

# DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR ARMY GROWTH AND FORCE STRUCTURE REALIGNMENT AUGUST 2007



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## Draft Programmatic Environmental Impact Statement

**Prepared For:** Headquarters, Department of the Army, Washington, DC

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**Cooperating Agencies:** None

**Title of the Proposed Action:** Army Growth and Force Structure Realignment

**Affected Jurisdictions:**

Installation	Counties in the Region of Influence (ROI)
Fort Benning	Chattahoochee, Muscogee, Harris, and Marion, GA; Russell, AL
Fort Bliss	El Paso, TX; Dona Ana and Otero, NM
Fort Bragg	Cumberland, Lee, Moore, Hoke, and Harnett, NC
Fort Campbell	Christian and Trigg, KY; Montgomery and Stewart, TN
Fort Carson	El Paso, Fremont, Pueblo, and Teller, CO
Pinon Canyon Maneuver Site	Las Animas, Huerfano, Pueblo, Otero, and Bent, CO
Fort Drum	Jefferson, Lewis, and St Lawrence, NY
Fort Knox	Bullitt, Hardin, Meade, Breckinridge, Floyd, Grayson, Harrison, Larue, Nelson, and Spenser, KY
Fort Hood	Bell and Coryell, TX
Fort Hunter Liggett	Monterey and San Luis Obispo, CA
Fort Irwin	San Bernardino, CA
Fort Lewis	Pierce and Thurston, WA
Fort Riley	Clay, Geary, Riley, Dickinson, Morris, Ottawa, Pottawatomie, and Wabaunsee, KS
Fort Polk	Beauregard, Rapides, and Vernon, LA
Fort Stewart	Liberty, Long, Bryan, Chatham, and Tattnall, GA
White Sands Missile Range	El Paso, TX; Dona Ana, Sierra, Socorro, and Otero, NM
Yakima Training Center	Kittitas County, WA; Yakima, WA
Yuma Proving Ground	Yuma, AZ; Imperial, CA

**Review and Comment:** Send all written comments and suggestions concerning this DPEIS to: Public Affairs Office, U.S. Army Environmental Command, Building E4460, 5179 Hoadley Road, Attention: IMAE-PA, Aberdeen Proving Ground, MD 21010-5401. Telephone: 410-436-2556. Facsimile: (410) 436-1693. E-mail comments should be sent to: [PublicComments@aec.apgea.army.mil](mailto:PublicComments@aec.apgea.army.mil).

**Document Designation:** Draft Programmatic Environmental Impact Statement

**Abstract:** The Department of the Army announces the availability of a DPEIS for the growth and realignment of the United States Army. Pursuant to the National Environmental Policy Act (NEPA), the Department of the Army has prepared a DPEIS that evaluates the potential environmental and socio-economic effects associated with alternatives for growing and realigning the Army's force structure. Potential impacts have been analyzed at installations which are being considered for the stationing of 1,000 or more Soldiers in efforts to grow and realign the Army.

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1 **EXECUTIVE SUMMARY**

2  
3 **INTRODUCTION**

4  
5 On 12 October, 1999, the Senior Leadership of the Army articulated a vision for the  
6 Transformation of the Army to ensure that it remained an effective operational force in  
7 the 21<sup>st</sup> Century. The Army's decision to transform began a dynamic 30-year process  
8 through which the Army is continuously assessing and calibrating its force structure and  
9 capabilities to face the evolving threats and mission requirements. The decision to  
10 transform the Army was described in the 2002 Record of Decision for the *Programmatic*  
11 *Environmental Impact Statement for Army Transformation*. Since this decision, the  
12 Army has accelerated the pace of Transformation activities and is continuing to  
13 implement those actions required to field a force which is most capable of meeting the  
14 nation's growing national security and defense needs. The overall goal of Army  
15 Transformation and force structure review is to provide the nation with a relevant and  
16 ready all-volunteer force which is capable of supporting the nation's security, defense  
17 and policy interests.

18  
19 The Army continues to conduct detailed planning to effectively carry out transformation  
20 in a way which addresses capabilities shortfalls of the cold war force and implements  
21 the guiding recommendations of the Quadrennial Defense Review (QDR). The Army's  
22 guiding document for the implementation of this plan is the Army Campaign Plan (ACP).  
23 The ACP directs the detailed planning, preparation, and execution of a full range of  
24 transformation tasks which are underway to ensure the synchronization of  
25 transformation activities across all facets of the organization.

26  
27 As part of the overall Army transformation effort, the Army has transitioned to a  
28 modular, or standardized force structure. Organizationally, this has meant a transition  
29 of the Army from large, powerful, fixed organizations constituted at the Division level  
30 (10,000 to 12,000 personnel) to an Army designed around smaller, standardized, self-  
31 contained, rapidly deployable Brigade Combat Teams (BCTs). The transformation of  
32 the Army's BCTs to a standardized, BCT-based structure is almost complete across the  
33 Active and Reserve components of the Army. Subsequent phases of force realignment  
34 are conducting ongoing analysis of the size and structure of Combat Support (CS) and  
35 Combat Service Support (CSS) units to ensure the Army is fielding the proper force to  
36 support modular BCTs and operational mission requirements. A realignment of  
37 CS/CSS units required to support Army requirements is discussed and evaluated along  
38 with those programs that further implement modular forces concepts in the subsequent  
39 chapters of this document.

40  
41 In addition to the realignment of CS/CSS forces, the Army has identified a critical need  
42 to grow its forces to meet increased national security and defense needs of the 21<sup>st</sup>  
43 Century. The Army has identified that shortfalls in people, equipment, and time to train  
44 which have posed considerable challenges to Army force managers as they attempt to  
45 sustain force readiness and Soldier and Family quality of life while supporting growing  
46 Army mission requirements. As a result of the imbalance between current mission

1 requirements and available forces, the Army has defined the growth and restructuring to  
2 meet the greater demands of the current security environment as its top priority  
3 (General Casey, Chief of Staff of the Army, *Army Initiatives Charter* 2007).  
4

5 The Army's intent is to permanently increase its end-strength, in accordance with  
6 Congressional authorizations to a size and configuration which is capable of meeting  
7 national security and defense objectives. The growth of the Army would allow for the  
8 rebalancing of the composition of its forces to continue to accommodate transformation  
9 objectives and create additional unit capabilities in high demand areas where mission  
10 requirements exceed current manning authorizations. This EIS analyzes three  
11 alternatives for Army growth and evaluates the environmental and socio-economic  
12 impacts which would result from the implementation of these alternatives. The Army  
13 has considered seventeen major training and testing installations for supporting Army  
14 growth. Sites carried forward for analysis to support stationing actions as part of Army  
15 growth and realignment include: Fort Benning, Ga.; Fort Bragg, N.C.; Fort Bliss, TX;  
16 Fort Campbell, KY; Fort Carson, CO; Fort Drum, NY; Fort Hood, TX; Fort Hunter  
17 Liggett, CA; Fort Irwin, CA; Fort Knox, KY; Fort Lewis, WA; Fort Polk, LA; Fort Riley,  
18 KS; Fort Stewart, GA; White Sands Missile Range, NM; Yakima Training Center, WA;  
19 and Yuma Proving Grounds, AZ.  
20

21 Installation locations carried forward for analysis in this Programmatic Environmental  
22 Impact Statement (PEIS) are those sites that may receive more than 1,000 new  
23 Soldiers from Fiscal Year (FY) 2008-13 as part of the initiatives discussed above. The  
24 1,000-Soldier threshold was chosen because it represents a level of growth at a  
25 majority of installations at which significant impacts could occur and should be  
26 considered at the programmatic level.  
27

28 The three alternatives carried forward for analysis in this document address the Army's  
29 needs to increase its overall end-strength while continuing to realign force structure to a  
30 size and composition that is better able to meet national security and defense  
31 requirements, rebalances the force in accordance with Army Transformation, sustains  
32 unit equipment and training readiness, and preserves Soldiers and Family quality of life.  
33 In addition to the three alternatives, the no-action alternative is discussed and provided  
34 to serve as a basis for comparison.  
35  
36

## 37 **ALTERNATIVES**

38

39 Three action alternatives have been formulated which take into account the Army's  
40 needs for growth and force realignment. Common elements to these alternatives  
41 include the growth and force structure realignment of Army units from the fiscal year  
42 2008 to 2013. All alternatives consider BRAC directed actions and those stationing  
43 actions that have occurred prior to the start of Fiscal Year 2008 as part of the baseline  
44 condition for analysis. Programmatic alternatives carried forward for analysis in this  
45 PEIS include:

1  
2 **Alternative 1 - Implement Army force structure modifications between fiscal year**  
3 **2008 and 2013 to support the Army's Modular transformation and Global Defense**

4 **Posture Review (GDPR) decisions.** The Army has a number of separate programs  
5 and initiatives that evaluate the existing force composition and its manning and  
6 stationing. Major on-going force development initiatives include Total Army Analysis  
7 (TAA), Modular Support Forces Analysis (MSFA), and GDPR. Several smaller sub-  
8 programs which deal with specific components of the Army, feed into these larger  
9 modular force redesign initiatives. These programs have led to recommendations that  
10 would result in a realignment of CS/CSS units and an increase in the size of the Army  
11 by up to approximately 20,000 Soldiers. Included as part of this alternative are also  
12 numerous unit deactivations which are needed to restructure the Army to a modular  
13 configuration that best implements transformation to a more efficient operating force.  
14

15 **Alternative 2- Execute those actions discussed in Alternative 1 and, in addition,**  
16 **add approximately 30,000 Combat Support (CS) and Combat Service Support**  
17 **(CSS) Soldiers to the Active and Reserve Components of the Army to address**  
18 **critical shortfalls in high demand military skills.** Under this alternative, a “right-  
19 sizing” of the Army force structure would add approximately 20,000 additional Active  
20 Duty and approximately 10,000 Reserve Component Soldiers to areas of high demand  
21 and critical need. Additional Explosive Ordnance (EOD), Military Police (MP), Military  
22 Intelligence (MI), Engineers, and other critical CS/CSS units would be added to provide  
23 for increased strategic flexibility for the Army and a greater level of stability for the  
24 Soldiers in these units.  
25

26 **Alternative 3: Execute those actions proposed in Alternatives 1 and 2 and, in**  
27 **addition, grow the Army by up to 6 Active Duty Brigade Combat Teams (BCTs).**  
28 This alternative would allow the Active Army grow by up to an additional 6 BCTs  
29 depending on on-going and projected national defense and security assessments.  
30 Selection of this alternative could result in the growth of the Army from a total of 42  
31 BCTs up to a total of 48 BCTs. This alternative would add between 20,400 to 24,000  
32 additional Soldiers to the Army depending on the type of BCTs added as part of Army  
33 Growth. Additional BCTs would be stationed at existing or newly established Army  
34 stationing locations within the continental United States.  
35

36 **No Action:** Under the No Action Alternative, stationing moves, unit activations, unit  
37 conversions, and deactivations required to implement Army Growth and Realignment  
38 beyond 2007 authorizations and BRAC Law would not occur as described in  
39 Alternatives 1, 2 and 3. No additional CS/CSS Soldiers would be added to the Army  
40 from FY 2008 to 2013 to balance the composition of Army skill sets to match current  
41 and projected future mission requirements. Furthermore, no new Brigade Combat  
42 Teams would be added to the Army to slow the tempo of deployments for existing units,  
43 increase operational readiness, and elevate Soldier and Family quality of life. Forces  
44 would remain at their stationing locations and implement only those stationing moves  
45 directed by BRAC law in 2005.  
46

1  
2 **SCREENING CRITERIA FOR STATIONING LOCATIONS**  
3

4 The Army initially included all of its installations as potential stationing locations to  
5 support Army growth and rebalance initiatives. To narrow the field of installations to  
6 those capable of supporting new stationing requirements of growth and realignment, the  
7 Army used the need criteria of the proposed action in conjunction with other external  
8 limiting factors. The installation screening criteria included: the capability to support the  
9 NSS, NDS and ACP, the capability to provide the necessary training infrastructure for  
10 new units, provide quality of life and garrison support infrastructure, and cost  
11 considerations. Seventeen installation stationing locations within the United States  
12 have been identified and are included in this Programmatic EIS.  
13

14  
15 **PEIS METHODOLOGY**  
16

17 This Programmatic EIS presents a top-tier perspective that provides decision makers,  
18 regulatory agencies, and the public with information on the potential environmental and  
19 socioeconomic effects resulting from the implementation of Army growth and  
20 realignment through different types of unit stationing scenarios. This information will  
21 allow decision makers to review the proposed alternatives and environmental and  
22 socioeconomic impacts for implementing Army growth initiatives, enabling them to make  
23 informed decisions when determining installation stationing locations.  
24

25 Through a detailed screening process, 17 installations within the United States have  
26 been identified as potential stationing locations for the proposed Army growth and  
27 realignment initiatives. Six unit stationing scenarios were developed that best capture  
28 the essence of the proposed Army growth initiatives to replicate the scenarios which  
29 may be experienced at site specific locations. Stationing scenarios include the  
30 stationing of 1,000 additional CS/CSS Soldiers, stationing of a Sustainment (Logistics  
31 Support) Brigade, an Infantry BCT, a Heavy BCT, a Stryker BCT<sup>1</sup> and Multiple BCTs.  
32

33 The programmatic approach is designed to allow for early planning, coordination, and  
34 flexibility throughout implementation of the Army growth and realignment process. The  
35 analysis in this document is suited to the broad decision being made. It provides high-  
36 level officials within the Army an understanding of the important environmental and  
37 socio-economic issues associated with each alternative and compares and contrasts  
38 the consequences among alternatives. The PEIS evaluates the proposed action on a  
39 broad spectrum and lays the foundation for subsequent analyses and decision making.  
40 The PEIS is designed to leverage into multi-year analyses that can assist force  
41 managers in making stationing decisions. It is not intended to encompass a series of  
42 site-specific analyses as such an approach would not provide the relevant  
43 environmental information at a level relevant to the decision being made. This  
44 document may be supplemented as proposals for changes to Army force structure are

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<sup>1</sup> Due to expanded training land requirements of the Stryker BCT, its stationing is only considered at select installations.



1 made in the future. Otherwise, this PEIS will allow specific installations to “tier” their  
 2 NEPA documents where appropriate. Site-specific NEPA analyses will be conducted,  
 3 where necessary, to implement installation level actions implementing the selected  
 4 alternative.

5  
 6  
 7 **IMPORTANT ENVIRONMENTAL AND SOCIO-ECONOMIC CONSEQUENCES FOR**  
 8 **DECISION-MAKERS**  
 9

10 Table ES-1 provides a summary of important and potentially significant environmental  
 11 and socio-economic consequences which would be projected to occur for each of the  
 12 installations that have been carried forward for analysis to support Army growth and  
 13 realignment. The Army has coordinated with installation staff at each potential  
 14 stationing location to determine anticipated impacts from different unit stationing  
 15 scenarios. Environmental and socio-economic impact ratings are described below. The  
 16 description below explains the relationship between the impact ratings identified by  
 17 installation staff in their Valued Environmental Component (VEC) Tables (found in  
 18 Section 4) and the environmental consequences or “analysis of impacts” also found in  
 19 Section 4. Unique or sensitive VEC issues at specific installation locations are also  
 20 identified in the summary tables below, and are analyzed in the environmental  
 21 consequences section for each relevant installation.  
 22

**Description of VEC Impact Ratings**

Impact Symbol	VEC Impact Intensity Rating
○	No impact is anticipated
◉	Minor impact anticipated
⊗	Moderate impact anticipated (less than significant)
⊗	Significant impact anticipated (likely mitigable to less than significant)
●	Significant adverse impact anticipated
+	Beneficial Impact
**	Unique Issues Identified by the installation

23  
 24 These ratings assess the composite intensity of impacts to the installation by individual  
 25 VEC resulting from i) garrison construction, ii) training infrastructure construction, iii)  
 26 live-fire training, and iv) maneuver training associated with each of the stationing  
 27 scenario.

28  
 29 While there are variations in the impacts from each of the unit stationing scenarios to  
 30 the installations identified, generally, the broad comparison of these impacts  
 31 demonstrate patterns of expected impacts from each of the stationing scenarios.  
 32  
 33

1 **Summary of Potentially Significant Impacts from the Six Unit Stationing**  
2 **Scenarios Analyzed in the PEIS**

3  
4 **Scenario 1**

5 **Stationing of an Additional 1,000 Combat Support (CS) or Combat Service**  
6 **Support (CSS) Soldiers.** Generally installations' impacts required to accommodate  
7 training and construction activities to handle the stationing of 1,000 new Soldiers as part  
8 of this scenario are anticipated to be less than significant in nature. The CS/CSS units  
9 consist of approximately 1,000 Soldiers, light engineer equipment, High Mobility Multi-  
10 Wheeled Vehicles (HMMWV) or other light vehicles, and some medium to large cargo  
11 trucks. While these units are capable of off-road maneuver, typically, training occurs on  
12 roads and hardened surfaces, and live fire training typically involves an increase in  
13 small arms training. Off-road maneuver training for these units would be projected to  
14 take place within the footprint combat units conducting maneuver training at the  
15 installation.

16  
17 Potentially significant impacts to Air Quality, Cultural Resources, Water Resources,  
18 Facilities, Socioeconomics, and Traffic and Transportation are:

19  
20 **Air Quality.** Fort Carson anticipates the need to address air quality issues resulting  
21 from additional stationing under this scenario to be a potentially significant issue. Fort  
22 Carson is currently located in a sensitive air quality area near Colorado Springs, CO  
23 which is currently in non-attainment of National Ambient Air Quality standards. Fort  
24 Carson is designated as a major contributor (more than 100 tons/year) to regulated air  
25 pollutants, and is approaching the limits of its Title V air quality permit because of  
26 significant BRAC growth. The Army would need to take additional time to conduct air  
27 conformity analysis and develop plans to address increases in stationary and mobile  
28 sources of air pollutants as a result of new stationing under this scenario at Fort Carson.

29  
30 **Cultural Resources.** Due to the large tracts of land at White Sands Missile Range  
31 (WSMR), much of the installation has never been surveyed for cultural or archeological  
32 resources. The results of those surveys would help determine if impacts to these  
33 resources would be minor or significant.

34  
35 **Water Resources.** Additional Soldiers at Fort Bliss would consume additional water  
36 resources in a community which is experiencing issues with water demand and  
37 allocation. To accommodate additional Soldiers the Army would need to analyze water  
38 usage and demand issues in greater detail at Fort Bliss.

39  
40 **Facilities.** Currently, Fort Benning has sufficient housing to support a CS/CSS.  
41 However, training support is a concern due to a limited available space and capacity in  
42 the training areas and ranges.

43  
44 Fort Bragg is challenged by a lack of buildable space on the installation to support the  
45 required facilities for a CS/CSS unit. The installation anticipates that construction to  
46 support growth will require considerable reallocation or modification of existing space

1 (such as their old Ammunition Supply Point) and will require the use of non-standard  
2 solutions such as multi-story buildings.

3  
4 Fort Irwin's solid waste landfill is already running at or near capacity. Additional growth  
5 at the installation is anticipated to approach thresholds for landfill capacity.

6  
7 Fort Lewis does not currently have enough vacant space to accommodate the additional  
8 Family housing requirements and units would need to utilize temporary building space.

9  
10 **Socio-economics.** Coordination with the school systems, particularly at Fort Bliss,  
11 Yuma Proving Grounds (YPG), or WSMR, would be needed to address projected  
12 shortfalls in the ability to accommodate an increase in school-aged within local school  
13 systems.

14  
15 **Traffic and Transportation.** Other considerations to note under this stationing  
16 scenario are that traffic and transportation at Fort Bliss, Fort Bragg and Campbell, which  
17 are currently rated as highly congested, would continue to be stressed by any additional  
18 growth without accompanying infrastructure solutions to alleviate traffic problems.

## 19 20 **Scenario 2**

21 **Stationing of an Additional Full Sustainment BDE (3,000 to 3,500 Soldiers).** This  
22 stationing scenario consists of the stationing of a sustainment brigade which would  
23 support logistics operations of BCTs and other support units. Under this stationing  
24 scenario the sustainment brigade consists of 1,000 to 1,200 maintenance vehicles, light  
25 medium and heavy cargo trucks of all sizes (ex. HMMWVs, fuel trucks and Heavy  
26 Equipment Transports (HETs). All wheeled vehicles are capable of on-road and off-  
27 road maneuver, but will more often travel on-road. These units accomplish much of  
28 their training during individual small arms weapons qualification ranges and during  
29 convoy live fire training rehearsals. This type of unit would conduct off-road maneuvers  
30 in the footprint of combat maneuver units during major field training exercises while  
31 provided fuel, ammunition, food, repair parts and other logistics services to these units.

32  
33 Impacts of potential significance at installation sites requiring further analysis as part of  
34 this stationing scenario include those to Air Quality, Cultural Resources, Soil Erosion,  
35 Biological Resources (including vegetation and Threatened and Endangered Species  
36 (T&E)), Wetlands, Water Resources, Facilities, Socioeconomics, Energy Demand, Land  
37 Use, and Traffic and Transportation. Under this scenario, all impacts discussed above  
38 as part of stationing scenario 1 are impacts which would occur as part of this stationing  
39 scenario, as well. Potentially significant impacts resulting from the implementation of  
40 Army growth and realignment under this scenario:

41  
42 **Air Quality.** Air quality impacts at Fort Carson would be intensified by more mobile and  
43 stationary sources of emissions and increased construction requirements.

44  
45 **Cultural Resources.** Similar potentially significant impacts at WSMR are anticipated  
46 as noted under stationing scenario 1.

1  
2 **Soil Erosion.** Though not anticipated to travel off-road often, the Full Sustainment BDE  
3 would continue to worsen already impacted soil conditions at Fort Bliss, exposing the  
4 already arid soils to additional wind erosion. Fort Benning and Fort Bragg's loose sandy  
5 and silty soils would be effected from the additional training in maneuver areas. Nearly  
6 half of Fort Campbell's soils have moderate or high potential for soil erosion and would  
7 be affected with potential related effects to surface water quality at the installation.  
8

9 **Biological Resources (T&E Species).** A Full Sustainment BDE may cause potentially  
10 significant damage to shrub-steppe vegetation found on YTC, which would potentially  
11 lead to direct effects from invasive weed species, and indirectly result in a loss of cover  
12 for some of the installations listed species.  
13

14 **Wetlands.** Fort Hood anticipates significant effects to the installation's small emergent  
15 wetlands associated with ephemeral streams. Currently, efforts are underway to  
16 delineate all water features on the installation.  
17

18 **Water Resources.** Water demand is expected to be of more significance than  
19 previously stated for Fort Bliss due to the increase in Soldiers and their Families.  
20 Similar effects are expected at Fort Hood and Yuma Proving Ground (YPG) due to the  
21 semi-arid and arid environments associated with those installations. Additionally, Fort  
22 Campbell may need to consider upgrading their water supply system and wastewater  
23 treatment system. The addition of a Full Sustainment BDE would potentially cause the  
24 impairment or further impairment of state priority waterways through increased  
25 sedimentation at Fort Campbell as well.  
26

27 **Facilities.** Potential effects from this stationing scenario include those potential impacts  
28 for stationing scenario 1 (CS/CSS). In addition to these considerations, other key  
29 considerations include buildable space challenges at Forts Benning, Bragg, Campbell,  
30 Carson, Lewis and, Riley. The current footprint of supporting infrastructure and  
31 environmental features will require non-standard construction solutions to allow  
32 construction for this level of Army growth to take place. Fort Irwin's solid waste facilities  
33 would need upgrading to support 3,500 additional Soldiers. It is likely that a program to  
34 transport solid waste to facilities in Barstow would need to be developed.  
35

36 **Socioeconomics.** Impacts would be potentially significant in relation to  
37 accommodating school aged children's educational requirements at Forts Bliss, YTC,  
38 WSMR, YPG, Fort Riley, Fort Campbell, Fort Drum, and Fort Lewis under this stationing  
39 scenario. 11 school districts around Fort Lewis are currently over-capacity and are  
40 using modular facilities as additional classroom space. Other locations listed above do  
41 not have the current capacity in their school systems to handle the additional  
42 approximately 1,500 school age children that would accompany 3,500 additional  
43 sustainment brigade Soldiers.  
44

45 **Energy Demand.** Fort Benning and Fort Campbell expect that this level of Soldier  
46 increase in personnel and equipment will require expansion of existing utilities.

1  
2 **Land Use.** Fort Campbell could potentially have difficulties siting existing facilities in  
3 areas with compatible land uses to accommodate a Full Sustainment BDE.

4  
5 **Traffic and Transportation.** In addition to the anticipated effects from this level of  
6 growth at Fort Bliss, Fort Bragg and Campbell (listed for the CS/CSS), Fort Knox and  
7 YPG expect a noticeable impact to transportation systems and roadways, on- and off-  
8 post including a notable decrease in the level of service in the road network leading to  
9 the installation, particularly during peak morning and afternoon travel periods.

### 10 11 **Scenario 3**

12 **Stationing of an Additional IBCT (3,500 Soldiers).** The IBCT consists of  
13 approximately 3,500 Soldiers, and has a range of light and heavy wheeled vehicles.  
14 The IBCT is divided primarily into 2 infantry battalions, a reconnaissance and  
15 surveillance battalion, a fires battalion, support battalion and a special troops battalion  
16 consisting of combat support units. The modular IBCT possesses towed M777 155 mm  
17 artillery, light engineer equipment, light tactical and medium/large cargo trucks. All  
18 vehicles are capable of on-road and off-road maneuver; and, dismounted training  
19 occurs in range areas as well. Infantry training involves the use of small arms, heavy  
20 caliber machine gun, and explosives training as individual Soldiers, crews, teams and  
21 squads practice and qualify with a variety of weapons such as the pistol, rifle, shotgun,  
22 sniper rifle, grenade launchers, light-medium-heavy machine guns, anti-tank weapons,  
23 grenades, demolitions and mortars. Weapons training occurs more often for the IBCT  
24 than the Full Sustainment BDE. Qualification is a semi-annual requirement, practice  
25 firing is completed as time, ammunition and other resources permit. This weapons firing  
26 occurs on fixed ranges, as described in Army TC 25-8, *Training Ranges*. Infantry units,  
27 from squad to company also participate in quarterly and semi-annual Live-Fire  
28 Exercises that include all weapons systems on a large and more complex range.

29  
30 Anticipated potential significant impacts would include all impacts discussed and  
31 presented in scenario 2. Additional impacts would be experienced by installations for  
32 Air Quality, Noise, Biological Resources, Facilities, and Traffic and Transportation (to a  
33 greater degree at the installations identified). These are:

34  
35 **Air Quality.** Fort Irwin expects combustion emissions from stationary sources to  
36 significantly increase due to the increase in infrastructure and power generation  
37 equipment required to support the influx of new Soldiers and their Families.

38  
39 **Noise.** Noise associated with additional live-fire activities of the IBCT could significantly  
40 impact residential communities surrounding Fort Lewis. Recent stationing actions for  
41 two aviation battalions at Fort Lewis have exacerbated noise impacts at the installation.

42  
43 **Biological Resources (T&E Species).** The increased foot traffic from dismounted  
44 training, and maneuver with IBCT vehicles could have an adverse affect on the RCW  
45 population at Fort Bragg.

1 **Facilities.** There is currently limited buildable space within the Main Administrative  
2 area of YPG. The facilities requirements and construction required to support an IBCT  
3 may be beyond current carrying capacity of YPG's existing facilities and would need to  
4 be studied in great detail to determine how to support increased facilities and utilities  
5 requirements.

6  
7 **Scheduling Conflict.** New BCTs stationed at Fort Hood and YPG would likely cause  
8 scheduling conflicts with existing training activities and could lead to significant  
9 degradation of mission training activities.

10  
11 **Traffic and Transportation.** Traffic and transportation issues would require more in-  
12 depth analysis to provide solutions to off-post traffic problems with growth of an IBCT at  
13 Fort Bliss, Fort Bragg, and Fort Campbell. Fort Knox and Fort Lewis have identified the  
14 need to address on-post traffic issues due to the increased amount of Soldiers,  
15 Families, and support staff. The main post area at YTC is currently congested and is  
16 programmed for significant roadway upgrades to support BRAC-related growth. A new  
17 traffic study would be needed to support growth beyond BRAC at the installation.

#### 18 19 **Scenario 4**

20 **Stationing of an Additional HBCT (3,800 to 4,000 Soldiers).** An HBCT consists of  
21 approximately 55 M1 tanks and 85 Bradley Infantry fighting vehicles. In addition to  
22 these heavily armored tracked combat vehicles the HBCT also possesses 16 self  
23 propelled 155 howitzers, tracked earthmoving vehicles, recovery vehicles, and an  
24 assortment of other tracked vehicles. The HBCT also consists of a large number and  
25 variety of wheeled-vehicles, to include light tactical trucks, medium trucks, and large  
26 cargo and fuel trucks. HBCT training involves training with a full range of small arms  
27 weapons. Additionally, vehicle crews must qualify on vehicle weapons systems of the  
28 Abrams tanks, Bradley and other combat vehicles. Artillery and explosives training are  
29 needed to achieve combat proficiency. Considerable levels of off-road maneuver  
30 training are conducted to maintain training readiness.

31  
32 Potential significant impacts would include those impacts presented in scenario 3.  
33 Additional impacts would be experienced by installations for Air Quality, Cultural  
34 Resources, Noise, Soil Erosion Biological Resources, Vegetation, Habitat, Noxious  
35 Weeds, Hunting and Recreation, Wetlands, Facilities, and Traffic and Transportation (to  
36 a greater degree at the installations identified). These are:

37  
38 **Air Quality.** Fort Benning and Fort Lewis anticipates fugitive dust emissions from a  
39 HBCT to significantly increase, though it should remain a localized issue and would be  
40 addressed as an opacity issue if activities are close enough to installation boundaries  
41 that visible emissions leave the Installation.

42  
43 **Cultural Resources.** Fort Benning would require Phase II investigations in most areas  
44 that would expected to be impacted by an additional HBCT. Fort Campbell expects the  
45 use of heavier equipment in the maneuver training areas to introduce a much greater  
46 degree of threat to archaeological sites. The weight and mobility characteristics of

1 heavy tracked vehicles, and the vibration/shock from the firing and discharge of large  
2 caliber weapons would be anticipated to lead to the loss of significant cultural resources  
3 under an HBCT stationing scenario. These additional impacts will probably trigger a  
4 need to terminate and replace Fort Campbell's Programmatic Agreement with two State  
5 Historic Preservation Offices in order to adequately deal with this new range of impacts.  
6 At Fort Lewis, PCMS, and YPG, off-road heavy and light vehicle maneuver could have  
7 adverse effects on archaeological sites and protected resources that have not yet been  
8 inventoried or are unknown/undiscovered.

9  
10 **Noise.** An additional HBCT at Fort Bliss is expected to result in a change to noise  
11 contours impacting off-post properties and residential areas. The additional noise and  
12 level of training will have potentially significant adverse effects to Fort Stewart, Fort  
13 Benning and Fort Drum.

