmlands (USDA, SCS 1979).

### 4.6.2 Environmental Consequences

#### 4.6.2.1 Preferred Alternative (Site A)

Construction of the Holston AFRC would remove approximately 10 acres of Dewey silt loam, 1 acre of Emory silt loam, 2 acres of Dunmore silt loam and 1 acre of Clarksville cherty silt loam from future biological productivity. These soils are very common in the region, and are not considered prime farmland soils in urban settings, such as the Kingsport area. Loss of these soils due to construction of the AFRC would have negligible effect on the availability of similar soils in the area for other purposes.

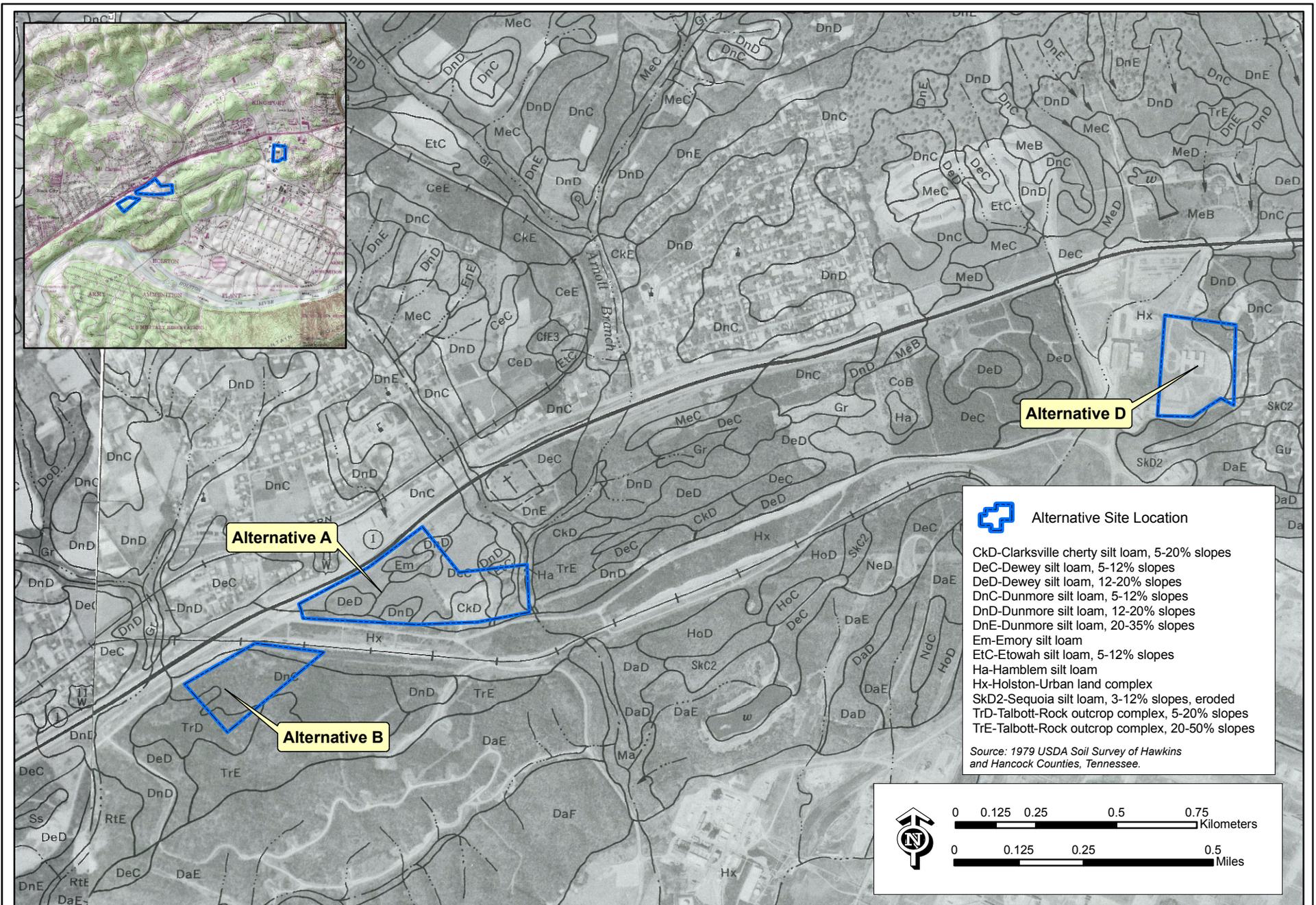


Figure 4-2: Soils within the Alternative Sites

Because the area to be disturbed is greater than 1 acre, a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent would need to be prepared as part of a Tennessee NPDES Stormwater Construction Permit, through the Tennessee Department of Environment and Conservation (TDEC). The SWPPP would identify best management practices (BMP), which would be implemented to reduce soil erosion and sedimentation from the construction site. Wind erosion of the site's soils would be reduced by applying water or other wetting solutions during dry periods.

#### **4.6.2.2 Alternative Site B**

Development of Alternative Site B would involve clearing and construction on a steep slope area with numerous bedrock limestone outcrops. Blasting of rock for clearing and foundation installation may be required. Loss of Dunmore and Talbott soils due to construction of this alternative would have a negligible effect on the availability of similar soils in the area for other purposes.

#### **4.6.2.3 Alternative Site D**

Construction of the AFRC at this site would involve disturbance and leveling of soils previously disturbed and filled for urban and industrial purposes. This would have a negligible effect on surrounding soils in the area.

#### **4.6.2.4 No Action Alternative**

The No Action Alternative would have no effect on the geology or soils in the area, since no construction would occur.

### **4.7 WATER RESOURCES**

#### **4.7.1 Affected Environment**

##### **4.7.1.1 Surface Water**

The proposed project is located in the Holston River Watershed, Hydrologic Unit Code (HUC) 06010104. The Tennessee portion of the Holston River Watershed includes approximately 663 square miles of drainage area, 1,061 miles of streams and 6,499 reservoir/lake acres (TDEC 2006a). The TDEC segregated the HUC 06010104 into several sub-watersheds. The proposed project and alternatives reside within the Arnott Creek sub-watershed (TN06010104 011-1100). The Arnott Creek sub-watershed is listed on the Tennessee Section 303(d) list of impaired watersheds. The TDEC found that 2.8 miles of the stream segment is impaired due to thermal modifications and stream flow modifications (TDEC 2006b). Several industrial point source discharges create the thermal pollutant problems, while the flow alteration issues are the result of urban development. The expansion of impervious surfaces has increased stormwater runoff and modified local stream flows. The Arnott Creek sub-watershed is not meeting Tennessee designated uses for fish and wildlife. Figure 4-3 shows the location of the Holston River Watershed boundaries, the Arnott Creek stream network and other major water-bodies in the region.

##### **4.7.1.2 Hydrogeology/Groundwater**

The two main water-bearing geologic units found in the region are the Knox Group and the Maynardville Limestone of the Conasauga Group. Both units are composed of dolostone and limestone and, together, constitute the Knox Aquifer. A combination of fractures and solution conduits in this aquifer control flow over substantial areas, and relatively large quantities of water may move long distances. Active groundwater flow in the Knox Aquifer can occur at substantial depths from 300 to 400 feet (Bonnie and Ketelle 2001).

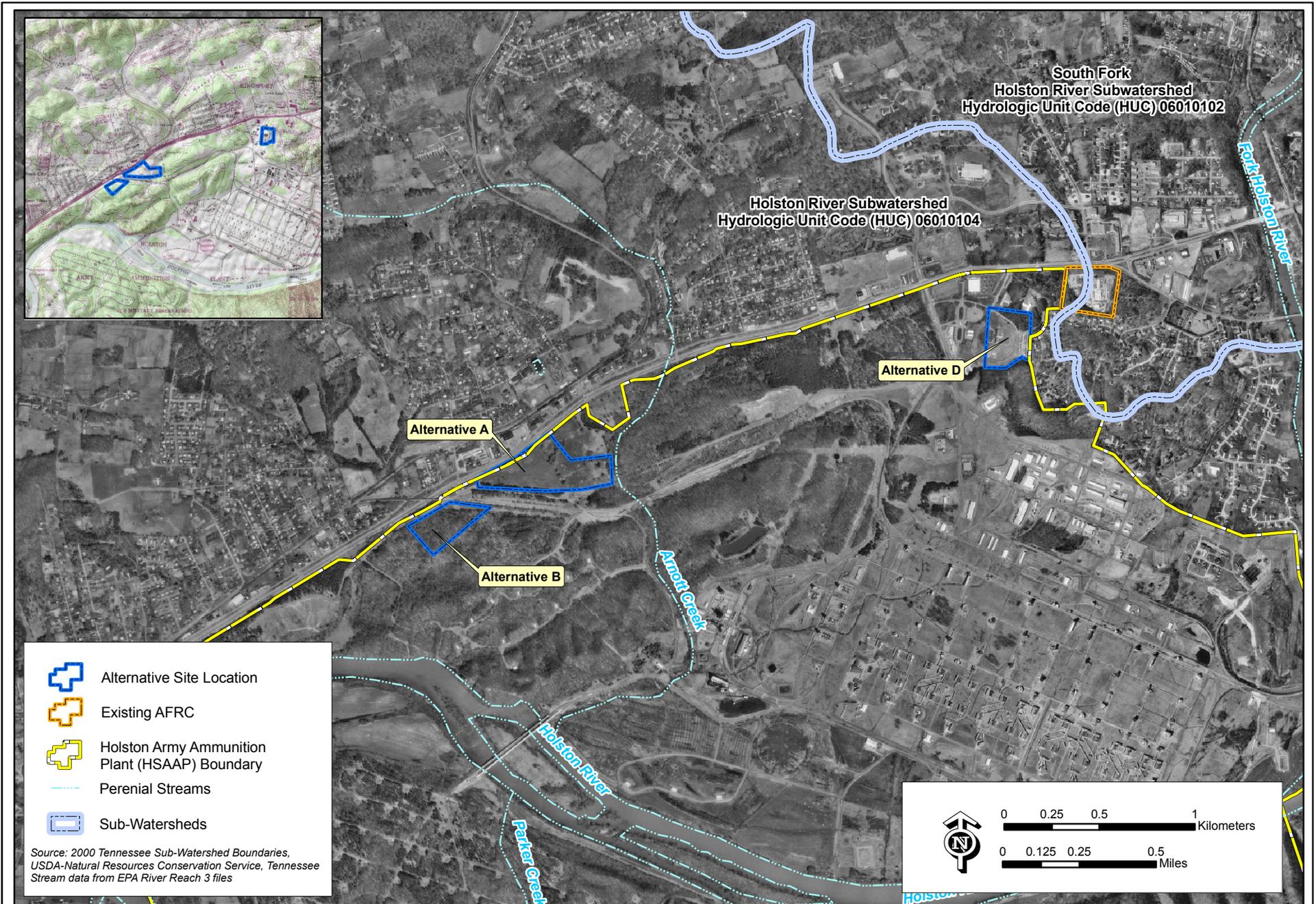


Figure 4-3: Surface Water and Sub-watersheds

During rain events, a portion of the rainwater accumulates as groundwater by infiltrating into the subsurface. The accumulation of groundwater in pore spaces of sediments and bedrock creates sources of water, which flow in response to external forces. Groundwater eventually reappears at the surface in springs, wetlands, stream and river beds, or pumped wells. Consequently, the Knox Aquifer groundwater is a reservoir for which the primary input is recharge from infiltrating rainwater and whose output is discharge to springs, wetlands, rivers, streams, and wells.

Adjacent to surface water features or in valley floors, the water table is found at shallow depths and the unsaturated zone is thin. Along the ridge tops or near other high topographic areas, the unsaturated zone is thick, and the water table often lies at considerable depths. In low-lying areas where the water table occurs near the surface, the storm flow zone and saturated zone are indistinguishable. The HSAAP receives its drinking water supplies from the City of Kingsport.

#### **4.7.1.3 Floodplain**

EO 11988 (*Floodplain Management*) directs Federal agencies to avoid developments within floodplains. Floodways are defined as lands within the 100-year floodplain that have a 1 percent chance of becoming inundated by peak flows during any given year. The Federal Emergency Management Agency (FEMA) provides data on lands designated as floodplains in the U.S. The proposed site and alternatives are located on Panel # 470311 in FEMA's map database and have not been mapped (FEMA 2006).

### **4.7.2 Environmental Consequences**

#### **4.7.2.1 Preferred Alternative (Site A)**

##### 4.7.2.1.1 Surface Water

Construction activities alter habitats and disturb soils, which in turn, increase the probability of sediment migration. Siltation is the process by which sediments are transported by moving water and deposited on the bottom of streams, rivers, and lakebeds. Sediment is created by the weathering of soils and rock and is delivered to stream channels through various erosional processes, including sheetwash, gully and rill erosion, wind, landslides, dry gravel, and human excavation. In addition, sediments are often produced as a result of stream channel and bank erosion and channel disturbance. Movement of eroded sediments downslope from their points of origin into stream channels and through stream systems is influenced by multiple interacting factors (USEPA 1999).

Construction of the new AFRC facilities and stormwater detention basin should not significantly affect water quality in the region. Some temporary water quality impairments may occur if there is a major rain event during construction of the facilities. Disturbed soils from access roads and the construction site would migrate during rain events. Construction equipment and operations may create miscellaneous operational pollution such as oil leaks, accidental spills, and mud spatters. Any leaks or spills from construction equipment would be cleaned up immediately in accordance with the Spill Prevention, Control and Countermeasures Plan (SPCCP) that would be prepared prior to construction. The selected construction contractor would be required to prepare the SPCCP and ensure that the measures and procedures contained therein are consistent with the HSAAP's SPCCP. In addition, BMPs for construction site soil erosion should be utilized to prevent the migration of soils, oil and grease and construction debris into the local stream networks.

The construction contractor would be required to develop a SWPPP, which would then be subject to approval by TDEC prior to issuance of a Tennessee Stormwater Construction Permit. SWPPP requirements under the NPDES Stormwater Permit include an outline of the

stormwater drainage system for each discharge point, actual and potential pollutant contact, and surface water locations. The SWPPP would also incorporate BMPs, as appropriate.

The Arnott Creek sub-watershed currently does not meet Tennessee's designated uses for the fish and wildlife standard; the suspected causes for these violations are stream flow and thermal modifications. The installation of the building units would alter habitat and increase the amount of impervious surfaces in the area. Impervious surfaces reduce the amount of rainwater infiltration and percolation. Impervious surfaces also increase the flow of migrating rainwater causing sheet and rill erosion of local exposed soils. Streambed and bank scouring and erosion are often associated with impervious surfaces. Adequate vegetation around the building units and incorporation of the stormwater detention basin(s) would mitigate these effects. With the proper soil retention techniques incorporated into the SWPPP, such as silt fences and vegetative buffers, significant impacts to downstream water quality should not occur. Specific details of stormwater BMPs will be outlined in the SWPPP. No long-term significant impacts to surface water are anticipated.

#### 4.7.2.1.2 Groundwater

There is limited potential for direct contamination of groundwater at the Preferred Site (Alternative Site A). The site is located on grasslands used for pasture and no geological formations are located near the surface. Activities associated with construction, such as accidental spills associated with maintenance, could affect groundwater without proper SPCCP measures. Care would be taken to avoid impacting the project area with hazardous substances (*i.e.*, anti-freeze, fuels, oils, lubricants) used during construction. Catch pans would also be used when refueling and when equipment is stationary for extended periods (*e.g.*, over night). However, the amount of fuel, lubricants, and oil is limited, and equipment and BMPs would be implemented to quickly contain any spills that occur. As mentioned previously, a SPCCP would be in place prior to the start of construction and all construction personnel would be briefed on the implementation of BMPs and responsibilities of this plan.

Small quantities of petroleum, oil, and lubricants (POL) would be stored and used at the AFRC for vehicle maintenance. However, these activities would include secondary containment to hold 110 percent of the largest container capacity (40 CFR 112.12). Clean-up materials (*e.g.*, oil mops) would also be maintained at the site to allow immediate action in case an accidental spill occurs. Drip pans would be provided for stationary equipment to capture any POL accidentally spilled during maintenance activities or leaks from the equipment. In addition, a SPCCP would be in place prior to the start of construction and all personnel would be briefed on the implementation and responsibilities of this plan.

#### **4.7.2.2 Alternative Site B**

##### 4.7.2.2.1 Surface Water

Construction and operation of the AFRC at Site B would result in more adverse water quality impacts than at Alternative Site A. Alternative Site B is located on steeper slopes and would increase the potential non-point source loading and soil erosion during rain events. The area is completely forested and would have to be cleared before construction could begin. The Arnott Creek sub-watershed is not meeting water quality designated uses as a result of stream flow and thermal modification. Development at Site B would increase the risk of impact from installing impervious surfaces and increasing stream flow; however, the implementation of BMPs would reduce these effects to below significant levels.

#### 4.7.2.2.2 Groundwater

The topography at Alternative Site B includes slopes and exposed limestone formations. Groundwater travels through the limestone formations and intercepts the surface on Alternative Site B and creates a spring further downhill from the site. If a hazardous waste spill happened to occur on or near a surface limestone formation, the potential exists for materials to migrate through the porous rock to the groundwater below. As discussed previously, a 10,000 gallon AST is planned to be installed at the AFRC. The AST would be a double-lined concrete tank with a containment liner. In the event of a spill, a hazardous waste spill remediation plan would be immediately implemented, in accordance with the SPCCP. Therefore, with the exception of a possible accidental spill, no impacts to groundwater are anticipated to occur. The operation of the AFRC facilities at Site B would not impact groundwater levels or percolation rates.

#### **4.7.2.3 Alternative Site D**

##### 4.7.2.3.1 Surface Water

Project development at Site D would result in similar water quality impacts as those described for the Preferred Alternative Site A.

##### 4.7.2.3.2 Groundwater

The construction and operation of the AFRC at Alternative Site D would not impact groundwater levels, percolation rates or groundwater quality.

#### **4.7.2.4 No Action Alternative**

##### 4.7.2.4.1 Surface Water

The No Action Alternative would not impact surface water flow or quality.

##### 4.7.2.4.2 Groundwater

The No Action Alternative would not impact groundwater levels, percolation rates or groundwater quality.

## **4.8 BIOLOGICAL RESOURCES**

### **4.8.1 Affected Environment**

The project site is located within the Ridge and Valley section of the Oak-Chestnut Forest (Braun 1950). The upland slopes and mountain tops were originally covered with a climax forest of mixed oak species and American chestnut (*Castanea dentata*) in association with hemlock (*Tsuga* spp.) and mixed mesophytic communities. Common tree species in the valleys include white oak (*Quercus alba*), yellow-poplar (*Liriodendron tulipifera*), hickories (*Carya* spp.), northern red oak (*Quercus rubra*), and black oak (*Quercus velutina*). Eastern red cedar (*Juniperus virginiana*) is often found on rocky limestone karst terrain. Riparian forests are dominated by American sycamore (*Platanus occidentalis*), American elm (*Ulmus americana*), green ash (*Fraxinus* spp.), with understories comprised of pawpaw (*Asimina triloba*), persimmon (*Diospyros virginiana*), black cherry (*Prunus serotina*), and serviceberry (*Amelanchier* spp.)

Letters were sent to the U.S. Fish and Wildlife Service (USFWS) and Tennessee Wildlife Resources Agency requesting concurrence that the construction and operation of the AFRC at Alternative Site A would not have a significant impact on Federal or state-protected species or other sensitive resources. Concurrence was received from the USFWS (see Appendix B); however, no response from the Tennessee Wildlife Resources Agency has been received to date.

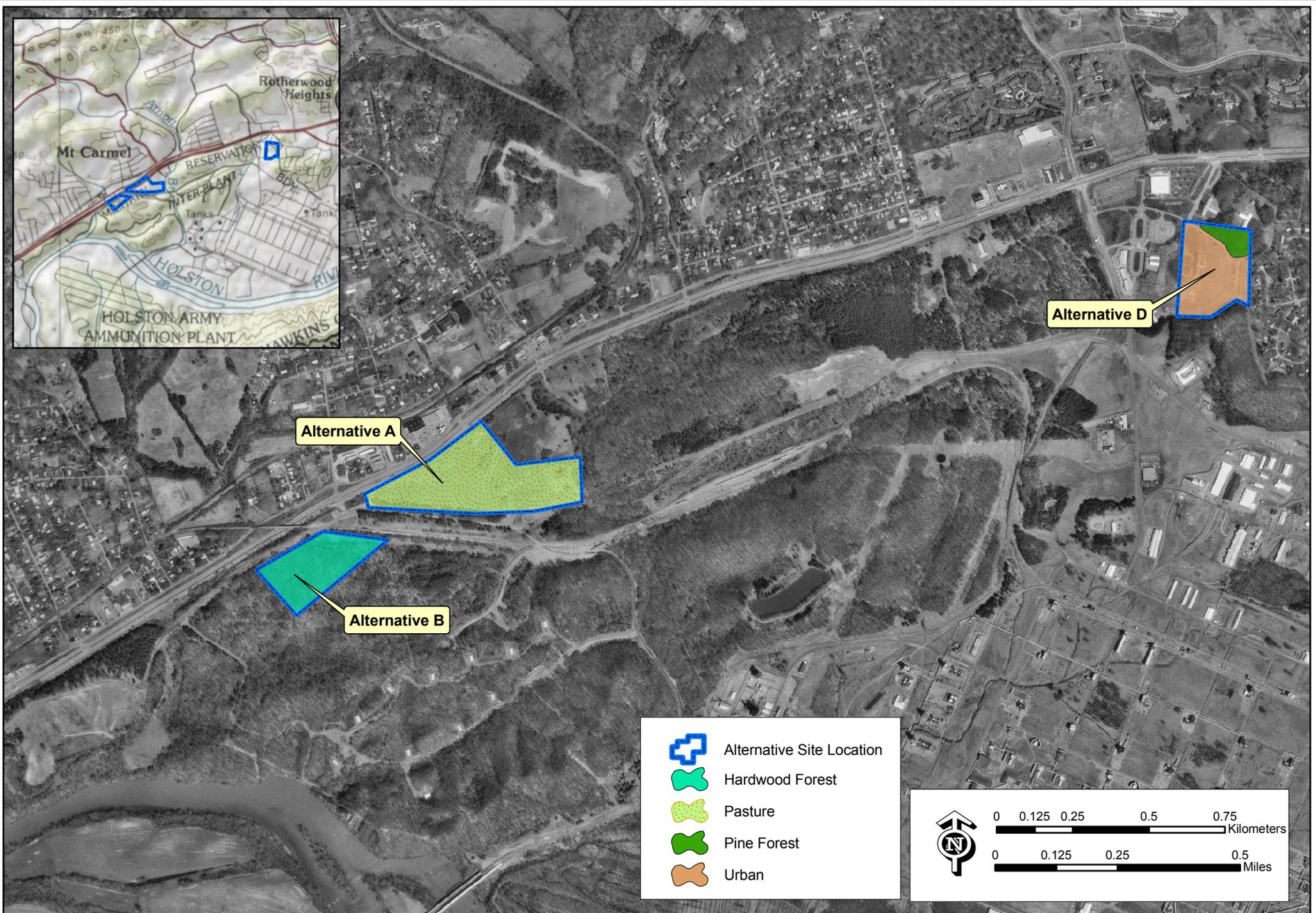


Figure 4-4: General Vegetation within the Alternative Sites

#### **4.8.1.1 Preferred Alternative (Site A)**

##### 4.8.1.1.1 Vegetation

The Preferred Alternative Site A is a grazed horse pasture (Figure 4-4). During a site visit on January 24, 2007, closely grazed fescue (*Festuca* sp.), thistle (*Cirsium* sp.), woodland strawberry (*Fragaria vesca*), and wild geranium (*Geranium* sp.) were observed. A few trees (eastern red cedar and black cherry) were present along an abandoned fence line which serves as the eastern site boundary.

##### 4.8.1.1.2 Wildlife

Species common to the Oak-Chestnut forest are no longer present on the project site. The project site has been disturbed and is adjacent to urban/industrial areas. As such, wildlife populations are limited and consist of more cosmopolitan species. During the site visit, rufous-sided towhee (*Pipilo erythrophthalmus*), killdeer (*Charadrius vociferus*), downy woodpecker (*Picoides pubescens*), American crow (*Corvus brachyrhynchos*), northern cardinal (*Cardinalis cardinalis*), and sparrows (*Passer* spp.) were observed. Domesticated horses (*Equus caballus*) were the only mammals observed during the site visit; however, deer scat was observed. No amphibians, reptiles, or fish were observed during the site visit.

##### 4.8.1.1.3 Sensitive Species

The Endangered Species Act (ESA) of 1973 was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protection programs for designated species and to use their authorities to further the purposes of the act. The USFWS's list of Federally protected species within Hawkins and Sullivan counties was cross-referenced with the HSAAP Integrated Natural Resources Management Plan (INRMP) (U.S. Army 2000) to determine which protected species could potentially occur in the area. Four Federally protected species have the potential to occur on the HSAAP: bald eagle (*Haliaeetus leucocephalus*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and American hart's tongue fern (*Phyllitis scolopendrium* var. *americana*). The gray bat is known to use caves in Arnott Creek. Table 4-3 lists all Federal and state listed species with the potential to occur in Hawkins and Sullivan counties.

##### 4.8.1.1.4 Wetlands

Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory 1987).

EO 11990 (*Protection of Wetlands*) directs Federal agencies to avoid developments within wetlands. Wetlands provide critical ecosystem functions such as flood control and nutrient cycling. Wetlands also typically support a greater diversity of species than surrounding habitats and can serve as travel corridors among distant patches of suitable habitat. Section 404 of the Clean Water Act (CWA) regulates development within wetlands and Waters of the U.S.

**Table 4-3. Federal/State-Listed Species that Occur or May Occur in Hawkins and Sullivan Counties**

Common Name	Scientific Name	Federal Status	State Status
Gray bat	<i>Myotis grisescens</i>	E	E
Indiana bat	<i>Myotis sodalis</i>	E	E
Bald eagle	<i>Haliaeetus leucocephalus</i>	AD, T	T
Spotfin chub	<i>Erimonax monachus</i>	T	
Duskytail darter	<i>Etheostoma perenurum</i>	E	
Birdwing pearly mussel	<i>Conradilla caelata</i>	E	
Tuberculed-blossom pearly mussel	<i>Epioblasma torulosa torulosa</i>	E	
Shiny pigtoe	<i>Fusconaia edgariana</i>	E	
Fine-rayed pigtoe pearly mussel	<i>Fusconaia cuneolus</i>	E	
Tan riffle shell	<i>Epioblasma walkeri</i>	E	
Cumberland monkeyface pearly mussel	<i>Quadrula intermedia</i>	E	
Turgid-blossom pearly mussel	<i>Epioblasma turgidula</i>	E	
Cumberland bean pearly mussel	<i>Villosa trabalis</i>	E	
Green-blossom pearly mussel	<i>Epioblasma torulosa gubernaculum</i>	E	
Purple bean	<i>Villosa perpurpurea</i>	E	
Little winged pearly mussel	<i>Pegias fabula</i>	E	E
American hart's tongue fern	<i>Phyllitis scolopendrium var. americana</i>	T	

Source: USFWS 2007a, USFWS 2007b, Tennessee Wildlife Resources Agency 2002  
 E=Endangered  
 T=Threatened  
 AD=Proposed Delisting

The USFWS conducted a National Wetland Inventory (NWI) in the late 1980s. According to the NWI maps for the HSAAP (Figure 4-5), a pond (Photograph 4-1) was identified by the USFWS as a palustrine, unconsolidated bottom freshwater wetland. The wetland is a man-made pond for agricultural use. There is no overall change of vegetation to hydrophytic plant species near the pond. Vegetation surrounding the pond is consistent with the remainder of the site, a fescue pasture. Based on the field observations conducted in January 2007 and the jurisdictional determination of the area by the Nashville District of the Army Corps of Engineers in April 2007, the pond was found to be non-jurisdictional (see Appendix B). Therefore, the pond is not subject to Section 404 regulations of the CWA.



**Photograph 4-1. Man-made pond at the Preferred Alternative Site.**

#### **4.8.1.2 Alternative Site B**

##### **4.8.1.2.1 Vegetation**

Alternative Site B is an upland hardwood forest (see Figure 4-4). During the January 2007 site visit, biologists observed white oak, southern red oak (*Quercus falcata*), black oak, northern red oak, ash, yellow-poplar, flowering dogwood (*Cornus florida*), eastern red cedar, American beech (*Fagus grandifolia*), and black walnut (*Juglans nigra*). Poison ivy (*Toxicodendron radicans*), muscadine (*Vitis* spp.), woodland strawberry, and Christmas fern (*Polystichum acrostichoides*) were common throughout the site.

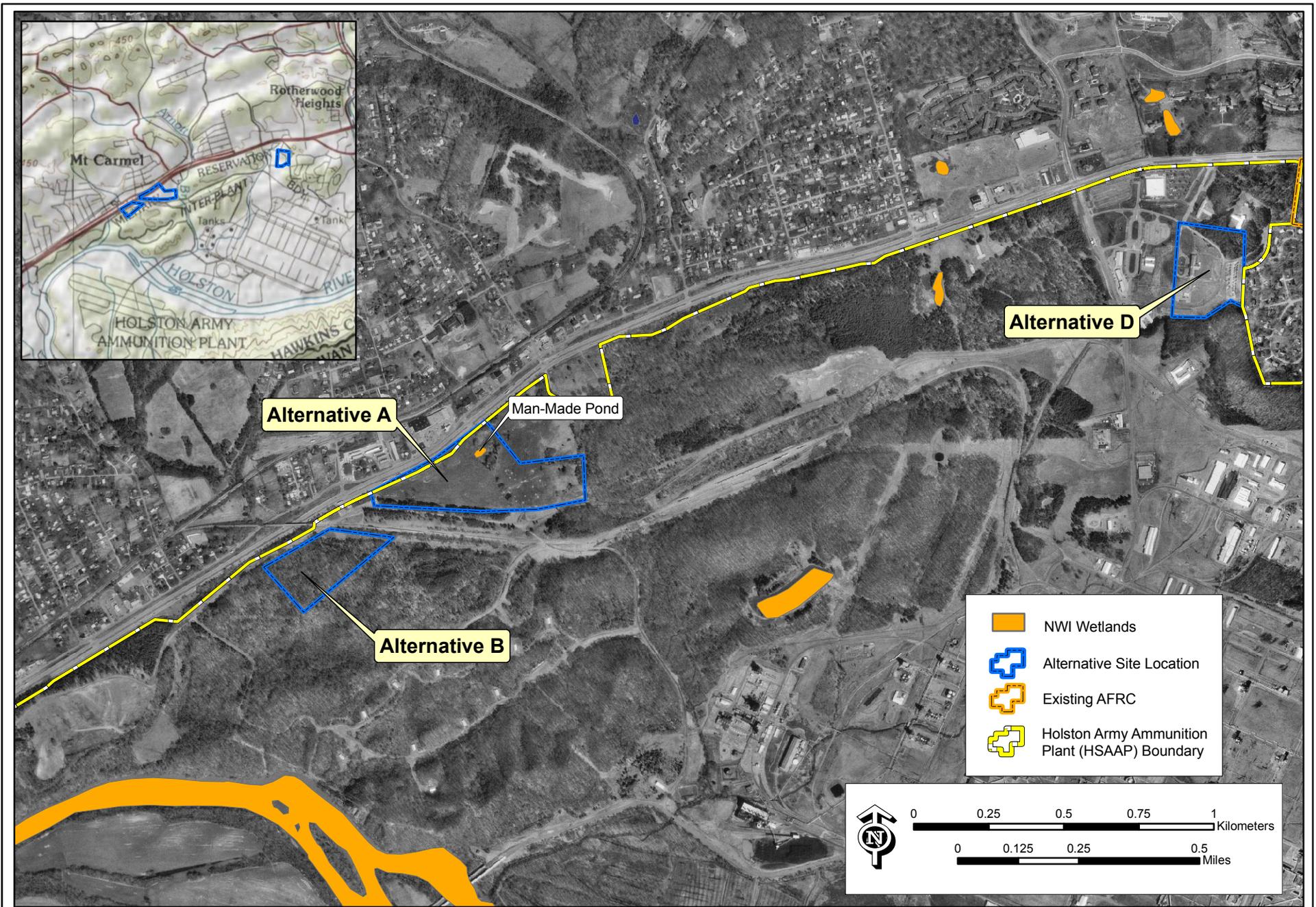


Figure 4-5: Alternative Sites NWI

#### 4.8.1.2.2 Wildlife

Wildlife habitat at Alternative Site B is of a higher quality to more species than the habitat available at Alternative Site A. Because of the higher quality habitat and structural diversity of the vegetation, the general wildlife populations would be expected to be more diverse and in greater abundance.