14  
15 **Soil Erosion.** Soil erosion impacts will have significant and direct effects to vegetation  
16 and water quality, and indirect effects to threatened and endangered animal species or  
17 other biological resources found at many installations. Fort Stewart, Fort Benning, and  
18 Fort Polk, for instance, have highly erodible soils and a significant amount of wetlands  
19 which would likely be significantly impacted by HBCT training. YTC anticipates impacts  
20 to its species at risk (SAR - Western Sage Grouse). The "digging" associated with  
21 maneuver from a tank will reduce vegetative cover on ranges. The vegetative cover at  
22 YTC is primarily shrub-steppe, is the primary habitat for the Sage Grouse. The  
23 relatively dry environments at Forts Hood and Hunter Liggett and YPG would continue  
24 to be compacted, ensuring higher erodibility of surface soils from wind at those areas.  
25 At Fort Carson and PCMS flat to relatively flat areas (vegetation and surface crust)  
26 would show the impact from the vehicle maneuvers, turns and traction. These areas  
27 could then be prone to wind and water erosion.

28  
29 **Biological Resources.** The Red-cockaded Woodpecker would likely be significantly  
30 effected by additional construction required for HBCT training at Fort Benning. At Fort  
31 Hunter Liggett, the additional noise from live-fire and maneuver training may have  
32 effects to the installation's bird species, the California Condor and the Bald Eagle.  
33 Additional HBCT training at Fort Stewart would also make it difficult for the installation to  
34 support conservation efforts for their species at risk (SAR), and the listing of SAR  
35 species would be more probable.

36  
37 **Vegetation, Habitat, Noxious Weeds.** Under this stationing scenario, Fort Carson and  
38 PCMS' vegetative communities could be potentially degraded, and the prevalence of  
39 invasive or noxious weed species would likely increase from training disturbance and  
40 higher rates of unnatural wildfire caused by increased live-fire training.

41  
42 **Hunting and Recreation.** Some areas within the PCMS are accessible to the public for  
43 recreational use when training activities do not occur. These areas may have further  
44 restrictions placed upon them if HBCT training were to occur there.

1 **Wetlands.** Significant percentages of land at Forts Stewart and Benning are  
2 designated as wetlands, and further analysis will be required to be able to  
3 accommodate additional growth. Construction activities to support required training and  
4 garrison construction projects would likely have significant impacts on wetlands  
5 resources. At Fort Bragg, impact minimization strategies will likely not be able to  
6 support unavoidable impacts to wetlands, and impacts will likely be within the CWA  
7 section 404 regulatory Nationwide permitting process threshold. Some of the impacts  
8 will likely require compensatory wetland mitigation measures.  
9

10 **Water Resources.** The increase in motorpool activities and washing of field-driven  
11 heavy-tracked vehicles would produce a major increase on water demand and  
12 associated treatment at Forts Benning and Bragg. Such an increase would likely  
13 require significant upgrades to the Installation's private water and wastewater treatment  
14 systems. WSMR is considering construction of a desalinization plant to meet its  
15 increasing water demands. YTC expects significant effects to its biological resources  
16 because the addition of a HBCT would result in upland disturbances (e.g. digging and  
17 off-road maneuver) that would negatively impact water quality.  
18

19 **Facilities.** The establishment of an HBCT at Forts Hood and Polk may exceed the  
20 capacity of the installation, noted in the installations' Master Plan, due to the lack of  
21 available space for expansion.  
22

23 **Land Use.** Because of a lack of land compatible for garrison construction to support an  
24 additional HBCT some installations would need to limit or stop use of currently  
25 designated training areas to accommodate a new HBCT. At Fort Benning construction  
26 of new facilities west of the Chattahoochee River would need to be considered, as  
27 current space for construction activities is extremely limited. At Fort Bragg, the training  
28 lands are currently maintained for airborne and light infantry operations; armored  
29 elements would be incompatible with the present training land use. At Fort Polk,  
30 building new facilities to support a HBCT would require the installation to re-zone  
31 existing land uses, or re-use/remodel facilities in areas not compatible with land uses  
32 associated with tactical units.  
33

34 **Scheduling Conflict.** A HBCT stationed at Fort Polk would likely cause scheduling  
35 conflicts with existing training activities of its resident IBCT and activities being  
36 conducted at the Joint Readiness Training Center (JRTC). This stationing scenario  
37 would likely result in a degradation of mission training activities.  
38

39 **Traffic and Transportation.** At Fort Benning, an additional HBCT with its  
40 approximately 3,800 Soldiers and their Family members are anticipated to significantly  
41 increase traffic congestion and decrease the Level of Service (LOS) to roads and  
42 highways both on-post and in neighboring communities.  
43

#### 44 **Scenario 5**

45 **Stationing of an Additional Stryker BCT (4,000 Soldiers).** The Stryker BCT is a  
46 highly mobile and agile unit which has augmented digital communications capabilities.



1 The Stryker BCT requires larger training areas to rehearse doctrinal maneuver tasks  
2 and is only considered at select installations where maneuver land is available for the  
3 unit to accomplish mission essential tasks to maintain training readiness. Installations  
4 considered for the stationing of an SBCT include Fort Bliss; Fort Carson (including use  
5 of PCMS as a maneuver training site); WSMR; Fort Lewis and Yakima Training Center.  
6 While the Stryker BCT has approximately 4,000 Soldiers, roughly the same amount as a  
7 HBCT, the Stryker requires a larger maneuver areas because of its increased mobility.  
8

9 This BCT consists of approximately 317 Stryker combat vehicles, 588 wheeled support  
10 vehicles, 18 155 mm howitzers, and numerous trailers and other pieces of equipment.  
11 The Stryker vehicle is an 8 wheeled armored combat vehicle. Each major unit of the  
12 Stryker BCT is composed of a number of smaller constituent units; about half of the  
13 4,000 Soldiers would be assigned to Infantry Battalions within the unit. The rest are  
14 distributed among the other battalions, companies, and platoons that comprise a Stryker  
15 BCT. All vehicles are capable of on-road and off-road maneuver, but will often conduct  
16 training on designated roads and trail networks.  
17

18 The stationing of the Stryker BCT would include all impacts discussed for the IBCT in  
19 the new growth stationing scenario 4, though these impacts would be projected to be  
20 increased proportionately because of the increased number of Soldiers in a Stryker BCT  
21 versus an IBCT. The addition of a Stryker BCT would be anticipated to have greater  
22 impacts to air quality and soil compaction due to the greater weight and speeds at which  
23 the vehicles would travel. In addition to those impacts discussed as part of stationing  
24 Scenario 4, potentially significant impacts resulting from the stationing of a Stryker BCT  
25 as part of Army growth are:  
26

27 **Air Quality.** Potentially significant impacts to air quality are anticipated at Fort Carson,  
28 PCMS, and Fort Lewis under this potential stationing scenario. Fort Carson is already a  
29 Title V permit holder for mobile and stationary sources, and an addition of a Stryker  
30 BCT is expected to elevate the associated impacts. Fugitive dust and opacity is  
31 expected to worsen with the addition of a Stryker BCT at PCMS. Fort Lewis currently  
32 maintains a "Synthetic Minor" operating permit which means that any increase in  
33 stationary source emission could require the transition back to major source status.  
34

35 **Soil Erosion.** Although the Stryker BCT maneuvers mainly on roads at the installation,  
36 some off-road maneuver does occur. In these areas soils are highly erodible and are  
37 more prone to wind and water erosion.  
38

39 **Biological Resources (T&E Species).** PCMS has two special status species, the  
40 Dwarf Milkweed and Bald Eagle. This action could significantly impact these species.  
41

## 42 **Scenario 6**

43 **Stationing of Additional Multiple BCTs (7,000 Soldiers).** The Multiple BCT  
44 stationing scenario assumes a combination of two additional BCTs, totaling 7,000 or  
45 more Soldiers being stationed at a given installation. These BCTs could include any

1 combination of BCT stationing scenario above.. Such a stationing action would likely  
2 involve up to 4,000 spouses and 3,000 to 3,500 military dependents.  
3

4 The stationing of the Stryker BCT would include all impacts to installations which have  
5 been discussed previously. Additional potentially significant environmental and socio-  
6 economic impacts which could potentially occur at installations under this stationing  
7 scenario are:  
8

9 **Air Quality.** Fort Bragg, Fort Campbell, and Fort Hunter-Liggett anticipate fugitive dust  
10 emissions from multiple BCTs to significantly increase, though it should remain a  
11 localized issue. Combustion emissions from stationary sources are expected to  
12 significantly increase due to infrastructure improvements required to support the influx  
13 of new Soldiers and their Families.  
14

15 **Cultural.** Fort Stewart could experience significant impacts to cultural resources to  
16 accomodate the stationing of multiple BCT units. Currently about 60% of the installation  
17 has been surveyed for cultural resources.  
18

19 **Noise.** Noise is anticipated to have significant impacts at several installations where  
20 there has been significant growth of residential communities around military  
21 installations. Noise could represent a significant issue for Forts Bragg and Carson.  
22

23 **Biological Resources.** Significant impacts discussed as part of previous alternatives  
24 could be expected to be intensified under this stationing scenario. Construction and  
25 training of multiple BCTs at Fort Benning, Bragg, Polk and Stewart would have  
26 significant adverse impacts to the RCW and biological communities.  
27

28 **Wetlands.** Significant wetlands impacts from construction and training would be  
29 anticipated at installations across the Southeastern United states under this stationing  
30 scenario in addition to those impacts discussed in previous stationing scenarios.  
31

32 **Water Resources.** Forts Carson, Irwin, and Polk would need to upgrade their current  
33 water utility systems. The addition of multiple BCTs will increase the sediment and  
34 erosion issues at these installations. Motorpool activities and washing of field-driven  
35 heavy-tracked vehicles would significantly increase water demand and associated  
36 treatment.  
37

38 **Socioeconomics.** For all locations, over-crowding of school systems would represent  
39 a potentially significant impact. This is particularly true for installations such as YTC,  
40 YPG, and WSMR. Installations crossing this threshold of significance in their ability to  
41 accommodate schooling requirements for DoD dependents under this scenario would  
42 include Forts Benning, Bragg, Carson, Knox, Polk, and Stewart.  
43

44 **Energy Demand.** Forts Bragg and Carson do not currently have the utility  
45 infrastructure to support 7,000 additional Soldiers. However, there is an adequate

1 amount of energy available. These installations would require significant upgrades to  
2 their utility systems to accommodate this level of growth.

3  
4 **Land Use.** The amount of buildable space or lack of adequate facilities would present  
5 considerable challenges to the stationing of multiple at those installations discussed in  
6 scenarios 4 and 5 and in addition at Forts Carson, Riley, and Stewart.

7  
8 **Hazardous Materials.** The amount of hazardous material generated by this level of  
9 growth would generate significant issues for hazardous waste storage sites/facilities and  
10 collection. In addition to POL products, solvents and cleaning materials, there would  
11 also be an increase in the generation of range materials considered hazardous such as  
12 unexploded ordnance (UXO). Impacts would be projected to be significant at Forts  
13 Benning, Bragg, Campbell, Knox and Stewart in addition to those impacts discussed  
14 under previous stationing scenarios.

15  
16 **Traffic and Transportation.** In addition to those installations experiencing significant  
17 impacts under scenario 4 and 5 significant degradation in levels of service of roads on  
18 the installation and for the surrounding communities would be projected at Forts  
19 Carson, Irwin, Riley and Stewart unless upgrades to the transportation systems on- and  
20 off-post at those locations were improved.

## 21 22 **VEC Impact Summary Tables**

23  
24 A consolidated table of significant impacts is illustrated by stationing scenario in table  
25 ES-1 through ES-6 below. These tables exclude those impacts that are less than  
26 significant. Tables 4-1 through 4-6 in Section 4 of this PEIS provides a comparison of  
27 all of the anticipated effects from each of the six stationing scenarios across each of the  
28 installation locations.

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Table ES-1. Summary of Significant Impacts by the Combat Service and Combat Service Support Units Stationing Scenario

VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	PCMS (Stationing at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality					⊗													
Water Resources		**																
Facilities	⊗		●							**		⊗						
Socioeconomics		⊗				⊗												⊗
Traffic and Transportation		⊗	⊗	⊗														
** Unique Issues																		
Cultural																⊗		
Facilities (Landfill)										⊗								
Water Resources (Wastewater Treatment/ Water Demand)		⊗																

Table ES-2. Summary of Significant Impacts by the Full Sustainment Brigade Stationing Scenario

VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	PCMS (Stationing at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality					●													
Cultural																**		
Soil Erosion Impacts		⊗	⊗	⊗														
T&E/Other Wildlife																	⊗	
Wetlands								⊗										
Water Resources		**		⊗				⊗										⊗
Facilities	⊗		●	⊗	⊗					**		⊗		⊗				
Socioeconomics		⊗		⊗		⊗	⊗					⊗		⊗			⊗, +	⊗
Energy Demand/ Generation	⊗			⊗														
Land Use Conflict/ Compatibility				⊗														
Traffic and Transportation		⊗	⊗	⊗							⊗							⊗
Cultural																⊗		
Facilities (Landfill)										⊗								
Water Resources (Water Demand)		⊗																

Table ES-3. Summary of Significant Impacts by the IBCT Stationing Scenario

VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	PCMS (Stationing at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality					●					⊗								
Cultural																**		
Noise												⊗						
Soil Erosion Impacts		⊗	⊗	⊗														
T&E/Other Wildlife			⊗														⊗	
Wetlands								⊗										
Water Resources		**		⊗				⊗										⊗
Facilities	⊗		●	⊗	⊗				**			⊗		⊗				⊗
Socioeconomics		⊗		⊗		⊗	⊗					⊗		⊗			⊗, +	⊗
Energy Demand/ Generation	⊗			⊗														
Land Use Conflict/ Compatibility				⊗														
Traffic and Transportation		⊗	⊗	⊗							⊗							⊗
Cultural																⊗		
Scheduling Conflict								⊗										⊗
Facilities (Landfill)										⊗								
Water Resources (Water Demand)		⊗																

Table ES-4. Summary of Significant Impacts by the HBCT Stationing Scenario

VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	PCMS (Stationing at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊗				●					⊗		⊗						
Cultural	**			⊗		⊗						⊗				**		⊗
Noise	⊗	⊗					⊗					⊗			⊗			
Soil Erosion Impacts	⊗	⊗	⊗	⊗	⊗	⊗		⊗	⊗				⊗		⊗		⊗	⊗
T&E/Other Wildlife	⊗		⊗						⊗						⊗		⊗	
Wetlands	⊗		⊗					⊗							⊗			
Water Resources	⊗	**	⊗	⊗				⊗								⊗	**	⊗
Facilities	⊗		●	⊗	⊗			⊗		**		⊗	⊗	⊗				⊗
Socioeconomics		⊗		⊗		⊗	⊗					⊗		⊗			⊗, +	⊗
Energy Demand/ Generation	⊗			⊗														
Land Use Conflict/ Compatibility	⊗		⊗	⊗									⊗					
Traffic and Transportation	⊗	⊗	⊗	⊗							⊗							⊗
Cultural (Phase II investigations on most areas)	⊗																	
Cultural																Low to high depending on survey results		
Vegetation					⊗	⊗												
Habitat					⊗	⊗												
Noxious Weeds						⊗												
Hunting/ Recreation						⊗												
Scheduling Conflict								⊗					⊗					⊗
Facilities (Landfill)										⊗								
Water Resources (Biological)																	⊗	
Water Resources (Water Demand)		⊗																



**Table ES-5. Summary of Significant Impacts by the Stryker BCT Stationing Scenario**

<b>VEC</b>	<b>Fort Bliss</b>	<b>Fort Carson</b>	<b>PCMS (Stationing at Fort Carson)</b>	<b>Fort Lewis</b>	<b>White Sands Missile Range</b>	<b>Yakima Training Center</b>
<b>Air Quality</b>		●	⊗	⊗		
<b>Cultural</b>			⊗	⊗	**	
<b>Noise</b>				⊗		
<b>Soil Erosion Impacts</b>	⊗	⊗	⊗	⊗		⊗
<b>T&amp;E/Other Wildlife</b>			⊗			⊗
<b>Water Resources</b>	**				⊗	**
<b>Facilities</b>		⊗		⊗		
<b>Socioeconomics</b>	⊗		⊗	⊗		⊗, +
<b>Traffic and Transportation</b>	⊗		⊗			
<b>Cultural</b>					⊗	
<b>Vegetation</b>		⊗	⊗			
<b>Habitat</b>		⊗	⊗			
<b>Noxious Weeds</b>			⊗			
<b>Hunting/ Recreation</b>			⊗			
<b>Water Resources (Biological)</b>						⊗
<b>Water Resources (Water Demand)</b>	⊗					

Table ES-6. Summary of Significant Impacts by the Multiple BCT Stationing Scenario

VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	PCMS (Stationing at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊗		⊗	⊗	●	⊗			⊗	⊗		⊗						
Cultural	**			⊗		⊗						⊗			⊗	**		⊗
Noise	⊗	⊗	⊗		⊗		⊗					⊗			⊗			
Soil Erosion Impacts	⊗	⊗	●	●	⊗	⊗		⊗	⊗			⊗	⊗		⊗		⊗	⊗
T&E/Other Wildlife	⊗		●	⊗	⊗	⊗			⊗				⊗		⊗		⊗	
Wetlands	⊗		●					⊗							⊗			
Water Resources	⊗	**	●	●	⊗			⊗		⊗			⊗			⊗	**	⊗
Facilities	⊗		●	●	⊗			⊗		**		⊗	⊗	⊗				⊗
Socioeconomics	⊗	⊗	⊗	⊗	⊗	⊗	⊗				⊗	⊗	⊗	⊗	⊗		⊗, +	⊗
Energy Demand/ Generation	⊗		⊗	⊗	⊗													
Land Use Conflict/ Compatibility	⊗		●	●	⊗								⊗	⊗	⊗			
Hazardous Materials/ Hazardous Waste	⊗		⊗	⊗							⊗				⊗			
Traffic and Transportation	⊗	⊗	⊗	⊗	⊗	⊗				⊗	⊗			⊗	⊗			⊗
Cultural (Phase II investigations on most areas)	⊗																	
Cultural																⊗		
Vegetation					⊗	⊗												
Habitat					⊗	⊗												
Noxious Weeds					⊗	⊗												
Hunting/ Recreation					⊗	⊗												
Scheduling Conflict								⊗		⊗			⊗					⊗
Facilities (Landfill)										⊗								
Water Resources (Biological)																	⊗	
Water Resources (Water Demand)		⊗																

**Draft Programmatic Environmental Impact Statement  
Army Growth and Force Structure Realignment**

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**1.0 PURPOSE, NEED, AND SCOPE**

**1.1 Introduction**

The purpose of this Programmatic Environmental Impact Statement (PEIS) is to conduct analysis of alternatives to realign the Army’s force structure in accordance with Army Transformation objectives and field a force which is of the sufficient size and configuration to meet the nation’s current and projected future security and defense requirements. The PEIS will provide a top-tier perspective that will provide decision makers, regulatory agencies, and the public with information on the potential environmental and socioeconomic effects resulting from the implementation of different types of stationing decisions. This information will allow decision makers to compare alternatives and assess environmental and socio-economic impacts for implementing Army growth initiatives and enable them to make informed decisions when choosing locations to station new units.

The Army is in a period of critical transition. On 12 October, 1999, the Secretary of the Army and the Army’s Chief of Staff articulated a vision for the Transformation of the Army to ensure it remained an effective and relevant operational force in the 21<sup>st</sup> Century. The leadership of the Army recognized the emerging need to shift from a Cold War focus to meet new unconventional threats to national security, and a decision was made to begin the 30 year process of transforming the Army which was described in the 2002 Record of Decision for the PEIS for Army Transformation. Since this decision, the Army has completed the initial phases of this Transformation effort and is continuing to implement those actions which are needed to field a force that is best configured to meet the evolving national security and defense requirements of the 21<sup>st</sup> century.

The Army continues to conduct detailed planning to effectively carry out transformation in a way that addresses capabilities shortfalls of the cold war force and implements the guiding recommendations of the Quadrennial Defense Review (QDR). The Army’s guiding document for the implementation of this plan is the Army Campaign Plan (ACP). The ACP directs the detailed planning, preparation, and execution of a full range of transformation tasks that are underway to ensure the synchronization of transformation activities across all facets of the organization.

As part of the overall Army transformation effort, the Army has transitioned to a modular, or standardized force structure. Organizationally, this has meant a transition of the Army from large, powerful, fixed organizations constituted at the Division level (10,000 to 12,000 personnel) to an Army designed around smaller, standardized, self-contained, rapidly deployable Brigade Combat Teams (BCTs). There are three types of BCT’s with differing equipment, training, maneuver and support needs. These include Heavy, Light and Stryker BCTs. The transformation of the Army’s BCTs to a standardized structure is almost complete. Subsequent phases of transformation analyze the realignment of Combat Support (CS) and Combat Service Support (CSS)

1 units to ensure the Army is fielding the proper force to support its modular BCTs and  
2 operational mission requirements. Realignment of CS/CSS units required to support  
3 the Army's operational needs is discussed and evaluated along with those programs  
4 that further implement modular forces concepts in the subsequent chapters of this  
5 document.

6  
7 In order to further Army Transformation, meet the increased national security and  
8 defense requirements of the 21<sup>st</sup> century, maintain training and operational readiness  
9 levels of the force, and preserve a high quality of life for U.S. Army Soldiers and  
10 Families, the Army has identified the need to increase its overall size while continuing to  
11 restructure its forces in accordance with modular Transformation decisions. This  
12 increase in the numbers and configurations of units will enhance operational readiness  
13 by allowing Soldiers more time to train and maintain their equipment, and will provide  
14 Soldiers and Families more time together at home station while providing the nation with  
15 greater capability to respond to increased national defense and security challenges.

16  
17 The Army's Proposed Action is to increase its end-strength permanently in accordance  
18 with Congressional authorizations to a size and configuration that is capable of meeting  
19 national security and defense objectives, implements Quadrennial Defense Review  
20 (QDR) recommendations, sustains unit equipment and training readiness, and eases  
21 the deployment burden on its Soldiers and Families. The growth of the Army would  
22 allow for the adjustment of the composition of its forces to continue to accommodate  
23 Transformation objectives and create additional unit capabilities in high demand areas  
24 where mission requirements exceed current manning authorizations. These units, such  
25 as military police and explosive ordnance are not currently available in enough numbers  
26 to sustain on-going mission requirements and Soldier and Family quality of life. The  
27 implementation of Army growth will allow the Department of the Army (DA) to field a  
28 sustainable force that matches mission requirements of the current security  
29 environment.

## 30 31 **1.2 Need for the Proposed Action**

32  
33 This section of the document presents and discusses the Army's need for growth and  
34 realignment of its current forces. This discussion references several underlying source  
35 documents that must be discussed in order to place the full need and purpose for the  
36 Army growth in its proper context. Source documents referenced in this section include  
37 the National Security Strategy (NSS), the National Defense Strategy (NDS), the  
38 Quadrennial Defense Review (2006), and the ACP. Army growth and realignment of  
39 the force must meet the requirements defined in these guiding national security and  
40 defense policy documents, which lay the framework for the Army mission and how the  
41 United States will utilize its military to deter conflict and shape the global security  
42 environment. In addition to discussing the Army's requirements to take action from an  
43 organizational perspective this Section also discusses the needs of individual units as  
44 well. The implementation of Army growth and restructuring must be considered in the  
45 context of several major ongoing initiatives including Army modular Transformation,  
46 those moves directed by the Defense Base Closure and Realignment Act of 1990,



1 implemented by Base Realignment and Closure legislation of 2005 (BRAC 2005), and  
2 Global Defense Posture Realignment (GDPR).

### 3 4 **1.2.1 Need for Army Growth and Realignment**

5  
6 The need for the Proposed Action is best encapsulated by the Chief of Staff of the  
7 Army's (CSA) 2007 assessment of the disposition of the Army that states the following:

8  
9 *"The need for Army growth is driven by the fact that the current operational demand is*  
10 *greater than the Army's sustainable supply of forces. Because of shortages in people,*  
11 *equipment and time to train, the non-deployed force does not meet readiness goals. As*  
12 *a result, the Army lacks strategic depth to respond to new contingencies, and*  
13 *generating forces to meet demands, which results in short term stress and long term*  
14 *institutional risk. These are symptoms of a larger strategic problem: the Army's*  
15 *strategic requirements and resources are not in balance."* (General Casey, Chief of Staff  
16 of the Army [Army Initiative Charter, April 2007]

17  
18 As a result of the imbalance between current mission requirements and available  
19 forces, the Army has defined the growth and restructuring to meet the greater demands  
20 of the current security environment as its top priority (CSA, 2007).

21  
22 The need for the Proposed Action focuses on three primary areas. These areas of  
23 need include:

- 24  
25 • **Supporting increased security and defense mission requirements.** The NSS  
26 and NDS provide a framework which directs Army mission requirements and  
27 contingency planning. The Army must be able to meet the nation's security and  
28 defense policy objectives as defined in these documents while continuing to  
29 implement recommendations for Army Transformation as defined in the QDR in  
30 2001 and 2006. The ACP is the Army's guiding document for managing the  
31 force and carrying out recommendations put forth in the QDR.
- 32  
33 • **Sustaining Force Readiness.** Sustaining the force entails ensuring that the  
34 Army consists of enough Soldiers to support both operational deployment  
35 requirements and home station training and equipment maintenance activities.  
36 Striking the proper balance of deployments with these activities is critical to  
37 ensure a professional, well-trained, and well-equipped force can consistently  
38 meet unit readiness standards and successfully accomplish the national security  
39 and defense missions of the nation.
- 40  
41 • **Preserving Soldier and Family Quality of Life and the All Volunteer Force.**  
42 Keeping a long-term sustainable balance between the operational activities is  
43 required to support U.S. Security and quality of life for Soldiers and their  
44 Families. A larger pool of available forces will allow the Army to set more  
45 sustainable ratios of home-station time versus time spent deployed to support  
46 mission requirements abroad. This reduces stresses placed on individual

1 Soldiers and their Families and allows Soldiers to maintain a higher quality of life  
2 at home station. Taking care of Soldiers and their Families is a critical element of  
3 need and will help to ensure the Army is capable of maintaining an all-volunteer  
4 force by encouraging Soldier retention and attracting new recruits.  
5

## 6 **1.2.2 Supporting Increased Security and Defense Mission Requirements**

7

8 The Army is established as a land-based military force, and its forces are to be  
9 organized, trained, and equipped to represent the nation's global security and defense  
10 interests around the world. The Army does this primarily through prompt intervention  
11 and sustained combat, peacekeeping, and support and stability operations in key  
12 regions of interest defined by national strategic policies and objectives. Key policy  
13 documents for national security and national defense include the NSS (March 2006),  
14 the NDS (March 2005), and the QDR (February 2006). As Commander in Chief of the  
15 Armed Forces, the President of the United States in conjunction with his security  
16 advisors promulgate and define national security and defense policy from within the  
17 executive branch of government. Using these defense policy documents for strategic  
18 guidance, military commander's conduct contingency planning to ensure that their  
19 forces are able to respond to crises, shape the global security environment, and  
20 implement security and defense policies in their regions of interest. The Army is  
21 responsible for the implementation of national security and defense policy as outlined in  
22 these over-arching security and defense policy documents by the executive branch of  
23 the government.  
24

### 25 **1.2.2.1 National Security Strategy**

26

27 The President of the United States establishes the nation's goals and objectives for  
28 promoting secure global conditions and for shaping of the global security environment.  
29 The NSS establishes the policy goals and objectives that begin to shape mission  
30 requirements for the Department of Defense (DoD) and Department of the Army (DA).  
31 NSS goals include:  
32

- 33 1) Disrupting and destroying terrorist organizations with global reach.
- 34 2) Denying terrorist groups the support and sanctuary provided by rogue states.
- 35 3) Preventing and resolving regional conflicts.
- 36 4) Intervening in regional conflict to promote stability where necessary.
- 37 5) Assisting in post-conflict stabilization when necessary.
- 38 6) Preventing Nuclear Proliferation.
- 39 7) Preventing tyranny, oppression, and genocide.
- 40
- 41
- 42
- 43
- 44
- 45
- 46

1 These goals provide direction and guidance to inform DoD and DA Commanders and  
2 strategic planners to establish the NDS and plan for strategic mission requirements.

### 3 4 **1.2.2.2 National Defense Strategy**

5  
6 The NDS outlines how DoD will support broader U.S. efforts to create conditions  
7 conducive to a secure international system as outlined in the President's NDS. The  
8 NDS strives to maintain international sovereignty, representative governance, peaceful  
9 resolution of regional disputes, and open and competitive markets. Specifically, the  
10 NDS and the National Military Strategy, a policy document that supports it, seek to  
11 ensure the U.S. focuses its efforts on four strategic objectives. These objectives are:

12  
13 1) **Secure the U.S. from Direct Attack.** This military objective includes the  
14 dissuasion, deterrence, and defeat of organizations and states that seek to harm the  
15 U.S. and its citizens directly.

16  
17 (2) **Secure and Retain Strategic Access for Global Freedom of Action.**  
18 Strategic access ensures the U.S. can access key regions of interest, access lines of  
19 communication and is able to promote and influence the global security environment  
20 and the goals outlined in the NSS for itself and its allies.

21  
22 (3) **Strengthen Alliances and Partnerships.** A secure international system  
23 requires collective action. The U.S. has an interest in broad-based and capable  
24 partnerships with like-minded states. This objective seeks to strengthen security  
25 relationships with traditional allies and friends, developing new international  
26 partnerships, while working to increase the capabilities of our partners to contend with  
27 common challenges.

28  
29 (4) **Establish Favorable Security Conditions.** The objective directs the DoD  
30 counter aggression or coercion targeted at U.S. partners and interests. Further, where  
31 dangerous political instability, aggression, or extremism threatens fundamental security  
32 interests, the U.S. will act with others to strengthen peace. Specifically, the U.S. military  
33 will conduct planning to create favorable international conditions and broad, secure, and  
34 lasting peace.

### 35 36 **1.2.2.3 The Quadrennial Defense Review (2001, 2006)**

37  
38 The QDR sets forth a specific series of recommendations for implementing the goals  
39 and objectives of the NSS and NDS. These recommendations are specific capabilities-  
40 based recommendations for each service of the DoD that take into account current  
41 capabilities and future projected military requirements that will be needed to implement  
42 the NSS, NDS, and provide for global security and the nation's strategic interests. The  
43 QDR is required by 10 USC 118, which directs the Secretary of Defense to assess  
44 defense strategy and force structure every four years on a 20-year planning horizon.  
45 Based on this assessment, the DoD reorients its capabilities better to meet national  
46 security demands. The QDR in 2001 prescribed recommendations for the Army to

1 transform its forces to become more relevant to shaping the 21<sup>st</sup> Century global security  
2 environment. These recommendations provided a framework for Army  
3 units/organizations to become a more transportable, agile, maneuverable force with  
4 more firepower, technology, and logistical sustainability than the forces that existed.  
5 The DoD and DA, informed by experiences in Afghanistan and Iraq, revised and  
6 submitted the QDR to Congress in 2006. The recommendations continue to emphasize  
7 the need for Transformation and growth of U.S. ground forces. These  
8 recommendations put forth in the QDR follow two major DoD imperatives:  
9

10 1) Continue to reorient the Department's capabilities and forces to be more agile  
11 in current international conflicts while preparing for broader asymmetric threats from  
12 unconventional enemies to hedge against uncertainty over the next 20 years.  
13

14 2) Implement enterprise-wide changes to ensure that organization structures,  
15 processes, and procedures effectively support DoDs strategic direction.  
16

17 Specific QDR decisions direct DA to accelerate the Transformation of joint ground  
18 forces capabilities. QDR decisions and directives that specifically relate to Army growth  
19 and restructure include:  
20

21 1) Transform Army units and headquarters to modular designs.  
22

23 2) Continue to standardize brigades through Army Modularity in all three Army  
24 components (Active, Reserve, and National Guard).  
25

26 3) Incorporate technology improvements and Future Combat Systems (FCS)  
27 improvements through a spiraled development and fielding process to introduce new  
28 technologies as they develop.  
29

30 4) Expand joint tactical air/ground operations and double the coverage capability  
31 of unmanned aerial vehicles to include the Predator and Global Hawk.  
32

33 5) Further increase the capability, capacity, and numbers of special operations  
34 force personnel and increase active duty special forces battalions by one-third.  
35

36 6) Improve intelligence, surveillance, and reconnaissance technologies,  
37 information sharing capabilities, and joint command and control.  
38

39 7) Achieve Net-Centricity and information connectivity on the battlefield by  
40 improving tactical satellite communications, strengthening network capability, and  
41 increasing communications capability and bandwidth.  
42

43 These decisions and directives establish the strategic national security and defense  
44 framework that influence and direct the Army's decision on growth and restructuring.  
45 Ultimately, the nation's top defense professionals, its senior military leadership, assess

1 and balance defense policy to manage the growth and restructure of the Army  
2 according to these policies.

#### 3 4 **1.2.2.4 Army Transformation**

5  
6 On 12 October 1999, the Secretary of the Army and the Army's Chief of Staff articulated  
7 a vision for Transformation of the Army to ensure it remained a ready and relevant land-  
8 power for the 21<sup>st</sup> Century. There was a recognized and emergent need to shift from a  
9 Cold War focus to meet new and diverse threats to national security. To accomplish  
10 this, the Army initiated a 30 year process of Transformation, proceeding in phases from  
11 the existing force (Initial Phase), to an interim force (Interim Capability Phase) and  
12 ultimately a future force (Objective Phase). This process will pervade and force change  
13 in every element of the Army including leadership development, training and doctrine,  
14 force structure and stationing, weaponry and installation infrastructure.

15  
16 The ACP and the Army's strategy for implementing Transformation directives of the  
17 QDR provide a context for understanding why the Army is transforming and the ultimate  
18 need for Army growth and restructuring. The ACP serves as the Army's roadmap to  
19 implementing the goals and objectives put forth in the QDR and its overarching planning  
20 document that guides Army Transformation. The QDR and ACP direct the Army to  
21 transform to a highly expeditionary force, or one which is capable of supporting itself in  
22 a combat environment without depending on continual supply and logistics support. In  
23 addition, the QDR directed the Army to integrate with the U.S. Air Force, Navy, Marine  
24 Corps, and Coast Guard capabilities to provide greater inter-operability and  
25 communication to enhance defense capability. These recommendations build on  
26 previous Transformation actions taken by the Army to convert to standardized, self-  
27 sustaining, modular BCT configurations.

28  
29 To implement decisions made in the QDR, senior Army leadership is responsible for  
30 developing and managing the Army's force structure. The process of Army force  
31 management is not a static process and force management decision-making is an  
32 evolving process that is based on changing global conditions and mission requirements.  
33 As mission requirements increased, Army leadership has recognized the need to re-  
34 evaluate the size and unit composition of the modular force. This evaluation and  
35 determination to change the size or structure of the modular force will take mission  
36 requirements into account and will build previous decisions that direct the Army to  
37 transform to a modular force.

#### 38 39 **1.2.2.5 Power Projection and Strategic Deployment**

40  
41 The policies put forth in the NSS, NDS, QDR, and ACP provide directives and explicit  
42 guidance for the Army to improve its capacity to project power rapidly to prevent, deter,  
43 or defeat the actions of those who would do the nation harm while maintaining stability  
44 in key regions of interest. Effective deterrence requires that those who would  
45 undermine U.S. security have awareness that U.S. defense forces can credibly act to  
46 halt those activities that threaten U.S. national security. Rapid power projection to

1 respond to the wide range of potential contingencies present in an increasingly complex  
2 global security environment is a foundational capability needed to support national  
3 security. The Army remains committed to its strategic goal of having the capability to  
4 deploy a BCT anywhere in the world within a few days of notification. This requires  
5 advance planning to respond to contingencies in key areas of interest and detailed  
6 planning based on a units deployment facilities, logistics and available transportation.  
7 Deployment considerations and Combatant Commanders force requirements assist the  
8 Army in selecting stationing locations that can support contingency operations and  
9 National Defense Requirements.

### 11 **1.2.3 Sustaining Force Readiness**

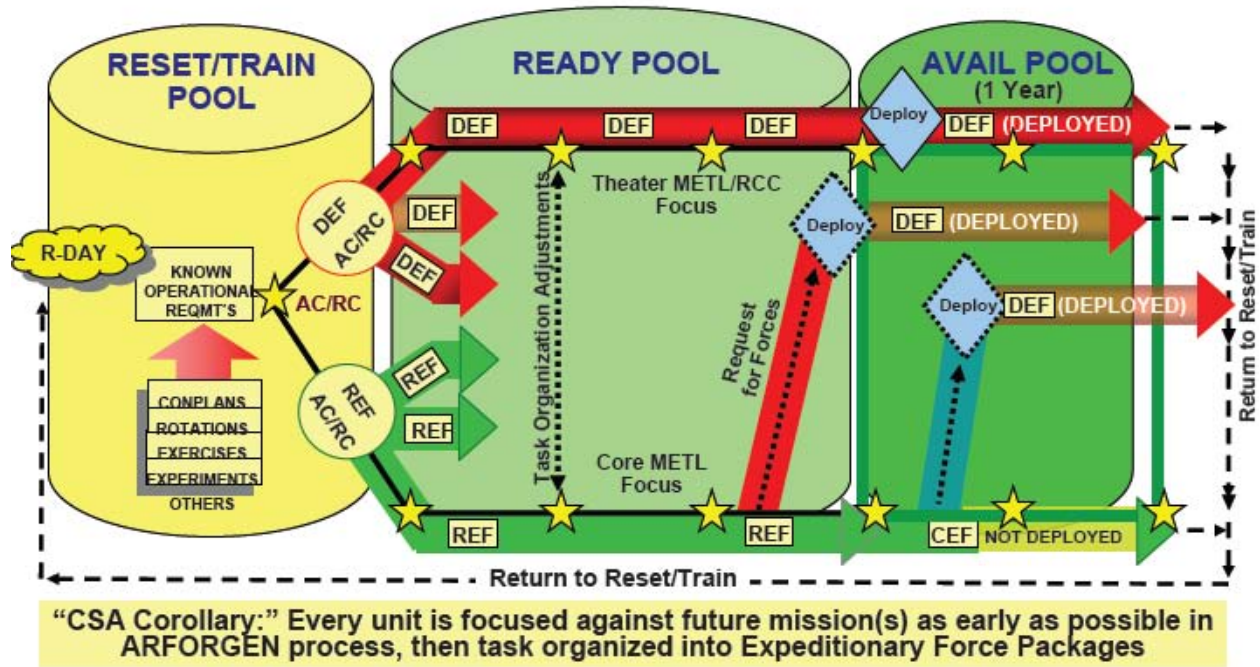
13 The Army has always focused on maintaining an operationally ready force that can  
14 respond to emerging threats and potential contingencies that threaten national security.  
15 Maintaining operational readiness means providing Soldiers and leaders with dedicated  
16 time to train and rehearse on core mission essential tasks, fully employ the capabilities  
17 of their equipment in a training environment, and maintain their vehicles, weapons and  
18 other essential combat systems. The Army plan includes a readiness model to manage  
19 the force and ensure the ability to support demands for Army forces. This Army  
20 readiness model follows a process for Army Force Generation (ARFORGEN). The  
21 ARFORGEN process ensures that individual units receive adequate time to prepare for  
22 deployment through training and maintenance activities and that manning, equipping  
23 and resourcing can be synchronized with unit deployments. The ARFORGEN force  
24 readiness model brings units to a full state of readiness in terms of manning, equipment  
25 and training before they are scheduled to deploy. The ARFORGEN process is  
26 designed to reduce Soldier uncertainty with regards to deployments and provide  
27 combatant commanders of the U.S. Army with a consistent level of ready forces to  
28 execute operations abroad. In providing Commander's with "ready" trained, manned  
29 and equipped units the ARFORGEN model assumes that active duty units will support  
30 one operational deployment in a three year period. Reserve Forces would be  
31 anticipated to support one deployment every five to six years.

33 The ARFORGEN process which was implemented across the Army in February of 2006  
34 categorizes Army units in three readiness states as depicted in Figure 1.2-1. These  
35 readiness states are:

- 37 • **Reset/Retrain:** Units recover from their previous deployment,  
38 reconstitute, repair and replace equipment and assign and train new  
39 personnel as required.
- 41 • **Ready:** Units conduct mission preparation and rehearse more complex,  
42 higher level group training tasks involving greater levels of planning and  
43 coordination. Units rehearse with other operational Headquarters for  
44 potential upcoming missions. These units are eligible to fill operational  
45 surge requirements, if necessary.

- **Available/Deployed:** Units in the available category of the ARFORGEN process are used as necessary to support operational and contingency requirements.

**Figure 1.2-1. ARFORGEN Process**



6  
7 Evolving threats from state and non-state sponsored sources of terrorism have  
8 markedly increased demand for ready and available Army forces to participate in the full  
9 spectrum of combat and peace support operations. Since 2003, the Army has been  
10 unable to implement optimal deployment cycling for Active or Reserve component  
11 Soldiers as defined by ARFORGEN. Since Operation Iraqi Freedom began in 2003,  
12 most Active duty units have spent one year or more deployed to one year at home  
13 station resetting, equipping, and training. Reserve component forces have also been  
14 spending more time deployed than maintaining readiness as prescribed by the  
15 ARFORGEN process.

16  
17 To provide combatant commanders with the forces needed for current operations, the  
18 Army has been forced to shorten timeframes for preparation and readiness activities.  
19 This compression of ARFORGEN cycling has allowed the Army to meet near-term force  
20 requirements but has carried forward institutional risk as the Army continues to operate  
21 at an accelerated pace. The compression of ARFORGEN can lead to a degradation of  
22 force readiness if the high operations tempo and increased frequency of deployment  
23 continues across multiple deployment cycles. The Army does not currently have the  
24 requisite number of troops to implement optimal deployment cycling as prescribed by  
25 ARFORGEN while meeting national security and defense mission requirements.

1  
2 In February 2007, the Army revised deployment policies to compress further  
3 ARFORGEN cycling to meet surge requirements of Operation Iraqi Freedom. New  
4 deployment policies allow for 15 months of deployment time with 12 months at home  
5 station to conduct readiness activities. While such policies present a short term solution  
6 to providing enough additional Soldiers to support deployment requirements they  
7 present elevated challenges to sustaining Soldier and unit readiness.  
8

#### 9 **1.2.4 Preserving Soldier and Family Quality of Life and the All-Volunteer** 10 **Force**

11  
12 Preserving Soldier and Family quality of life and the all-volunteer force are two of the  
13 Army's highest priorities and concepts that are inseparably linked. The Army strives to  
14 maintain the highest possible quality of life for those who serve by establishing  
15 deployment predictability and balancing the timeframes for which Soldiers are deployed  
16 away from home station against mission requirements.  
17

18 Meeting the stationing needs of Army units means ensuring that the Soldiers and their  
19 Family members have access to quality schools, medical facilities, housing, services,  
20 and ample access to recreation opportunities. In a typical Army Brigade of between  
21 3,500-4,000 Soldiers, approximately 50-55% of Soldiers are married may be  
22 accompanied by more than 2000 spouses and 1500 children. Army installations are  
23 used not only for military training but are also the communities where Families remain  
24 behind supported as members of the Army community where they live. The Army is  
25 absolutely committed to providing the highest quality of life that can be attained for the  
26 Soldiers and their Families who have endured multiple deployments supporting the war  
27 on terror. Stationing locations considered for the stationing of new units must have or  
28 be able to build housing and living space, schools, medical facilities, and support the  
29 recreational opportunities for the Soldiers and Families of the new Army units.  
30

31 The ARFORGEN process assists in providing for increased deployment predictability  
32 and is designed to provide Soldiers with adequate time to conduct activities necessary  
33 to reconstitute equipment, and conduct necessary training activities. The ARFORGEN  
34 process is simultaneously designed to provide Soldiers and Families with adequate time  
35 together at home station and predictability on when a Soldier is likely to be deployed.  
36 The process allows Soldiers and their Families to retain a higher quality of life with less  
37 uncertainty concerning possible deployment.  
38

39 The compression of the ARFORGEN process and increase in deployment cycling times  
40 for Army units has diminished Soldier time spent at home station since the war on terror  
41 first began. Increased mission requirements for forces have reduced overall  
42 deployment predictability. Because enough Soldiers are not currently available in the  
43 U.S. Army to support ongoing mission requirements in a sustainable, long-term fashion,  
44 the ability to provide for Soldier and Family quality of life has been degraded. This in  
45 turn affects recruitment and the ability of the Army to retain Soldiers and maintain an all-  
46 volunteer force. Retaining the all-volunteer force has been defined by the Senior



1 Leadership of the Army as an essential component for sustaining a high quality force  
2 capable of implementing the Nation's defense and security needs.

3  
4 At the organizational level, the need for action focuses on maintaining a well prepared,  
5 well equipped, all-volunteer force that can respond to the increased challenges of the  
6 modern security environment. At the Soldier and unit level, there are several needs that  
7 must be considered for the stationing of additional Army units at a given location.  
8 These needs are described in more detail below.

## 9 10 **Unit Level Requirements**

### 11 12 **1.2.5 Training Infrastructure.**

13  
14 The mission of Army units is ultimately to deploy abroad to support the full spectrum of  
15 potential operations from waging the nation's wars to supporting peace and stability.  
16 While at home station, it is critical that Army units retain or develop those skills  
17 necessary to deploy and execute their respective mission. Effective training, carried out  
18 to a high doctrinal standard, is the cornerstone of operational success. High quality  
19 training, which prepares Soldiers for what will be encountered in the operational  
20 environment, is essential to ensuring the success of the nation's strategic defense  
21 objectives, national security, and the safety of those who serve.

22  
23 A critical element of need for the permanent stationing of units as part of Army Growth  
24 is the selection of a location where the unit can attain high levels of training proficiency  
25 to prepare for deployment abroad. Training and qualifying Soldiers and units typically  
26 requires three types of training facilities in the field: individual and crew weapons  
27 qualification ranges, live-fire range complexes that allow units to conduct live-fire  
28 training simultaneously as one team, and maneuver areas for units to rehearse and  
29 train on the full complement of mission essential tasks required by a units training  
30 doctrine. In addition to live training, the Army also augments its leader development and  
31 unit training strategies with virtual and battle simulations. Army units must be prepared  
32 to execute a full array of combat, stability, and peace support operations.

33  
34 The level of combat readiness of an Army unit is directly related to the availability and  
35 capability of its supporting training infrastructure. Since the war on terror began, the  
36 Army has undergone a process to modernize and transform its training ranges radically  
37 to replicate operational conditions more closely. This Transformation of training range  
38 infrastructure is closely aligned with QDR decisions, weapon system development, and  
39 conditions encountered in Iraq and Afghanistan. All modular BCTs require a full suite of  
40 supporting training infrastructure to meet individual, crew, and collective unit training  
41 requirements to be certified for operational deployments. Unit range requirements are  
42 fully articulated in Section 2 of this document. Range specifications and standard  
43 designs are based on Army Training Circular 25-8 *Army Training Ranges*, which serves  
44 as the definitive source document for Army training range requirements. Locations  
45 selected for the stationing of new Army units must possess or be able to accommodate

1 the construction of range requirements for the unit so that the unit can adequately train  
2 to meet doctrinal training readiness standards.

3  
4 In addition to adequate firing ranges Army units require significantly greater amounts of  
5 maneuver space. Units must be able to execute a full range of combat and peace  
6 support operations to ensure mission. At all levels, units must have adequate maneuver  
7 training land to conduct and rehearse training operations to certify themselves as a  
8 deployable unit. Army Training Circular 25-1 *Training Land* serves as the definitive  
9 source document for requirements for maneuver land training.

### 10 11 **1.2.6 Readiness / Garrison Operations Facilities.**

12  
13 When an Army unit is not deployed for training or supporting mission requirements  
14 abroad, Soldiers, vehicles, and equipment require adequate garrison facilities to  
15 conduct routine operations and maintenance in order to sustain their equipment.  
16 Garrison operations ensure the unit is administratively prepared and functionally  
17 equipped to support deployment operations. Stationing of an Army unit requires  
18 dedicated administrative office space for its Soldiers, motor pools, vehicle maintenance  
19 facilities, weapons armories, and many other administrative facilities needed to ensure  
20 successful garrison preparation and maintain operational readiness. The Army Corps of  
21 Engineers (USACE) has designed and implemented a program of standard facilities that  
22 are required to support Army modular BCTs. These standards are required to provide  
23 adequately for the garrison operations and maintenance of the Army units and are  
24 described in more detail in Section 2 of this document. Stationing sites selected for the  
25 stationing of new units must be able to accommodate new unit garrison operations and  
26 construction of necessary support facilities as an essential component of need for the  
27 stationing of new units.

### 28 29 **1.2.7 Summary of Need**

30  
31 There are three primary areas of need for Army growth and force realignment. They  
32 include supporting increased security and defense mission requirements, sustaining  
33 force readiness, and preserving Soldier and Family quality of life and the all-volunteer  
34 force. Growth of the Army and the redistribution of the Army's current force structure  
35 will address those issues being faced by the Army as it continues to meet national  
36 security and defense requirements now and into the future.

### 37 38 **1.3 Purpose of the Proposed Action**

39  
40 The purpose of the proposed action is to align the Army into an optimally configured  
41 force of appropriate sustainable size which is capable of meeting the current and future  
42 projected demands and requirements of national security and defense. This force will  
43 enable the Army to achieve a sustainable balance between mission requirements,  
44 operations tempo, home station readiness preparation and Soldier and Family quality of  
45 life while supporting the Army's intent to maintain a high quality all-volunteer force.

## 1 **1.4 Ongoing Army Initiatives (BRAC, GDPR, Modularity)**

2  
3 Initiatives to grow and realign the Army must be considered in the context of several  
4 major on-going Transformation and stationing initiatives. These initiatives include Army  
5 modular Transformation to standardized unit organizations and those moves directed by  
6 the Base Realignment and Closure Act (BRAC 2005) and Global Defense Posture  
7 Realignment (GDPR). Each of these initiatives are discussed in greater detail below.  
8

### 9 **1.4.1 BRAC 2005**

10  
11 The BRAC 2005 realignment and closures were designed to provide the necessary  
12 infrastructure to support Army Transformation, including GDPR, the ACP, and  
13 conversion to a modular force structure. Through the current 2005 BRAC actions, the  
14 Army is transitioning from a force capable of countering Cold War-era threats to one  
15 that is responsive to a broad range of contingency threats that represent a range of  
16 security threats facing the nation today.  
17

18 BRAC is inextricably tied to Transformation and Army growth, affecting 74 Army  
19 installations by directing the closure of 13 active facilities, the realignment of 53 active  
20 facilities, and the closure of 211 National Guard and 176 Reserve facilities. BRAC 2005  
21 actions serve as the baseline for which Army growth and restructure stationing  
22 decisions will be determined. Objectives of BRAC include optimizing military value,  
23 advancing the Army Modular Force (AMF) conversion, accommodating the re-stationing  
24 of overseas units, enabling the Transformation of both the active and reserve  
25 components, adjusting the force structure, and furthering the Army's ability to conduct  
26 joint operations. Congress directed the closure of specific Army installations and also  
27 directed the realignment of Army units from one home installation to another. The Army  
28 staff and Secretariat have a mandatory duty to implement these actions and they are  
29 thus considered part of the existing baseline.  
30

### 31 **1.4.2 Global Defense Posture Realignment**

32  
33 The U.S.'s global defense posture is characterized by the size, locations, types, and  
34 roles of forward military forces. In the past, the Army has depended heavily on its  
35 forward based presence in the Pacific and Europe to project power and undertake  
36 military actions overseas. Transformation and the QDR directives provide guidance to  
37 restructure the military for rapid deployment from within the U.S. while reducing the  
38 presence and reliance of U.S. forces on foreign nations. As part of the overall  
39 Transformation effort, the Army is in the process of relocating 44,500 Soldiers back to  
40 the U.S. between 2004 and 2011 and downsizing overseas facilities to support the  
41 expeditionary vision contained within the QDR.  
42

43 Although the U.S. will retain transformed, forward-positioned forces in Europe and  
44 Korea, most Soldiers and their units will be realigned to Army installations in the U.S.  
45 This realignment will create a greater demand on training ranges and facilities at these  
46 installations. The strategy will enable the Army to restructure in a manner that

1 enhances the efficiency and effectiveness of response to emerging threats. The  
2 decisions of the GDPR implemented prior to 30 September, 2007, are assumed to be  
3 part of the baseline environment for alternatives analysis conducted for Army growth  
4 and restructuring. Those GDPR stationing decisions not implemented by this timeframe  
5 are included within the separate alternatives presented in this PEIS.  
6

### 7 **1.4.3 Army Modular Force (AMF)** 8

9 As a part of the overall Army Transformation effort, the Army has decided to transition to  
10 a modular or standardized force structure at all levels of its organization. This process  
11 of modular standardization has entailed a transition of the Army from an organization  
12 operationally focused on conducting operations at the Division-level (10,000-12,000)  
13 Soldiers to an organization which focuses its operations at the smaller, self-contained,  
14 logistically supportable Brigade Combat Team (BCT) sized units of 3,500-4,000  
15 Soldiers. The units within these BCTs are similar in their equipment and manning. The  
16 modular initiative allows for greater levels of planning and organizational efficiency.  
17

18 There are three primary types of BCTs which are designed to be self-contained,  
19 deployable, expeditionary units in nature which can be augmented with other units to  
20 support the intent of theater commanders. These include the following:  
21

22 **Infantry BCT (IBCT).** The IBCT is a BCT which consists of approximately 3,400-3,500  
23 Soldiers and 950 wheeled vehicles. The unit is designed for rapid deployability, speed  
24 and agility, but lacks firepower, protective armaments and staying power to sustain  
25 engaged conflict against an opposing armored force.  
26

27 **Heavy BCT (HBCT).** The HBCT is composed of M1 Abrams tanks, M2 Bradley fighting  
28 Vehicles and supporting tracked and wheeled vehicles. When fully manned, the HBCT  
29 consists of approximately 3,800 Soldiers. This type of unit has considerable firepower,  
30 and protective armament, but is difficult to deploy and lacks the maneuverability and  
31 agility of the IBCT. In addition, the HBCT has substantial logistical requirements to  
32 ensure it can sustain military operations.  
33

34 **Stryker BCT (Stryker BCT).** The Stryker BCT provides the Army with capability that  
35 offsets the strategic gaps between the capabilities of the HBCT and IBCT. The Stryker  
36 BCT consists of approximately 4,000 Soldiers, 320-330 Stryker vehicles and 500-600  
37 wheeled support vehicles. The Stryker BCT provides levels of deployability,  
38 maneuverability, firepower, communications capability and armament that allow the unit  
39 to accomplish a broad range of operations. Its increased mobility and digital  
40 communications capability make the unit ideal for conducting urban and small scale  
41 contingency operations.  
42

43 In addition to the BCTs which represent the Army's primary ground combat forces, there  
44 are 5 other types of brigades which support the ground operations of the BCT. At a  
45 minimum, these supporting brigades consist of a modular standardized headquarters  
46 which have manning and equipment requirements which are fixed. The remaining

1 structure of support brigades, however, consists of a structure which is tailorable to the  
2 needs of the mission commanders. With the exception of aviation brigades, these units  
3 therefore have no set numbers of Soldiers and vehicles as is the case for the modular  
4 IBCT, Stryker BCT, and HBCT.

5  
6 **Fires Brigade.** The fires brigade uses mounted and towed artillery to provide close  
7 support and precision strikes. The Brigade employs artillery within the unit but also can  
8 control and direct the fires of other armed forces or coalition partners.

9  
10 **Aviation Brigade.** There are several types of aviation brigades, each with a different  
11 function. Aviation Brigades include Combat Aviation Brigades, Medium and Heavy lift  
12 aviation Brigades and multi-functional aviation Brigades. Aviation Brigades typically  
13 consist of over 100 helicopters and 2,000 to 3,000 Soldiers.

14  
15 **Battlefield Surveillance Brigade (BfSB).** The BfSB provides reconnaissance,  
16 surveillance, target acquisition, and intelligence support to build the common  
17 operational picture and focus the efforts and resources of the Army and its sister  
18 services.

19  
20 **Maneuver Enhancement Brigade (MEB).** The MEB enables, enhances, and provides  
21 freedom of maneuver and engineering support to an Army, joint or multinational  
22 headquarters. The MEB augments maneuver and support brigades with functional  
23 assets to provide combat maneuverability and focused logistics across multiple areas of  
24 operation and can provide a headquarters to command and control an assigned area of  
25 operations including maneuver forces.

26  
27 **Sustainment Brigade.** The Sustainment Brigade consists of a modular headquarters  
28 unit of approximately 350 Soldiers and light, medium and heavy tactical trucks. The  
29 primary mission of the unit is to provide a complete range of logistics support supplies  
30 and services to combat BCTs and supporting Brigades. Often this support is in the form  
31 of fuel, ammunition, parts, food, and contracting services, to highlight just a few of the  
32 many logistical requirements of the BCT.

33  
34 Each of these Brigades is supported by different military skill sets such as military  
35 intelligence, communications, or explosives ordnance to name a few. Each of these  
36 skill sets are combined in a precise manner within a BCT or support brigade to provide  
37 the right skill sets to meet national security and defense requirements.

### 38 39 **1.5 Scope of the Analysis**

40  
41 This PEIS has been developed in accordance with NEPA, the regulations issued by the  
42 Council on Environmental Quality (CEQ), 40 CFR Parts 1505-1508 and the Army's  
43 implementing procedures published in 32 CFR Part 651 *Environmental Analysis of*  
44 *Army Actions*. The PEIS addresses the proposed Army growth and adjustment of the  
45 composition of the Army's forces in accordance with the guidance put forth in the ACP.  
46 Implementing Army growth includes evaluating stationing actions at locations within the

1 United States in accordance with NEPA regulations. The PEIS will identify the approach  
2 in determining final stationing actions based on general environmental and  
3 socioeconomic parameters. The scope of the PEIS will be broad and will encompass  
4 activities to support Army Growth and the ACP projected to take place from Fiscal Year  
5 (FYs) 2008-2013. As conditions change, this document may be supplemented.  
6

7 The analysis does not include BRAC realignments and closures. Under BRAC law,  
8 NEPA does not apply to the decisions to realign or close bases. The analysis does not  
9 include changes at locations outside of the continental US, except to the extent that  
10 such changes result in changes to locations within the continental United States. This  
11 EIS does not include Alaska or Hawaii.  
12

13 Installation locations carried forward for analysis in the programmatic EIS are those  
14 sites that may receive more than 1,000 new Soldiers from FY 08-13 as part of the  
15 initiatives discussed above. The 1,000-Soldier threshold was chosen because it  
16 represents a level of growth at a majority of installations at which significant impacts  
17 could occur and should be considered at the programmatic level.  
18

19 This PEIS assesses the environmental capacity of Army installations to accommodate  
20 different types and combinations of new units as part of the growth and restructuring.  
21 The PEIS will conduct initial analysis to examine the potential environmental and  
22 socioeconomic impacts at installations resulting from various combinations of new unit  
23 stationing actions. These stationing actions could include additional support units,  
24 addition of different types of modular BCTs, or combinations of these actions at a given  
25 stationing location. This is a top-tier programmatic environmental analysis intended to  
26 inform the public and high-level decisionmakers. Site-specific NEPA analysis will be  
27 conducted at the installation level as stationing decisions are implemented. Broad  
28 spectrum modeling will be conducted to determine the initial environmental and  
29 socioeconomic areas of concern, as well as, general capacity and condition issues of  
30 proposed installations. The comparison of current training activities, current  
31 environmental and socioeconomic climates, and proposed stationing activities will  
32 provide decision-makers the appropriate tools and information to effectively execute the  
33 ACP and Army growth. Information on these elements is presented in the sections that  
34 follow.  
35

36 This analysis examines installations in their current boundaries. It does not consider  
37 possible expansion of land holdings at installations. The process of land acquisition for  
38 Federal Agencies is a long one, requiring multiple approvals, a series of environmental  
39 and real estate planning studies, and funding of appropriations. Because of these  
40 uncertainties, there are no installation expansion actions that are included in the scope  
41 of this analysis. That said, the Army will have a Continental United States training land  
42 deficit by 2011 of five million acres. The Army is utilizing several approaches to  
43 overcome this training land shortfall. Successful expansion or acquisition of training  
44 lands, when and if it occurs, would improve the military value score of an installation for  
45 stationing purposes, and reduce the environmental impacts of any additional units  
46 stationed at that installation.

1  
2 The scope of the affected environment will include a geographically designated area  
3 presented in Table 1.5-1.

4  
5 **Table 1.5-1. Geographic Scope of Valued Environmental Components (VEC)**  
6

VEC	Geographic Scope of Resource
Air Quality	Metropolitan area, air shed, global atmosphere
Air Space	Metropolitan area
Cultural	Historic properties or districts/prehistoric areas
Noise	Metropolitan area
Soil Erosion	Cantonment and range areas
Biological Resources	Habitat, ecosystem; including migratory birds – breeding grounds, wintering areas, migratory routes, total range Threatened and Endangered Species (T&E) Species and Vegetation
Wetlands	Watershed-based area
Water Resources	Streams, river basin, estuaries; watershed-based
Socioeconomics	Community, metropolitan area, county or state (U.S. Census)
Energy	Community, county, region, or state
Land Use	Community, county, region, or state
Hazardous Waste	Metropolitan area
Traffic and Transportation	Metropolitan area, county, or region
Facilities	Metropolitan area

7  
8  
9 Proposed impacts and cumulative effects are documented in the PEIS. Where  
10 applicable detailed follow-on analyses will occur at the site-specific installation level as  
11 needed to implement actions associated with Army growth and realignment. These  
12 additional analyses would be conducted in accordance with 32 CFR Part 651  
13 (*Environmental Analysis of Army Actions*).