#### 4.8.1.2.3 Sensitive Species

The potential of occurrence of the sensitive species (see Table 4-3), particular the two bats and the American hart's tongue fern, is higher within Alternative Site B. Still, no observations of any of these species were made during the site survey and no caves were recorded. However, the surveys were performed in January. The chances of observing these species are greatly reduced during winter months. Alternative Site B is further from Arnott Creek than Alternative Site A (see Figure 4-3).

#### 4.8.1.2.4 Wetlands

No jurisdictional wetlands occur at Alternative Site B. However, some small seeps and springs were observed in surrounding areas.

### **4.8.1.3 Alternative Site D**

#### 4.8.1.3.1 Vegetation

Alternative Site D is a partially developed site (see Figure 4-4). An administrative building was demolished on this site; however, much of the building's foundation and parking areas remain. A loblolly pine (*Pinus taeda*) stand covers the hillside near the eastern perimeter fence.

#### 4.8.1.3.2 Wildlife

Wildlife at Alternative Site D would be similar to that described for Alternative Site A. Alternative Site D has been developed, so it provides little, if any, wildlife habitat.

#### 4.8.1.3.3 Sensitive Species

The sensitive species that could potentially occur at Alternative Site D are the same as those listed in Table 4-3. However, because of the past disturbances and development of the site, and the juxtaposition of the site with surrounding developments, it is highly unlikely that any of these species would occur at this site.

#### 4.8.1.3.4 Wetlands

No jurisdictional wetlands occur at Alternative Site D.

## **4.8.2 Environmental Consequences**

### **4.8.2.1 Preferred Alternative (Site A)**

Impacts to biological resources would be insignificant with the implementation of the construction and operation of the AFRC at Alternative Site A. Approximately 15 acres of pasture vegetation would be converted to impervious surface. The remaining 15 acres (of the 30-acre lease) would be expected to remain in its current state for the reasonably foreseeable future. Wildlife and their habitat would not be significantly impacted due to the poor quality habitat currently at the site and the abundance of higher quality habitat adjacent to the preferred alternative site. No impacts to protected species or their associated habitats would be expected during the construction or operation of the AFRC. However, pre- and post-construction BMPs and SWPPP measures would be implemented to eliminate downstream sedimentation, which could affect potential bat roosting caves. If future expansion encroaches closer to Arnott Creek, the USFWS should be consulted again regarding potential effects to the gray bat. No jurisdictional wetlands would be impacted at this site.

#### **4.8.2.2 Alternative Site B**

Impacts to biological resources would be greater due to the construction of the AFRC at Alternative Site B than at Site A. Approximately 15 acres of species-rich hardwood forest would be converted to impervious surface. Wildlife and their habitat would be impacted due to the loss of the quality habitat currently at the site. Although no specific surveys for these species have been conducted at this site, protected species such as the Indiana bat and the gray bat would potentially be impacted through the loss of potentially suitable roosting and hibernating habitat (karst formations) within Alternative Site B or by altering air-flow patterns near potentially suitable roosting and hibernating habitat. No jurisdictional wetlands would be impacted by this alternative; however, numerous upland drains are present on this site.

#### **4.8.2.3 Alternative Site D**

Impacts to biological resources would be insignificant with the construction of the AFRC at Alternative Site D. Wildlife and their habitat would not be significantly impacted due to past development of the site, the poor quality habitat currently at the site and the abundance of higher quality habitat elsewhere at the HSAAP. No impacts to protected species or their associated habitats would be expected due to the construction and operation of the AFRC at Site D. No jurisdictional wetlands would be impacted by this alternative.

#### **4.8.2.4 No Action Alternative**

Under the No Action Alternative, no new development would occur. Baseline conditions for biological resources as described above would remain unchanged or would improve slightly over time due to implementation of the installation's INRMP.

### **4.9 CULTURAL RESOURCES**

#### **4.9.1 Affected Environment**

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires Federal agencies to identify and assess the effects of their undertakings on cultural properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. Federal agencies must consult with the appropriate state and local officials including the State Historic Preservation Officer (SHPO), Indian tribes, applicants for Federal assistance, and members of the public and consider their views and concerns about historic preservation issues. The ACHP is authorized to promulgate such rules and regulations as it deems necessary to govern the implementation of Section 106 in its entirety. Those regulations are contained in the Code of Federal Regulations as 36 CFR Part 800, "Protection of Historic Properties".

##### **4.9.1.1 Cultural Overview**

The following overview was gleaned from the Integrated Cultural Resources Management Plan (ICRMP) prepared for the HSAAP (U.S. Army 2006). The prehistoric chronology of the HSAAP region is characterized by four broad divisions: (1) Paleo-Indian, (2) Archaic, (3) Woodland, and (4) Mississippian periods. The Paleo-Indian Period (12,000 to 8,000 BC) was the earliest occupation of the region, and consisted of small bands of hunters-gatherers. The Archaic Period (8,000 to 1,000 BC) also consisted of hunter-gatherers but longer-term occupation of larger sites, as evidenced by rock filled fire pits and storage pits, occurred during the late Archaic Period. Use of horticulture and ceramic containers appeared during the Woodland Period (1,000 BC to 1,000 AD) and semi-permanent villages began to develop during the latter portions of the Woodland Period. Settlements became larger and more permanent during the Mississippian Period (1,200 to 1,600 AD).

The first European exploration of the region was led by Hernando DeSoto in 1540. Several other travels through the Kingsport area occurred in the proceeding years and trade routes were developed as a result. The English began settling the region in the mid-1700s and by 1761, Fort Robinson was constructed in the Kingsport area, which secured the area for future development. Sullivan and Hawkins counties were established in 1779 and 1792, respectively.

The first railroad was constructed in the Kingsport area in the early 1900s, which resulted in rapid growth through World War II. As mentioned previously, the HSAAP began operation (as Holston Ordnance Works) during World War II, with the purpose of manufacturing high explosives in support of the war effort. Shortly after the end of World War II, the facility was placed in stand-by status until the Korean War, at which time it was reactivated. The installation still produces and stores explosives, but it is currently managed as a GOCO facility.

#### ***4.9.1.2 Alternative Sites***

According to the installation's ICRMP, the vast majority of the HSAAP, including the proposed alternative sites has been surveyed for both architectural and archeological resources. No historic structures occur at any of the sites. Three archeological resource sites were identified within 1 mile of Sites A and B, which are considered to be eligible for inclusion to the NRHP. However, based upon the ICRMP, it is unlikely that buried archeological resources would be discovered at any of the alternative sites during construction activities. In the unlikely event that archeological resources are uncovered, then all activity would cease in the immediate area while the HSAAP Cultural Resources Manager evaluates the significance of the archeological resources and conveys the evaluation to the Officer in Charge of Construction. If the resource is determined by the archeologist not to be significant, then the activity may resume. If the resource is determined to be potentially significant, then a data recovery plan would be prepared in consultation with the SHPO.

#### **4.9.2 Environmental Consequences**

Analysis of potential impacts to significant cultural resources considers both direct and indirect impacts. Impacts may occur by:

1. Physically altering, damaging, or destroying all or part of a resource;
2. Altering the characteristics of the surrounding environment that contribute to resource significance;
3. Introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or
4. Neglecting the resource to the extent that it is deteriorating or destroyed.

##### ***4.9.2.1 Preferred Alternative (Site A)***

The proposed construction of the AFRC would permanently disturb up to 15 acres, some of which has been disturbed in the past. There are no historic properties or protected cultural resources on the site. There are two archeological sites within 1 mile of Site A, both of which are considered eligible for the NRHP. The proposed construction and operation of the AFRC, however, would not affect these sites or any other significant cultural resources. The Tennessee SHPO has concurred with this determination (see Appendix B, Correspondence).

##### ***4.9.2.2 Alternative Site B***

The proposed construction of the AFRC would permanently disturb up to 15 acres of forested and urban or previously developed land. There are no historic properties or protected cultural

resources on the site. There are three archeological sites within 1 mile of Alternative Site B, all of which are considered eligible for the NRHP. However, the proposed construction and operation of the AFRC would not affect any of these cultural resources.

#### ***4.9.2.3 Alternative Site D***

The AFRC would be located in an area classified as urban or developed on the former Administrative Building site. Therefore, construction would not affect any cultural resources.

#### ***4.9.2.4 No Action Alternative***

Under the No Action Alternative, there would be no ground disturbance and conditions would remain status quo.

### **4.10 SOCIOECONOMIC RESOURCES**

#### **4.10.1 Affected Environment**

Hawkins and Sullivan counties are two of 95 counties in Tennessee and are considered the Region of Influence (ROI) for socioeconomic effects of the construction and operation of the AFRC. These two counties are part of the Kingsport-Bristol Metropolitan Statistical Area (MSA). The 2005 total population for the two counties was 208,912 persons. Hawkins County has experienced a 4.9 percent increase in population since 2000; however, Sullivan County reported a slight (0.2 percent) decrease during the same period. The racial mix of these two counties consists predominantly of Caucasians (97 percent), followed by African American (2 percent). The remainder is divided among people claiming to be of Native American, Asian, or of two or more races. Less than 3 percent of the population of Hawkins and Sullivan counties claim Hispanic or Latino origins (U.S. Census Bureau 2007).

Unemployment rates, reported in 2000 for the ROI, were below 3 percent (U.S. Census Bureau 2007). The total number of jobs in the ROI was 90,826 for 2004. The largest employer within the ROI was manufacturing, followed by retail trade. In 2004, Hawkins County had a per capita personal income (PCPI) of \$22,563, which is below the state average (\$29,844). Sullivan County reported a 2004 PCPI of \$28,341, which is also below the state average. However, the PCPI of both counties represented a 3.8 percent increase over their respective 1994 PCPI (U.S. Bureau of Economic Analysis [BEA] 2007).

The 2004 Total Personal Income (TPI) for Hawkins County was \$1.3 billion, which ranked 25<sup>th</sup> in the state. The average annual growth rate of the Hawkins County TPI from 1994 to 2004 was 5.3 percent. Sullivan County reported a 2004 TPI of \$4.3 billion, which ranked 7<sup>th</sup> in the state and an average annual growth rate of 5.2 percent since 1994 (BEA 2007).

#### **4.10.2 Environmental Consequences**

##### ***4.10.2.1 Preferred Alternative (Site A)***

To quantify the potential effect of the construction and operation of the AFRC at Site A on the socioeconomic conditions of the region, the Economic Impact Forecast System (EIFS) model was run. The results of this model are presented in Appendix C.

The proposed realignment of the AFRC would not result in any changes to the employment of military personnel or civil/private employees at the AFRC. Therefore, only temporary increases in employment, sales and sales taxes, and population would occur during the construction period. The total estimated construction costs, including design and supervision, of the AFRC is about \$15 million, or 0.3 percent of the 2004 TPI within the ROI. Upon completion of the construction, socioeconomic resources would return to pre-project conditions.

EO 12898 (*Environmental Justice*) requires all Federal agencies to identify and address disproportionately high and adverse effect of their programs, policies, and activities on minority and low-income populations. As indicated previously, the majority of the population in the ROI claims to be Caucasians; less than 1 percent claim Hispanic origin and less than 2 percent claim to be African American. Approximately 13 to 14 percent of the ROI population is considered to live below the poverty level. Consequently, there is a potential for the proposed action to encounter environmental justice issues within the ROI. However, there are no private residential areas or businesses located within or near either site, since the sites are located on a military installation. Therefore, no impacts to minority and low income populations are anticipated with implementation of the proposed action.

EO 13045 (*Protection of Children*) requires each Federal agency “to identify and assess environmental health risks and safety risks that may disproportionately affect children”; and “ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.” In the ROI, about 5 to 6 percent of the population is 5 years old or less and 21 to 22 percent are younger than 18 years (U.S. Census Bureau 2007). There are no residential areas on the installation; thus, no health or safety effects to children are anticipated.

#### **4.10.2.2 Alternative Site B**

The impacts to socioeconomic resources in the ROI would be the same as those described for the Alternative Site A.

#### **4.10.2.3 Alternative Site D**

The impacts to socioeconomic resources in the ROI would be the same as those described for the Alternative Site A.

#### **4.10.2.4 No Action Alternative**

Under the No Action Alternative, socioeconomic conditions would remain status quo.

### **4.11 TRANSPORTATION**

#### **4.11.1 Affected Environment**

The existing AFRC complex and the AFRC alternative sites are located within 2 miles of each other. Numerous modes of transportation are available to serve the AFRC complex including air, rail, and highway access. The Tri-Cities Regional Airport is the closest commercial airport to the HSAAP and is located approximately 13 miles southwest of the HSAAP. The Knoxville International Airport is located approximately 90 miles to the southwest of the HSAAP and the Asheville Regional Airport is located 80 miles south of the HSAAP. Several railroad lines are located within 1 mile of the existing and proposed facilities. The existing and proposed AFRC sites are served by many interstate, state and local roads (Figure 4-6). The facilities are located on or near U.S. Highway 11W (Stone Dr.). U.S. Highway 23 is located approximately 0.5 mile east of the HSAAP. Interstate 181 (I-181) is about 2 miles to the east and I-81 is located 8 miles to the south. Both existing and proposed AFRC alternative sites are easily accessible by major traffic corridors.

#### **4.11.2 Environmental Consequences**

##### **4.11.2.1 Preferred Alternative (Site A)**

Construction of the AFRC would have no effect on regional air or rail service. The existing and the proposed sites are located within 2 miles of each other. Therefore, long-term traffic is not going to increase because the number of staff and the commuter vehicle traffic would remain

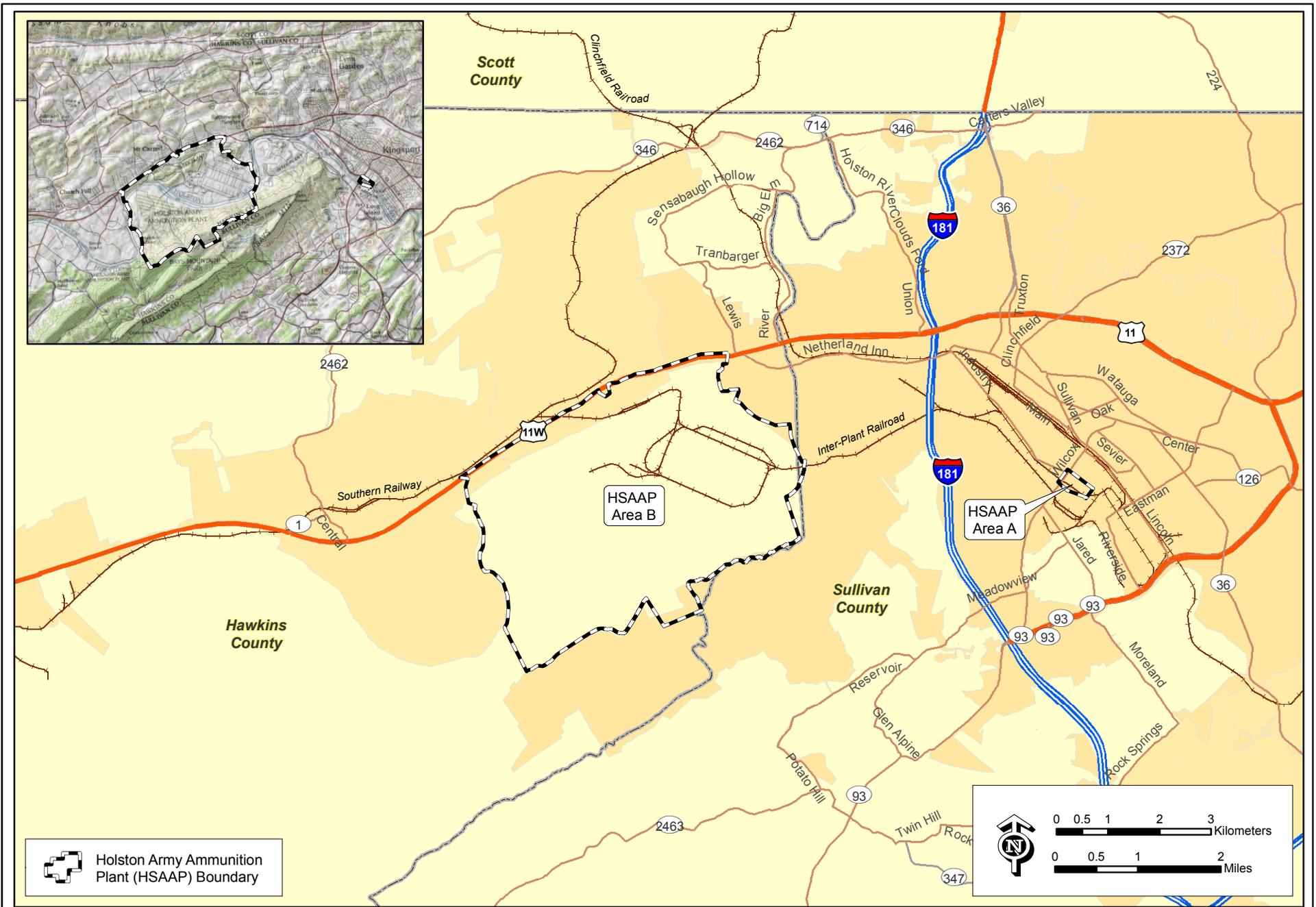


Figure 4-6: Transportation Routes near HSAAP

the same and continue to use the same access routes. A traffic signal would be required at the access road, which would alter traffic patterns. This effect would be localized and insignificant.