14  
15 The analysis of impacts as presented in this PEIS is broken down into four major activity  
16 groups which define the categories of action needed to support installation level  
17 stationing actions. These activity groups are:

- 18  
19 • **Garrison Construction.** This activity group involves all types of construction  
20 activities including construction and/or modification of buildings and garrison  
21 infrastructure. The construction activity group includes new construction, repair and  
22 maintenance of existing facilities, and demolition of buildings and facilities.  
23
- 24 • **Training Infrastructure Construction.** This activity group involves training  
25 infrastructure construction activities needed to support unit training activities. This  
26 includes construction of firing ranges, simulations facilities, and training support  
27 infrastructure. The training infrastructure construction activity group includes new

1 construction, repair and maintenance of existing facilities, and demolition of buildings  
2 and facilities.

- 3
- 4 • **Live-Fire Training.** This activity group involves achieving and maintaining  
5 readiness to perform assigned missions through weapons qualification and  
6 coordinated live-fire activities. Live-fire tasks include the use of blanks and training  
7 ammunition to simulate a realistic training environment. Army doctrine for individual  
8 and collective (unit) training is based on mission-essential task lists. These lists  
9 identify all types of training activities that are need by individuals and units to be  
10 ready to perform their missions.
  - 11
  - 12 • **Maneuver Training.** Units conduct maneuver training in accordance with Army  
13 doctrine for individual and collective (unit) training based on mission-essential task  
14 lists. Maneuver training allows units to effectively coordinate and integrate force  
15 capabilities in a simulated operational environment. This activity group includes the  
16 management of the Army's inventory of millions of its maneuver areas.
  - 17

18 Stationing and growth decisions would occur through various actions, any of which,  
19 depending on the circumstances, could result in adverse effects to the environment.

20

21 The programmatic approach is designed to allow for early planning, coordination, and  
22 flexibility throughout implementation of the Army growth and restructuring process. The  
23 PEIS evaluates the proposed action on a broad spectrum and lays the foundation for  
24 subsequent analyses and decision making. The PEIS is designed to leverage into  
25 multi-year analyses that can assist force managers in making stationing decisions.  
26 Additional installation-specific analyses will be conducted which utilizes, as appropriate,  
27 analysis put forth as part of the larger PEIS which looks at Army growth and  
28 restructuring from an organization wide perspective. At the site specific level, analysis  
29 will be conducted to address changes and environmental effects of stationing based on  
30 ACP and Army growth requirements.

## 31 **1.6 Public Involvement**

32

33

34 Under NEPA, the public is afforded the opportunity and is urged to participate in the  
35 process at various stages of the project. Public participation provides open  
36 communication between the Army and interested parties, ultimately resulting in better  
37 decision-making. Through CEQ (40 CFR Parts 1500-1508) and Army regulations (32  
38 CFR Part 651), the PEIS provides the following notifications and opportunities for  
39 involvement by the public:

- 40
- 41 • Notice of Intent (NOI) to prepare a PEIS (Published in the Federal Register (*FR*) on  
42 May 16, 2007) which announced the Army's intent to prepare this PEIS and desire to  
43 receive public comment. In addition, the NOI was published in the *USA Today*  
44 newspaper the week of 18 May;
  - 45 • Public scoping (Announced in the *USA Today* and held from May 16- June 16); and
  - 46 • Public review of the Draft PEIS.



## 2.0 DESCRIPTION OF THE PROPOSED ACTION

### 2.1 Introduction

This section provides a description of the Proposed Action and those supporting actions the Army would undertake to implement the proposed action. The proposed action addresses the need to grow the Army to meet national security and defense mission requirements. To grow and enhance the configuration of its available forces, the Army would engage in four activity activities to ensure that the proposed action could meet needs set forth in Section 1. Activities the Army would implement that are anticipated to have an environmental or socio-economic impact at stationing locations are garrison construction, training infrastructure construction, live-fire training, and maneuver training. This section describes the Proposed Action and site-specific activities that would be associated with different unit stationing actions.

### 2.2 Proposed Action

The proposed action is to increase the Army's end-strength and realign the Army's force structure from FY 2008 through FY 2013 to a size and composition that is better able to meet national security and defense requirements, modifies the force in accordance with Army Transformation, sustains unit equipment and training readiness, and preserves Soldiers and Family quality of life. To fully implement the proposed action, new "growth" units must be stationed at locations which will be able to accommodate unit requirements for training, garrison and maintenance activities, and preserve Soldier and Family quality of life. In addition, final stationing locations must support the strategic deployment and mobilization requirements of the nation's Combatant Commanders to ensure they will have the forces necessary to support regional contingency operations and planning requirements.

The proposed action involves the stationing of units in a manner that supports the ACP and Army growth initiatives. The PEIS will address the resulting environmental and socioeconomic effects of the proposed activities beginning in FY08 and extending through FY13.

### 2.3 Site Specific Actions Required to Implement the Proposed Action

Alternatives to grow the Army will ultimately involve four site-specific activities that must be integrated and synchronized by the Army to support the execution of the Proposed Action. These activities are necessary components of the proposed action for meeting new "growth" unit stationing requirements. The activity groups are separated out in this section and discussed in more detail to facilitate an understanding of the primary activities taking place that are projected to result in effects to the human environment and lead to direct, indirect, and cumulative effects. Essential activity groups required to implement the proposed action include garrison construction, training facilities and range construction, live-fire training and maneuver training. A brief description of each activity is provided in the following sections.

1  
2 **2.3.1 Garrison Construction**  
3

4 This activity group includes the construction of administrative offices, housing, vehicle  
5 parking and maintenance, equipment storage, recreational, shopping, roads, and other  
6 infrastructure required to meet the administrative and readiness requirements of new  
7 Army units while supporting a high quality of life Soldiers and Families.  
8

9 The U.S. Army Corps of Engineers (USACE) plans and programs for standard sets of  
10 facilities which are needed to support the garrison operations and Families of the  
11 Army's modular BCTs. BCT's consist of between 3,500-4,000 Soldiers, 3,000-3,500  
12 family members, 800-1,000 vehicles and all accompanying equipment. Each BCT has  
13 a considerable facilities requirement for conducting garrison administrative and  
14 maintenance operations. Critical facilities required by Army BCTs and new CS/CSS  
15 units would include office space for brigades, battalions and company Headquarters  
16 units, barracks space for single enlisted Soldiers, family housing, dining facilities,  
17 maintenance shops, parking for vehicles, and storage space. The specific number of  
18 buildings and square footage/yardage of facilities space has been determined by Army  
19 facilities planners for modular BCTs and is detailed in the Table 2.1 below.  
20  
21 .

**Table 2-1 Critical BCT Facility Requirements**

Garrison Facilities	IBCT	Stryker BCT	HBCT
Vehicle Fuel Storage (gallons)	151,660	199,400	375,840
Brigade Offices (sf)	39,495	39,495	39,495
Battalion Offices (sf)	77,741	80,172	77,741
Company Offices (sf)	366,971	421,482	414,866
Organization Classroom (sf)	12,348	12,348	12,348
Ammunition Storage (sf)	1,715	4,075	4,950
Unit Storage Buildings (sf)	41,600	47,550	48,250
Family Housing (sf)	2,868,750	3,257,550	2,786,000
Barracks Space (sf)	517,158	595,482	558,882
Combat Vehicle Parking (sf)	1,395,252	1,347,696	2,329,398
Unmanned Aerial Vehicle Facility (sf)	22,500	9,000	22,500
Vehicle Maintenance (sf)	162,690	75,558	258,822
Note: Additional requirements for new CS/CSS units would vary for each installation depending on the size and mission/type of CS/CSS unit.			

22  
23 In addition to garrison operation and maintenance facilities for Army BCTs, the Soldiers  
24 and their Families may also require housing, medical facilities, recreation, shopping and  
25 other facilities. The exact requirements for these facilities would be based on the type  
26 of unit being stationed at a given location and the availability of existing facilities at the  
27 installation. Exact construction requirements for unit stationing actions would be  
28 determined at the installation depending on these factors.  
29

### 2.3.2 Training Facilities and Range Construction

This activity group includes the construction of training ranges and training facilities needed to support the new units at installations selected to gain additional units through Army Growth and realignment. The implementation of Army Transformation, as directed by the QDR has required the Army to overhaul and modernize its training range and training facilities infrastructure. Army Training Circular TC 25-8 *Training Ranges* describes the standard designs and requirements of the Army's Sustainable Range Program for training modular Army units to standard. A suite of ranges is required to support Army BCTs and ensure that they can meet all pre-deployment training requirements.

In order to meet the needs of the Proposed Action, the permanent stationing location for BCTs must either have or be able to accommodate the construction of the following ranges to support new BCTs and support units as part of Army growth. Table 2-2 lists required range infrastructure that is needed to meet the training requirements and sustain the training readiness of new units. A brief description of each range describes the purpose of the range.

**Table 2-2 Required Range Infrastructure for BCTs**

Number	Primary Range	Primary Alternatives	Historic Alternatives
<b>IBCT Required Ranges</b>			
1	25 meter Zero Range	Qualification Training Range (QTR)	Army Field Fire (AFF)/ Automatic Rifle Fire (ARF)/MRF
1	Modified Record Fire Range (MRF)	QTR	AFF/ARF
1	Combat Pistol Qualification Course (CPQC)	25m Alternate Pistol Course; QTR	
1	Multi-Purpose Machine Gun (MPMG) Range	QTR	
1	Sniper Field Fire (SFF) Range	DMPTR/DMPRC; QTR	MPTR/MPRC/Known Distance (KD)
1	Grenade Launcher Range	None	
1	Mark-19 Range	QTR	
1	Hand Grenade Qualification Range	None	
1	Anti-Armor Tracking Range	Digital Multi-Purpose Training Range	MPTR
1	Mortar Range	None	
1	Infantry Squad Battle Course (ISBC)	IPBC	
1	Infantry Platoon Battle Course (IPBC)	None	
1	Urban Assault Course (UAC)	None	Military Airlift Command (MAC)
1	Combined Arms Collective Training	None	MOUT (Military Operations Urban

	Facility (CACTF)		Terrain)
<b>Stryker BCT Required Ranges (All of the Above and the BAX)</b>			
1	Battle Area Complex (BAX)	DMPRC	MPRC/IPBC
<b>HBCT (All Ranges Listed Except the ISBC and IPBC)</b>			
1	Digital Multi-Purpose Training Range (DMPTR)	None	MPTR
1	Digital Multi-Purpose Training Complex (DMPRC)	BAX	MPRC

1  
2  
3 **2.3.2.1 Individual/Crew Qualification Ranges**  
4

5 Qualification Training Range (QTR): This range is a multi-functional range that can meet  
6 the weapons qualifications requirements for multiple BCT weapons systems. This range  
7 combines the capabilities of the Modified Record Fire Range, Sniper Field Fire Range,  
8 Combat Pistol Qualification Course, MK-19 Range, and the Multipurpose Machine Gun  
9 Range.

10  
11 25 Meter Zero Range: This range is used to train Soldiers in basic marksmanship. This  
12 range teaches Soldiers techniques to engage stationary targets and sighting adjustment  
13 techniques. It can be support M16 or M4 rifle firing as well as that of crew served  
14 machine guns.

15  
16 Modified Record Fire Range (MRF): This range is used to train support unit Soldiers in  
17 basic marksmanship tasks. The range teaches Soldiers to quickly aim and engage  
18 stationary infantry targets.

19  
20 Combat Pistol Qualification Course (CPQC): This combat pistol range is used to train  
21 Soldiers to identify, engage, and defeat an array of targets using the 9mm, .38 caliber,  
22 or .45 caliber pistol.

23  
24 Multipurpose Machine Gun Range (MPMG): This range is designed to train Soldiers to  
25 engage stationary infantry and mobile vehicular targets with the full range of Army  
26 machine guns to include the M249, M60, M240, and .50 caliber machine guns.

27  
28 Sniper Field Fire Range: This range is used to train Soldiers to identify and engage  
29 stationary and moving targets with a sniper rifle.

30  
31 Grenade Launcher Range: This range is used to train Soldiers on targeting and use of  
32 grenade launcher systems against stationary infantry and vehicular targets.

33  
34 Mark-19 Range: This range is used to train Soldiers on the operation and use of the  
35 Mark-19 40 mm grenade launcher. In addition, this range can be used to train Soldiers

1 in the stationary targeting of armored vehicles using AT-4 and Javelin antitank weapon  
2 systems.

3  
4 Hand Grenade Qualification Course: This range is used to train Soldiers on techniques  
5 for employing hand grenades in close combat.

6  
7 Anti-Armor Tracking Range: This range complex is designed to meet training  
8 requirements for medium and heavy anti-armor weapons systems. This range is used to  
9 train Soldiers in identifying, tracking, targeting, engaging, and defeating moving armor  
10 targets individually or in tactical array.

11  
12 Mortar Range: This range is used to train mortar crews on the operation and use of 80  
13 and 120 mm mortar systems. Soldiers learn to acquire and destroy stationary targets  
14 using indirect fire mortar techniques.

### 15 16 **2.3.2.2 Modular BCT Collective (crew and small unit) Training Range** 17 **Requirements**

18  
19 Multi-Purpose Training Range (MPTR): This live-fire range is used to test crews and  
20 dismounted squads on the skills necessary to detect, engage, and defeat stationary and  
21 moving enemy infantry and armor targets. This range trains squads and prepares them  
22 for platoon live-fire collective training on the Multi-Purpose Range Complex (MRPC).

23  
24 Infantry Squad Battle Course (ISBC): The ISBC is a collective squad or crew range  
25 designed to train and test infantry squads or crews, either mounted or dismounted, on  
26 the skills necessary to conduct tactical movement techniques and detect, identify,  
27 engage and defeat stationing and moving infantry and armor targets in tactical array.

28  
29 Infantry Platoon Battle Course (IPBC): The IPBC is a collective range designed to train  
30 and test infantry platoons, either mounted or dismounted, on the skills necessary to  
31 conduct tactical movement techniques and detect, identify, engage and defeat  
32 stationary and moving infantry and armor targets in a tactical array.

33  
34 Battle Area Complex (BAX): This range is currently a Stryker BCT specific range. It  
35 provides collective live-fire training capability to all elements of the Stryker BCT. Stryker  
36 BCT crews and dismounted Soldiers test their ability to detect, engage, and defeat  
37 stationary and moving enemy targets in open and urban terrain. Stryker BCT units may  
38 train in the BAX with supporting vehicles in free maneuver.

39  
40 Urban Assault Course (UAC): This facility is used to train individual Soldiers, squads,  
41 and platoons on tasks necessary to operate within a built-up/urban area. All Active  
42 Component and Reserve Soldiers are required to train on this range.

43  
44 Combined Arms Collective Training Facility (CACTF): This facility teaches the skills and  
45 unit cohesiveness necessary to conduct clearing, breaching, offensive and defensive

1 operations in an urban setting. It may be 1.5 km by 1.5 km, depending on design, and  
2 provides a small city that would be available for combined arms and collective training.

3  
4 Digital Multipurpose Training Range (DMPTR): This range is used to train and test  
5 crews and dismounted infantry squads on the skills necessary to detect, identify,  
6 engage, and defeat stationary and moving infantry and armor targets in a tactical array.  
7 In addition to live-fire, they can also be used for training with subcaliber and/or laser  
8 training devices. They are specifically designed to satisfy the training and qualification  
9 requirements for the crews and sections of armor, infantry and aviation units. They also  
10 support dismounted infantry squad tactical live-fire operations either independently of,  
11 or simultaneously with, supporting vehicles.

12  
13 Digital Multipurpose Range Complex (DMPRC): This range includes multiple lanes for  
14 armored vehicles, numerous targets, obstacles, and battle positions. It is used to train  
15 and test armor and infantry platoons (four tanks per platoon) on skills necessary to  
16 detect, identify, engage and defeat stationary and moving infantry and armor targets in  
17 a tactical array. Combined Arms Live-Fire Exercises (CALFEX) will also be conducted  
18 on this facility. It also supports dismounted infantry platoon tactical live-fire operations  
19 either independently of, or simultaneously with, supporting vehicles. This is the  
20 culminating range for individual crews that have qualified on the Digital Multipurpose  
21 Training Range. In the case of the Stryker BCT the range requirement for a DMPRC  
22 may also be met by a Battle Area Complex (BAX).

23  
24 In summary, TC-25-8 clearly defines the training range infrastructure required to ensure  
25 the BCTs can adequately prepare for operational deployment. Access to the proper  
26 training range infrastructure is a critical component of need for the Proposed Action. In  
27 order to meet the needs of the Proposed Action, the permanent stationing location for  
28 new units must either have existing ranges or be able to accommodate the construction  
29 of new ranges to meet their training requirements.

### 30 31 **2.3.3 Live-Fire Training**

32  
33 Live-fire training is an essential component of Army training and of the implementation  
34 of the Proposed action. To be operationally effective, Soldiers must have the skills and  
35 experience necessary to operate and maintain their weapons. Live-fire involves both  
36 munitions and explosives that would be used in combat and non-explosive training  
37 rounds designed to meet Soldiers' training needs. Soldiers must "train as they fight" in  
38 order to ensure their safety in combat situations. At a minimum, all Soldiers must qualify  
39 on individual and crew/vehicle weapons at least twice per year. In addition, platoons,  
40 companies, and battalions of BCTs must conduct collective live-fire training exercises  
41 on firing ranges to ensure they have rehearsed and coordinated battle procedures and  
42 are prepared to deploy to support wartime operations. Various weapons systems use  
43 different types of munitions. Where possible, some weapons systems use inert  
44 environmentally friendly training rounds as a substitute for the firing of live rounds. This  
45 section will present a more detailed description of live-fire training activities and  
46 munitions.

1  
2 **2.3.4 Maneuver Training**  
3

4 Army units must conduct regular “combined-arms” training certifications to ensure that  
5 all of the units’ capabilities can be integrated and synchronized to execute missions  
6 under stressful operational conditions. Maneuver training consists of collective training  
7 of the constituent units of the BCT working together to integrate their combined  
8 capabilities and skills. Modular BCTs must conduct and rehearse maneuver training at  
9 every echelon from platoon through brigade level to ensure they can accomplish its  
10 mission-critical tasks.

11  
12 The sections that follow provide a description of maneuver and integrated and  
13 maneuver live-fire training events.

14  
15 **2.3.5 Description of Army Live-Fire and Maneuver Training**  
16

17 **2.3.5.1 Introduction**  
18

19 Training is an Army unit’s number one priority, and commanders train their units to be  
20 combat ready. “Battle Focus” is a concept used to derive training requirements, and  
21 units train according to their Mission Essential Task List (METL). This is derived from;  
22 wartime operational plans (why they fight); specific (to unit) combat capabilities (how  
23 they fight); the operational environment (where they fight); directed missions (what they  
24 must do) and any external guidance. The Army trains Soldiers in individual skills, units  
25 on collective tasks, and different levels of units through multi-echelon training. The  
26 Army trains as it fights, as a combined arms team.

27  
28 Training ranges and training lands are the Army’s classroom, and “Commanders take  
29 every opportunity to move Soldiers out into the field, to fire weapons, maneuver as a  
30 combined arms team and incorporate protective measures against enemy actions.”  
31 (Field Manual (FM) 7-1, Battle Focused Training).  
32

33 All Soldiers qualify with their individual weapon (rifle or pistol) at least twice annually;  
34 crew-served weapons qualification varies by type of unit. This training is usually  
35 accomplished at the company level on fixed ranges described in TC 25-8, Training  
36 Ranges. Weapons system training (Abrams Tank, Bradley Fighting Vehicle, and Attack  
37 Helicopter) consists of a series of “tables” and occurs on large range complexes.  
38

39 All units train in “fieldcraft”, which includes establishing logistical and command and  
40 control operations in the installation’s maneuver areas. From those maneuver area  
41 locations the units will train on their mission essential tasks. The size of the area, and  
42 frequency and duration of the training exercises will vary by type of unit.  
43

44 **2.3.5.2 Description of Brigade Combat Team Training**  
45

1 Units train to maintain proficiency on key tasks as defined by their Mission Essential  
2 Task List (METL). Training strategies and events for Army BCTs are described in more  
3 detail below.

### 4 5 **Heavy BCT (HBCT)**

6  
7 **Equipment.** The HBCT consists of approximately 3,800 Soldiers and 55 M1 Abrams  
8 tanks and 85 Bradley Infantry fighting vehicles. In addition to these armored tracked  
9 combat vehicles the HBCT also possesses 16 self propelled 155 howitzers, tracked  
10 earthmoving vehicles, recovery vehicles, and an assortment of other tracked vehicles.  
11 The HBCT also consists of a large number and variety of wheeled-vehicles, to include  
12 light tactical trucks, medium trucks, and large cargo and fuel trucks. All vehicles are  
13 capable of on-road and off-road maneuver.

14  
15 **Training.** Abrams Tank or Bradley Fighting Vehicle crews in the combined arms  
16 battalion practice and qualify on their vehicles on a series of 4 individual gunnery  
17 “tables” once every six months and as sections/platoons once every 12 months. A  
18 company will complete a Combined Arms Live-Fire Exercise (CALFEX) once every 12  
19 months on its own or as part of a battalion CALFEX. This training also occurs on large  
20 fixed ranges such as the MPTR or MPRC described above. While on the range the  
21 vehicles will maneuver only on designated range/course lanes or roads, cross-country  
22 maneuver is limited for safety reasons. In an HBCT all training on maneuver land is  
23 collective training, from platoon-level up to the HBCT itself, and involves all or some of  
24 the units’ vehicles. The broad categories of an HBCT’s training events are Offense  
25 (Move to establish contact with the enemy or attack), Defense (Defend from an enemy  
26 attack or move to break contact), and Reconnaissance and Security (for moving and  
27 stationary assets). All HBCT units may be training the same event (e.g., attack) while in  
28 other scenarios different units may have different missions simultaneously (e.g., one  
29 company attacks, one company provides security for a critical asset). Except for  
30 designated “off-limits” areas the units and vehicles are free to maneuver anywhere on  
31 the training land.

32  
33 The HBCT smaller subordinate units will train on a specific event as many four times  
34 per 12 months; the larger units may train as many as twice per 12 months. Smaller  
35 units will break a training event down into situational training exercises (STX) or drills  
36 that are focused on a specific task and can be repeated until the unit achieves  
37 proficiency. When the smaller units train they may not have an opposing force of similar  
38 size, the larger units almost always will. The training and opposing units will use  
39 training simulation devices like that replicate weapons firing and target hits.

### 40 41 **Stryker BCT (Stryker BCT)**

42  
43 **Equipment.** A Stryker BCT has approximately 4,000 Soldiers, 317 Stryker combat  
44 vehicles, 588 wheeled support vehicles, 18 155 mm howitzers, and numerous trailers  
45 and other pieces of equipment. The Stryker vehicle is an 8 wheeled armored combat  
46 vehicle. Each Stryker platform is equipped with a crew served weapon, usually a



1 machine gun, or in the case of the mobile gun system (MGS), a direct fire cannon.  
2 Each major unit of the Stryker BCT is composed of a number of smaller constituent  
3 units, including battalions, companies, platoons, and squads. About half of the 4,000  
4 Soldiers would be assigned to Infantry Battalions within the unit. The rest would be  
5 distributed among the other battalions, companies, and platoons that comprise a Stryker  
6 BCT.

7  
8 A Stryker BCT is a rapidly deployable unit designed for early entry into operational  
9 scenarios. The Stryker BCT is capable of deploying with all combat gear and equipment  
10 loaded on the vehicle so that it can begin supporting military operations immediately  
11 upon its arrival. The increased mobility and speed of the Stryker BCT allows the unit to  
12 quickly respond, prevent, contain, stabilize, or resolve small-scale conflicts. A Stryker  
13 BCT participates in major wartime operations as a subordinate component within a  
14 division or corps, in a variety of possible roles. To deploy rapidly, the Stryker BCT's  
15 design uses a highly mobile, medium-weight armored combat/combat support platform,  
16 which requires a minimum of logistical support so that the Stryker BCT can act as more  
17 of an expeditionary type of unit. Preconfigured in ready-to-fight combined arms  
18 packages, the entire Stryker BCT is designed to be rapidly deployed anywhere in the  
19 world in a few days time. This BCT consists of a large number of eight-wheeled Stryker  
20 vehicles, towed artillery, light engineer equipment, HMMWV's and medium/large cargo  
21 trucks. All vehicles are capable of on-road and off-road maneuver, but will more often  
22 travel on-road.

23  
24 **Training.** Stryker unit training parallels IBCT training, with the addition of the Stryker  
25 vehicles. Individual Soldier weapons training is similar though the Stryker has more  
26 weapons systems and Soldiers. Stryker crews qualify semi-annually on the weapon  
27 system mounted on their vehicle: MK-19 grenade launcher or M2 .50 caliber machine  
28 gun. Stryker crews with the MGS will qualify semi-annually on a series of 3 different  
29 gunnery tables. Stryker vehicle crew and MGS training occurs on fixed ranges as  
30 described in TC 25-8, *Training Ranges*. Stryker units, from squad to company also  
31 participate in quarterly and semi-annual Live-Fire Exercises (LFX) that includes all  
32 weapons systems on a large and more complex range.

33  
34 The broad categories of Stryker collective (unit) training events are; Intelligence,  
35 Reconnaissance and Security (patrolling and security operations), Offense, Defense,  
36 and Stability and Support Operations. Like the HBCT and the Infantry BCT's  
37 subordinate Stryker units will train on a specific event as many four times per 12  
38 months, the larger units (ex. battalion and BCT) as many as twice per 12 months.  
39 Smaller units will break a training event down into situational training exercises (STX) or  
40 drills that are focused on a specific task and can be repeated until the unit achieves  
41 proficiency. When the smaller units train they may not have an opposing force of similar  
42 size, the larger units almost always will. The training and opposing units will use  
43 training simulation devices that replicate weapons firing and target hits.

44  
45 The Stryker infantry training differs from the Infantry BCT primarily in the size of the  
46 training area required. Stryker units train to move rapidly over larger operational

1 distances in order to bring an effective infantry force to battle. Stryker vehicles can  
2 move cross-country, but are more likely to move on hardened surfaces for speed and  
3 mobility purposes.

#### 4 **Infantry BCT (IBCT)**

6  
7 **Equipment.** The IBCT consists of approximately 3,500 Soldiers who are divided  
8 primarily into 2 infantry battalions, a reconnaissance and surveillance battalion, a fires  
9 battalion, support battalion and a special troops battalion consisting of combat support  
10 units. The modular IBCT possesses towed M777 155 mm artillery, light engineer  
11 equipment, light tactical and medium/large cargo trucks. All vehicles are capable of on-  
12 road and off-road maneuver.

13  
14 **Training.** Infantry training is weapons intensive as individual Soldiers, crews, teams  
15 and squads practice and qualify with a variety of weapons. An example of the weapons  
16 in an infantry battalion includes: pistol, rifle, shotgun, sniper rifle, grenade launchers,  
17 light-medium-heavy machine guns, anti-tank weapons, grenades, demolitions and  
18 mortars. Qualification is a semi-annual requirement, practice firing is completed as  
19 time, ammunition and other resources permit. This weapons firing occurs on fixed  
20 ranges, as described in TC 25-8, Training Ranges. Infantry units, from squad to  
21 company also participate in quarterly and semi-annual Live-Fire Exercises that include  
22 all weapons systems on a large and more complex range.

23  
24 The broad categories of Infantry collective (unit) training events include  
25 Reconnaissance and Security (patrolling and security operations), Offense, Defense,  
26 and Stability and Support Operations. Infantry units can incorporate airborne, airmobile  
27 and air assault operations into their training. Like the HBCT, the Infantry BCT's smaller  
28 subordinate units will train on a specific event as many four times per 12 months, the  
29 larger units such as the battalion may train as many as twice per 12 months. Smaller  
30 units will break a training event down into situational training exercises (STX) or drills  
31 that are focused on a specific task and can be repeated until the unit achieves  
32 proficiency. When the smaller units train they may not have an opposing force of similar  
33 size, the larger units almost always will. The training and opposing units will use  
34 training simulation devices that replicate weapons firing and target hits.

#### 35 ***Sustainment Brigade***

36  
37  
38 **Equipment.** This brigade will have the widest variety of wheeled vehicles, based in part  
39 of the types of units it is supporting and the missions it needs to accomplish. This  
40 sustainment brigade consists of maintenance vehicles, light medium and heavy cargo  
41 trucks of all sizes (ex. 5,000 gallon fuel trucks and Heavy Equipment Transports  
42 (HET's). All wheeled vehicles are capable of on-road and off-road maneuver, but will  
43 more often travel on-road. The headquarters of the sustainment brigade is a fixed  
44 element consisting of approximately 350 Soldiers. To this element, troops are added to  
45 support mission requirements. In analysis carried forward in this document, two  
46 thresholds are analyzed for installations receiving combat service support troops.