Temporary increases are anticipated because of construction vehicles and commuters. Vehicle traffic, dump trucks, excavators, delivery vehicles and construction employee commutes on U.S. Highway 11W would be increased during the construction period. Temporary and sporadic congestion would occur primarily along U.S. Highways 11W and 23, which are essentially the main routes into Site A, during the construction period.

As mentioned previously in the air quality section, approximately 80 additional construction vehicles would be expected to access the AFRC on a daily basis as a result of the implementation of the Preferred Alternative. This relatively low number of vehicles represents less than a 1 percent addition to the traffic volume in this area. Therefore, construction would result in a temporary and minimal increase in transportation impacts to the traffic on or off the HSAAP. Long-term effects to transportation patterns due to the operation of the AFRC would not be significant.

#### **4.11.2.2 Alternative Site B**

The construction and operation of the AFRC facility at Alternative Site B would result in impacts similar to those described for the Alternative Site A.

#### **4.11.2.3 Alternative Site D**

The installation of the AFRC facility at Alternative Site D would result in impacts similar to those described for the Alternative Site A. As mentioned previously in Section 3.4, access to this site would require a shared entrance at the HSAAP Main Gate or a shared entrance through Venture Park Road. Consequently, additional congestion would occur at the HSAAP Main Gate due to operation of the AFRC at this site.

#### **4.11.2.4 No Action Alternative**

Under the No Action Alternative, there would be no effect to vehicle traffic on or off-post. Air and rail service would be maintained at status quo.

### **4.12 UTILITIES**

#### **4.12.1 Affected Environment**

Power to the HSAAP is provided by the Appalachian Power Company, subsidiary of American Electric Power (AEP). The HSAAP receives its electricity from AEP with an on-site distribution capability. Natural gas would be supplied by the Hawkins County Gas Utility (Harder 2007). Water is provided by the city of Kingsport. The HSAAP has its own sanitary sewage treatment facility and its own landfill for trash disposal site.

#### **4.12.2 Consequences**

##### **4.12.2.1 Preferred Alternative (Site A)**

The new AFRC facilities would not co-mingle utility services with the HSAAP (Hayes 2007). The AFRC site would be leased from the HSAAP; however, the AFRC would have to contract to the various private vendors (e.g., AEP, Hawkins County Gas, *et al.*) or the city of Mount Carmel for utility services. The new AFRC would be constructed adjacent to a major highway with existing water, sewer, electricity, and gas. The construction contractor(s) would tie into existing mainlines located along the highway.

The new AFRC facilities would introduce 50 new workers to the HSAAP during the week; weekend demands would be much greater in the event all National Guard and USAR units (up to 500 personnel) would be there simultaneously. The additional 50 users should not significantly impact the use of utilities in the region. The city of Kingsport has the capacity to meet the utility needs of the new AFRC, since the current AFRC is only a short distance away from the proposed site, and the new facility would place similar demands on these services. In addition, since the AFRC would be designed with up-to-date energy efficiency technology, the new facility would exert less of a demand on local utility services.

#### **4.12.2.2 Alternative Site B**

The proposed facility at Alternative Site B is not expected to significantly impact regional utility services. The impacts are similar to those described for the Alternative Site A. However, the length of the connections would be longer due to the distance from U.S. Highway 11W. In addition, the utilities would need to cross the railroad.

#### **4.12.2.3 Alternative Site D**

The proposed facility at Alternative Site D is not expected to significantly impact regional utility services. The impacts are similar to those described for the Alternative Site A.

#### **4.12.2.4 No Action Alternative**

Under the No Action Alternative, the construction of the AFRC facility would not occur; thus, the current services would not be impacted.

### **4.13 HAZARDOUS AND TOXIC SUBSTANCES**

#### **4.13.1 Affected Environment**

##### **4.13.1.1 Uses of Hazardous Materials**

Hazardous materials such as POL, and chemicals associated with the operation of vehicle maintenance and industrial shops are generated at the HSAAP. Fuel for base vehicles is currently stored and used on the facility, with storage in an AST with all required safeguards to contain accidental spills or leaks. According to the U.S. Environmental Protection Agency's (USEPA) Enforcement and Compliance History Online (ECHO) database, the TNARNG maintenance shop has had one informal enforcement action in the past 3 years due to a violation under the Resource Conservation and Recovery Act (RCRA) (ECHO 2007).

##### **4.13.1.2 Storage and Handling Areas**

There are no treatment, storage, or disposal facilities at the existing AFRC; however, the HSAAP does operate one active Class II solid waste landfills in the vicinity. This landfill is used to dispose of non-hazardous solid waste from the HSAAP operations.

##### **4.13.1.3 Hazardous Waste Disposal**

An off-base Defense Reutilization and Marketing Office (DRMO) at Fort Campbell, Kentucky currently handles off-site disposal of hazardous waste generated by the existing AFRC.

##### **4.13.1.4 Site Contamination and Cleanup**

Based upon a search was conducted on the USEPA's ECHO database, as mentioned above, the TNARNG maintenance shop has had one informal enforcement action in the past 3 years due to a RCRA violation. In addition, the HSAAP has had several violations for air quality, and hazardous waste handling and storage at the waste disposal sites on their property.

#### **4.13.1.5 Special Hazards**

There are no known special hazards associated with the proposed construction site.

#### **4.13.2 Environmental Consequences**

##### **4.13.2.1 Preferred Alternative (Site A)**

The potential exists for POL storage at the temporary construction staging areas to maintain and refuel construction equipment; however, these activities would include primary and secondary containment measures. Clean-up materials (e.g., oil mops) would also be maintained at the site to allow immediate action in case an accidental spill occurs. Drip pans would be provided for stationary equipment to capture any POL accidentally spilled during construction equipment maintenance activities or leaks from the equipment.

The AFRC vehicle maintenance shop would recycle parts cleaner solution. A 10,000-gallon double-walled concrete AST for heating and aviation fuel (JP8) would be maintained by the new Vehicle Maintenance Shop, which is part of the proposed AFRC. The AST would also be equipped with a containment liner. Hazardous materials produced by the Vehicle Maintenance Shop would be disposed of through the DRMO at Fort Campbell, Kentucky.

In addition, a SPCCP and NPDES permit would be in place prior to the start of construction, and all personnel would be briefed on the implementation and responsibilities of the plan; therefore, the construction and operation of the AFRC at Site A would not result in a significant hazard to the public or environment regarding the transport, use, or disposal of hazardous materials.

##### **4.13.2.2 Alternative Site B**

Potential impacts for construction and operation of the AFRC at Alternative Site B would be similar to those described for Site A. Due to the need for more earthwork and ground leveling, more extensive use of heavy construction equipment would be required.

##### **4.13.2.3 Alternative Site D**

Potential impacts for construction and operation of the AFRC at Alternative Site D would be similar to those described for Site A. Because Site D is already developed, adverse impacts due to extensive use of earth moving equipment would be less than described for the Preferred Alternative.

##### **4.13.2.4 No Action Alternative**

The potential release of hazardous materials during construction would not occur under the No Action Alternative because no construction would occur.

#### **4.14 CUMULATIVE EFFECTS SUMMARY**

This section of the EA addresses the potential cumulative impacts associated with the implementation of the alternatives and other projects/programs that are planned for the region. The CEQ defines cumulative impacts as the incremental impact of multiple present and future actions with individually minor but collectively significant effects. Cumulative impacts can be concisely defined as the total effect of multiple land uses and developments, including their interrelationships, on the environment.

The HSAAP has been a military installation since the 1940s and has continuously been developed as DoD missions, organizations, needs and strategies have evolved. As such, the majority of the site has been developed or disturbed over the past several decades.

The proposed construction and operation of the AFRC would increase the developed areas on the HSAAP by 15 acres. Operation of the AFRC would not result in cumulative impacts to training ranges or air space, ambient noise levels, water quality or supply, or air quality. Demands on transportation routes would be increased during the construction period; however, the long-term traffic counts would remain virtually the same. Traffic patterns would be slightly changed since a new traffic signal would be installed at the new access road off of U.S. Highway 11W.

No other development is planned or proposed for the HSAAP in the reasonably foreseeable future. The aesthetic quality of the HSAAP, particularly the southern portion along the Holston River would increase over time, as forests become mature. Thus, the construction and operation of the AFRC at Site A would not result in significant cumulative impacts to the human and natural environment within and surrounding the HSAAP.

#### **4.15 ENVIRONMENTAL PROTECTION MEASURES**

This section of the EA describes those measures that could be implemented to reduce or eliminate potential adverse impacts to the human and natural environment. The environmental protection measures are presented for each resource category that could be potentially affected. These proposed measures would be coordinated through the appropriate land managers and administrators, and regulatory agencies.

##### **4.15.1 Vegetation and Wildlife**

Native seeds or plants, which are compatible with the enhancement of protected species, would be used to the extent feasible, as required under Section 7(c)(1) of the ESA and the HSAAP INRMP, to reseed temporarily disturbed areas once construction is complete.

The Migratory Bird Treaty Act (MBTA) requires that private contractors obtain a construction permit if the construction activity is scheduled during the nesting season. The nesting season for this area is typically April 15 through September 15. Active nests would need to be identified and avoided to the extent practicable. Another environmental protection measure that would be considered is to schedule all construction activities outside the nesting season.

Additional measures would include BMPs, as described previously, during construction to minimize or prevent erosion and soil loss. If straw bales are used as part of the BMPs, weed seed-free straw bales should be used to eliminate the potential of spreading invasive species.

##### **4.15.2 Air Quality**

As mentioned previously, emissions associated with construction activities would be insignificant and well below *de minimis* thresholds. Proper and routine maintenance of all vehicles and other equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods would be implemented to minimize fugitive dust. The HSAAP would also continue to investigate methods to further reduce the installation's overall emissions.

##### **4.15.3 Water Resources**

The proposed construction activities would require a SWPPP, which would be prepared and submitted to the TDEC as part of the NPDES permit process. The SWPPP would identify BMPs that would be implemented before, during, and after construction.

#### **4.15.4 Cultural Resources**

If any cultural resources are uncovered during construction, the Tennessee SHPO would be notified and all construction activities would stop until a qualified archaeologist can assess the significance of the cultural remains.

#### **4.15.5 Hazardous and Toxic Substances**

Hazardous and toxic materials/wastes in the project area during construction would likely consist of POL. If hazardous waste is generated, it would be disposed of according to Federal, state and local regulations, as well as existing Army regulations and procedures. No hazardous wastes would be stored on the site. No maintenance to construction equipment would be conducted on-site, minimizing the potential for spills or direct contact with POLs. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. On-site use of construction equipment, use of chemical products, and wastes generated during construction would comply with all Federal, state, and local regulations relating to protecting the environment from hazardous materials and containing spills. A SPPPC that describes what actions should be taken in case of a hazardous or toxic spill would be prepared and maintained on-site.

***SECTION 5.0***  
***FINDINGS AND CONCLUSIONS***





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## **5.0 FINDINGS AND CONCLUSIONS**

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### **5.1 FINDINGS**

#### **5.1.1 Consequences of the Preferred Alternative**

The construction and operation of the AFRC at Alternative Site A (Preferred Alternative) would result in the permanent conversion of 15 acres of maintained grassland to hard surfaces and buildings. The conversion is consistent with the installation's land use policies and guidelines. The stormwater detention basin(s) would be earthen and become re-vegetated. No impacts to Federal or state protected species would occur. No violations of the installation's air or water quality permits would be expected; BMPs would be implemented to ensure stormwater during and after construction is controlled and downstream sedimentation is either eliminated or is negligible. Temporary increases in noise would be expected during the construction. No long-term impacts relative to utilities or hazardous waste and materials would be expected from the proposed construction and operation of the AFRC.

Slight benefits to local and regional employment and personal income would be expected during the construction. Realignment of the Kingsport AFRC to the HSAAP would not change the long-term TPI and PCPI, sales taxes, and property taxes. A summary of the potential effects from the construction and operation of the AFRC at Alternative Site A (Preferred Alternative) and the No Action Alternative is presented in Table 5-1.

No significant cumulative impacts are expected to result from the construction and operation of the AFRC at the HSAAP, since no other development or construction projects are planned in the reasonably foreseeable future.

#### **5.1.2 Consequences of the No Action Alternative**

Under the No Action Alternative, the existing human and natural environment at the HSAAP would remain status quo, at least for the short-term. Since the area is under DoD control and managed for the production and testing of military munitions and other missions, there is a possibility that the proposed construction sites could be developed at some point in the future.

### **5.2 CONCLUSIONS**

Based on the information presented in the previous sections, it is concluded that the best available site for the proposed construction and operation of the AFRC at the Alternative Site A (Preferred Alternative) and that development of this site would result in insignificant adverse impacts to the area's human and natural environment. Therefore, issuance of a FNSI is warranted and no additional NEPA documentation (*i.e.*, Environmental Impact Statement) is required.

**Table 5-1. Summary Matrix of Potential Impacts**

Affected Resource	No Action Alternative	Preferred Alternative (Site A)
Land Use	No impacts to land use are expected.	Approximately 15 acres of maintained grassland would be converted to the facility, parking areas and detention basin. The facility is consistent with planned development on post.
Aesthetics	No adverse impacts are expected.	Permanent loss of the horse pasture would occur. The development of the AFRC would be compatible with other facilities along U.S. Highway 11W.
Air Quality	No adverse effects are anticipated.	Minor temporary effects to air quality during construction would occur. Pre-project conditions would return upon cessation of construction activities. All emissions would be below <i>de minimis</i> thresholds.
Noise	No adverse impacts are expected.	Minor temporary increases in ambient noise levels during construction. Pre-project conditions would return upon cessation of construction activities. Construction would be limited to daylight hours only. Due to the distance to other noise receptors, construction noise would be attenuated. Operation of the facility would create insignificant increase in noise over the current conditions.
Soils	No impacts to soils are expected.	Approximately 15 acres of soil would be disturbed and permanently removed from potential biological productivity.
Water Resources	No adverse impacts would occur.	No significant impact to region's water supply or water quality. No jurisdictional wetlands occur on the proposed site.
Biological Resources	No impacts are expected.	About 15 acres of maintained grassland would be permanently removed.
Cultural Resources	No effects are anticipated.	No impacts are expected.
Socioeconomics	No effect on the regional or local economy would be expected.	Temporary benefits relative to sales volumes and taxes would be expected during construction.
Transportation	No adverse impacts are expected.	Slight increase in local traffic would occur along U.S. Highway 11W during construction. Minor and localized alteration in traffic patterns would occur due to the installation of a new traffic signal. No long-term impacts to local transportation is expected as a result of the operation of the AFRC.
Utilities	No adverse impacts are expected.	No additional increase in the demands on the public utility systems would occur. More than sufficient capacity is available to meet these demands.
Hazardous Materials	No adverse impacts are expected.	No impacts are expected to occur.

**SECTION 6.0**  
**LIST OF PREPARERS**





## 6.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this Environmental Assessment.

NAME	AGENCY/ORGANIZATION	DISCIPLINE/EXPERTISE	EXPERIENCE	ROLE IN PREPARING EA
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Suna Adam Knaus	GSRC	Forestry/Wildlife	16 years natural resources	EA Review
Chris Ingram	GSRC	Biology/Ecology	30 years NEPA and natural resources	Project Manager, DOPAA, Physical Resources
Eric Webb, Ph.D.	GSRC	Ecology/Wetlands	16 years natural resources and NEPA Studies	EA Technical Review; Field Surveys
Maria Bernard Reid	GSRC	Ecology	4 years NEPA and natural resources studies	EA Preparation; Field surveys; Biology; Hazardous Materials
John Lindemuth	GSRC	Archaeology	13 years Professional Archaeologist/Cultural Resources	Cultural Resources
Steve Oivanki	GSRC	Geology	32 years geological and environmental studies	EA Preparation; Geology, soils, and hazardous waste
Steve Kolian	GSRC	Environmental Studies	12 years environmental and marine science	Air quality; water quality, transportation and utilities.

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**SECTION 7.0**  
**DISTRIBUTION LIST**





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## 7.0 DISTRIBUTION LIST

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A list of the persons and agencies who received a copy of the EA is presented below.

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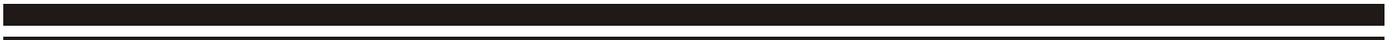
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***SECTION 8.0***  
***REFERENCES***





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## 8.0 REFERENCES

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***SECTION 9.0  
PERSONS CONSULTED***





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## **9.0 PERSONS CONSULTED**

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Mr. Joe Garrison, Tennessee Historical Commission  
Mr. Jim Widlak, U.S. Fish and Wildlife Service

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***SECTION 10.0***  
***ACRONYMS AND ABBREVIATIONS***

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## 10.0 ACRONYMS AND ABBREVIATIONS

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ACHP	Advisory Council on Historic Preservation
AEP	American Electric Power
AFRC	Armed Forces Reserve Center
ASTs	above ground storage tanks
BMP	best management practices
BRAC Commission	Defense Base Closure and Realignment Commission
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
dBA	decibels A-weighted scale
DNL	Day-Night Level
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
ECHO	Enforcement and Compliance History Online
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FNSI	Finding of No Significant Impact
FY	Fiscal Year
GOCO	Government-owned Contractor Operated
HSAAP	Holston Army Ammunition Plant
HUC	Hydrologic Unit Code
HVAC	heating, ventilation, and air conditioning
ICRMP	Integrated Cultural Resources Management Plan
IGPBS	Integrated Global Presence and Basing Strategy
INRMP	Integrated Natural Resources Management Plan
MBTA	Migratory Bird Treaty Act
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Presentation Act
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PCPI	per capita personal income
POL	petroleum, oils, and lubricants
ROI	region of influence
SF	square feet
SHPO	State Historic Preservation Officer
SPCCP	Spill Prevention Containment and Countermeasures Plan
SWPPP	Stormwater Pollution Prevention Plan
TDEC	Tennessee Department of Environment and Conservation
TMDL	Total Maximum Daily Load
TNARNG	Tennessee Army National Guard
TPI	total personal income
USACE	U.S. Army Corps of Engineers

USAR  
USARC  
USFWS

U.S. Army Reserve  
U.S. Army Reserve Center  
U.S. Fish and Wildlife Service

***APPENDIX A***  
***AIR EMISSIONS CALCULATIONS***

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CALCULATION SHEET

**Emissions from Combustion Engines: Preferred Alternative-Holston Army Ammunition Plant**

Construction Emissions:		Calculation Assumptions				
Construction Equipment	Units	Working Days/yr	Hrs/ day	Horse power	Type of Fuel	Total hp-hr
Dump truck	1	208	12	340	Diesel	848,640
Excavator	1	20	12	463	Diesel	111,120
Bull dozer	1	20	12	324	Diesel	77,760
High lift front end loader	2	20	12	215	Diesel	103,200
Water truck-fugitive dust	1	208	6	270	Diesel	336,960
Crane	1	208	12	320	Diesel	798,720
Diesel generators	5	208	12	30	Diesel	374,400
Compressors	5	208	12	25	Diesel	312,000
Employee commute	80	208	1 hr-60 miles	POV(1)	Gasoline	NA

Construction Emissions:		Calculation Results for NOx			
Construction Equipment	Emission Factor	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.031	lb/hp-hr	848,640	26,308	13.15
Excavator	0.031	lb/hp-hr	111,120	3,445	1.72
Bull dozer	0.031	lb/hp-hr	77,760	2,411	1.21
High lift front end loader	0.031	lb/hp-hr	103,200	3,199	1.60
Water truck-fugitive dust	0.031	lb/hp-hr	336,960	10,446	5.22
Crane	0.031	lb/hp-hr	798,720	24,760	12.38
Diesel generators	0.031	lb/hp-hr	374,400	11,606	5.80
Compressors	0.031	lb/hp-hr	312,000	9,672	4.84
Employee commute	1.22	g/mile	NA	NA	1.19
<b>Total Emissions</b>					<b>47.12</b>

Construction Emissions:		Calculation Results for CO			
Construction Equipment	Emission Factor	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.00668	lb/hp-hr	848,640	5,669	2.83
Excavator	0.00668	lb/hp-hr	111,120	742	0.37
Bull dozer	0.00668	lb/hp-hr	77,760	519	0.26
High lift front end loader	0.00668	lb/hp-hr	103,200	689	0.34
Water truck-fugitive dust	0.00668	lb/hp-hr	336,960	2,251	1.13
Crane	0.00668	lb/hp-hr	798,720	5,335	2.67
Diesel generators	0.00668	lb/hp-hr	374,400	2,501	1.25
Compressors	0.00668	lb/hp-hr	312,000	2,084	1.04
Employee commute	15.7	g/mile	NA	NA	15.46
<b>Total Emissions</b>					<b>25.35</b>

CALCULATION SHEET

Construction Emissions:		Calculation Results for SOx			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.00205	lb/hp-hr	848,640	1,740	0.87
Excavator	0.00205	lb/hp-hr	111,120	228	0.11
Bull dozer	0.00205	lb/hp-hr	77,760	159	0.08
High lift front end loader	0.00205	lb/hp-hr	103,200	212	0.11
Water truck-fugitive dust	0.00205	lb/hp-hr	336,960	691	0.35
Crane	0.00205	lb/hp-hr	798,720	1,637	0.82
Diesel generators	0.00205	lb/hp-hr	374,400	768	0.38
Compressors	0.00205	lb/hp-hr	312,000	640	0.32
Employee commute	NA		NA	NA	
<b>Total Emissions</b>					<b>3.04</b>

Construction Emissions:		Calculation Results for PM-10			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.0022	lb/hp-hr	848,640	1,867	0.93
Excavator	0.0022	lb/hp-hr	111,120	244	0.12
Bull dozer	0.0022	lb/hp-hr	77,760	171	0.09
High lift front end loader	0.0022	lb/hp-hr	103,200	227	0.11
Water truck-fugitive dust	0.0022	lb/hp-hr	336,960	741	0.37
Crane	0.0022	lb/hp-hr	798,720	1,757	0.88
Diesel generators	0.0022	lb/hp-hr	374,400	824	0.41
Compressors	0.0022	lb/hp-hr	312,000	686	0.34
Employee commute	0.0065	g/mile	NA	NA	0.01
<b>Total Emissions</b>					<b>3.27</b>

Construction Emissions:		Calculation Results for VOCs			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.0025141	lb/hp-hr	848,640	2,134	1.07
Excavator	0.0025141	lb/hp-hr	111,120	279	0.14
Bull dozer	0.0025141	lb/hp-hr	77,760	195	0.10
High lift front end loader	0.0025141	lb/hp-hr	103,200	259	0.13
Water truck-fugitive dust	0.0025141	lb/hp-hr	336,960	847	0.42
Crane	0.0025141	lb/hp-hr	798,720	2,008	1.00
Diesel generators	0.0025141	lb/hp-hr	374,400	941	0.47
Compressors	0.0025141	lb/hp-hr	312,000	784	0.39
Employee commute	1.61	g/mile			
<b>Total Emissions</b>					<b>3.72</b>

Emission Factor Source: AP 42, Fifth Edition, Volume 1 Chapter 3: Table 3.3-1

1. POVs=Personally Operated Vehicles i.e. rucks, SUVs,etc. trucks

POV Source: EPA 2005 Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks.

EPA 420-F-05-022 August 2005

***APPENDIX B***  
***CORRESPONDENCE***







**DEPARTMENTS OF THE ARMY AND THE AIR FORCE**  
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April 9, 2007

Dear Mr. Mueller:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made by the Defense Base Closure and Realignment Commission ("BRAC Commission") during the fall of 2005. One of the proposed actions is to construct and operate an Armed Forces Reserve Center (AFRC) at Holston Army Ammunition Plant (HSAAP). This action will be accomplished by realigning units from the existing AFRC in Kingsport, Tennessee to the HSAAP. The existing facilities at the HSAAP are fully occupied, thus a new facility is required to accommodate the AFRC.

The new facilities will be required for administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the Tennessee Army National Guard as well as three United States Army Reserve units. The design standards indicate that buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks and landscaping. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed. All other associated infrastructure (e.g., plumbing, electrical systems; heating, ventilation, and air conditioning systems; and anti-terrorism/force protection systems) would also be provided. The total area expected to be disturbed by the proposed action is approximately 15 acres.

Four sites were considered for the construction of the new AFRC facility. These sites are shown on the attached figure (Attachment A). All four sites have been surveyed for sensitive species and wetlands. However, after careful consideration of all environmental, installation planning and mission requirements, the site located on the north central side of the installation along Highway 11 has been selected as the preferred site. A small, man-made pond was identified at the preferred alternative site by the U. S. Fish and Wildlife Service as a palustrine, unconsolidated bottom freshwater wetland. However, based on the field observations conducted in January 2007, this wetland area is not considered to be a jurisdictional wetland; therefore it is not subject to Clean Water Act Section 404 regulations.

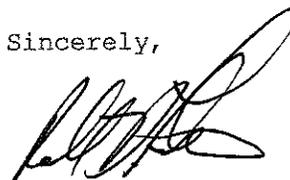
The preferred location is situated within a leased horse pasture on the north side of the cantonment area. This site originally consisted of oak/chestnut community. However, species common to the Oak-Chestnut forest are no longer present on the project site. The site consists of closely

grazed fescue (*Festuca* sp.), thistle (*Cirsium* sp.), woodland strawberry (*Fragaria vesca*), and wild geranium (*Geranium* sp.) In addition, there are a few eastern red cedar (*Juniperous virginiana*) and black cherry (*Prunus serotina*) trees present along an abandoned fence line which serves as the eastern site boundary.

Because of the small area impacted and the disturbed nature of the proposed location, we have determined that no significant impact would occur as a result of the proposed realignment. Your office will receive a copy of the Environmental Assessment and Draft Finding of No Significant Impact once it's released to the public.

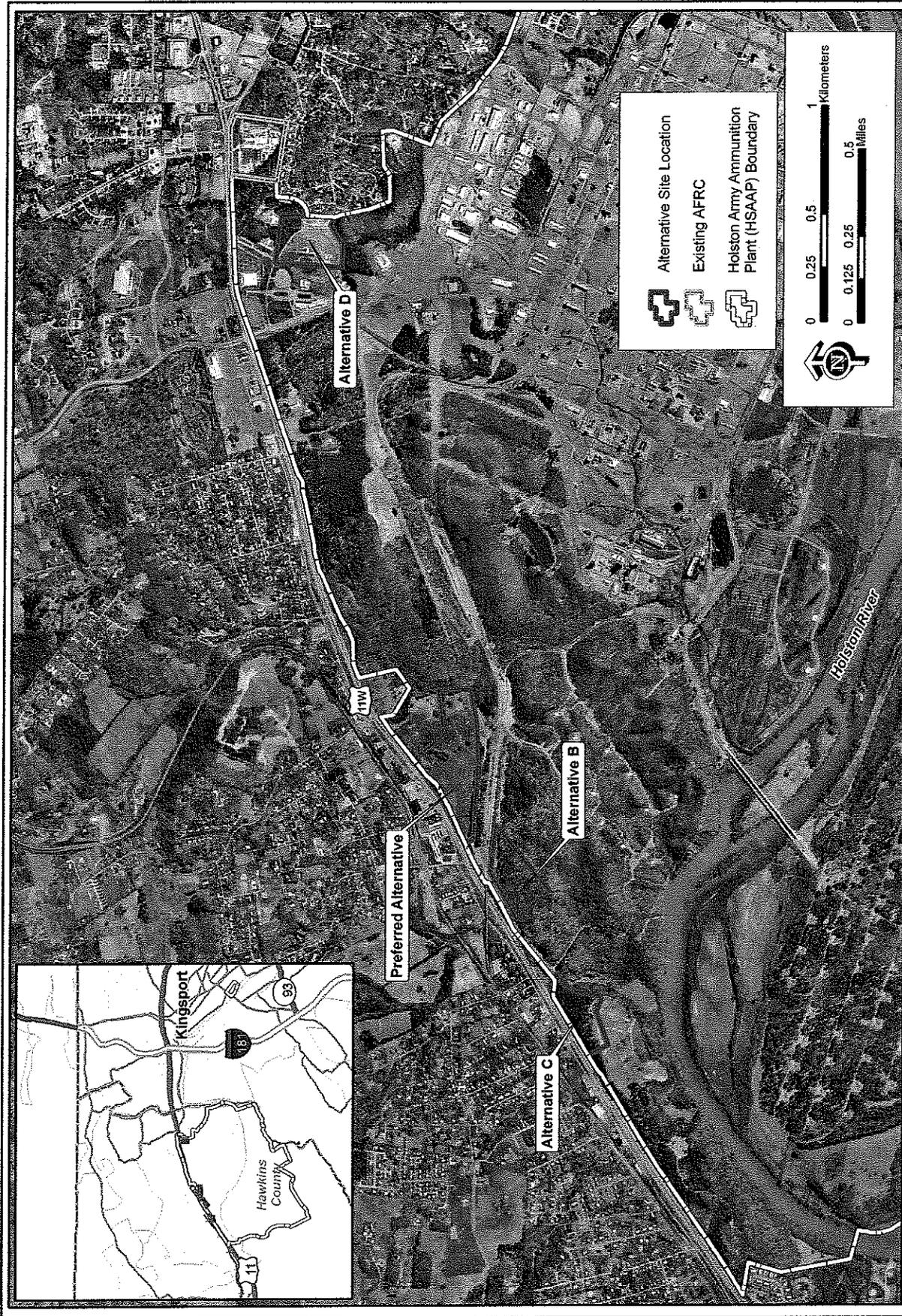
We respectfully ask that you provide written concurrence with our determination. We would appreciate your prompt attention and response. If you have any questions, please do not hesitate to call me at 615-313-0604.

Sincerely,



ROBERT D. FULKERSON  
LTC, EN, TNARNG  
Environmental Protection Specialist

Attachment A



Date: April 2007

Attachment A





**DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
JOINT FORCE HEADQUARTERS  
TENNESSEE NATIONAL GUARD  
HOUSTON BARRACKS, P.O. BOX 41502  
NASHVILLE, TENNESSEE 37204-1502**

Mr. Joe Garrison  
Tennessee Historical Commission  
Tennessee Department of Environment and Conservation  
Clover Bottom Mansion  
2941 Lebanon Road  
Nashville, TN 37243-0442

April 9, 2007

Dear Mr. Garrison:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made by the Defense Base Closure and Realignment Commission ("BRAC Commission") during the fall of 2005. One of the proposed actions is to construct and operate an Armed Forces Reserve Center (AFRC) at Holston Army Ammunition Plant (HSAAP), Tennessee. This action will be accomplished by realigning units from the existing AFRC in Kingsport to the HSAAP. The existing facilities at the HSAAP are fully occupied, thus a new facility is required to accommodate the AFRC.

The new facilities will be required for administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the five units relocated to the site. The design standards indicate that buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks and landscaping. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed. The total area expected to be disturbed by the proposed action is approximately 15 acres.

Four sites were considered for the construction of the new AFRC facility. These sites are shown on the attached figure (Attachment A). Only one site is considered suitable for the construction of the AFRC at the HSAAP, due to the limited size of the installation, past development on post, and to ensure compliance with the HSAAP's Integrated Cultural Resources Management Plan (ICRMP). The U.S. Army Corps of Engineers, Mobile District is in the process of preparing an Environmental Assessment (EA), which will assess the potential impacts of constructing and operating the new AFRC at this site.

Previous archaeological and historic building surveys, which were used in developing the ICRMP, have revealed that there are no cultural resources present on the installation which could be affected by the proposed action. Therefore, we request your concurrence of no effect in accordance with 36 CFR 800. We will send you a copy of the EA when it is released to the public, which is currently anticipated to occur in late June. If you have any questions, please do not hesitate to call me at 615-313-0604.