1 These thresholds were set at approximately 3,500 Soldiers and 1,000-1,200 wheeled  
2 vehicles to replicate the stationing of a full sustainment brigade sized element and a  
3 smaller unit replicating the stationing of approximately 1,000 Soldiers and 300-400  
4 vehicles to replicate the stationing of a Combat Support battalion at a given installation.  
5

6 **Training.** Sustainment brigade units will establish an operating base in the maneuver  
7 areas and train on force protection and conducting logistical operations in this  
8 environment. The training can include repairing vehicles, providing medical treatment,  
9 re-supplying units with petroleum products, rations, and other materials. The operating  
10 bases can be large and there is considerable vehicle traffic in and around the base.  
11

12 Requirements for live-fire training for a sustainment brigade have been recently  
13 increased to ensure that all Soldiers have the opportunity to gain maximum proficiency  
14 with their weapons. In addition to individual qualification training ranges sustainment  
15 brigade Soldiers will conduct “Convoy Live-Fire” Range training. On this range, vehicle  
16 crews train on reactions to an ambush or explosive device incident, casualty treatment  
17 and evacuation, and continuing operations. The range consists of a driving course with  
18 personnel targets, buildings and battlefield clutter, and the crews may engage these  
19 targets with blank or live ammunition.  
20

### 21 **2.3.5.3 Description of Maneuver Training**

22

23 Maneuver training is a critical component of the unit collective training plan that trains  
24 units on how to synchronize the execution of battle tasks and shoot, move, and  
25 communicate on the battlefield. Large-scale battalion and brigade maneuver training  
26 events are often the capstone training exercise that tests and certifies units for  
27 operational deployments abroad. Maneuver training builds on all of the individual skills  
28 that Soldiers possess and tests each echelon of command of the BCT. Platoons,  
29 companies, and battalions conduct maneuvers to ensure unit proficiency at each  
30 successive level of Command within a BCT. Army Training Circular 25-1 *Training Land*  
31 (Department of the Army 2004) is the Army’s definitive source for defining maneuver  
32 training land requirements.  
33

34 The Army uses a standardized methodology for comparing maneuver impacts of  
35 different units. This methodology takes the weights and authorized yearly mileages for  
36 unit vehicles and converts them to a unit of measure called the Maneuver Impact Mile  
37 (MIM). The MIM is a unit of measure that the Army uses to anticipate maneuver  
38 damage and required repair costs for its training areas. To calculate MIMs, the Army  
39 converts all unit vehicles into the equivalent of M1 Abrams tanks. The Army applies  
40 different physical characteristics of unit vehicles (weight, tire/track pressure etc.) to  
41 make the conversion to M1 tank mile equivalents. The Stryker BCT must execute  
42 104,898 tank mile equivalents of maneuver training to carry out its doctrinal maneuver  
43 requirements. In comparison the IBCT executes 49,576 MIMs to execute its doctrinal  
44 training tasks and the HBCT utilizes approximately 130,089 MIMs to execute its annual  
45 doctrinal training requirements. Table 2-3 below generically summarizes the anticipated  
46 intensities and impacts of BCT training.  
47

1 **Table 2-3 Summary of Projected Intensities and Impacts of BCT Training**

Training Type	Heavy BCT	Stryker BCT	Infantry BCT
Dismounted Maneuver	Low	Medium	Medium
Wheel On-Road Maneuver	Medium	High	Medium
Wheel Off-Road Maneuver	Medium	High	Medium
Track On-Road Maneuver	High	None	None
Track Off-Road Maneuver	High	None	None
Prepare Fighting Positions (DIG)	High	Medium	Medium
Logistics Bases	High	Medium	Medium
Air Operations	Low	Medium	High

2  
3 To support unit training each platoon, company, battalion and brigade must conduct  
4 maneuver events to ensure the operational capabilities of the BCT. Each platoon and  
5 company must train up to 5 weeks per year to meet maneuver training requirements. In  
6 addition, each battalion must conduct semi-annual maneuvers lasting approximately 4  
7 to 6 weeks per year to certify its subordinate units and each brigade must conduct  
8 maneuvers every 12 to 18 months and in advance of operational deployments, as  
9 required Table 2-4, taken from FM 7-1 *Training the Force* (Department of the Army  
10 2002), illustrates the operations that must be rehearsed by Army units in combat  
11 maneuver training.  
12

13 **Table 2-4 Training Tasks for BCTs (FM 7-1 Training the Force)**

Alert and Deploy the Brigade	
<ul style="list-style-type: none"> <li>▪ Draw and Upload Basic/Operational Loads</li> <li>▪ Conduct Soldier Readiness/Administrative/Logistic Preparation for Overseas Movement</li> <li>▪ Deploy Advance Parties Or Liaison Officers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Move by Road or Rail to Aerial Port of Embarkation (APOE) or Seaport of Embarkation (SPOE)</li> <li>▪ Upload Equipment at APOE or SPOE</li> </ul>
Conduct Attack	Conduct Defense
<ul style="list-style-type: none"> <li>▪ Attack a Moving Enemy</li> <li>▪ Attack a Stationary Enemy</li> <li>▪ Movement to Contact</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct a Mobile Defense</li> <li>▪ Conduct an Area Defense</li> </ul>
Conduct Support Operations	Conduct Stability Operations
<ul style="list-style-type: none"> <li>▪ Domestic Support Operations</li> <li>▪ Foreign Humanitarian Assistance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Peacekeeping Operations</li> <li>▪ Combat Terrorism</li> <li>▪ Support Counter-Drug Operations</li> </ul>
Conduct Sustainment Operations	
<ul style="list-style-type: none"> <li>▪ Provide Medical Treatment and Evacuation (air and ground)</li> <li>▪ Move by Air/Surface Transportation</li> <li>▪ Manage Terrain</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recover and Evacuate Disabled Equipment</li> <li>▪ Control Reconstitution of Subordinate Units</li> <li>▪ Conduct Mortuary Affairs Operations</li> </ul>

14

## 3.0 ALTERNATIVES AND SCREENING CRITERIA

### 3.1 Introduction

This section discusses the several different alternatives the Army is considering for implementing the Proposed Action. The Purpose and Need described in Section 1 set forth a rational context in which to analyze the viability of alternatives. The Purpose and Need define necessary elements of the Proposed Action and allow consideration of a broad range of alternatives for potential growth and realignment of Army's forces. This Section will provide a discussion of the alternative selection criteria that the Army is using to assess whether an alternative is "reasonable" and will be carried forward for evaluation in the DEIS. The screening criteria were developed based on the need and purpose for the Proposed Action set forth in Section 1.0. In addition, this Section will discuss criteria used to select candidate installations for stationing actions to support Army Growth and realignment of the force.

Three Army-wide alternatives and the "no action" alternative have been analyzed for implementation at as many as 17 viable installation stationing locations. Installations have been included in the PEIS if they are viable stationing locations for new Brigade Combat Teams, or if the installation is likely to receive a substantial number (more than 1,000) additional Combat Support/Combat Service Support (CS/CSS) Soldiers as part of other Army growth or realignment initiatives. In conducting programmatic installation analysis, a baseline assumption was made that the CS/CSS units are logistical sustainment units, and will conduct activities required by these types of units.

### 3.2 Assumption Applied To Army Screening Criteria

#### 3.2.1 National Security and Defense Mission Requirements:

The National Security and Defense strategies are carefully deliberated, analyzed, and determined by the executive branch of government with careful consideration and input from senior national defense officials, defense planners, and senior military officers. The size and structure of the Army is modified in accordance with national security and defense policy and balanced with the mission requirements of a changing global security environment and available resources. National security and defense policy falls under the purview and authority of the President of the United States. It is not within the Army's authority or within the scope of this document to discuss a reduction of national security or defense requirements to reduce the number or scope of missions the Army must perform. Reasonable alternatives must provide for a force structure meeting the objectives of the National Security and Defense Strategies.

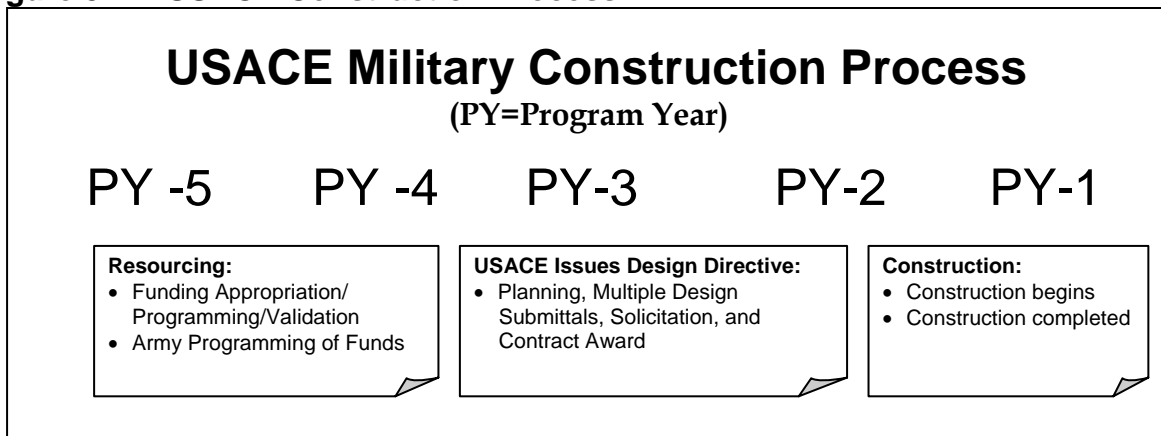
#### 3.2.2 Military Construction (MILCON) Limitations:

Reasonable alternatives must include Army installations that have existing facilities to support the stationing of new Army units or have the ability to construct such facilities in

1 a timely manner within reasonable cost parameters. This includes facilities for training  
2 Army units as discussed previously and providing an acceptable quality of life for both  
3 Soldiers and their Families.

4  
5 Support facilities are critical to supporting the stationing of new Army units. Preceding  
6 Sections have discussed the need for specific facilities to support Soldier training,  
7 operations, maintenance and quality of life. The Army military construction process for  
8 installation facilities and ranges is executed by the USACE as directed by the Army  
9 Chief of Staff for Installation Management (ACSIM). USACE follows a standard  
10 construction process for both range infrastructure and garrison construction projects.  
11 Funding appropriation and programming must begin more than 5 years before the start  
12 of a given construction project. Submitting project requests and subsequent  
13 Congressional appropriation, budget validations and Army programming of funds  
14 typically requires 2 years within the MILCON process. The subsequent programming of  
15 funds, to plan, design, review, award, and construct military construction projects  
16 typically requires another 3 years. The diagram below details the 5-year military  
17 construction planning process for Army projects. This timeline is used by USACE for  
18 garrison support projects, to include Soldier housing, administrative offices, vehicle  
19 maintenance and parking facilities, and training range construction. With early  
20 Congressional approval and appropriation of funds, it is possible to expedite the military  
21 construction process to 3 years versus 5 if Congressional support is received to support  
22 Army growth and realign.

23  
24 **Figure 3.2-1 USACE Construction Process**



25  
26  
27 Facilities for training, garrison operations, and Soldiers and their Family quality of life  
28 are critical for supporting the operations of new units that would be stationed at  
29 installations as part of Army Growth and force realignment. Not having the adequate  
30 facilities for housing, training, administrative functions, and maintaining an Army unit  
31 would not adequately support the needs of the Proposed Action. If facilities do not  
32 currently exist at the installation to accommodate new units, facilities construction would  
33 be required. The extended time frame of the MILCON process limits the Army's range  
34 of potential alternatives for Growth and realignment of the Force. Currently there are no  
35 installation locations in the United States which have enough additional facilities to  
36 support the requirements of a new BCT and its 3,500-4,000 Soldiers and their Families.

1 Smaller scale stationing actions would have to be evaluated on a case by case basis at  
2 the installation level to determine if the installation has the necessary facilities on hand  
3 to support units, or if additional construction would be required. If Army decision-  
4 makers select an alternative to grow the number of Army BCTs and funding is approved  
5 to do so by Congress, it will take several years before permanent construction would be  
6 available to support new BCTs with the infrastructure they require.

### 7 8 **3.3 Programmatic Alternatives Carried Forward For Analysis**

9  
10 In addition to the No-Action alternative, three action alternatives have been formulated  
11 that take into account the Army's needs for growth and force realignment. Common  
12 elements to these alternatives include the growth and restructuring of Army units from  
13 the FYs 2008 to 2013. All alternatives consider BRAC directed actions and those  
14 stationing actions which have occurred prior to the start of Fiscal Year 2008 (1 October  
15 2007) as part of the baseline condition for analysis. The Army has determined that the  
16 alternatives below meet the foregoing criteria and are therefore reasonable.  
17 Alternatives carried forward for full analysis are:

#### 18 19 **3.3.1 Alternative 1- Implement Army force structure modifications between** 20 **FY 2008 and 2013 to support the Army's Modular Transformation and** 21 **GDPR decisions.**

22  
23 The Army has a number of separate programs and initiatives that evaluate the existing  
24 force composition and its manning and stationing. Major on-going force development  
25 initiatives include Total Army Analysis (TAA), Modular Support Forces Analysis (MSFA),  
26 and GDPR. Several smaller sub-programs that deal with specific components of the  
27 Army, feed into these larger modular force redesign initiatives. These programs have  
28 led to recommendations that would result in a realignment of CS/CSS units and the  
29 increase of the Army by up to approximately 20,000 Soldiers between FY 2008-13.

30  
31 As part of this alternative, most Army installations would experience unit gains through  
32 stationing and transfer of units from other installations, and losses through deactivations  
33 and transfers of existing units to other installations. These actions would better  
34 implement Army transformation and modular force initiatives and would occur relatively  
35 uniformly across most installations depending on the number of units they support and  
36 the types of facilities that are available.

37  
38 In addition to the major programs implementing modular reconfiguration of the Army,  
39 several smaller sub-programs deal with specific components of the Army. Smaller  
40 modularity initiatives include force development actions such as Personnel Services  
41 Delivery Redesign (PSDR), and Command Plan 08 (CP 08). These programs are  
42 designed to tailor the structure and size of Army forces to increase overall operational  
43 effectiveness in accordance with Army guidance for Modularity and Transformation.  
44 The list of force management programs described below is not an all-inclusive list of  
45 programs, but does include the major force development programs driving Army growth  
46 and restructuring at the installations between FY 08 and 2013.

1  
2 **Total Army Analysis:** The TAA process is a phased force structure analysis process.  
3 The TAA planning process evaluates the structure of Army CS and CSS forces and  
4 other tactical and general purpose support forces. The TAA process occurs every two  
5 years and puts forth recommendations to reconfigure the Army's combat support forces  
6 in accordance with Office of Secretary of Defense and Joint forces planning guidance.  
7 The TAA process guides Army force management decisions. This process is described  
8 in Army Regulation (AR) 71-11 *Total Army Analysis*.

9  
10 **Modular Support Forces Analysis:** MSFA is the process which has been used by the  
11 Army to analyze its current force structure and reconfigure it to support the modular  
12 "brigade-based" Army. The overall goal of MSFA is to create a force that is more  
13 responsive to regional combatant commanders' needs and better employs joint  
14 capabilities. MSFA recommendations for standard Army unit configurations facilitate  
15 logistics planning and rapid deployment while tailoring the structure of Army units to be  
16 capable of operating as self-contained units in complex, non-contiguous battle spaces.  
17 MSFA stationing actions and reconfigurations are actions which are directly tied to  
18 reconfiguring Brigade combat teams and their supporting units into modular designs.

19  
20 **Global Defense Posture Realignment:** Transformation and the QDR directives  
21 provide guidance to restructure the military for rapid deployment from within the U.S.  
22 while reducing the reliance of U.S. forces on foreign nations. The GDPR process began  
23 in 2004 and is scheduled to continue through 2011. As a part of the overall  
24 Transformation effort, the Army will relocate 44,500 Soldiers back to the U.S. and  
25 downsizing overseas facilities to support the expeditionary force design concepts  
26 envisioned within the QDR. Many GDPR decisions were also re-emphasized and  
27 supported by BRAC in 2005.

28  
29 **Personnel Services Delivery Redesign:** To better support modular Transformation  
30 the Army is reorganizing its personnel services battalions. These battalions are being  
31 reconfigured and incorporated into Brigade and Battalion personnel services sections.  
32 These sections will be self sufficient and provide human resources functions and  
33 personnel support required by modular BCTs.

34  
35 **Command Plan 08:** CP 08 force management initiatives are designed to provide  
36 modular forces with critical combat support capabilities. Through analysis and planning  
37 as part of this initiative, additional Military Police, Explosive Ordnance units, and other  
38 critical support units are being added to the Army's modular force to provide a broader  
39 range of skills required for contemporary operations.

40  
41 A summary of the new units and Soldiers that would be assigned to installations as part  
42 of Alternative 1 is shown in table 3-1 below. Every Army installation is experiencing unit  
43 reconfiguration, unit gains through stationing, and losses through deactivations. These  
44 actions are required to implement Army Transformation and modular force initiatives  
45 and are occurring relatively uniformly at every installation depending on the number of  
46 units they support.



1  
2 Installation locations carried forward for analysis in the programmatic EIS are those  
3 sites which may receive more than 1,000 new Soldiers from FY 08-13 as part of the  
4 initiatives discussed above. The 1,000 Soldier threshold was chosen because it  
5 represents a level of growth at a majority of installations at which significant impacts  
6 could occur and should be considered at the programmatic level.  
7

8 For those installations that are not scheduled to receive personnel in excess of these  
9 numbers, the Army has processes in place by which NEPA analysis is conducted for  
10 every new unit stationing action, regardless of size. Army stationing packets (AR 5-10  
11 packets) must be completed with the appropriate NEPA analysis before actions required  
12 to support that unit may begin.  
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1 **Table 3-1 Unit Stationing Actions (FY 2008 to 2013 – Not Inclusive of BRAC)**

<b>INSTALLATION</b>	<b>ACTIVATION / TRANSFER IN (GAIN)</b>	<b>TRANSFER OUT (LOSS)</b>	<b>INACTIVATION (LOSS)</b>	<b>NET CHANGE</b>
AK-RICHARDSON	1398	0	149	1249
AK-WAINWRIGHT	0	143	0	-143
BELVOIR	489	23	137	329
BENNING	1073	170	5	898
BLISS	7559	1205	335	6019
BRAGG	2815	950	1520	345
CAMPBELL	1190	170	632	388
CARSON	1839	340	465	1034
DRUM	1310	673	2	635
EUSTIS	270	170	24	76
GORDON	235	576	467	-808
HI-SCHOFIELD	373	246	227	-100
HI-SHAFTER	1093	0	531	562
HOOD	3418	2237	1670	-489
IRWIN	252	0	0	252
KNOX	845	151	1393	-699
LEWIS	3620	647	791	2182
POLK	1101	73	155	873
RILEY	5230	418	104	4708
SAM HOUSTON	1634	80	792	762
SILL	323	0	161	162
STEWART	1362	263	189	910

\*NO OVERSEAS (NON-U.S.) LOCATIONS INCLUDED

2  
3  
4

**3.3.2 Alternative 2- Execute those actions discussed in Alternative 1 and, in addition, add approximately 30,000 Combat Support (CS) and Combat Service Support (CSS) Soldiers to the Active and Reserve Components of the Army to address critical shortfalls in high demand military skills.**

Army force structure analysis and evaluation of current and anticipated future operations indicates that certain types of mission essential combat support units need to be added to the Army’s end-strength to carry out sustained operations now and into the projected future. Under this alternative, in addition to the growth in Alternative 1 (approximately 20,000 Soldiers), a “right-sizing” of the Army force structure would add approximately 20,000 additional Active Duty and approximately 10,000 Reserve Component Soldiers to areas of high demand and critical need. Additional Explosive Ordnance, Military Police, Military Intelligence, Engineers, and other CS and CSS Soldiers would be added to provide for increased strategic flexibility for the Army and a greater level of stability for Soldiers in these units. In addition, approximately 8,200 National Guard and 1,000 Reserve Component Soldiers would be added to the Army Force Structure in critical areas of need bringing total number of National Guard Soldiers to 358,200 and the total number of Reservist Soldiers to 206,000.

Table 3-2 provides a summary of the number of Active Duty Soldiers that would be assigned to each installation as part of Army efforts to “right-size” combat support and combat service support units. A listing of unit stationing actions taking place as part of Alternatives 1 and 2 is provided in Appendix V and W. Projected National Guard and Reserve component growth is provided in Appendix X.

Table 3-2 below does not incorporate the modular growth discussed in Alternative 1. All Army installations that are currently stationing locations of Brigade Combat Teams (BCT) or large troop units would experience unit gains through stationing as part of this alternative. New unit stationing actions for CS/CSS growth would occur relatively uniformly at almost every installation in proportion to the number of combat units currently stationed at the installation.

**Table 3-2 Distribution Army CS/CSS Growth Alternative 2 excluding Modular growth in Alternative 1.**

INSTALLATION	CS/CSS GROWTH	MAJOR UNITS
AK-RICHARDSON	610	Military Police (MP), Engineer (ENG)
AK-WAINWRIGHT	186	MP, ENG, Stryker BCT Maintenance (MAINT)
BENNING	215	MP, Medical (MED), Explosive Ordnance Disposal (EOD)
BLISS	3221	Field Artillery (FA), EOD, MP, Air Defense Artillery

		(ADA)
BRAGG	1733	FA, EOD, MISC. CSS
CAMPBELL	618	MP, EOD, MED
CARSON	1609	ENG, EOD, Military Intelligence (MI)
DRUM	867	MP, ENG, Quartermaster (QM), Transportation (TC)
EDGEWOOD	231	20 <sup>th</sup> Support Command (20 <sup>th</sup> SPT CMD)
EUSTIS	540	TC
GORDON	7	Signal (SIG)
HI-SCHOFIELD & WHEELER AAF	822	ENG, MP, EOD
HI-SHAFTER	154	Training Support Center (TSC) BUY BACK
HOOD	2106	ENG, EOD, MI
IRWIN	245	EOD, MP, LINGUISTS
KNOX	34	EOD
LEE	182	QM, TC
LEONARD WOOD	769	Combat Support Battalion, Headquarters (CSB HQS), ENG
LEWIS	1638	ENG, MI, Stryker BCT MAINT
POLK	277	EOD, MED, LINGUISTS
RILEY	1301	ENG, EOD, UAS
SAM HOUSTON	6	MED
SILL	634	EOD, PATRIOT
STEWART	687	EOD, MP, QM
AK-RICHARDSON	610	Military Police (MP),

		Engineer (ENG)
AK-WAINWRIGHT	186	MP, ENG, Stryker BCT Maintenance (MAINT)
BENNING	215	MP, Medical (MED), Explosive Ordnance Disposal (EOD)
BLISS	3221	Field Artillery (FA), EOD, MP, Air Defense Artillery (ADA)

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Alternative 2 does not include an increase in the number of BCTs available to support operations abroad. The number of BCTs would remain fixed at 42 Active Duty BCTs and 28 Reserve Component BCTs. Additional CS/CSS Soldiers would be added to the Army's force structure under Alternative 2 to allow these high demand units to achieve higher levels of training and operational readiness while increasing Soldier and Family quality of life. Specific construction requirements for garrison facilities (office buildings, maintenance facilities) and training ranges would need to be evaluated on a case by case basis. These requirements are heavily dependent on what vacant facilities are available and the size and type of unit being stationed at a given installation.

Installation locations carried forward for analysis in the programmatic EIS are those sites which would receive more than 1,000 new Soldiers from FY 08-13 as part of Alternatives 1 and 2 discussed above. For those installations that are not scheduled to receive personnel in excess of these numbers, the Army has processes in place by which NEPA analysis is conducted for every new unit stationing action. Army stationing packets (Army Regulation 5-10 packets) must be completed with the appropriate NEPA analysis before stationing actions, such as construction or unit movements may begin. Table 3-3 depicts the projected number of Soldiers that would be stationed at each installation under Alternative 2 when including growth in Alternative 1.

**Table 3-3 Total Growth Under Alternatives 1 & 2 (Combined)**

INSTALLATION	Modular and GDPR Growth (Alternative 1)	New CS/CSS Growth (Under Alt 2)	Total Growth Under Alternative 2
AK- RICHARDSON	1249	610	1859
AK-WAINWRIGHT	-143	186	43
BELVOIR	329	0	329
BENNING	898	215	1113
BLISS	6019	3221	9240

<b>INSTALLATION</b>	<b>Modular and GDPR Growth (Alternative 1)</b>	<b>New CS/CSS Growth (Under Alt 2)</b>	<b>Total Growth Under Alternative 2</b>
BRAGG	345	1733	2078
CAMPBELL	388	618	1006
CARSON	1034	1609	2643
DRUM	635	867	1502
EUSTIS	76	540	616
GORDON	-808	7	-801
HI-SCHOFIELD & WHEELER AAR	-100	822	722
HI-SHAFTER	562	154	716
HOOD	-489	2106	1617
IRWIN	252	245	497
KNOX	-699	34	-665
LEONARD WOOD	0	769	769
LEWIS	2182	1638	3820
POLK	873	277	1150
RILEY	4708	1301	6009
SAM HOUSTON	762	6	768
SILL	162	634	796
STEWART	910	687	1597
AK- RICHARDSON	1249	610	1859
AK-WAINWRIGHT	-143	186	43
BELVOIR	329	0	329
BENNING	898	215	1113
BLISS	6019	3221	9240

1

1 **3.3.3 Alternative 3: Execute those actions proposed in Alternatives 1 and 2**  
2 **and, in addition, grow the Army by up to 6 Active Duty Brigade Combat**  
3 **Teams (BCTs).**  
4

5 Alternative 3 includes actions outlined in Alternatives 1 and 2 and in addition adds up to  
6 6 additional BCTs to the Active Army's operational combat forces. This alternative  
7 would allow the Active Army grow from its current authorization of 42 BCTs up to a total  
8 possible end-strength of 48 BCTs. In addition, this increase in troop strength would  
9 allow the Army to realign its forces as summarized in Table 3-3 above. This alternative  
10 includes the addition of approximately 8,200 Soldiers and would add approximately  
11 1,000 Soldiers to the Army Reserve as discussed in Alternative 2.  
12

13 As part of this alternative, facilities to support active duty BCTs and CS/CSS units would  
14 be planned and constructed between 2008-2013. Alternative 3 includes 2 sub-  
15 alternatives for executing the stationing of up to 6 new BCTs. Sub-alternatives are  
16 required because of the constraints on providing units with the necessary facilities they  
17 require and the length of time required to fund, plan and complete military construction  
18 (see section 3.1). Facilities requirements for garrison and training support for BCTs are  
19 discussed in detail in section 2.3 for each type of BCT. At this time sub-alternatives do  
20 not stipulate which type of BCT (HBCT, IBCT or Stryker BCT) would be added to the  
21 Army's force structure to implement Alternative 3. This decision must be carefully  
22 evaluated by Senior Military Commanders to determine what types of BCTs would best  
23 meet national defense and security needs of the nation. Sub-alternatives are:  
24

25 **Alternative 3.1:** As part of this alternative, facilities to support active duty BCTs would  
26 be planned and constructed at existing Army training installations within the United  
27 States from 2008-2013. To leverage cost efficiencies the Army would station new  
28 Brigades at its major Active Duty training installations. BCTs would be able to utilize  
29 existing infrastructure at these installations to support requirements for Soldiers and  
30 their Families with regards to training infrastructure, office space, housing and other  
31 quality of life facilities.  
32

33 **Alternative 3.2:** As in Alternative 3.1, facilities to support active duty BCTs would be  
34 planned and constructed within the United States from 2008-2013. Some BCTs would  
35 be stationed at the Army's major Active Duty training installations to leverage cost  
36 efficiencies and availability of existing training land. One or more new sites within the  
37 United States, however, would be selected for the construction of permanent party  
38 facilities where permanent party operational forces are not currently stationed. The  
39 Army would select these new sites at locations where it currently owns land to support  
40 BCTs but does not have the built infrastructure to support garrison or other operations.  
41 This alternative would require construction of a set of garrison support facilities at a  
42 location where a fully operational garrison does not currently exist in the Continental  
43 United States. Army sites which would be considered for construction of new  
44 infrastructure to support growth BCTs include Army Test Command Installations, large  
45 Reserve Component installations with extra stationing capacity, and maneuver training

1 sites. Table 3-4 below provides a list of installations being considered for the stationing  
2 of new BCTs as part of Alternative 3.

3

**Table 3-4 Army Installations Considered For BCT Stationing**

Fort Benning	Fort Campbell	Fort Hunter Liggett	White Sands Missile Range
Fort Carson	Fort Hood	Fort Irwin	Fort Polk
Fort Drum	Fort Riley	Fort Stewart	
Yuma Proving Ground	Fort Knox	Fort Lewis	
Fort Bliss	Fort Bragg	Yakima Training Center	

4

5

6 Both of these Alternatives include the possibility that the initial organization and training  
7 of the new units would occur at overseas locations. The overseas location would not be  
8 permanent; rather it would allow the units to organize while facilities are prepared in the  
9 United States.

10

### 11 **3.3.4 No-Action Alternative**

12

13 The No Action Alternative is to retain the Army at a permanent force level of 512,400  
14 Active Duty Soldiers, 350,000 Army National Guard Soldiers, and 205,000 Reserve  
15 Soldiers as is currently authorized. The No-Action alternative assumes that units will  
16 remain stationed where they are currently stationed at the end of Fiscal Year 2007, or  
17 where they are directed to be stationed pursuant to BRAC law.

18

19 Under the No-Action alternative, stationing moves, unit activations, unit conversions,  
20 and deactivations required to implement Army Growth and Realignment beyond 2007  
21 authorizations and BRAC Law would not occur as described in Alternatives 1, 2 and 3.  
22 No additional CS/CSS Soldiers would be added to the Army to balance the composition  
23 of Army skill sets to match current and projected future mission requirements.  
24 Furthermore, no new Brigade Combat Teams would be added to the Army to slow the  
25 tempo of deployments for existing units, increase operational readiness, and elevate  
26 Soldier and Family quality of life. The Army would remain at its 2007 authorized end-  
27 strength in its current configuration and implement only those stationing moves directed  
28 by BRAC 2005 law.

29

### 30 **3.4 Screening Criteria Used To Identify a Range Of Potential Installation 31 Stationing Locations**

32

33 The Army used the need criteria of the proposed action, defined in section 1, in  
34 conjunction with other external limiting factors to narrow the field of installations to those  
35 capable of supporting the requirements of new unit stationing actions required by Army  
36 growth. This section describes the Army's decision-making process for selecting and  
37 analyzing viable stationing locations that could meet the Purpose and Need for the



1 stationing of Army Growth units. The screening criteria include: supporting the NSS,  
2 NDS, and ACP, possessing the capability to provide the necessary training  
3 infrastructure for new units, the ability to provide quality of life and garrison support  
4 infrastructure, and cost considerations. These screening criteria were applied to the full  
5 range of reasonable potential stationing locations capable of supporting Army growth.  
6 Specific criteria in this analysis used to screen the above alternatives include:  
7

8 **1. Support National Security and Defense policy, decisions made within the**  
9 **Quadrennial Defense Review (QDR), and support Army Transformation:**

10 Alternative stationing locations carried forward for analysis must promote,  
11 support, or be consistent with National Security and Defense policy, Army  
12 mission requirements, and the requirements of the QDR and Army  
13 Transformation. Stationing locations must allow the Army to effectively carry out  
14 operations and deploy units to support current and future operations to shape the  
15 national security environment in an effective manner.  
16

17 **2. Training.** The installation's current acreage within the fenceline is considered,  
18 as well as current and future maneuver land acreage. This includes providing  
19 sufficient land for training and maneuver areas for existing and realigned units,  
20 and constructing, upgrading, and operating live-fire and qualification ranges.  
21 Quality and quantity of training land, ranges and existing training facilities are all  
22 considered. Alternatives which are not capable of supporting the training land  
23 and infrastructure requirements of the ACP have not been carried forward in this  
24 document.  
25

26 **3. Quality of Life and Garrison Support Infrastructure.** The current capability for  
27 the installation to support Soldiers, Families, and civilians (e.g., Soldier/family  
28 medical clinics, child and youth development centers, and school systems) is  
29 considered. The presence of adequate housing and available infrastructure to  
30 support Soldiers and their Families must also be available to support new units  
31 stationed at the installation as part of Army growth. Installations without excess  
32 housing capacity in the surrounding community or buildable space to  
33 accommodate the garrison requirements of additional units would not be carried  
34 forward for analysis.  
35

36 **4. Costs.** The alternative must be achievable within a reasonable cost as  
37 compared to the proposed action and other alternatives. Alternatives that are  
38 considerably more expensive to implement without increased benefit  
39 commensurate with the additional cost would be eliminated from detailed  
40 evaluation.  
41

### 42 **3.5 Application of Screening Criteria to Potential Installation Stationing Locations** 43

44 The Army initially included all of its installations as potential stationing locations to  
45 support Army growth and realignment initiatives. The following section describes the  
46 screening process that was utilized to arrive at installations that are being carried

1 forward for analysis in this document. Installations have been carried forward for  
2 analysis if they are capable of supporting an additional BCT under Alternative 3, or if  
3 they are projected to receive more than 1,000 additional combat support Soldiers to  
4 support modularity and CS/CSS growth initiatives (Alternatives 1 & 2). The following  
5 screening criteria were used to determine if a site is suitable for implementing the  
6 Proposed Action.  
7

8 **1) Support of National Security and Defense policy, decisions made within the**  
9 **Quadrennial Defense Review (QDR), and support Army Transformation-** Under  
10 these screening criteria, alternatives carried forward to support restructuring and Growth  
11 of the Army must ensure that units can readily access unit deployment facilities to  
12 support operations abroad, as required. Additionally, the QDR directs the return of units  
13 to within the United States to operate from installation “Power Projection Platforms”.  
14 These power projection platforms will provide units with training and deployment  
15 facilities to ensure troops are well trained and can be employed quickly and effectively  
16 to shape the national security environment. QDR recommendations are closely aligned  
17 with GDPR decisions and Transformation directives put forth in the ACP. For these  
18 reasons, overseas locations will not be considered for permanent stationing locations  
19 for new growth BCTs.  
20

21 **2) Training-** The ability of the installation to support the training of newly assigned units  
22 is an essential element of need for the Proposed Action. As part of the Transformation  
23 process, the Army has conducted an ambitious modernization program for its training  
24 ranges and infrastructure. To maintain its training proficiency the installations receiving  
25 new active duty units should either possess existing modernized ranges and digital  
26 training facilities or the space to construct them to maintain its required training  
27 proficiency. Because of resource limitations, the Army has only been able to fully  
28 conduct range modernization at the major Active Duty training installations. In addition  
29 to major existing active duty training sites, the Army could establish training  
30 infrastructure at locations with enough training space to accommodate unit maneuver  
31 training requirements. Such installations include Army installations which currently have  
32 a testing mission such as White Sands Missile Range (WSMR) and Yuma Proving  
33 Ground (YPG), maneuver training sites such as Yakima Training Center (YTC), and  
34 select Reserve Component training facilities such as Fort Hunter Liggett (FHL).  
35

36 In general, National Guard and Army Reserve installations are not large enough to  
37 accommodate large unit maneuvers. Additionally, few of these installations have  
38 completed significant range modernization activities required to test the combat  
39 capabilities of the Active duty units. National Guard and Reserve installations that have  
40 undergone a significant level of modernization, such as Fort Dix, New Jersey and Camp  
41 Shelby, Mississippi, are fully engaged with missions to mobilize, train, and deploy  
42 National Guard and Reserve Soldiers. These installations do not have the capacity to  
43 accept a BCT while carrying out their primary installation missions to train and mobilize  
44 National Guard and Reserve Soldiers.  
45

1 Those installations that do not possess adequate training space to support growth units  
2 are screened from further consideration for analysis. In addition, those installations that  
3 have not undergone significant training and range modernization activities or which do  
4 not have the space to accommodate their construction have been eliminated as  
5 potential stationing alternatives.

6 Utilizing training as a screening factor for installation stationing actions eliminates a  
7 majority of reserve component facilities, administrative installations, and industrial  
8 production facilities. In addition, not all Army installations carried forward for analysis  
9 can support the training space requirements for all 3 types of BCTs. Some installations  
10 which can support the smaller training area requirements of the IBCT cannot support  
11 the extensive maneuver training requirements of the HBCT or even larger maneuver  
12 requirements of the Stryker BCT. Installations capable of supporting the training space  
13 requirements of an IBCT have been carried forward for consideration.

14 **3) Quality of Life and Garrison Support-** Installations carried forward for analysis  
15 must have either existing facilities capacity to support unit garrison operations or there  
16 must be space to construct the garrison support facilities and Soldier and Family quality  
17 of life facilities needed to support proposed unit stationing actions under Alternatives 1,  
18 2 or 3.

19  
20 **4) Cost-** Cost considerations are always a factor given that the Army budget is finite  
21 and the organizations have a multitude of funding priorities. Sites which do not currently  
22 possess the infrastructure to house, train and accommodate permanent party active  
23 duty units would cost considerably more to establish than sites which have existing  
24 utilities. Efficiencies in facilities usage could be leveraged to reduce costs at existing  
25 Army training sites. However, due to the considerable training land shortfalls the Army  
26 is facing, the Army is not using cost to rule out sites for establishing new BCTs, if  
27 adequate training land is available to support BCTs upon the completion of facilities  
28 construction activities. Sites which the Army would consider for the stationing of new  
29 growth units and BCTs would include the testing sites of WSMR, YPG, YTC and FHL.  
30 Because these sites have adequate training land resources to accommodate a BCT, the  
31 Army is willing to retain these sites as feasible alternatives, despite increased costs  
32 associated with establishing new training and garrison infrastructure.

33  
34 Subsequent sections of this document will analyze the potential impacts resulting from  
35 implementing Army Growth and modular restructuring initiatives discussed as part of  
36 Alternatives 1, 2, and 3. As discussed earlier in this section, the site selection of the  
37 stationing actions described in Alternatives 1 and 2 are not discretionary in nature.  
38 These stationing actions are based on the number and types of existing units at a given  
39 stationing location. Installations which would receive 1,000 or more Soldiers as part of  
40 Alternatives 1 and 2 are carried forward for programmatic analysis of stationing impacts.  
41 The stationing of new growth BCTs, however, is discretionary in nature. Based on need  
42 criteria and analysis presented in this document, the Army does have flexibility in  
43 deciding the stationing locations of new growth BCTs if Alternative 3 is selected.

44  
45 **Alternatives Eliminated from Further Review:**

1  
2 **Permanently Station New BCTs at an Overseas Location:** As part of this alternative,  
3 new BCTs would be stationed at overseas locations in Germany or Korea which were  
4 vacated by units returning to the United States through GDPR initiatives. This  
5 alternative would allow the Army to take advantage of additional overseas infrastructure  
6 capacity, but it would not adhere to national defense policy or decisions and  
7 recommendations put forward in the QDR. Despite the short term construction cost  
8 saving to be gained through such an alternative, the Army is engaged in the process of  
9 GDPR to bring units back from overseas locations. This process is aligned with  
10 Department of Defense strategies to project power abroad from within the United States  
11 where Soldiers have increased levels of force protection and access to training  
12 resources.

13  
14 **Execute Modular Transformation Activities presented in Alternative 1 and Combat**  
15 **Support growth Initiatives in Alternative 2 at Installations other than those**  
16 **Stationing Locations Currently Listed:** This alternative would implement the  
17 stationing of units in Alternatives 1 and 2 at installations other than those listed for each  
18 stationing action. Each of these stationing actions in Alternative 1 is required to ensure  
19 that the force package designs present at that installation conform to the modular forces  
20 standardized designs and that CS/CSS units are collocated with those units they must  
21 training to support. Stationing units in Alternative 1 and 2 at other installations than  
22 those listed would prevent the Army from implementing modular force design concepts  
23 recommended in the QDR and would prevent support units and combat units from  
24 conducting and rehearsing integrated training exercises.

25  
26 **Station New Growth BCTs at a Large Reserve Component Mobilization Site:** As  
27 part of this Alternative, units would be stationed at a Reserve Component Mobilization  
28 Site such as Camp Shelby or Fort Dix. While these installations do possess some of  
29 the range infrastructure required to support an Active Duty BCT, the installations  
30 primary missions is to focus on training National Guard and Reserve Component  
31 Soldiers on Mission Critical Tasks to prepare them for deployment to support on-going  
32 missions. These installations are currently fully engaged in their training mobilization  
33 missions and do not have the garrison or training infrastructure or training land to  
34 support additional Active Duty BCTs.

1 **4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

2  
3 **Introduction**

4 The following section consolidates the baseline information (the affected environment)  
5 and the environmental and socioeconomic impacts (environmental consequences) from  
6 the proposed action. Subsections divide analyses for potential installation stationing  
7 locations. The baseline for the proposed action is considered the installation's current  
8 condition through FY07 and includes Congressionally-mandated BRAC 2005 actions.  
9

10 **Methodology**

11 This Programmatic EIS presents a top-tier perspective that provides decision makers,  
12 regulatory agencies, and the public with information on the potential environmental and  
13 socioeconomic effects resulting from the implementation of Army growth and  
14 restructuring through different types of unit stationing scenarios. This information will  
15 allow decision makers to review the proposed alternatives and environmental and  
16 socioeconomic impacts for implementing Army growth initiatives, enabling them to make  
17 informed decisions when determining installation stationing locations.  
18

19 Through a detailed screening process, 17 installations within the United States have  
20 been identified as potential stationing locations for the proposed Army growth and  
21 realignment initiatives. Because of ongoing planning, budgeting, and strategic  
22 operational efforts, the exact design and structure of the proposed growth and  
23 realignment of the Army is yet to be determined. Six unit stationing scenarios were  
24 developed that best capture the essence of the proposed Army growth initiatives. They  
25 include CS/CSS, Full Sustainment Brigade, Infantry BCT, Heavy BCT, Stryker BCT<sup>1</sup>  
26 and Multiple BCTs. The CS/CSS unit scenario includes smaller support units (i.e.,  
27 military police) totaling no more than 1,000 Soldiers. The Full Sustainment Brigade and  
28 the remaining BCT unit scenarios are based on the Army Modular Force organization  
29 which focuses its operations at the smaller, self-contained, logistically supportable BCT-  
30 sized units of 3,000-4,000 Soldiers. The units within these BCTs are similar in their  
31 equipment and manning. A Multiple BCT scenario assumes a combination of two  
32 BCTs, totaling 7,000 Soldiers.  
33

34 This PEIS adopts an analytic methodology similar to that used in the Army's  
35 *Programmatic Environmental Impact Statement for Army Transformation* (March 2002).  
36 The Army Transformation PEIS identified several types of activities, referred to as  
37 "activity groups" that were likely to produce impacts. The activity groups served as the  
38 evaluation elements for use as a planning and decision making tool. In this  
39 Programmatic EIS, four of those activities groups were adopted and updated for  
40 application in the environmental impact analysis process for the six unit stationing  
41 scenarios. The four activity groups include garrison construction, training infrastructure  
42 construction, live-fire training, and maneuver training. These activity groups were  
43 coupled with the requirements of each of the six unit scenarios and applied to valued

---

<sup>1</sup> Due to specific training requirements, the Stryker BCT is only considered at 5 of the 18 proposed installations.

1 environmental components (VECs) for each of the 17 installations. A general  
2 description of these VECs is found in Appendix V of this document. Through  
3 coordination with installation staff at each location, VEC ratings were identified,  
4 tabulated, and described further in this section. They are the basis from which the  
5 impact assessment was formulated. VEC ratings rank from “very low” to “very high” and  
6 are presented in a table at the beginning of each subsection. A comparison of these  
7 ratings for each of the 17 installations is offered in the Tables 4-1 to 4-6 below. The  
8 following is the basic description of each VEC rating category:  
9

- 10 • **Very Low** – No impact is anticipated.
- 11
- 12 • **Low** – Minor impact anticipated.
- 13
- 14 • **Medium** – Moderate impact anticipated (less than significant).
- 15
- 16 • **High** – Significant impact anticipated (likely mitigable to less than significant).
- 17
- 18 • **Very High** – Significant adverse impact anticipated.
- 19

20 Additional installation-specific analyses will be conducted which utilizes, as appropriate,  
21 analysis put forth as part of this PEIS for Army growth and restructuring from an  
22 organization-wide perspective. At the site specific level, analysis will be conducted to  
23 address changes and environmental effects of stationing based on ACP and Army  
24 growth requirements.  
25

26 A consolidated table of significant impacts is illustrated in Tables 4-1 to 4-6 below; and  
27 are grouped by stationing scenario (CS/CSS, Full Sustainment Brigade, Infantry BCT,  
28 Heavy BCT, Stryker BCT, Multiple BCTs). These tables provide the reader a  
29 comparison of all of the anticipated effects from each of the six stationing scenarios  
30 across each of the relevant installation locations.  
31  
32  
33  
34

Table 4-1. Comparison of anticipated impacts to VECs at each potential stationing site for the CS/CSS scenario

CS/CSS Units (1,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊖	⊕	⊕	⊕	⊗	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊖	⊖
Airspace	⊕	⊕	**	⊕	⊕	⊕	**	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Cultural	**	⊕	⊕	⊖	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	**	⊕	⊖
Noise	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕
Soil Erosion Impacts	⊕	⊖	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
T&E/Other Wildlife	⊖	⊕	⊖	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊖	⊕
Wetlands	⊖	⊕	⊖	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕
Water Resources	⊖	**	⊖	⊖	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	**	⊖
Facilities	⊗	⊕	●	⊕	⊖	⊕	⊖	⊕	⊕	⊕	**	⊗	⊕	⊖	⊖	⊕	⊖	⊖
Socioeconomics	⊖	⊗	⊖	⊖	⊕	N/A	⊖	⊕	⊕	⊕	⊕	⊖	⊖	⊕	⊕	⊕	⊕	⊗
Energy Demand/Generation	⊖	⊕	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕
Land Use Conflict/Compatibility	⊕	⊕	⊖	⊕	⊕	**	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊖	⊕
Hazardous Materials/Hazardous Waste	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Traffic and Transportation	⊖	⊗	⊗	⊗	⊖	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊖	⊕	⊕	⊖
<b>** Unique Issues</b>																		
Airspace (Due to aviation aspect)							⊕											
Airspace (No helicopters)			⊕															
Cultural (Phase II investigations on most areas)	⊕																	
Cultural																Low to High depending on survey results		
Wildfire Management					⊕	⊕												
Vegetation					⊖	⊖												

CS/CSS Units (1,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Habitat					⊗	⊗												
Noxious Weeds					⊗	⊗												
Hunting/ Recreation					⊙	⊙												
Scheduling Conflict								⊙	⊙	⊙			○					⊙
Facilities (Landfill)										⊗								
Facilities (Based on Armor School move)											⊙							
Noise (Biological)																	⊗	
Water Resources (Biological)																	⊙	
Water Resources (Environmental Compliance)																	⊙	
Water Resources (Wastewater Treatment/ Water Demand)		⊗																
Water Resources (Water Quality)		⊙																

\* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however, VEC impacts were evaluated for this location due to the training requirements this site fulfills for units stationed at Fort Carson.

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2  
3



Table 4-2. Comparison of anticipated impacts to VECs at each potential stationing site for the Full Sustainment BDE scenario

Full Sustainment BDE (3,000-3,500 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊖	⊕	⊖	⊖	●	⊕	⊕	⊕	⊕	⊖	⊕	⊕, ⊖	⊕	⊕	⊕	⊖	⊖	⊖
Airspace	⊕	⊖	**	⊕	⊖	⊕	**	⊕	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊖
Cultural	**	⊕	⊕	⊖	⊕	⊖	⊕	⊕	⊕	⊖	⊖	⊖	⊕	⊕	⊕	**	⊕	⊖
Noise	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊖	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊖
Soil Erosion Impacts	⊖	⊗	⊗	⊗	⊖	⊖	⊕	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊖	⊖	⊖	⊖
T&E/Other Wildlife	⊖	⊕	⊖	⊖	⊖	⊖	⊖	⊕	⊖	⊖	⊕	⊕	⊕	⊕	⊖	⊕	⊗	⊕
Wetlands	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊗	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕	⊖	⊕
Water Resources	⊖	**	⊖	⊗	⊖	⊕	⊖	⊗	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊖	**	⊗
Facilities	⊗	⊖	●	⊗	⊗	⊖	⊖	⊖	⊕	⊕	**	⊗	⊖	⊗	⊖	⊕	⊖	⊖
Socioeconomics	⊖	⊗	⊖	⊗	⊖	N/A	⊗	⊖	⊖	⊕	⊖	⊗	⊖	⊗	⊖	⊕	⊗, +	⊗
Energy Demand/Generation	⊗	⊕	⊖	⊗	⊖	⊕	⊖	⊕	⊕	⊕	⊖	⊖	⊕	⊕	⊕	⊕	⊖	⊖
Land Use Conflict/Compatibility	⊖	⊕	⊖	⊗	⊕	**	⊖	⊕	⊕	⊕	⊕	⊖	⊕	⊕	⊖	⊕	⊖	⊕
Hazardous Materials/Hazardous Waste	⊕	⊕	⊕	⊖	⊕	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊖	⊕
Traffic and Transportation	⊖	⊗	⊗	⊗	⊖	⊖	⊖	⊕	⊕	⊕	⊗	⊖	⊕	⊖	⊖	⊕	⊖	⊗
<b>** Unique Issues</b>																		
Airspace (Due to aviation aspect)							⊕											
Airspace (No helicopters)			⊕															
Cultural (Phase II on investigations most areas)	⊕																	
Cultural																Low to high depending on survey results		
Wildfire Management					⊕	⊕												

Full Sustainment BDE (3,000-3,500 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Vegetation					⊘	⊘												
Habitat					⊘	⊘												
Noxious Weeds					⊘	⊘												
Hunting/ Recreation					⊘	⊘												
Scheduling Conflict								⊙	⊙	⊙			⊙					⊙
Facilities (Landfill)										⊗								
Facilities (Based on Armor School move)											⊘							
Noise (Biological)																	⊘	
Water Resources (Biological)																	⊘	
Water Resources (Environmental Compliance)																	⊘	
Water Resources (Water Demand)		⊗																
Water Resources (Surface Water)		⊙																

\* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however, VEC impacts were evaluated for this location due to the training requirements this site fulfills for units stationed at Fort Carson.

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Table 4-3. Comparison of anticipated impacts to VECs at each potential stationing site for the IBCT scenario

IBCT (3,500 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊖	⊖	⊖	⊖	●	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Airspace	⊖	⊖	**	⊖	⊖	⊖	**	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Cultural	**	**	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	**	⊖	⊖
Noise	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖
Soil Erosion Impacts	⊖	⊗	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
T&E/Other Wildlife	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖
Wetlands	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Water Resources	⊖	**	⊖	⊗	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	**	⊗
Facilities	⊗	⊖	●	⊗	⊗	⊖	⊖	⊖	⊖	⊖	**	⊗	⊖	⊗	⊖	⊖	⊖	⊗
Socioeconomics	⊖	⊗	⊖	⊗	⊖	N/A	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊗, +	⊗
Energy Demand/Generation	⊗	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Land Use Conflict/Compatibility	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Hazardous Materials/Hazardous Waste	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Traffic and Transportation	⊖	⊗	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗
<b>** Unique Issues</b>																		
Airspace (Due to aviation aspect)							⊖											
Airspace (No helicopters)			⊖															
Cultural (Dismounted off-road maneuvers)		⊖																
Cultural (Phase II investigations on most areas)	⊖																	
Cultural																Low to high depending on survey		

IBCT (3,500 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
																results		
Wildfire Management					⊙	⊙												
Vegetation					⊙	⊙												
Habitat					⊙	⊙												
Noxious Weeds					⊙	⊙												
Hunting/ Recreation					⊙	⊙												
Scheduling Conflict								⊗	⊙	⊙			⊙					⊗
Facilities (Landfill)										⊗								
Facilities (Based on Armor School move)										⊙								
Noise (Biological)																	⊙	
Water Resources (Biological)																	⊙	
Water Resources (Environmental Compliance)																	⊙	
Water Resources (Water Demand)		⊗																
Water Resources (Surface Water)		⊙																

\* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however, VEC impacts were evaluated for this location due to the training requirements this site fulfills for units stationed at Fort Carson.

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Table 4-4. Comparison of anticipated impacts to VECs at each potential stationing site for the HBCT scenario

HBCT (3,800-4,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊗	⊖	⊖	⊖	●	⊖	⊖	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖
Airspace	⊖	⊖	**	⊖	⊖	⊖	**	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Cultural	**	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	**	⊖	⊗
Noise	⊗	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊗	⊖	⊖	⊖
Soil Erosion Impacts	⊗	⊗	⊗	⊗	⊗	⊗	⊖	⊗	⊗	⊖	⊖	⊖	⊗	⊖	⊗	⊖	⊗	⊗
T&E/Other Wildlife	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊗	⊖
Wetlands	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖
Water Resources	⊗	**	⊗	⊗	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	**	⊗
Facilities	⊗	⊖	●	⊗	⊗	⊖	⊖	⊗	⊖	⊖	**	⊗	⊗	⊗	⊖	⊖	⊖	⊗
Socioeconomics	⊖	⊗	⊖	⊗	⊖	N/A	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊗, +	⊗
Energy Demand/ Generation	⊗	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Land Use Conflict/ Compatibility	⊗	⊖	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖
Hazardous Materials/ Hazardous Waste	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Traffic and Transportation	⊗	⊗	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗
<b>** Unique Issues</b>																		
Airspace (Due to aviation aspect)							⊖											
Airspace (No helicopters)			⊖															
Cultural (Phase II investigations on most areas)	⊗																	
Cultural																Low to high depending on survey results		
Wildfire Management					⊖	⊖												

HBCT (3,800-4,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Vegetation					⊗	⊗												
Habitat					⊗	⊗												
Noxious Weeds					⊗	⊗												
Hunting/ Recreation					⊗	⊗												
Scheduling Conflict								⊗	⊗	⊗			⊗					⊗
Facilities (Landfill)										⊗								
Facilities (Based on Armor School move)											⊗							
Noise (Biological)																	⊗	
Water Resources (Biological)																	⊗	
Water Resources (Environmental Compliance)																	⊗	
Water Resources (Water Demand)		⊗																
Water Resources (Surface Water)		⊗																

\* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however, VEC impacts were evaluated for this location due to the training requirements this site fulfills for units stationed at Fort Carson.

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1 Table 4-5. Comparison of anticipated impacts to VECs at each potential stationing site for the  
 2 Stryker BCT scenario

<b>Stryker BCT (4,000 Soldiers)</b>						
VEC	Fort Bliss	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Lewis	White Sands Missile Range	Yakima Training Center
Air Quality	⊗	●	⊗	⊗	⊗	⊗
Airspace	⊗	⊗	⊙	⊙	⊙	⊙
Cultural	⊗	⊗	⊗	⊗	**	⊗
Noise	⊗	⊗	⊗	⊗	⊙	⊗ **
Soil Erosion Impacts	⊗	⊗	⊗	⊗	⊗	⊗
T&E/Other Wildlife	⊗	⊗	⊗	⊗	⊙	⊗
Wetlands	⊙	⊗	⊙	⊗	⊙	⊗
Water Resources	**	⊗	⊗	⊙	⊗	**
Facilities	⊙	⊗	⊗	⊗	⊙	⊗
Socioeconomics	⊗	⊗	N/A	⊗	⊙	⊗, +
Energy Demand/ Generation	⊙	⊗	⊗	⊗	⊙	⊗
Land Use Conflict/ Compatibility	⊙	⊗ **	⊙ **	⊗	⊗	⊗
Hazardous Materials/ Hazardous Waste	⊙	⊗	⊗	⊙	⊗	⊗
Traffic and Transportation	⊗	⊗	⊗	⊗	⊙	⊗
<b>** Unique Issues</b>						
Cultural					Low to high depending on survey results	
Wildfire Management		⊗	⊗			
Vegetation		⊗	⊗			
Habitat		⊗	⊗			
Noxious Weeds		⊗	⊗			
Hunting/ Recreation		⊗	⊗			
Noise (Biological)						⊗
Water Resources (Biological)						⊗

<b>Stryker BCT (4,000 Soldiers)</b>						
<b>VEC</b>	<b>Fort Bliss</b>	<b>Fort Carson</b>	<b>*Maneuver Training Site (Units Stationed at Fort Carson)</b>	<b>Fort Lewis</b>	<b>White Sands Missile Range</b>	<b>Yakima Training Center</b>
<b>Water Resources (Environmental Compliance)</b>						⊘
<b>Water Resources (Water Demand)</b>	⊗					
<b>Water Resources (Surface Water)</b>	⊙					

1 \* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however,  
2 VEC impacts were evaluated for this location due to the training requirements this site fulfills for units  
3 stationed at Fort Carson.  
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Table 4-6. Comparison of anticipated impacts to VECs at each potential stationing site for the multiple BCT scenario

Multiple BCTs (7,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Air Quality	⊗	⊖	⊗	⊗	●	⊗	⊖	⊖	⊗	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖
Airspace	⊖	⊖	**	⊖	⊖	⊖	**	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Cultural	**	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊗	**	⊖	⊗
Noise	⊗	⊗	⊗	⊖	⊗	⊖	⊗	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊗	⊖	⊖	⊖
Soil Erosion Impacts	⊗	⊗	●	●	⊗	⊗	⊖	⊗	⊗	⊖	⊖	⊗	⊗	⊖	⊗	⊖	⊗	⊗
T&E/Other Wildlife	⊗	⊖	●	⊗	⊗	⊗	⊖	⊖	⊗	⊖	⊖	⊖	⊗	⊖	⊗	⊖	⊗	⊖
Wetlands	⊗	⊖	●	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖
Water Resources	⊗	**	●	●	⊗	⊖	⊖	⊗	⊖	⊗	⊖	⊖	⊗	⊖	⊖	⊗	**	⊗
Facilities	⊗	⊖	●	●	⊗	⊖	⊖	⊗	⊖	⊖	**	⊗	⊗	⊗	⊖	⊖	⊖	⊗
Socioeconomics	⊗	⊗	⊗	⊗	⊗	N/A	⊗	⊖	⊖	⊖	⊗	⊗	⊗	⊗	⊗	⊖	⊗, +	⊗
Energy Demand/ Generation	⊗	⊖	⊗	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Land Use Conflict/ Compatibility	⊗	⊖	●	●	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊗	⊗	⊖	⊖	⊖
Hazardous Materials/ Hazardous Waste	⊗	⊖	⊗	⊗	⊖	⊖	⊖	⊖	⊖	⊖	⊗	⊖	⊖	⊖	⊗	⊖	⊖	⊖
Traffic and Transportation	⊗	⊗	⊗	⊗	⊗	⊗	⊖	⊖	⊖	⊗	⊗	⊖	⊖	⊗	⊗	⊖	⊖	⊗
<b>** Unique Issues</b>																		
Airspace (Due to aviation aspect)							⊖											
Airspace (No helicopters)			⊖															
Cultural (Phase II investigations on most areas)	⊗																	
Cultural																Low to high depending on survey results		
Wildfire Management					⊖	⊖												

Multiple BCTs (7,000 Soldiers)																		
VEC	Fort Benning	Fort Bliss	Fort Bragg	Fort Campbell	Fort Carson	*Maneuver Training Site (Units Stationed at Fort Carson)	Fort Drum	Fort Hood	Fort Hunter Liggett	Fort Irwin	Fort Knox	Fort Lewis	Fort Polk	Fort Riley	Fort Stewart	White Sands Missile Range	Yakima Training Center	Yuma Proving Grounds
Vegetation					⊗	⊗												
Habitat					⊗	⊗												
Noxious Weeds					⊗	⊗												
Hunting/ Recreation					⊗	⊗												
Scheduling Conflict								⊗	⊖	⊗			⊗					⊗
Facilities (Landfill)										⊗								
Facilities (Based on Armor School move)											⊖							
Noise (Biological)																	⊖	
Water Resources (Biological)																	⊗	
Water Resources (Environmental Compliance)																	⊖	
Water Resources (Water Demand)		⊗																
Water Resources (Surface Water)		⊖																

\* The Pinon Canyon Maneuver Training Site is not being considered as a stationing location; however, VEC impacts were evaluated for this location due to the training requirements this site fulfills for units stationed at Fort Carson.

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1 **4.1 FORT BENNING, GEORGIA**  
2 **4.1.1 Introduction**  
3

4 Fort Benning is located in southwest Georgia, and has approximately 135,000 acres of  
5 maneuver area suited for vehicle and non-vehicular military training (Figure 4.1-1).  
6 There are several areas identified as “drop zones” that are used exclusively for  
7 personnel and equipment parachute training.



**Fort Benning- Installation Location**

8  
9 **Figure 4.1-1 Fort Benning**

10  
11 Fort Benning’s major units are the 3<sup>rd</sup> Brigade of the 3<sup>rd</sup> infantry Division and the 75<sup>th</sup>  
12 Ranger Regiment. Fort Benning is home to the Infantry School, which conducts infantry  
13 officer and non-commissioned officer training, infantry Soldier Basic Combat and  
14 Advanced Individual Training, airborne (parachute) training, and Ranger Training. Fort  
15 Benning is also expecting to gain the Maneuver Center of Excellence.

16  
17 Fort Benning has a robust and highly used range infrastructure with several unique  
18 ranges supporting Special Operations Command (SOCOM) units. The impending  
19 conversion of Fort Benning to a Maneuver Center of Excellence would increase the  
20 already high demand for existing ranges and maneuver land, and would likely require  
21 significant range construction. Fort Benning is facing challenges of growing adjacent

1 urbanization and from specific Threatened and Endangered Species (TES) (e.g., Red-  
 2 Cockaded Woodpecker).

3  
 4 Table 4.1-1 contains the Fort Benning VEC ratings for each of the various stationing  
 5 action scenarios.

6  
 7 **Table 4.1-1. Fort Benning VEC Ratings**

<b>Fort Benning</b>					
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment Brigade (BDE) (3,000-3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Medium	Medium	Medium	High	High
Airspace	Low	Low	Low	Low	Low
Cultural <i>Phase II investigations on most areas</i>	Low	Medium	Medium	High	High
Noise	Low	Medium	Medium	High	High
Soil Erosion Impacts	Low	Medium	Low	High	High
T&E/Other Wildlife	Medium	Medium	Medium	High	High
Wetlands	Medium	Medium	Medium	High	High
Water Resources	Medium	Medium	Medium	High	High
Facilities	High	High	High	High	High
Socioeconomics	Medium	Medium	Medium	Medium	High
Energy Demand/ Generation	Medium	High	High	High	High
Land Use Conflict/ Compatibility	Low	Medium	Medium	High	High
Haz Mat/ Haz Waste	Low	Low	Low	Medium	High
Traffic and Transportation	Medium	Medium	Medium	High	High

8  
 9

10 **4.1.2 Air Quality**  
 11 **4.1.2.1 Affected Environment**

12  
 13 Air emissions sources at Fort Benning include areas within the counties of  
 14 Chattahoochee and Muscogee, Georgia; and Russell, Alabama. The Installation’s  
 15 cantonment area, training areas, and maneuver corridors are also included in the  
 16 project area. This region is presently designated by the EPA as in attainment for all

1 required standards for criteria pollutants. An issue of increasing concern is PM<sub>2.5</sub>.  
2 PM<sub>2.5</sub> (particulate matter with a diameter of less than or equal to 2.5 microns) is a  
3 National Ambient Air Quality Standard (NAAQS) pollutant that is subject to an air  
4 conformity review. At this time, the region is considered to be in attainment for PM<sub>2.5</sub>.  
5 Monitoring data indicate that ambient concentrations of PM<sub>2.5</sub> are increasing, with levels  
6 exceeding the standard documented at a monitoring location in Phenix City, Alabama  
7 and at a monitoring location in Muscogee County. Because of this growing concern,  
8 efforts at the state and local level, including reduction planning, may be required to  
9 reverse the trend ahead of the EPA's data analysis for designating PM<sub>2.5</sub> nonattainment.  
10 Fort Benning would be required to assess actions for general conformity should the  
11 area be designated nonattainment for PM<sub>2.5</sub>. Nonattainment designation may come as  
12 early as December, 2007. General conformity would be required one year after  
13 nonattainment designation. However, the area that would be covered in the  
14 nonattainment designation has not been determined. At this time, only the Muscogee  
15 County GA and the Russell County AL sections of Fort Benning will be in the  
16 nonattainment area. If the Columbus area is designated as nonattainment for PM<sub>2.5</sub>,  
17 emissions would need to be reevaluated and a general conformity analysis may be  
18 needed to cover activities beyond 2007.