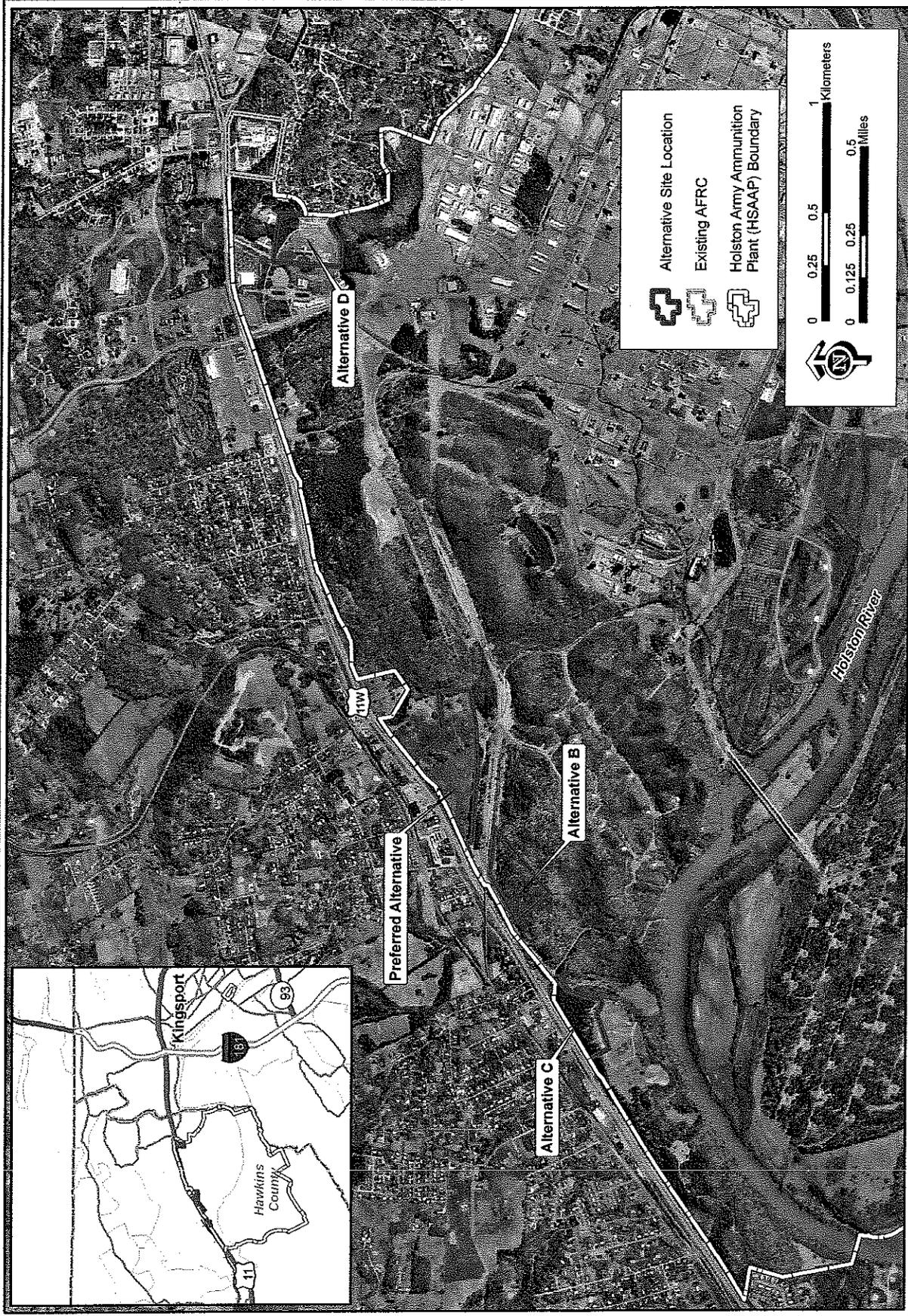
Sincerely,

A handwritten signature in black ink, appearing to read "R. Fulkeron", is written over the word "Sincerely,".

ROBERT D. FULKERSON  
LTC, EN, TNARNG  
Environmental Protection Specialist

Attachment A

Attachment A





**DEPARTMENTS OF THE ARMY AND THE AIR FORCE**  
**JOINT FORCE HEADQUARTERS**  
**TENNESSEE NATIONAL GUARD**  
**HOUSTON BARRACKS, P.O. BOX 41502**  
**NASHVILLE, TENNESSEE 37204-1502**

Mr. Jim Widlak  
Fish and Wildlife Biologist  
U.S. Fish and Wildlife Service  
446 Neal St.  
Cookeville, Tennessee 38501

April 9, 2007

Dear Mr. Widlak:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made by the Defense Base Closure and Realignment Commission ("BRAC Commission") during the fall of 2005. One of the proposed actions is to construct and operate an Armed Forces Reserve Center (AFRC) at Holston Army Ammunition Plant (HSAAP). This action will be accomplished by realigning units from the existing AFRC in Kingsport, Tennessee to the HSAAP. The existing facilities at the HSAAP are fully occupied, thus a new facility is required to accommodate the AFRC.

The new facilities will be required for administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the Tennessee Army National Guard as well as three United States Army Reserve units. The design standards indicate that buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks and landscaping. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed. All other associated infrastructure (e.g., plumbing, electrical systems; heating, ventilation, and air conditioning systems; and anti-terrorism/force protection systems) would also be provided. The total area expected to be disturbed by the proposed action is approximately 15 acres.

Four sites were considered for the construction of the new AFRC facility. These sites are shown on the attached figure (Attachment A). All four sites have been surveyed for sensitive species and wetlands. However, after careful consideration of all environmental, installation planning and mission requirements, the site located on the north central side of the installation along Highway 11 has been selected as the preferred site. A small, man-made pond was identified at the preferred alternative site by the U. S. Fish and Wildlife Service as a palustrine, unconsolidated bottom freshwater wetland. However, based on the field observations conducted in January 2007, this wetland area is not considered to be a jurisdictional wetland; therefore it is not subject to Clean Water Act Section 404 regulations.

The preferred location is situated within a leased horse pasture on the north side of the cantonment area. This site originally consisted of oak/chestnut community. However, species common to the Oak-Chestnut forest

are no longer present on the project site. The site consists of closely grazed fescue (*Festuca* sp.), thistle (*Cirsium* sp.), woodland strawberry (*Fragaria vesca*), and wild geranium (*Geranium* sp.) In addition, there are a few eastern red cedar (*Juniperous virginiana*) and black cherry (*Prunus serotina*) trees present along an abandoned fence line which serves as the eastern site boundary.

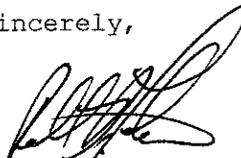
Three federally protected animal species have the potential to occur on HSAAP: bald eagle (*Haliaeetus leucocephalus*), gray bat (*Myotis grisescens*), and the Indiana bat (*Myotis sodalis*). No habitat for these species was observed at the preferred location during field surveys. Previous surveys, as documented in HSAAP's 2005 Integrated Natural Resources Management Plan (INRMP), are consistent with these findings.

One Federally protected plant species, the American hart's tongue fern (*Phyllitis scolopendrium* var. *Americana*), could occur on HSAAP. This species is generally found on limestone pits or deep vertically-sided sink holes in deep shaded forest communities with high humidity, none which exist at the preferred location. American hart's tongue fern were not found during field surveys. These results are consistent with at least three previous flora surveys, as documented in HSAAP's 2005 INRMP.

Based on these surveys and the knowledge that HSAAP has regarding its protected species populations, we have determined that the proposed action would have no effect on the bald eagle, gray bat, Indiana bat, or American hart's tongue fern. Because of the limited size and quality of the habitat, especially in relation to the surrounding forested areas within HSAAP, insignificant impacts to other wildlife populations would occur as a result of the construction of the AFRC.

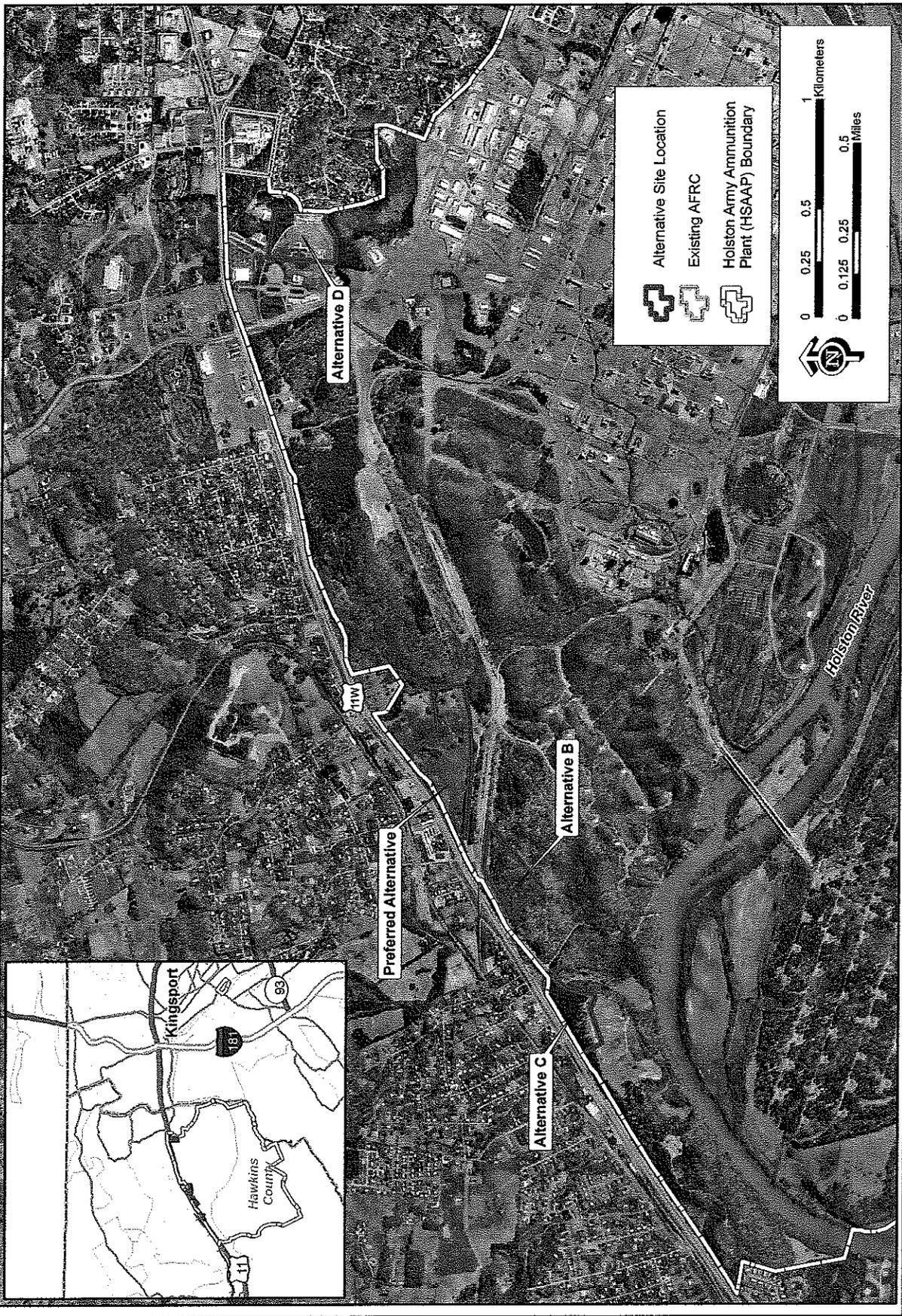
We respectfully ask that you provide written concurrence with our determination. We would appreciate your prompt attention and response. If you have any questions, please do not hesitate to call me 615-313-0604.

Sincerely,



ROBERT D. FULKERSON  
LTC, EN, TNARNG  
Environmental Protection Specialist

Attachment A



Attachment A







**DEPARTMENTS OF THE ARMY AND THE AIR FORCE**  
**JOINT FORCE HEADQUARTERS**  
**TENNESSEE NATIONAL GUARD**  
**HOUSTON BARRACKS, P.O. BOX 41502**  
**NASHVILLE, TENNESSEE 37204-1502**

Mr. Mark Braswell, Field Director  
Tennessee Department of Environment and Conservation  
Johnson City Field Office  
2305 Silverdale Road  
Johnson City, Tennessee 37601-2162

April 9, 2007

Dear Mr. Braswell:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made by the Defense Base Closure and Realignment Commission ("BRAC Commission") during the fall of 2005. One of the proposed actions is to construct and operate an Armed Forces Reserve Center (AFRC) at Holston Army Ammunition Plant (HSAAP). This action will be accomplished by realigning units from the existing AFRC in Kingsport, Tennessee to the HSAAP. The existing facilities at the HSAAP are fully occupied, thus a new facility is required to accommodate the AFRC.

The new facilities will be required for administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the Tennessee Army National Guard as well as three United States Army Reserve units. The design standards indicate that buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks and landscaping. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed. All other associated infrastructure (e.g., plumbing, electrical systems; heating, ventilation, and air conditioning systems; and anti-terrorism/force protection systems) would also be provided. The total area expected to be disturbed by the proposed action is approximately 15 acres.

Four sites were considered for the construction of the new AFRC facility. These sites are shown on the attached figure (Attachment A). All four sites have been surveyed for sensitive species and wetlands. However, after careful consideration of all environmental, installation planning and mission requirements, the site located on the north central side of the installation along Highway 11 has been selected as the preferred site. A small, man-made pond was identified at the preferred alternative site by the U. S. Fish and Wildlife Service as a palustrine, unconsolidated bottom freshwater wetland. However, based on the field observations conducted in January 2007, this wetland area is not considered to be a jurisdictional wetland; therefore it is not subject to Clean Water Act Section 404 regulations.

The preferred location is situated within a leased horse pasture on the north side of the cantonment area. This site originally consisted of oak/chestnut community. However, species common to the Oak-Chestnut forest are no longer present on the project site. The site consists of closely

grazed fescue (*Festuca* sp.), thistle (*Cirsium* sp.), woodland strawberry (*Fragaria vesca*), and wild geranium (*Geranium* sp.) In addition, there are a few eastern red cedar (*Juniperous virginiana*) and black cherry (*Prunus serotina*) trees present along an abandoned fence line which serves as the eastern site boundary.

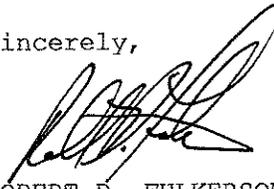
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Based on these surveys and the knowledge that HSAAP has regarding its protected species populations, we have determined that the proposed action would have no effect on the bald eagle, gray bat, Indiana bat, or American hart's tongue fern. Because of the limited size and quality of the habitat, especially in relation to the surrounding forested areas within HSAAP, insignificant impacts to other wildlife populations would occur as a result of the construction of the AFRC.

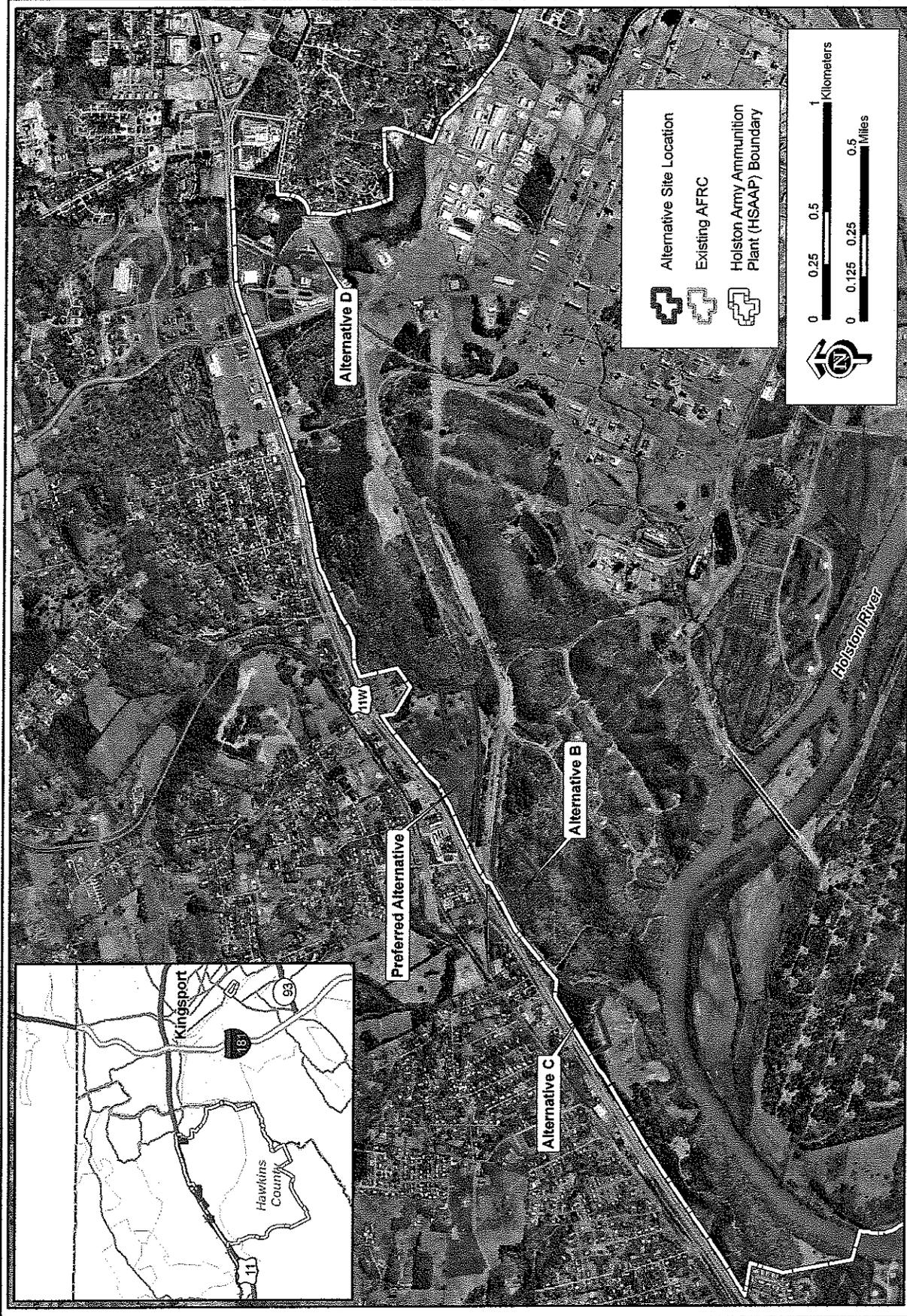
We respectfully ask that you provide written concurrence with our determination. We would appreciate your prompt attention and response. If you have any questions, please do not hesitate to call me at 615-313-0604.

Sincerely,



ROBERT D. FULKERSON  
LTC, EN, TNARNG  
Environmental Protection Specialist

Attachment A



Attachment A



Date: April 2007





**DEPARTMENTS OF THE ARMY AND THE AIR FORCE**  
**JOINT FORCE HEADQUARTERS**  
**TENNESSEE NATIONAL GUARD**  
**HOUSTON BARRACKS, P.O. BOX 41502**  
**NASHVILLE, TENNESSEE 37204-1502**

Mr. Robert M. Todd  
Tennessee Wildlife Resources Agency  
P. O. Box 40747  
Nashville, Tennessee 37204

April 9, 2007

Dear Mr. Todd:

The Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended, implements recommendations made by the Defense Base Closure and Realignment Commission ("BRAC Commission") during the fall of 2005. One of the proposed actions is to construct and operate an Armed Forces Reserve Center (AFRC) at Holston Army Ammunition Plant (HSAAP). This action will be accomplished by realigning units from the existing AFRC in Kingsport, Tennessee to the HSAAP. The existing facilities at the HSAAP are fully occupied, thus a new facility is required to accommodate the AFRC.

The new facilities will be required for administrative, assembly, educational, storage, and physical fitness training facilities to accommodate elements of the Headquarters Troop, 2/278<sup>th</sup> Armored Cavalry Regiment of the Tennessee Army National Guard as well as three United States Army Reserve units. The design standards indicate that buildings would be of permanent construction and approximately 86,284 square feet (SF) with associated parking areas, sidewalks and landscaping. A 19,958 SF (approximate) vehicle maintenance facility; 1,150 SF of Organizational Unit Storage; and other support facilities would also be constructed. All other associated infrastructure (e.g., plumbing, electrical systems; heating, ventilation, and air conditioning systems; and anti-terrorism/force protection systems) would also be provided. The total area expected to be disturbed by the proposed action is approximately 15 acres.

Four sites were considered for the construction of the new AFRC facility. These sites are shown on the attached figure (Attachment A). All four sites have been surveyed for sensitive species and wetlands. However, after careful consideration of all environmental, installation planning and mission requirements, the site located on the north central side of the installation along Highway 11 has been selected as the preferred site. A small, man-made pond was identified at the preferred alternative site by the U. S. Fish and Wildlife Service as a palustrine, unconsolidated bottom freshwater wetland. However, based on the field observations conducted in January 2007, this wetland area is not considered to be a jurisdictional wetland; therefore it is not subject to Clean Water Act Section 404 regulations.

The preferred location is situated within a leased horse pasture on the north side of the cantonment area. This site originally consisted of oak/chestnut community. However, species common to the Oak-Chestnut forest are no longer present on the project site. The site consists of closely

grazed fescue (*Festuca* sp.), thistle (*Cirsium* sp.), woodland strawberry (*Fragaria vesca*), and wild geranium (*Geranium* sp.) In addition, there are a few eastern red cedar (*Juniperous virginiana*) and black cherry (*Prunus serotina*) trees present along an abandoned fence line which serves as the eastern site boundary.

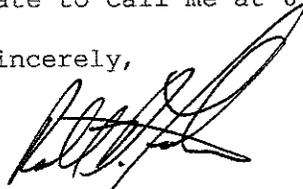
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Based on these surveys and the knowledge that HSAAP has regarding its protected species populations, we have determined that the proposed action would have no effect on the bald eagle, gray bat, Indiana bat, or American hart's tongue fern. Because of the limited size and quality of the habitat, especially in relation to the surrounding forested areas within HSAAP, insignificant impacts to other wildlife populations would occur as a result of the construction of the AFRC.

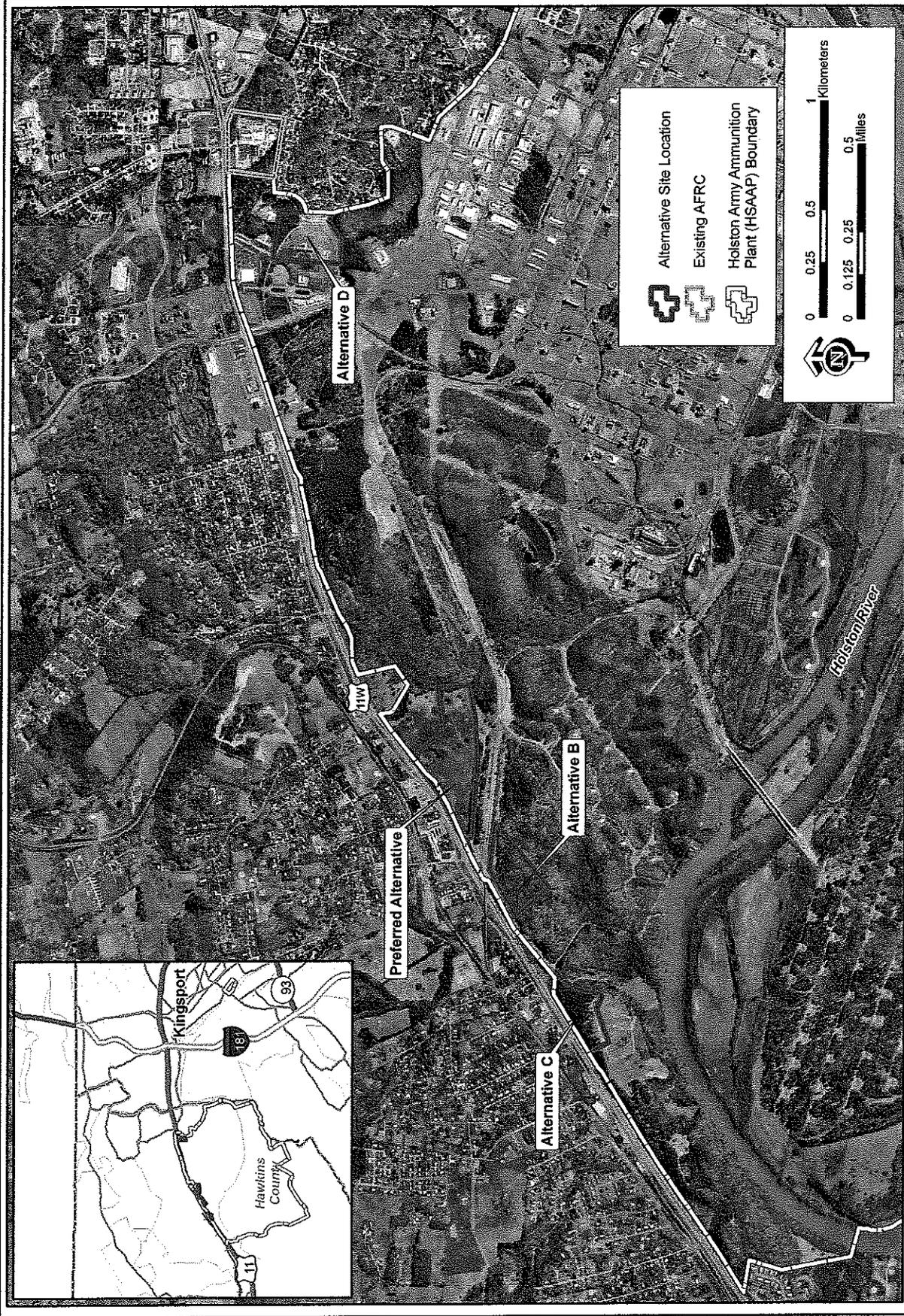
We respectfully ask that you provide written concurrence with our determination. We would appreciate your prompt attention and response. If you have any questions, please do not hesitate to call me at 615-313-0604.

Sincerely,



ROBERT D. FULKERSON  
LTC, EN, TNARNG  
Environmental Protection Specialist

Attachment A



Attachment A



Date: April 2007





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

April 26, 2007

LTC Robert Fulkerson  
Tennessee National Guard  
Houston Barracks  
Post Office Box 41502  
Nashville, Tennessee 37204-1502

RE: DOD, HSAAP/ARMED FORCES RESERVE CENTER, KINGSPORT, SULLIVAN COUNTY

Dear LTC Fulkerson:

The Tennessee State Historic Preservation Office has reviewed the above-referenced undertaking received on Wednesday, April 11, 2007 for compliance by the participating federal agency or applicant for federal assistance with Section 106 of the National Historic Preservation Act. The Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, we concur that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. This determination is made either because of the location, scope and/or nature of the 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, this office has no objections to your proceeding with the project.

If you are applying for federal funds, license or permit, you should submit this letter as evidence of compliance with Section 106 to the appropriate federal agency, which, in turn, should contact this office as required by 36 CFR 800. You may direct questions or comments to Jennifer M. Barnett (615) 741-1588, ext. 17. This office appreciates your cooperation.

Sincerely,

Richard G. Tune  
Deputy State Historic  
Preservation Officer

RGT/jmb





# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
446 Neal Street  
Cookeville, TN 38501

May 8, 2007

Lieutenant Colonel Robert D. Fulkerson  
Departments of the Army and the Air Force  
Tennessee National Guard  
Houston Barracks  
P.O. Box 41502  
Nashville, Tennessee 37204-1502

Re: FWS #2007-FA-0559

Dear Colonel Fulkerson:

Thank you for your letter and enclosure of April 9, 2007, concerning the proposed construction of an Armed Forces Reserve Center at the Holston Army Ammunition Plant in Hawkins County, Tennessee. Fish and Wildlife Service biologists have reviewed the information submitted and we offer the following comments.

The federally endangered gray bat (*Myotis grisescens*) and the threatened bald eagle (*Haliaeetus leucocephalus*) are known to occur on the Holston Army Ammunition Plant. Neither of these species occurs in the impact area of the preferred alternative site. However, Arnott Branch is located at or near the eastern end of the site. The gray bat has been collected over the lower reach of this stream, indicating that the stream is used as a foraging area. Construction could result in sedimentation of Arnott Branch or introduction of pollutants that could potentially affect the gray bat. Use of Best Management Practices for maintenance of water quality and control of erosion would eliminate or minimize the potential for adverse effects to the gray bat.

The bald eagle nests on Clay Island, approximately one mile from the proposed construction site. We concur that the proposed project is not likely to adversely affect this species.

We also concur that the proposed project will not affect the endangered Indiana bat (*Myotis sodalis*) or the threatened American hart's tongue fern (*Asplenium scolopendrium* var. *americanum*). Also, if Best Management Practices are appropriately implemented during construction, we concur that the proposed project is not likely to adversely affect the gray bat. In view of this, we believe that the requirements of section 7 of the Endangered Species Act have been fulfilled. Obligations under section 7 must be reconsidered, however, if: (1) new information reveals that the proposed project may affect listed species in a manner or to an extent not previously considered, (2) the proposed project is subsequently modified to include activities which were not considered during this review, or (3) new species are listed or critical habitat designated that might be affected by the proposed project.

Thank you for the opportunity to comment. If you have any questions, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,

A handwritten signature in black ink, appearing to read "Lee A. Barclay". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Lee A. Barclay, Ph.D.  
Field Supervisor

***APPENDIX C***  
***EIFS***





# **Analysis of Socioeconomic Effects For Kingsport AFRC/Holston AAP Realignment for BRAC05**

## **Introduction**

The socioeconomic analysis requirements of NEPA have been established over the years through successful early NEPA litigation (“McDowell vs Schlesinger”, US District Court, Western District of Missouri, Western Division, No. 75-CV-234-W-4 (June 19,1975) and “Breckinridge vs Schlesinger”, US District Court, Eastern District of Kentucky, No. 75-100 (October 31,1975)), as well as the practical need for communication and collaboration with affected communities. The social and economic effects of Base Realignment and Closure (BRAC) actions are especially relevant and important, as these issues are often the source of community concerns and subsequent controversies.

## **The Economic Impact Forecast System (EIFS) and the Hierarchical Approach.**

### The Model:

The Economic Impact Forecast System (EIFS) (Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; EIFS 5.0 Economic Impact Forecast System, User’s Reference Manual; USACERL Technical Report TA-94/03; July 1994.) has been a mainstay of Army NEPA practice since its initial development and implementation in the mid-70s. EIFS provides a mechanism to estimate impacts, and ascertain the “significance” of projected impacts, using the Rational Threshold Value (RTV) technique. This analysis and determination can be readily documented, and if significance thresholds are not exceeded, the analysis can be completed. EIFS was designed to address NEPA applications, providing a “two-tier” approach to the process; (1) a simple and quick aggregate model (sufficient to ascertain the overall magnitude of impacts) and (2) a more detailed, sophisticated input-output (I-O) model to further analyze impacts that appear significant, in NEPA terms, and worthy of additional expenditures and analyses. This “two-tier” approach is consistent with the two common levels of NEPA analysis, the Environmental Assessment (EA) and the Environmental Impact Statement (EIS). EIFS has facilitated efficient and effective completion of such analyses for approximately 3 decades.

Complete documentation of the model, its development, and applicable theoretical underpinnings is available in numerous publications:

Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; EIFS 5.0 Economic Impact Forecast System, User’s Reference Manual; USACERL Technical Report TA-94/03; July 1994.

Isard, W., Methods of Regional Analysis, MIT Press, 1960.

Isard, W. and Langford, T., Regional Input-Output Study: Recollections, Reflections, and Diverse Notes on the Philadelphia Experience, MIT Press, 1971.

Isserman, A., "The Location Quotient Approach to Estimating Regional Economic Impacts", AIP Journal, January, 1977, pp. 33-41.

- Isserman, A., "Estimating Export Activity in a Regional Economy: A Theoretical and Empirical Analysis of Alternative Methods", International Regional science Review, Vol. 5, 1980, pp. 155-184.
- Leigh, R., " The Use of Location Quotients in Urban Economic Base Studies", Land Economics, Vol 46, May, 1970, pp 202-205.
- Mathur, V.K. and Rosen, H.S. , "Regional Employment Multiplier: A new Approach", Land Economics, Vol 50, 1974, pp 93-96.
- Mayer, W. and Pleeter, S., "A Theoretical Justification for the Use of Location Quotients", Regional Science and Urban Economics, Vol 5, 1975, pp 343-355.
- Robinson, D.P., Hamilton, J.W., Webster, R.D., and Olson, M.J., Economic Impact Forecast System (EIFS) II: User's Manual, Updated Edition, Technical Report N-69/ADA144950, U.S. Army Construction Engineering Research Lab (USACERL),1984.
- Robinson, D.P. and Webster,R.D., Enhancements to the Economic Impact Forecast System (EIFS), Technical Report N-175/ADA142652, USACERL, April, 1984.
- Rogers, Claudia and Webster, Ron, "Qualitative Answers to Quantitative Questions", Impact Assessment, IAIA, Vol.12, No.1, 1999.
- Thompson, W., A Preface to Urban Economics, Johns Hopkins Press, 1965.
- Tiebout, C., The Community Economic Base, New York Committee for Economic Development, 1962.
- USACERL, " Methods for Evaluating the Significance of Impacts: The RTV and FSI Profiles"; USACERL EIFS Tutorial; July 1987.
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- U.S. Army, "Base Realignment and Closure "How-To" Manual for Compliance with the National Environmental Policy Act", revised and published as official Department of Army Guidance, 1995.
- U.S. Army, Army Regulation 5-20, "Commercial Activities"
- U.S. Army, Department of the Army, DA Pamphlet 200-2, "Economic Impact Forecast System-User Instructions", 1980
- Webster, R.D.and Shannon, E.; The Rational Threshold Value (RTV) Technique for the Evaluation of Regional Economic Impacts; USACERL Technical Report TR N-49/ADA055561; 1978.
- Webster, R.D., Hamilton, J.W., and Robinson, D.P., "The Two-Tier Concept for Economic Analysis: Introduction and User Instructions", USACERL Technical Report N-127/ADA118855.