#### 20 4.1.2.2 Environmental Consequences

21  
22 Fort Benning is categorized as a major source of criteria pollutant emissions. The  
23 "major source" designation triggers the provisions of 40 CFR 52.21, *Prevention of*  
24 *Significant Deterioration (PSD)*. The PSD provisions require Fort Benning to assess all  
25 new emission units to determine if their operation constitutes a major modification. The  
26 major source designation also requires Fort Benning to maintain a Title V Operating  
27 Permit. New construction activities have the potential to exceed 250 tons for criteria  
28 pollutants, however, these activities are not stationary sources, and the emissions  
29 significance threshold does not apply. However, these construction activities could  
30 exceed the 20 percent opacity rule for fugitive dust, depending on the particular onsite  
31 controls used and local meteorological conditions.

32  
33 The background for PM 2.5 is 12ppm. The threshold for the annual level at this time for  
34 exceedance is 15ppm. The Georgia Environmental Protection Division, Alabama  
35 Department of Environmental Management, and U.S. EPA Region IV are in agreement  
36 that it takes very little emissions from any source to load the airshed and then have  
37 exceedences to the threshold.

38  
39 **CS/CSS, Full Sustainment Brigade (BDE).** There will be an anticipated moderate-  
40 level (medium) of environmental adverse impacts on the Installation and surrounding  
41 communities under the re-stationing of a CS/CSS unit scenario, including the project  
42 increase of 1,000 to 3,500 Soldiers. It is assumed that the resulting increases in air  
43 emissions are directly proportional to the increase in population at the facility. In  
44 general, combustion and fugitive dust emissions will produce localized, short-term  
45 elevated air pollutant concentrations that will not result in any sustained impacts on  
46 regional air quality. Long-term impacts from increased operations and maintenance

1 activities would be minimal and would not adversely impact regional air quality or Class  
2 I PSD areas.

3  
4 **IBCT.** Long-term moderate (medium) adverse impacts would be expected on the  
5 Installation and surrounding communities due to the restationing of an IBCT and 3,500  
6 additional Soldiers at Fort Benning. It is anticipated the emissions resulting from  
7 stationary sources required for facility operations to support the influx of Soldiers and  
8 their Families will have greater, long-term impacts than those resulting from training. It  
9 is also anticipated that the Installation would see increases in emissions from equipment  
10 required to support the Installation, such as fuel storage, dispensing, and boiler  
11 operations. Additionally, it is anticipated that more training/operations will occur away  
12 from established roads and tank trails.

13  
14 **HBCT.** Long-term significant (high) adverse impacts would be expected on the  
15 Installation and surrounding communities due to the restationing of a HBCT and its  
16 4,000 Soldiers. Combustion emissions from stationary sources would significantly  
17 increase due to the plus up in infrastructure required to support the influx of new  
18 Soldiers and their Families. Fugitive dust emissions remain a localized issue and  
19 should be addressed as an opacity issue if activities are close enough to installation  
20 boundaries that visible emissions leave the Installation.

21  
22 **Multiple BCTs.** Long-term significant (high) adverse impacts would be expected on the  
23 Installation and surrounding communities. As stated above, the expected  
24 environmental impact on the Installation and surrounding communities due to the  
25 restationing of multiple BCTs, including the addition of approximately 7,000 Soldiers, is  
26 expected to have major long-term impacts on air quality. Combustion emissions from  
27 stationary sources would significantly increase due to the increased infrastructure  
28 required to support the influx of new Soldiers and their Families.

### 30 **4.1.3 Airspace**

#### 31 **4.1.3.1 Affected Environment**

32  
33 Fort Benning has 277 square miles of Federal Aviation Administration (FAA)-designated  
34 special use airspace, up to 25,000 feet. The Installation has access to this airspace  
35 from 1100 to 0700 daily, with intermittent use, and is controlled by the FAA of Atlanta,  
36 Georgia. (US Army Corps of Engineers, 2002). Fort Benning manages its own  
37 airspace.

#### 38 **4.1.3.2 Environmental Consequences**

39  
40  
41 **CS/CSS.** Minimal (low) adverse impacts to Airspace use are expected. It is anticipated  
42 that the activities associated with an increase of 1,000 Soldiers would moderately  
43 increase activities within the cantonment and range areas, and would not impact or  
44 require changes in current Airspace configurations.

1 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Minor (low) adverse impacts to  
2 Airspace use are expected. While an increased Soldier strength of 3,000 to 3,500 will  
3 increase activity within the training and range areas, Airspace is not expected to change  
4 from its current use. Use of airspace would continue to be managed through scheduling  
5 and balancing UAV and requirements with airspace availability. All BCTs will have  
6 unmanned aerial vehicles, resulting in a minimal impact to airspace deconfliction.  
7 (Brown, Fort Benning Installation Questionnaire, 2007).  
8

#### 9 **4.1.4 Cultural Resources**

##### 10 **4.1.4.1 Affected Environment**

11 Located in southwest Georgia, Fort Benning is located near the Fall Line city of  
12 Columbus. The area has a significant amount of cultural resources, both on and off the  
13 Installation. There are federally-recognized tribes with interests in the area. Fort  
14 Benning and the surrounding area are known in the State of Georgia as being rich in  
15 Native American and European history.  
16

##### 17 **4.1.4.2 Environmental Consequences**

18 **CS/CSS.** Minor (low) adverse short-and long-term impacts are expected on  
19 archaeological resources. Additional training and Soldier foot traffic near archaeological  
20 sites within the training and range areas would increase potential impacts to those  
21 resources. No impacts are expected on historic resources. Activities within the  
22 cantonment area would be expected to occur within existing facilities or would follow  
23 requirements under the Historic Preservation Act, including coordination with the State  
24 Historic Preservation Office (SHPO).  
25  
26

27 **Full Sustainment BDE, IBCT.** Moderate (medium) short- and long-term adverse  
28 impacts are expected to occur on archaeological and historic properties. The increase  
29 in 3,000 to 3,500 Soldiers and the additional equipment supporting these scenarios  
30 could be detrimental to existing cultural resources at Fort Benning. Archaeological  
31 resources, especially in the upland areas, could be in danger from intentional and  
32 inadvertent foot traffic. The increase in personnel and their associated Families could  
33 potentially impact existing historic buildings and structures within the cantonment area  
34 through modifications due construction and renovations needed to support the increase  
35 in personnel.  
36

37 **HBCT, Multiple BCTs.** Significant (high) short- and long-term impacts would be  
38 expected on the Installation's cultural resources due to the addition of 3,800 to 7,000  
39 Soldiers and the related heavy equipment. Adverse impacts to historic buildings due to  
40 expanding office and housing needs would be expected. Construction on previously  
41 undisturbed land would require additional archaeological studies and coordination with  
42 the SHPO. Vehicular impacts in a HBCT pose a major threat to previously  
43 undiscovered archaeological resources. Increased Soldier presence within training  
44 areas increases the likelihood of disturbance of archaeological resources.  
45  
46

1           **4.1.5 Noise**  
2           **4.1.5.1 Affected Environment**  
3

4 The greatest amount of noise disturbance from Fort Benning is generated from large  
5 caliber weapons firing mainly from tank and Bradley Fighting Vehicles. Noise is also  
6 generated from fixed- and rotary-winded aircraft maneuver, artillery, various pyrotechnic  
7 devices and specialized combat vehicles. Currently, an incompatible noise zone (Zone  
8 III) extends into Marion County, where rural residences and communities are located on  
9 the northern and eastern areas of the Installation. In 2003, the Army installed noise  
10 monitors in these areas to verify noise levels when complaints have been generated.  
11 Fort Benning has eight noise monitors installed around the Installation boundaries  
12 shared with local communities in Georgia. At this time, Department of Transportation  
13 (DOT) is not asking the Environmental Management Division for noise monitoring  
14 information. Data from these monitors can help the Installation plan, schedule, and  
15 effectively adjust military training exercises to reduce impacts to the local public and  
16 other noise sensitive receptors. Additionally, the Installation's public affairs office  
17 submits notices to Benning residents and the public when training noise is expected to  
18 be more obtrusive than ambient levels (Fort Benning, 2004).  
19

20 Noise, however, does not currently have any adverse impacts to the Installation's large  
21 Red-cockaded Woodpecker (RCW) population (CERL, 2000). The RCW and other  
22 threatened and endangered species thrive on the Installation, even during periods of  
23 heavy training.  
24

25           **4.1.5.2 Environmental Consequences**  
26

27 **CS/CSS, Full Sustainment BDE, IBCT.** Minor (low) adverse short- and long-term  
28 noise impacts are expected. Short-term noise impacts are expected from construction  
29 or modification activities (if necessary) on the Installation. Impacts from these activities  
30 will dissipate after construction is complete. Noise generated from maneuvers  
31 associated with growth of 1,000 to 3,500 Soldiers is not expected to result in deviations  
32 from current noise contours. In addition, noise from associated with the CS/CSS  
33 activities is not expected to extend off the Installation boundary. As the number of  
34 Soldiers and their associated activities increase, as with the Full Sustainment BDE and  
35 IBCT, the growing population at the Installation's northern and northeastern boundaries  
36 will likely experience some increased levels of noise.  
37

38 **HBCT, Multiple BCTs.** Significant (high) adverse impacts are expected with the  
39 addition of a heavy brigade. Activities associated with an increase of 3,800 to 7,000  
40 Soldiers will likely have a high resultant noise impact to the natural environment and to  
41 the public at the northern and northeastern boundaries of the Installation. Large caliber  
42 weapons fire that accompanies the heavy brigade would create higher short- and long-  
43 term disturbance levels for the RCW population. Fort Benning's Installation Operational  
44 Noise Management Plan (IONMP) will likely need updating. Further mitigations would  
45 need to be considered where Noise Zones II and III extend beyond the Installation  
46 boundary.



1  
2 **4.1.6 Soil Erosion**  
3 **4.1.6.1 Affected Environment**

4  
5 Fort Benning topography varies from flat areas along the Chattahoochee River to  
6 steeper slopes farther inland. Elevation ranges from 170 feet to 750 feet.  
7

8 Soils found at Fort Benning are highly weathered Ultisols of Coastal Plain origin and  
9 located in the Oscar Range Complex. There are six soil associations at Fort Benning.  
10 All soils in the north have a sandy surface and loamy subsoil, and are highly permeable  
11 and droughty. The soils in the southwestern part of the Installation have a higher water  
12 holding capacity, and are loamy sand and clay loam sands. Many soils also have a  
13 clayey subsoil. The majority of Fort Benning soils have been identified as highly  
14 erodible.  
15

16 **4.1.6.2 Environmental Consequences**

17  
18 **CS/CSS.** There will be a minor (low) adverse impact from the wheeled vehicles in these  
19 units. Off-road movement could have an impact on vegetation and soil surfaces,  
20 leading to the conditions for erosion.  
21

22 **Full Sustainment BDE, IBCT.** There will be a moderate (medium) adverse impact  
23 from the large number of wheeled vehicles in the Sustainment Brigade. The condition  
24 of existing (unimproved) range roads and their ability to support heavy truck traffic  
25 would have to be evaluated. These roads could be prone to water erosion, therefore,  
26 road construction, hardening and maintenance practices would have to be reviewed and  
27 modified. The dismounted training associated with the IBCT could have a greater effect  
28 in small selected areas.  
29

30 **HBCT, Multiple BCTs.** Fort Benning expects significant (high) adverse impacts on  
31 roads and off-road areas due to the number of tracked vehicles in a HBCT and the  
32 weight and mobility characteristics of the tracked vehicles. The terrain will show the  
33 impact from the vehicle maneuvers, turns and traction. These areas could then be  
34 highly prone to soil erosion. If multiple BCTs were stationed at Fort Benning the sheer  
35 number, size, variety and impact of wheeled and tracked vehicles will increase to levels  
36 above just the HBCT. The road network will deteriorate rapidly leading to trafficability  
37 and erosion problems. Off-road traffic and maneuvers will increase, which will have a  
38 major negative impact on vegetation and the soils.  
39

40 **4.1.7 Vegetation and Wildlife/Threatened and Endangered Species**  
41 **4.1.7.1 Affected Environment**

42  
43 Four threatened and endangered species are known to occur at Fort Benning. One  
44 high priority species at risk (SAR), the American alligator (*Alligator mississippiensis*) has  
45 also been known to occur on site. Fort Benning is currently in formal consultation with  
46 the U.S. Fish and Wildlife Service (USFWS) regarding BRAC 2005 /Transformation EIS

1 actions in which the Army's preferred alternative if implemented would result in 32 RCW  
2 "takes," an unprecedented number. The BO will be rendered by the end of August  
3 2007.

#### 4 5 **4.1.7.2 Environmental Consequences**

6  
7 **CS/CSS, Full Sustainment BDE, and IBCT.** Short- and long-term minor (low) adverse  
8 impacts are expected. It is anticipated that implementation of any of these levels of  
9 Soldier strength would result in minor adverse impacts on the four listed species and  
10 SAR. The threatened and endangered species recorded on the Installation will continue  
11 to be managed in accordance with the Installation Integrated Natural Resources  
12 Management Plan (INRMP) and Endangered Species Management Plan (ESMP); and  
13 with the terms and conditions are identified within Biological Opinion(s) issued by the  
14 USFWS and any conservation measures identified in Endangered Species Act (ESA),  
15 Section 7 consultation documents. However, since implementation of any of these  
16 actions may affect any of the recorded listed species, the Installation will be required to  
17 consult with the USFWS either informally or formally, depending on whether an  
18 incidental take is anticipated to occur. The installation may have to consider more  
19 "takes" at the BCT level, which may be unfeasible. The Installation will also need to  
20 continue to implement conservation and management efforts for the SAR, which has  
21 recently been petitioned for listing under the ESA, to help prevent listing of the species.

22  
23 **HBCT and Multiple BCTs.** Short- and long-term significant (high) adverse impacts are  
24 expected. It is anticipated that implementation of either of these levels of Soldier  
25 strength will have a high and fairly major impact on the four listed species. The  
26 threatened and endangered species recorded on the Installation will continue to be  
27 managed in accordance with the Installation's INRMP and ESMP, terms and conditions  
28 identified within biological opinion(s) issued by the USFWS and any conservation  
29 measures identified in ESA, Section 7 consultation documents. However, since  
30 implementation of either of these actions will most likely adversely affect one or more of  
31 the recorded listed species, the Installation will be required to consult with the USFWS  
32 informally and formally to address and assess the impacts of the action. If the proposed  
33 BRAC action was implemented (BRAC2005) the installation would have an  
34 unprecedented amount of "takes". If this level of growth occurs at Fort Benning the  
35 installation would likely need to consider more "takes" which would not be feasible.  
36 Implementing either of these actions would also make it difficult for the Installation to  
37 support conservation efforts for the SAR and listing of the species would be more  
38 probable. Listing of the species would have a major adverse effect on Fort Benning's  
39 mission.

#### 40 41 **4.1.8 Wetlands**

##### 42 **4.1.8.1 Affected Environment**

43  
44 Fort Benning contains approximately 16,926 acres of wetlands (Army Environmental  
45 Database-Environmental Quality, n.d). Wetlands include cypress-tupelo, wood stream  
46 swamps, and gum-oak dominated wetlands (INRMP, US Army, 2007). Currently, all

1 training activities on Fort Benning avoid wetlands, to the degree possible, by training in  
2 established training areas.

#### 4 **4.1.8.2 Environmental Consequences**

6 **CS/CSS.** Short- and long-term minor (low) adverse impacts on the Installation wetlands  
7 are expected. Training activities will be relegated to established training areas. Efforts  
8 will be made to avoid any impacts on wetlands by using the Installation's wetland  
9 planning level surveys/ GIS database. The stationing of an additional 1,000 Soldiers  
10 could increase impacts to wetlands due to current training restrictions.

12 **Full Sustainment BDE.** Short- and long-term minor (low) adverse impacts on the  
13 Installation wetlands are expected. There will be a medium level environmental effect  
14 on the Installation wetlands within the cantonment and training areas as a result of the  
15 restationing of 3,000 to 3,500 Soldiers to Fort Benning. Training activities will be  
16 relegated to established training areas. For activities within the cantonment and training  
17 areas, efforts will be made to avoid any impacts on wetlands by using the Installations  
18 wetland planning level surveys/ GIS database to site activities. Current training  
19 restrictions in regards to wetlands should provide a low impact to wetlands.

21 **IBCT.** As with the Full Sustainment BDE scenario, short- and long-term minor (low)  
22 adverse impacts on the Installation wetlands are expected. There will be a medium  
23 level environmental effect on the Installation wetlands as a result of the addition of  
24 3,500 Soldiers to Fort Benning. Training activities will be relegated to established  
25 training areas. Efforts will be made to avoid any impacts on wetlands by using the  
26 Installation's wetlands planning level surveys and GIS database. Hardened crossings  
27 can be utilized if needed to reduce secondary impacts due to siltation.

29 **HBCT.** Short- and long-term significant (high) adverse impacts are expected due to the  
30 equipment configurations under a HBCT. Maneuvers and training support activities  
31 (i.e., digging and trenching) with a HBCT could result in a major impact to threatened  
32 and endangered species on the Installation. To the degree possible, training will be  
33 relegated to established training areas. If additional training area is required it is  
34 expected that, through the Installations-specific environmental planning process,  
35 locations will be selected that will, when possible, avoid or minimize wetland impacts. If  
36 wetlands are to be impacted, Clean Water Act Section 404 permits will be required as  
37 well as coordination with the regional USACE district. Mitigation, which may be costly,  
38 will be required as part of the Section 404 permit.

40 **Multiple BCTs.** Short- and long-term significant (high) adverse impacts are expected  
41 due to the equipment configurations under a HBCT and the addition of another BCT of  
42 lesser or equivalent configuration. There will be a major environmental impact on the  
43 Installation wetlands due to the presence of 7,000 additional Soldiers. To the degree  
44 possible, training will be relegated to established training areas. If additional training  
45 areas are required, locations will be selected through the NEPA process that will, avoid  
46 wetland impacts when possible.

1  
2 **4.1.9 Water Resources**  
3 **4.1.9.1 Affected Environment**  
4

5 **Groundwater**

6 Fort Benning is in the Coastal Plain hydrogeologic province of Georgia and Alabama,  
7 whose principal groundwater source is the Cretaceous aquifer system. Aquifers in this  
8 area typically have the capacity to yield about 50 gallons of water per minute (gpm) near  
9 the Fall Line, but yields increase to approximately 700 gpm near the southern  
10 Installation boundary.

11  
12 **Water Supply**

13 Fort Benning receives the majority of its potable water supply from surface water  
14 sources. With the increased maneuver training resulting from the Armor School moving  
15 to Fort Benning, the installation expects a greater amount of sedimentation to surface  
16 water than current conditions. The Installation's surface water system was privatized in  
17 September 2004. There are also seven water supply wells on Fort Benning proper.  
18

19 **Wastewater**

20 There are two wastewater treatment plants (WWTP) that serve the entire Installation  
21 with a combined capacity of 16 million gallons per day (mgd). Fort Benning's  
22 wastewater system was privatized in September 2004; however, the Installation retains  
23 ownership of the underlying lands. The ownership, operation, and maintenance of the  
24 buildings, systems, and associated water and wastewater facilities are the responsibility  
25 of the non-Federal entity.  
26

27 **Stormwater**

28 Stormwater discharge in the Main Post districts of Fort Benning, GA, drains directly into  
29 the Chattahoochee River through a storm drain system. Other stormwater on the  
30 Installation drains via culverts, ditches, swales, and natural seepage and overland flow.  
31 Stormwater from the satellite cantonment areas of Harmony Church, Kelley Hill and  
32 Sand Hill, as well as the training compartments, drain directly or indirectly into nearby  
33 surface water bodies.  
34

35 **4.1.9.2 Environmental Consequences**  
36

37 **CS/CSS, Full Sustainment BDE, IBCT.** Minor (low) adverse long-term impacts are  
38 expected. The addition of 1,000 to 3,500 Soldiers will not have a substantial impact to  
39 the watershed, water demand, and associated treatment systems. As a result,  
40 upgrades to the private water and wastewater treatment systems may be required.  
41 Additionally, any new construction/land disturbance over 0.75 acres will require a  
42 stormwater construction permit which would entail identification and implementation of  
43 mitigation strategies to reduce impacts associated with stormwater runoff during and  
44 after construction.  
45

1 **HBCT, Multiple BCTs.** Long-term significant (high) adverse impacts to water  
2 resources are expected. Motorpool activities and washing of field-driven heavy-tracked  
3 vehicles would produce a major increase on water demand and associated treatment.  
4 Such an increase would require significant upgrades to the Installation's private water  
5 and wastewater treatment systems. Under the HBCT scenario, the Installation may  
6 require construction of new washing systems to manage heavy-tracked vehicles.  
7 Additionally, growth of up to 7,000 Soldiers as with the Multiple BCT scenario may  
8 require the installation to revisit their Storm Water Pollution Prevention Plan (SWP3) to  
9 incorporate best management practices for any new training activities. Additionally, any  
10 new construction/land disturbance over 0.75 acres will require a stormwater  
11 construction permit which would entail identification and implementation of mitigation  
12 strategies to reduce impacts associated with stormwater runoff during and after  
13 construction.

#### 14 **4.1.10 Facilities**

##### 15 **4.1.10.1 Affected Environment**

16  
17  
18 The cantonment area at Fort Benning has been developed into a wide variety of land  
19 uses that comprise the elements necessary for a complete urban-style community. The  
20 main cantonment includes the Installation Post Exchange, commissary, housing and  
21 family support services, medical, and mission-support facilities.

##### 22 **4.1.10.2 Environmental Consequences**

23  
24  
25 **CS/CSS.** Short- and long-term significant (high) adverse impacts are expected. It is  
26 anticipated that the activities associated with an increase of 1,000 Soldiers would  
27 greatly increase activities within the cantonment and training areas. Activities within the  
28 training and range areas would be limited to existing firing ranges and roadways. These  
29 activities would have to be scheduled to coordinate with existing mission activities.

30  
31 Currently, Fort Benning has sufficient housing to support a CS/CSS. However, training  
32 support is a concern due to a lack of available space in the training areas and ranges.  
33 Fort Benning is constructing additional training areas for 2005 BRAC actions that should  
34 support the ACP. Due to a lack of available space, construction of new facilities west of  
35 the Chattahoochee River would be considered. This new construction would be a  
36 considerable distance from the training areas. (Brown, Installation Questionnaire, 2007)

37  
38 **Full Sustainment BDE.** Short- and long-term significant (high) adverse impacts to  
39 facilities are expected. Increased Soldier strength of 3,000 to 3,500 would be reflected  
40 through increased facility usage within the cantonment area and within the training  
41 areas. The lack of additional space for training at Fort Benning would also be an issue  
42 for fielding a Full Sustainment BDE. Increased activities within the training and range  
43 areas would be expected to cause long-term impacts due to increased human  
44 presence, as well as construction and training activities within the range and training  
45 areas.

1 **IBCT, HBCT.** Short- and long-term significant (high) impacts to facilities are expected  
2 under a HBCT scenario. The addition of a BCT would likely result in extensive use of  
3 existing facilities within the cantonment area, including housing, and training areas, and  
4 require additional construction or renovation of structures. The establishment of a BCT,  
5 in addition to current ongoing mission activities at Fort Benning, may result in the  
6 exceedance of the capacity of the training areas, resulting in a decrease in available  
7 training space for all mission activities. The Installation RPMP and other pertinent  
8 planning documents would need to be re-evaluated to determine if a BCT can be  
9 supported. Additional construction west of the Chattahoochee River, beyond what is  
10 currently proposed, may be required. If identified by the Installation, additional  
11 coordination and consultation with state and/or federal agencies may be necessary for  
12 activities associated with a BCT.  
13

14 **Multiple BCTs.** The establishment of multiple BCTs at Fort Benning will also result in  
15 short- and long-term significant (high) impacts to facilities. Currently, there is a lack of  
16 available building space on the Installation (Brown, Installation Questionnaire, 2007).  
17 Under the multiple BCT scenarios, there is a high probability that facilities use would  
18 increase beyond the carrying capacity of the current Installation infrastructure. In order  
19 to alleviate impacts to the current facilities, extensive construction beyond the  
20 Chattahoochee River and at an increasing distance from the main cantonment and  
21 training areas may be required to sustain multiple BCTs. It is highly unlikely that the  
22 current Installation RPMP could accommodate a scenario of this intensity without input  
23 from additional studies.  
24

#### 25 **4.1.11 Energy Demand/Generation**

##### 26 **4.1.11.1 Affected Environment**

27  
28 Fort Benning's energy needs are currently met by a combination of electric power and  
29 natural gas, both of which are provided by private utilities.  
30

31 **Electricity.** Electric power is supplied to Fort Benning from a single substation.  
32 Transmission lines leave the substation and supply power to cantonment areas, family  
33 housing, and other developed areas of the Installation. Low-capacity electrical service  
34 is supplied to ranges and training areas in more remote sections of the Installation.  
35

36 **Natural Gas.** Natural gas supplies the majority of non-mobile fuel requirements at the  
37 Installation. Propane is the main energy source for the training areas, and is used as  
38 backup to the natural gas supply. Two main distribution lines leave the Main Post  
39 metering station and serve the Main Post and other family housing area. The Energy  
40 Policy Act of 2005 (EPACT) states that each Federal facility has to reduce energy  
41 consumption by 2% each year. It is going to be difficult to reduce consumption as more  
42 Soldiers are added with accompanying infrastructure support. Fort Benning is  
43 committed to comply with the EPACT.  
44

##### 45 **4.1.11.2 Environmental Consequences**

1 **CS/CSS.** Long-term minor (low) adverse impacts are expected on energy demand with  
2 the addition of 1,000 Soldiers under a CS/CSS unit scenario. The relatively small  
3 number of additional Soldiers and support activities associated with this action is  
4 expected to remain within the current capacity of the Installation.  
5

6 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** significant (high) adverse  
7 impacts are expected on energy demand and usage with the addition of 3,000 to 7,000  
8 Soldiers and their Families. The increase in personnel and equipment will require  
9 expansion of existing utilities. Construction or expansion of these facilities would  
10 present short-term impacts throughout the cantonment area as additional substations  
11 may need to be created, along with additional fuel lines and connections. Long-term  
12 significant impacts would come from the additional demand on resources and the need  
13 for infrastructure to support additional generation. Multiple BCTs would have an almost  
14 two-fold increase on energy demand/generation than from the other scenarios.  
15

## 16 **4.1.12 Land Use Conflicts/Compatibility**

### 17 **4.1.12.1 Affected Environment**

18

19 Fort Benning covers 181,275 acres in portions of Muscogee, Chattahoochee, and  
20 Russell counties. Approximately 80 percent of Chattahoochee County is within the  
21 boundaries of Fort Benning. At a current 8,850 acres, the Main Post is the largest and  
22 most developed of the cantonment areas. It includes the Post Headquarters, Infantry  
23 School, Cuartels barracks complex, Martin Army Community Hospital, Post Exchange,  
24 Commissary, and various family housing areas. Lawson Army Airfield (AAF) is located  
25 in the southernmost portion of the Main Post. The areas of the Main Post adjacent to  
26 the Chattahoochee River and Upatoi Creek are largely green space. Family housing  
27 and outdoor recreation dominate the northern portion of the Main Post. The densely  
28 developed core of the Main Post includes unaccompanied personnel housing,  
29 community facilities, training facilities, supply and storage, maintenance, industrial, and  
30 medical land uses.  
31

32 There are three additional distinct cantonment areas on Fort Benning as discussed  
33 below:  
34

35 **Harmony Church:** The Harmony Church cantonment area lies 5 miles southeast of  
36 Main Post and south of U.S. Highway 27. The existing 775-acre Harmony Church  
37 cantonment area supports a diverse assortment of low density facilities including  
38 unaccompanied housing, maintenance, training, administration, and outdoor recreation  
39 land uses.  
40

41 **Kelley Hill:** The 400-acre Kelley Hill cantonment area is located 3 miles east of Main  
42 Post. Current land use, which is fairly concentrated, includes unaccompanied personnel  
43 housing, community, and maintenance facilities.  
44

45 **Sand Hill:** The 2,510-acre Sand Hill cantonment area is located 4 miles northeast of  
46 Main Post. Land use in this cantonment area includes family housing, unaccompanied

1 personnel housing, training, and community facilities. (U.S. Department of the Army,  
2 2007).

#### 3 4 **4.1.12.2 Environmental Consequences**

5  
6 **CS/CSS, Full Sustainment BDE, IBCT.** Moderate (medium) short and long-term  
7 environmental impacts on installation land use are expected due to the increase of an  
8 additional 1,000 to 3,500 Soldiers. The Installation has land available to either build the  
9 facilities needed for this unit, and/or would have sufficient vacant space in buildings that  
10 would be suitable for the units' mission. However, if new building were to be  
11 constructed, the only available space is west of the Chattahoochee River. Additionally,  
12 the land, or existing facilities are located such that surrounding facilities are compatible  
13 with the additional units. The facilities for this unit may not be contiguous, if build in the  
14 main cantonment area, but would be within a maximum distance of one-half mile.  
15 However, the facilities required for a CS/CSS will likely be located within a single  
16 contiguous land unit.

17  
18 **HBCT.** Significant (high) adverse impacts on installation land use are expected due to  
19 the addition of 3,800 to 4,000 Soldiers and their Families at the Installation. The  
20 Installation currently does not have the land capacity to support the addition of a HBCT.  
21 In addition, the Installation does not have existing sufficient land areas that would be  
22 compatible with tactical unit requirements, or any additional land areas available within  
23 the fence line on which to build facilities necessary to support a HBCT. Building new  
24 facilities for a HBCT would require construction on, or adjacent to, existing training  
25 facilities, such that those training facilities become unusable. Construction of new  
26 facilities west of the Chattahoochee River would need to be considered. This, in turn,  
27 would cause a measurable decrease of the Installation's capacity to train Soldiers. New  
28 or existing facilities would not be contiguous, and at a greater distance (e.g., greater  
29 than one-half mile) from Soldier support facilities and training and maneuver ranges.  
30 Building new facilities for a HBCT may also require construction on, or immediately  
31 adjacent to, environmentally sensitive areas, requiring extensive, and/or expensive  
32 mitigation actions.

33  
34 **Multiple BCTs.** As with the HBCT scenario, significant (high) adverse impacts on  
35 installation land use are expected, but to a greater degree and intensity, due to the  
36 addition of 7,000 Soldiers and their Families assigned to the Installation. For the same  
37 reasons described in the HBCT scenario, the Installation will not have enough existing  
38 facilities, located in areas with comparable land uses to accommodate multiple BCTs.  
39 The facilities required for multiple BCTs would not be contiguous and spread over a  
40 distance greater than 0.67 mile. Building new facilities for a multiple BCT scenario may  
41 also require construction on, or immediately adjacent to, environmentally sensitive  
42 areas, requiring extensive, and/or expensive mitigation actions.