These efforts reflect development of a tool for specific NEPA application, following the successful NEPA litigation referenced in the Introduction. As EIFS has been used for Army NEPA analyses, the results of EIFS analyses have been reviewed by stakeholder (affected community) representatives, and, as a result of BRAC application, twice reviewed by the Government Accounting Office (GAO). During such reviews, the analyses and resultant decisions were upheld, and EIFS was lauded as a uniform (non-arbitrary and non-capricious) approach to such requirements. Drawing from a national, uniform database, and using a common, systematic approach, EIFS allowing the improved comparison of project alternatives (the heart of NEPA analysis), and provides comparable analyses across the U.S.

#### NEPA Process Improvement:

Since NEPA was implemented, it has been commonly criticized as expensive and time-consuming. While these criticisms have been often justified, the President's Council on Environmental Quality (CEQ) has actively promoted NEPA process improvements; first

in the publication of the CEQ NEPA regulations (CEQ, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, Reprint, 40 CFR Parts 1500-1508, Executive Office of the President, Council on Environmental Quality, 1992.), and, more recently, through a NEPA anniversary introspective (CEQ, The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years, Executive Office of the President, Council on Environmental Quality, January, 1997.) and the formal CEQ NEPA Task Force (CEQ, The NEPA Task Force Report to the Council on Environmental Quality: Modernizing NEPA Implementation; September, 2003.). All three CEQ initiatives call for more "focus" on NEPA documents, eliminating the analyses of minor or unimportant issues, and focusing, instead, on those issues that should be part of an informed agency decision. The use of EIFS, and the "two-tier" approach is consistent with these CEQ recommendations.

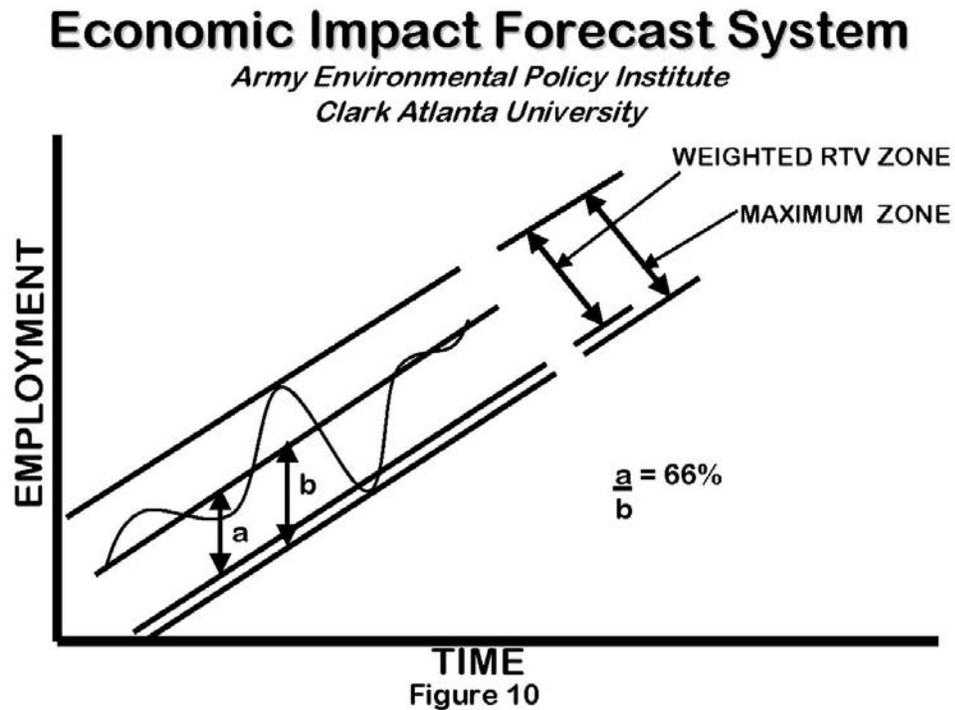
#### Determining Significance:

While EIFS was being developed, communities began to question the rationale for determining the significance of socioeconomic impacts. USACERL was directed to develop a defensible procedure for such a determination, resulting in the Rational Threshold Value (RTV) technique (Webster, R.D.; and Shannon, E.; The Rational Theshold Value (RTV) Technique for the Evaluation of Regional Economic Impacts; USACERL Technical Report TR N-49/ADA055561; 1978). This technique relies on the yearly Bureau of Economic Analysis (BEA) time series data on employment, income, and population to evaluate historical trends within a subject community (region); and uses those trends to measure the "resilience" of the local community to change, or its ability to accommodate such change. This approach has worked well when communicating with affected communities. The combined use of RTV with the EIFS model meet the two pronged approach for significance determinations, intensity and context (CEQ, 1992)

The initial EIFS implementation (USACERL, 1975) included the analysis of numerous variables: business volume, personal income, employment, government revenues and expenditures, income and employment distribution, local housing impacts, regional economic stability, school system impacts, government bond obligations, population, welfare and dependency, social control, and aesthetic considerations. These selection of these variables was based on the predictive capability of forecasting techniques and data availability. Over some 30 years of practice, pragmatism and sufficiency led to the use of sales volume, employment, personal income, and population as indicators of impacts (as a "first tier" approximation of effects). These effects can also be readily evaluated (and significance determined) using the BEA time series data. Population, important in its own right, is also a valuable indicator of other factors (e.g., impact on local government revenues and expenditures, housing, local school systems, and the change in welfare and dependency), as impacts on such variables are driven, to a large extent, by a population change.

Using BEA time series data is used to analyze the four variables for the ROI, the RTV model produces thresholds for assessing the magnitude of impacts. The RTV technique is

simple, starting with a straight line between the first year of record and the last year of record for that variable, establishing the average rate of change over time. Then, each yearly deviation from that growth rate is calculated and converted to a percentage. The largest historical changes (both increase and decrease) are used to define significance thresholds. The following figure illustrates the RTV concept:



A "factor of safety" is applied to negative thresholds, as shown in the figure, to produce a conservative analysis; while 100% of the maximum positive thresholds is used; as indicated below:

	<u>Increase</u>	<u>Decrease</u>
Total sales volume	100 percent	75 percent
Total employment	100 percent	66 percent
Personal Income	100 percent	66 percent
Total population	100 percent	50 percent

The maximum positive historical fluctuation is used because of the positive connotations generally associated with economic growth. While economic growth can produce

unacceptable impacts and the "smart growth" concept is increasingly favored, the effects of reductions and closures are usually much more controversial. These adjustments, while arbitrary, are sensible. The negative sales volume threshold is adjusted by 75%, as sales volume impacts can be absorbed by such factors as the manipulation of inventory, new equipment, etc; and the impacts on individual workers or proprietors is indirect, if at all. Changes in employment and income, however, are impacts that immediately affect individuals; thus they are adjusted by 66%. Population is extremely important, as an indicator of other social issues, and is thus adjusted by 50%.

To adjust dollar amounts for inflation (to create "constant dollars" prior to calculations), the Consumer Price Index (CPI) is used for appropriate years, and all dollar values are adjusted to 1987 equivalents.

The main strength of the RTV approach stems from its reliance on data for each individual ROI. This approach addressed previous criticism of more simple approaches that applied arbitrary criteria to all communities. This approach establishes unique criteria, representative of local community patterns, and, while a community may not completely agree, a common frame of reference is established. Critics of the RTV technique have questioned the arbitrary selection of the maximum allowable deviations to indicate impact significance, but the process has proven workable over the years.

### **The Application of EIFS to the Proposed Action**

To effect these analyses, the inputs to the EIFS model must be estimated. The normal EIFS inputs include:

- Number of affected (moving) civilians and their salaries
- Number of affected (moving) military employees and their salaries
- Percentage of affected military employees living on-post
- Changes in local procurement, contracting, and purchases
- Definition of the multi-county region of influence (ROI)

In the case of the Kingsport AFRC/Holston AAP realignment, no change in civilian or military strength in the region (the Kingsport-Bristol MSA) will occur. The only exogenous economic stimulus will be associated with the construction of some 86,284 square feet of additional facilities at Holston AAP. This will involve some \$15 million dollars in construction expenditures.

The Kingsport-Bristol MSA consists of Hawkins and Sullivan counties in Tennessee and Scott county in Virginia. This aggregation of counties was used to form the ROI for this analysis.

The estimated inputs were used to produce EIFS reports (model results) for changes in total business volume, employment, income, and population. These are best shown as percentages (of the activity in the total ROI), and can be prepared to the RTVs for that variable in that ROI. The following EIFS documentation is provided; detailing the inputs,

documenting projected changes, and evaluating the potential significance of the predicted change, based on the RTV technique:

### FORECAST INPUT

Change In Local Expenditures	\$15,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
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

Multiplier	2.64	
Sales Volume - Direct	\$9,318,182	
Sales Volume - Induced	\$15,281,820	
Sales Volume - Total	\$24,600,000	0.41%
Income - Direct	\$1,706,845	
Income - Induced	\$2,799,226	
Income - Total	\$4,506,071	0.1%
Employment - Direct	46	
Employment - Induced	76	
Employment - Total	123	0.1%
Local Population	0	
Local Off-base Population	0	0%

### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	9.27 %	9 %	4.48 %	1.18 %
<b>Negative RTV</b>	-6.55 %	-5.51 %	-2.61 %	-0.6 %

To further clarify the basis for the significance determination, the following time series data and RTV calculations are provided:



### RTV DETAILED

#### SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	510547	2231090	0	0	0
1970	526849	2175886	-55204	-83191	-3.82
1971	553175	2190573	14687	-13300	-0.61
1972	600872	2301340	110767	82780	3.6
1973	671908	2425588	124248	96261	3.97
1974	751110	2441108	15520	-12467	-0.51
1975	795839	2371600	-69507	-97494	-4.11
1976	894275	2521855	150255	122268	4.85
1977	1020318	2693640	171784	143797	5.34
1978	1180885	2904977	211338	183351	6.31
1979	1303956	2881743	-23234	-51221	-1.78

1980	1379447	2676127	-205616	-233603	-8.73
1981	1544552	2718412	42284	14297	0.53
1982	1571729	2609070	-109341	-137328	-5.26
1983	1640691	2641513	32442	4455	0.17
1984	1709359	2632413	-9100	-37087	-1.41
1985	1890762	2817235	184823	156836	5.57
1986	1972372	2879663	62428	34441	1.2
1987	2067512	3204644	324980	296993	9.27
1988	2202042	2994777	-209866	-237853	-7.94
1989	2351428	3033342	38565	10578	0.35
1990	2511516	3089165	55823	27836	0.9
1991	2638733	3113705	24540	-3447	-0.11
1992	2812891	3206696	92991	65004	2.03
1993	2882789	3199896	-6800	-34787	-1.09
1994	2892120	3123490	-76406	-104393	-3.34
1995	3075477	3229251	105761	77774	2.41
1996	3239987	3304787	75536	47549	1.44
1997	3245336	3245336	-59451	-87438	-2.69
1998	3244126	3179244	-66092	-94079	-2.96
1999	3290868	3159233	-20010	-47997	-1.52
2000	3362004	3126664	-32569	-60556	-1.94

## INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	552380	2413901	0	0	0
1970	593575	2451465	37564	-37289	-1.52
1971	635423	2516275	64810	-10043	-0.4
1972	700510	2682953	166678	91825	3.42
1973	793677	2865174	182221	107368	3.75
1974	890684	2894723	29549	-45304	-1.57
1975	961378	2864906	-29817	-104670	-3.65
1976	1079731	3044841	179935	105082	3.45
1977	1210513	3195754	150913	76060	2.38
1978	1373319	3378365	182610	107757	3.19
1979	1514393	3346809	-31556	-106409	-3.18
1980	1654104	3208962	-137847	-212700	-6.63
1981	1885511	3318499	109537	34684	1.05
1982	1992347	3307296	-11203	-86056	-2.6
1983	2103242	3386220	78924	4071	0.12

1984	2261251	3482326	96107	21254	0.61
1985	2462369	3668930	186603	111750	3.05
1986	2587730	3778086	109156	34303	0.91
1987	2731465	4233771	455685	380832	9
1988	2927136	3980905	-252866	-327719	-8.23
1989	3131096	4039114	58209	-16644	-0.41
1990	3392933	4173308	134194	59341	1.42
1991	3587382	4233111	59803	-15050	-0.36
1992	3817749	4352234	119123	44270	1.02
1993	3934523	4367321	15087	-59766	-1.37
1994	4028692	4350988	-16333	-91186	-2.1
1995	4289308	4503773	152786	77933	1.73
1996	4529177	4619760	115987	41134	0.89
1997	4651025	4651025	31265	-43588	-0.94
1998	4812614	4716362	65337	-9516	-0.2
1999	4903997	4707837	-8525	-83378	-1.77
2000	5171174	4809192	101355	26502	0.55

## EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	81572	0	0	0
1970	79642	-1930	-3045	-3.82
1971	79268	-374	-1489	-1.88
1972	80604	1336	221	0.27
1973	85018	4414	3299	3.88
1974	87418	2400	1285	1.47
1975	86075	-1343	-2458	-2.86
1976	89437	3362	2247	2.51
1977	93939	4502	3387	3.61
1978	99512	5573	4458	4.48
1979	100829	1317	202	0.2
1980	99042	-1787	-2902	-2.93
1981	99943	901	-214	-0.21
1982	97268	-2675	-3790	-3.9
1983	96111	-1157	-2272	-2.36
1984	96279	168	-947	-0.98
1985	98628	2349	1234	1.25
1986	98998	370	-745	-0.75
1987	101057	2059	944	0.93

1988	103963	2906	1791	1.72
1989	106859	2896	1781	1.67
1990	109971	3112	1997	1.82
1991	110923	952	-163	-0.15
1992	113426	2503	1388	1.22
1993	115217	1791	676	0.59
1994	115109	-108	-1223	-1.06
1995	117955	2846	1731	1.47
1996	118689	734	-381	-0.32
1997	119910	1221	106	0.09
1998	118624	-1286	-2401	-2.02
1999	118931	307	-808	-0.68
2000	117263	-1668	-2783	-2.37

## POPULATION

Year	Value	Change	Deviation	%Deviation
1969	184388	0	0	0
1970	185923	1535	110	0.06
1971	189306	3383	1958	1.03
1972	190451	1145	-280	-0.15
1973	193232	2781	1356	0.7
1974	196974	3742	2317	1.18
1975	199153	2179	754	0.38
1976	202297	3144	1719	0.85
1977	204258	1961	536	0.26
1978	207335	3077	1652	0.8
1979	210142	2807	1382	0.66
1980	213241	3099	1674	0.79
1981	214625	1384	-41	-0.02
1982	215010	385	-1040	-0.48
1983	214000	-1010	-2435	-1.14
1984	213472	-528	-1953	-0.91
1985	213377	-95	-1520	-0.71
1986	212718	-659	-2084	-0.98
1987	212878	160	-1265	-0.59
1988	211770	-1108	-2533	-1.2
1989	211467	-303	-1728	-0.82
1990	211782	315	-1110	-0.52
1991	214003	2221	796	0.37

1992	216924	2921	1496	0.69
1993	218987	2063	638	0.29
1994	220296	1309	-116	-0.05
1995	222651	2355	930	0.42
1996	224678	2027	602	0.27
1997	226657	1979	554	0.24
1998	228249	1592	167	0.07
1999	229506	1257	-168	-0.07
2000	229981	475	-950	-0.41

### Summary of Results

The EIFS analyses indicated that the proposed action will produce no major socioeconomic effects in the ROI (community). The projected changes compare the appropriate RTVs as follows:

	<u>projected change</u>	<u>RTV</u>
business (sales) volume	0.41%	9.27%
Income	0.1%	9.0%
employment	0.1%	4.48%
population	0.0%	1.18%

This significance determination is "conservative"--well within any errors produced through assumed EIFS input values. While these inputs could be refined, the results of the analysis (final determination) will certainly remain unchanged.