#### 43 44 **4.1.13 Hazardous Materials/Hazardous Waste**

##### 45 **4.1.13.1 Affected Environment**

46



1 At Fort Benning, hazardous materials and hazardous waste generated include excess  
2 materials, substances, or items that are subject to Resource Conservation and  
3 Recovery Act (RCRA) regulations. This includes the use, storage, transport, and  
4 disposal of hazardous materials and wastes. Through the combined efforts of the  
5 Safety Office, the Environmental Management Division (EMD), and the Directorate of  
6 Logistics (DOL), programs have been established at Fort Benning to control the entry of  
7 hazardous substances to the Installation; to safely manage their handling and  
8 transportation within the Installation, to inform military and civilian employees of their  
9 dangers; to minimize the risk of human exposure and release to the environment  
10 associated with these substances; and to dispose of these substances in an  
11 environmentally sound manner when they are no longer useful. (US Army Corps of  
12 Engineers, April, 2007)

13  
14 Routine operations on Fort Benning require the use of a variety of hazardous materials,  
15 including petroleum products, solvents, cleaning agents, paints, adhesives, and other  
16 products necessary to perform vehicle and equipment maintenance, military training  
17 activities, installation upkeep, and administrative and housing functions. Toxic  
18 substances commonly occurring on Army installations include asbestos, lead-based  
19 paint, PCBs, and radon. Routine operations across the Installation generate a variety of  
20 hazardous wastes, including various solvents; paints; antifreeze; aerosols;  
21 contaminated filters, rags and absorbents; weapon cleaning patches and sludges; and  
22 some items managed as universal wastes, such as used batteries and fluorescent light  
23 tubes. (US Army Corps of Engineers, April, 2007)

#### 24 25 **4.1.13.2 Environmental Consequences**

26  
27 **CS/CSS.** Minor (low) adverse impacts would be expected. It is anticipated that Fort  
28 Benning would minimally increase its storage and use of hazardous chemicals during  
29 training exercises and installation maintenance with an increase of 1,000 Soldiers.  
30 Waste collection, storage, and disposal processes would remain mostly unchanged,  
31 and activities under this scenario would be absorbed into the current waste  
32 management programs.

33  
34 **Full Sustainment BDE.** Minor (low) adverse impacts from hazardous materials and  
35 waste would be expected with an increased Soldier strength of 3,000 to 3,500  
36 personnel. The Full Sustainment BDE scenario would include an increase in the use of  
37 hazardous chemicals in the cantonment, and training and range areas. Demolition,  
38 renovation, and construction would mostly likely result in an increase in the generation  
39 of asbestos, lead-contaminated wastes, and other hazardous waste, as well as in  
40 increase in the use of pesticides due to the addition of family housing and other  
41 facilities. The increase in these wastes would result in no adverse impacts because the  
42 wastes would be managed in accordance with current standards and regulations. The  
43 hazardous waste disposal facilities would be adequate to manage the increase in  
44 hazardous waste. Waste management programs may be updated as needed.

45

1 **IBCT.** Minor (low) adverse impacts from hazardous materials and waste activities  
2 would be expected. As with a Full IBCT, materials used, stored, and handled would  
3 increase; however, existing procedures, regulations, and facilities would be able to meet  
4 storage, use, and handling requirements.

5  
6 **HBCT.** Moderate (medium) adverse impacts are expected from generation of additional  
7 hazardous materials and wastes. The volume of hazardous waste would be slightly  
8 higher than the IBCT scenario, and existing management plans would need to be  
9 updated to reflect the increase in mission requirements under the HBCT scenario.

10  
11 **Multiple BCTs.** Significant (high) adverse impacts are expected from generation of  
12 additional hazardous materials and wastes at an intensity and increase of almost two-  
13 fold from the HBCT scenario. Generation and management of hazardous materials and  
14 waste, including pesticides, petroleum storage tanks, ordnance and explosives would  
15 increase substantially compared to other BCT scenarios. Waste management plans  
16 would need to be updated to reflect the change in mission requirements.

#### 17 18 **4.1.14 Traffic and Transportation**

##### 19 **4.1.14.1 Affected Environment**

20  
21 Fort Benning is located in the southwestern part of Georgia, adjacent to Alabama. The  
22 project area includes Fort Benning, and several neighboring counties, including  
23 Muscogee and Chattahoochee Counties in Georgia and Lee and Russell Counties in  
24 Alabama. Local communities include Bibb City and Columbus, Georgia and Phenix  
25 City, Alabama. Major road routes in the region include I-185, and US Routes 27, 280,  
26 and 431, and Georgia State Routes 1 and 26.

##### 27 28 **4.1.14.2 Environmental Consequences**

29  
30 **CS/CSS.** Moderate (medium) short and long-term adverse impacts are expected on  
31 traffic and transportation systems on the Installation due to the presence of an  
32 additional 1,000 Soldiers and their family members. Spread across the project area,  
33 this population will have de minimis impact on the overall traffic congestion in the  
34 neighboring communities. This additional population may contribute nominally to traffic  
35 volume on the Installation, and is not expected to reduce the level of service (LOS) on  
36 the Installation's road network. There may be a slight increase in traffic volume during  
37 peak morning and evening hours. The population increase may have a minor to  
38 moderate increase of risk to the safety of pedestrians and bicyclists.

39  
40 **Full Sustainment BDE.** Moderate (medium) short and long-term adverse impacts are  
41 expected on traffic and transportation systems on the Installation due to the presence of  
42 an additional 3,000 to 3,500 Soldiers and their family members. The increase in off-  
43 post traffic would have a minimal impact on traffic in the community overall and could  
44 contribute to a decrease in the LOS in the road network leading to the Installation,  
45 particularly during peak morning and afternoon travel periods. This level of increase in  
46 population would also have a moderate impact on the traffic volume on the Installation,

1 and could cause a minor decrease in LOS on some of the Installation's arterial routes.  
2 The increased traffic volume in both the neighboring community and on the Installation  
3 could pose an increased level of risk to the safety of pedestrians and bicyclists.

4  
5 **IBCT.** As with the Full Sustainment BDE scenario, moderate (medium) short and long-  
6 term adverse impacts are expected on traffic and transportation systems on the  
7 Installation due to the presence of an additional 3,000 to 3,500 Soldiers and their family  
8 members. Both on the Installation and in the local communities, the increase in traffic  
9 congestion and accompanying decrease in LOS would be slightly greater than that  
10 caused by the presence of the Full Sustainment BDE. Similarly, the safety risk to  
11 pedestrians and bicyclists would be slightly higher than that posed by the presence of a  
12 Full Sustainment BDE.

13  
14 **HBCT.** Significant (high) adverse impacts are expected on traffic and transportation  
15 systems on the Installation due to the presence of an additional 3,800 to 4,000 Soldiers  
16 and their family members. Both on the Installation and in the local communities, the  
17 increase in traffic congestion and accompanying decrease in LOS would have a major  
18 impact on the traffic volume and have a major impact on the LOS on the road network  
19 on the Installation and in neighboring communities. This increased volume of traffic  
20 would pose a significantly risk to the safety of pedestrians and bicyclists.

21  
22 **Multiple BCTs.** Significant (high) adverse impacts are expected on traffic and  
23 transportation systems on the Installation due to the presence of an additional 7,000  
24 Soldiers and their family members. The impact on the traffic congestion in the local  
25 communities from this increased population level would be noticeable in the community  
26 at large and would likely cause a decrease in LOS in the community's road network,  
27 and would likely cause a major decrease in the LOS on the road network leading to the  
28 Installation. This increase in both Soldier and family-member population would cause a  
29 major impact on the LOS of the Installation's road network and pose a significantly  
30 increased risk to the safety of pedestrians and bicyclists.

#### 31 **4.1.15 Cumulative Effects**

32  
33  
34 Cumulative Effects at Fort Benning include Army mission-related activities with activities  
35 in the surrounding community. Past (including recently completed actions), present,  
36 and reasonably foreseeable future actions include:

##### 37 Past and Recently Completed Actions:

- 38 • Privatization of the installation's water and wastewater treatment system in  
39 FY2004 for the purposes of connecting the existing on-post facilities to the new  
40 owner's off-post facilities;
- 41 • Construction of a Communications Tower in FY2004;
- 42 • Installation of Anti-Terrorism/Force Protection Measures in FY2003 to include  
43 construction of an enhanced physical security perimeter and other structure, and  
44 drainage for perimeter roads to include erosion control measures;
- 45

- 1 • Construction of a new barracks complex across from two existing ranges and  
2 demolition of six existing buildings in FY2003; and
- 3 • Columbus and Fort Benning conducted a land exchange, swapping two parcels  
4 of land , of which Columbus is currently developing the 2,470 acre parcel located  
5 adjacent to Fort Benning's northwestern boundary (for industrial and recreational  
6 use). The tract of land Fort Benning received is a 2,536 acre parcel located at  
7 the southernmost end of the installation currently used for training and land  
8 management (reforestation and habitat restoration).

9  
10 **Current and Ongoing Projects:**

- 11 • Residential Communities Initiative (FY2005 – 2015); housing privatization  
12 initiative of which the installation has transferred responsibility for providing  
13 housing and ancillary support facilities to the Fort Benning Family Communities  
14 LLC, conveying 3,945 family housing units of which 754 will be renovated (482  
15 non-historic, 272 historic) and 2,930 will be demolished; 3,185 units will be  
16 constructed to an end total of 4,200 housing units;
- 17 • Construction of a new Post Exchange Army and Air Force Exchange Service  
18 (AAFES) on the main post. The old AAFES building will be reutilized (began  
19 FY2006);
- 20 • Ongoing improvements and Training Ranges and other Training Areas to include  
21 minor range construction and target maintenance, began FY2006;
- 22 • Construction of an Infantry Platoon Battle Course (IPBC) in FY2006 which  
23 includes tree-cutting, grading, and construction of a range and target firing area,  
24 support facilities, roads and trails (project area approximately 1,000 acres);
- 25 • Construction of a Digital Multi-Purpose Range Complex (DMPRC) to provide  
26 advanced gunnery exercises in a more realistic training environment.  
27 construction includes support facilities adjacent to the range; roughly 22 water  
28 crossings and removal of about 1,500 acres of vegetation. The construction area  
29 is approximately 1,800 acres;
- 30 • Barracks replacement project in Kelley Hill, which includes demolition of existing  
31 buildings and construction of new facilities. This project began in FY2005;
- 32 • Conversion of an existing Fort Benning Range to an Infantry Squad Battle  
33 Course (ISBC) (began FY2004) and support facilities on approximately 180 to  
34 190 acres;
- 35 • Construction of a new National Infantry Museum (began FY2004) along roads of  
36 the installation's border with the City of Columbus. The existing Museum would  
37 not be demolished, but would be reutilized;
- 38 • Improvements, including some construction, on the Uchee Creek Campground  
39 Expansion found in Russell County, adjacent to the Chattahoochee River (Began  
40 in FY2007);
- 41 • Stationing actions that include activation of the 362<sup>nd</sup> Multi-Role Bridge  
42 Company, 92<sup>nd</sup> Military Police Battalion, 2<sup>nd</sup> Battalion, 1<sup>st</sup> Cavalry, 24<sup>th</sup>  
43 Ammunition Heavy Lift Platoons; and deactivations include the 756<sup>th</sup> Medical  
44 Detachment, 1/30 Infantry Battalion 3 ID (Unit of Action), and the 36<sup>th</sup> Engineer  
45 Company.

- 1 Recently Completed and Ongoing Projects Outside of Fort Benning:
- 2 • Forest Industry divestment of timberlands. Much of the land surrounding the
  - 3 northeastern, eastern, and southern boundaries of the installation are formally
  - 4 held by timber companies, which in recent years have been selling the land.
  - 5 Some of the companies have retained land currently owned in fee and some are
  - 6 leased;
  - 7 • Safety improvements to the Highway Interchange at I-185/US Highway 27/280 in
  - 8 the City of Columbus to the north of Fort Benning.

- 9
- 10 Reasonably Foreseeable Future Projects within the ROI:
- 11 • National Guard Pre-Ranger Complex Expansion;
  - 12 • Expansion and upgrades to a Digital Multi-Purpose Training Range (DMPTR) at
  - 13 Hastings Range;
  - 14 • Expansion of the existing Central Issue Facility on the main post.
  - 15 • Transformation-related future projects are found in Table 4.1.15-1 below (from
  - 16 the Draft Environmental Impact Statement for BRAC2005 and Transformation
  - 17 Actions at Fort Benning, GA (April 2007)<sup>2</sup>.

18 **Table 4.1-2. Transformation and BRAC-related projects at Fort Benning, GA**

Geographic Area	Project Title	Total Potential Area of Disturbance (in acres)
Sand Hill	Blood Donor Center	32
	Shopette with Class Six/Gas/Food/Car Wash	
	Recreation Center Addition	
	Physical Fitness Center Addition	
Harmony Church	Consolidated Maintenance Facility	70
	Mini-Mall with Food/Barber/Laundry/etc.	
	Range Control and Maintenance Complex	
	Consolidated Maneuver Center Battle Lab Complex	
	Garrison Support Facilities	
Kelley Hill	Expand Shopping Center	18
	Central Issue Facility	
	Troop Issue Subsistence Activity Building	
	598 <sup>th</sup> DS Maintenance Facility (36 <sup>th</sup> ENG Group)	

<sup>2</sup> <https://www.benning.army.mil/emd/program/legal/index.htm#11>

Main Post	Organizational Storage Building (36 <sup>th</sup> ENG Group)	296
	Tactical Equipment Shop (36 <sup>th</sup> ENG Group)	
	Vehicle Maintenance Facility and Shop (36 <sup>th</sup> ENG Group)	
	Multi-Role Bridge Company Maintenance Complex	
	36 <sup>th</sup> ENG Group Headquarters	
	Veterinary Facility	
	Army Lodging	
	Centralized Catering/Golf Clubhouse Facility	
	Lodging and Dining Facilities	
	CIDC Group/BDE Headquarters Building	
North of U.S. Highway 27/280 Ranges	3 Forward Operations Bases (FOBs)	1,413
	Engineer Assault Range	
	3 IPBCs	
	MPTR	
	Hand Grenade Complex	
	2 MRFs	
	2 Convoy Live-Fire Exercises (CLFXs)	
1 Fire and Movement Range		
South of U.S. Highway 27/280 Ranges	Anti-Armor Tracking and Live-fire Range Complex	275
	Multi-Purpose Machine Gun Range	
	2 Urban Assault Courses	

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Projects outside the installation boundary:

- (Oxbow Project) Development in Columbus, GA or the Oxbow Meadows Environmental Learning Center, and the proposed development of a hotel and conference center;
- Phenix City Riverwalk Phase II (Phenix City, AL) project consisting of construction of a hiking and biking trail between the 13<sup>th</sup> and 14<sup>th</sup> Street bridges in the city;
- Alternative Transportation System in Columbus, GA, which could consist of construction of a hiking and biking trail;

- 1 • Improvements (including widening) to Buena Vista Road in Columbus, GA. Work  
2 would consist of widening and reconstructing 1.15 miles of an existing 2 and 4  
3 lane road to a 4 lane road with turn lanes and medians;
- 4 • Improvements (including widening) to St. Mary's Road in Columbus, GA to  
5 involve widening an 1 mile stretch and reconstruction of a 1.25 mile stretch;
- 6 • Chattahoochee River Restoration, which would consist of breaching the Eagle-  
7 Phenix Dam and the City Mills Dam along the Chattahoochee River to restore the  
8 historic and natural course of water along this portion of the river and increase  
9 Fall Line shoal fish habitat and recreation;
- 10 • Active ongoing discussions between the states of Florida, Georgia, and Alabama  
11 (lasting for more than a decade) over tri-state water disputes regarding the  
12 withdrawal and use of water from the Apalachicola-Chattahoochee-Flint and  
13 Alabama-Coosa-Tallapoosa River basins;
- 14 • Construction of the Kia Automotive Assembly and Manufacturing Plant which is  
15 located in West Point, GA about 30 miles north of the Columbus/Phenix City  
16 area. Construction began in early 2007; vehicle production will begin in 2009  
17 and is expected to produce 300,000 vehicles per year; which will result in an  
18 expected employment of about 3,000 people and an additional 2,000 employees  
19 are expected to be hired at five supplier facilities in Georgia;
- 20 • Aflac Corporation is expanding (based in Columbus, GA) to accommodate 2,000  
21 new administrative professional employees in the next 4-7 years. The  
22 corporation is one of the largest employers in Columbus. Additional construction  
23 of a 340,000 square foot office will occur in Columbus;
- 24 • 14<sup>th</sup> Amendment Highway Corridor; which is a Department of Transportation  
25 Study of two new highways; one linking Augusta, GA, Macon, GA, Columbus,  
26 GA, Montgomery, AL and Natchez, MS. The other highway will link Savannah,  
27 GA, Augusta, GA, and Knoxville, TN (also known as the 3<sup>rd</sup> Infantry Division  
28 Highway;
- 29 • ACUB initiatives on the Fort Benning perimeter to add buffer areas around active  
30 training and testing areas;
- 31 • Expansion of a Hospitality market which added roughly 350 hotel rooms or suites  
32 by the end of 2006, and will add an additional 200 rooms in 2007;
- 33 • Columbus Metropolitan Airport Growth to include an parking lot expansion,  
34 relocating a taxiway, and extending a runway, to accommodate more business;
- 35 • General urban growth; which includes several small housing and strip mall  
36 development projects, and rehabilitating existing structures to support expanding  
37 surrounding communities.

38  
39 The cumulative impacts from these actions listed above are currently being analyzed in  
40 the Army's Draft Environmental Impact Statement for BRAC2005 and Transformation  
41 Actions at Fort Benning, GA (April 2007). Cumulative effects from actions being  
42 considered in this PEIS for Army Growth and Force Structure Realignment are expected  
43 to have a medium positive effect to socioeconomic growth, however, the action would  
44 continue to crowd schools, highways, and other facilities causing the need for increased  
45 construction and improvements. Environmental effects would result in continuing  
46 impacts to wetlands, soils and soil erosion, biological receptors, and noise. Cumulative

1 effects to air quality are anticipated to be from prescribed fire activities, training activities  
2 that generate dust, and increased vehicular use especially diesel engines as in  
3 construction vehicles which has a great potential to exceed thresholds. Fugitive dust  
4 when mixed with smoke rarely remains a local issue. (Conversation with Fort Benning  
5 Personnel, July 2007)  
6  
7

## 8 4.2 FORT BLISS, TEXAS

### 9 4.2.1 Introduction (including VECs eliminated from further review)

10  
11 Fort Bliss, located in southern New Mexico and far west Texas, has approximately  
12 687,000 acres of maneuver area suited for vehicular and non-vehicular military training.  
13 The Fort Bliss Training Complex offers a variety of terrain and environments for off-road  
14 vehicle maneuver, and supports force-on-force maneuver-to-contact exercises at the  
15 battalion level. (Figure 4.2-1).  
16



Fort Bliss- Installation Location

17  
18 **Figure 4.2-1 Fort Bliss**

19  
20 Since the early 1990's Fort Bliss been home of the Air Defense Artillery (ADA) School  
21 and ADA units ranging from Soldier transported systems to Patriot Missile units. A



1 major joint and combined air defense training exercise called “Roving Sands” occurs  
 2 annually on Fort Bliss.

3  
 4 Fort Bliss is currently undergoing a major expansion of range and cantonment facilities  
 5 to support its new mission. However, most of its range complexes are located a long  
 6 distance from the cantonment area, increasing the cost and time required for live-fire  
 7 training.

8  
 9 Table 4.2-1 contains the Fort Bliss VEC ratings for each of the various stationing action  
 10 scenarios.

11  
 12 **Table 4.2-1. Fort Bliss VEC Ratings**

13

<b>Fort Bliss</b>						
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BDE (3,000-3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Stryker BCT (4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Low	Low	Medium	Medium	Medium	Medium
Airspace	Very Low	Very Low	Medium	Medium	Medium	Medium
Cultural	Low	Low	Medium (dismounted off- road maneuvers)	Medium	Medium	Medium
Noise	Low	Low	Medium	High	Medium	High
Soil Erosion Impacts	Medium	High	High	High	High	High
T&E/Other Wildlife	Low	Low	Low	Medium	Medium	Medium
Wetlands	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Water Resources	High (Wastewater Treatment/ H2O Demand) Low (Water Quality)	High (H2O demand) Low (Surface H2O)	High (H2O demand) Low (Surface H2O)	High (H2O demand) Low (Surface H2O)	Very Low High (H2O demand) Low (Surface H2O)	High (H2O demand) Low (Surface H2O)
Facilities	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Socioeconomics	High	High	High	High	High	High
Energy Demand/ Generation	Low	Low	Low	Low	Low	Low
Land Use Conflict/ Compatibility	Low	Low	Low	Low	Low	Low
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low	Low
Traffic and	High	High	High	High	High	High

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**4.2.2 Air Quality**  
**4.2.2.1 Affected Environment**

At Fort Bliss, the region of influence (ROI) for air quality includes Doña Ana and Otero Counties in New Mexico and El Paso County in Texas. El Paso County, including Fort Bliss, is classified as being in attainment for all criteria pollutants. The exception to this is the City of El Paso which has been designated as “moderate” nonattainment for carbon monoxide and PM<sub>10</sub>. Otero and Doña Ana Counties are designated as being in attainment for all criteria pollutants though Doña Ana County has had sporadic violations of the PM<sub>10</sub> standard. These routinely occur in the western part of the county and are usually the result of high winds lifting dust into the air (i.e., dust storms). Fort Bliss is a party to the Natural Events Action Plan that addresses violations of the PM<sub>10</sub> caused by natural events by exempting the PM<sub>10</sub> exceedances during wind storms or other “naturally occurring” events.

Since Fort Bliss is located in attainment areas in both Texas and New Mexico, there is no requirement to conduct a conformity analysis. The closest “Prevention of Significant Deterioration – Class I Area” is 45 miles to the southeast and is not expected to be affected by the installations activities so the facility has no requirements under this provision. Texas issued a federal operating permit to Fort Bliss in January 2007. Emissions of NO<sub>x</sub> are the key pollutant triggering the installation as a major source. Fort Bliss is not considered a major source on the New Mexico side of the installation so there is no requirement for an air quality permit.

**4.2.2.2 Environmental Consequences**

**CS/CSS.** Minimal (low) adverse short- and long-term adverse impacts are expected on air quality within the installation and surrounding communities due to the restationing of a CS/CSS unit and influx of approximately 1,000 Soldiers. It is assumed that the resulting increases in air emissions are directly proportional to the increase in population at the facility. In general, combustion and fugitive dust emissions will produce localized, short-term elevated air pollutant concentrations that will not result in any sustained impacts on regional air quality.

**Full Sustainment BDE.** Minimal (low) adverse short- and long-term adverse impacts are expected on air quality within the installation and surrounding communities due to the influx of approximately 3,000 Soldiers under the Full Sustainment BDE scenario. Any construction related emissions also have the potential to produce localized, short-term elevated air pollutant concentrations. However, these are not anticipated to have a major impact on regional air quality. Combustion emissions resulting from training would primarily result from mobile sources and be widely distributed both spatially and temporally. Fugitive dust emissions remain a localized issue and are recommended to be addressed further as an opacity issue if activities are close enough to installation boundaries that visible emissions transfer off of the installation. Given the wide

1 distribution of emissions, it is not anticipated that regional air quality would be result in  
2 significantly impacts.

3  
4 **IBCT.** Moderate (medium) short- and long-term adverse impacts are expected on air  
5 quality within the installation and surrounding communities due to the influx of  
6 approximately 3,500 Soldiers under the IBCT scenario. As with the Full Sustainment  
7 BDE, it is anticipated the emissions resulting from stationary sources required for facility  
8 operations to support the influx of Soldiers and their Families will have greater, long-  
9 term impacts than those resulting from training. It is anticipated that there would be  
10 increased emissions from equipment required to support the installation (i.e., fuel  
11 storage and dispensing, boiler, and possible electric peak-shaving generators).  
12 Additionally, it is anticipated that more training and operations would occur off of  
13 established roads and tank trails.

14  
15 **Stryker BCT.** Moderate (medium) short- and long-term adverse impacts on air quality  
16 are expected under a Stryker BCT scenario. The addition of a Stryker BCT would likely  
17 result in an increase in cantonment area maneuver activity on existing road networks.  
18 This would result in increases in air emissions from mobile sources. In addition, regional  
19 air quality is expected to be moderate because the air emissions resulting from training  
20 activities are expected to be localized and limited.

21  
22 **HBCT, Multiple BCTs.** Moderate (medium) short- and long-term adverse impacts are  
23 expected on air quality within the installation and surrounding communities due to the  
24 influx of approximately 4,000 Soldiers under the HBCT scenario. Though the facility  
25 can expect increased emissions from military vehicles and generators used to support  
26 training events as well as increase in fugitive dust, these will tend to remain localized a  
27 produce no major impact to regional air quality. Construction and changes to facility  
28 operations to support multiple brigades result in a rapid increase in emissions initially,  
29 but is not expected to result in a sustained adverse impact to regional air quality.

### 30 31 **4.2.3 Airspace**

#### 32 **4.2.3.1 Affected Environment**

33  
34 Fort Bliss has 1,260 square miles of FAA-designated Special use airspace, with no limit  
35 in altitude. The installation has access to this airspace continuously, and is controlled  
36 by the FAA of Albuquerque, NM. (US Army Corps of Engineers, 2002)

37  
38 Aviation activities occur at Biggs Army Airfield (BAAF) and military training activities on  
39 McGregor Range and Doña Ana Range–North Training Areas. BAAF mission activities  
40 occur within the airspace terminal area under the control of the FAA-operated El Paso  
41 Approach Control facility at El Paso International Airport. The Approach Control Area  
42 contains elements of controlled airspace, uncontrolled airspace, Restricted Area Special  
43 Use Airspace (SUA), and Military Training Routes (MTRs) that are used for military  
44 operations by the Army and other DoD services. There are several public use and  
45 private airports in the project area as well. (Fort Bliss, 2007)

1                                   **4.2.3.2 Environmental Consequences**  
2

3   **CS/CSS, Full Sustainment BDE.** Minimal (very low) adverse impacts to the airspace  
4 are expected. Growth would increase activities within the cantonment and training and  
5 range areas; however current use of airspace is not expected to change. Use of this  
6 airspace would continue to be managed through scheduling and balancing training  
7 requirements with airspace availability.  
8

9   **IBCT, HBCT, Stryker BCT Multiple BCTs.** Moderate (medium) long-term adverse  
10 impacts to airspace are expected under the IBCT scenario. UAV and activities  
11 associated with the BCTs may require increased use of existing, or result in the need  
12 for, additional airspace. Where existing airspace is insufficient, or already saturated  
13 with military activity, the installation would have to seek additional special use airspace  
14 designations from the FAA. Future new systems or modifications to existing systems  
15 could also affect airspace use, resulting in greater demand for exclusive military use of  
16 the resource (US Army Corps of Engineers, 2002). Fielding of new tactical unmanned  
17 aerial vehicles is not expected to affect airspace use or management (Fort Bliss, 2007).  
18 The need or requirement to construct or modify airfields and training and maneuver  
19 areas to support multiple BCTS would result in changes to existing airspace use.  
20 Airspace use would be most affected by the brief intense activities of deployment  
21 exercises and by routine training exercises of varying intensities.  
22

23                                   **4.2.4 Cultural Resources**

24                                   **4.2.4.1 Affected Environment**  
25

26 There are two National Register eligible historic districts on Fort Bliss. The installation  
27 contains 405 historic buildings and 12 historic landscapes. Over 695,000 acres have  
28 undergone archaeological survey. Fort Bliss proposes to survey an additional 10,000  
29 acres per year through at least 2010. There are over 17,000 recorded archaeological  
30 sites on Fort Bliss property. The largest curatorial facility in the region is located on Fort  
31 Bliss and is capable of housing 35,000 cubic feet of materials. Due to the history and  
32 desert environment of the area, there is a higher incidence of readily visible surface  
33 finds than in the eastern United States. Historic buildings, both pre 1956 and Cold War  
34 era, have been identified and evaluated for National Register eligibility.  
35

36                                   **4.2.4.2 Environmental Consequences**  
37

38 Growth in the Army coupled with the current BRAC 2005 activities will increase both the  
39 Soldier and civilian presence on the installation. In general, some historic buildings may  
40 be impacted by the additional work space required for the increase in personnel. It is  
41 possible that the additional foot traffic of Soldiers and civilians will adversely impact  
42 archaeological sites.  
43

44   **CS/CSS and Full Sustainment BDE.** A minor (low) adverse impact is expected to  
45 cultural resources under the CS/CSS and Full Sustainment BDE scenarios. For both of  
46 these units' types, it is anticipated that there will be little off-road training reducing the

1 likelihood of disturbance to surface archaeological sites. While the Full Sustainment  
2 BDE contains a greater number of Soldiers and equipment, their activities would not  
3 likely include exposure to archaeological resources. In addition, no impact is expected  
4 to historic buildings within the cantonment area because these areas would be afforded  
5 protection under National Historic Preservation Act.

6  
7 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** Moderate (medium) short- and long-term  
8 adverse impacts are expected under these scenarios. The intensity and type of training  
9 activity associated with 3,500 to 7,000 Soldiers would result in the increased potential  
10 for disturbance of archeological resources. Increased Soldier presence and the  
11 maneuver activities of both these units have a higher potential to disturb undiscovered  
12 archaeological resources. Activities in the cantonment area would result in no impact to  
13 historic structures because these areas would be afforded protection under National  
14 Historic Preservation Act.

15  
16 **4.2.5 Noise**  
17 **4.2.5.1 Affected Environment**  
18

19 Fort Bliss has approximately 1.12 million acres of land. While much of training areas  
20 are located in New Mexico, the cantonment area resides adjacent to El Paso, TX. El  
21 Paso is located to the southwest of the installation, and Las Cruces is located to the  
22 west of Fort Bliss. Other small towns and municipalities adjacent to the installation's  
23 borders include Chaparrel, Lord's Ranch, and Soldad Estates, including individual  
24 residences. U.S. Highway 54 runs through the installation, separating McGregor Range  
25 area from the installation's Dona Ana Training Complex.

26  
27 Noise Zone (NZ) III at Fort Bliss does not extend beyond the installation boundary for  
28 large caliber live-fire activities. At Dona Ana Range Complex, NZ II does extend  
29 beyond the installation boundary in three locations. The LUPZ also extends off the  
30 installation from large caliber weapons firing. NZ III does not extend beyond the  
31 installation boundary at Biggs Army Airfield; however, a small portion of the NZ II does  
32 extend off-post to the west of the installation. The LUPZ extends west and south over  
33 the main cantonment area into the City of El Paso, where there is extensive residential  
34 development and Soldier housing exists.

35  
36 Small arms weapons firing occurs away from the installation boundary at the Dona Ana  
37 Range Complex and does not currently present any significant impacts to off-post  
38 residential areas or sensitive noise receptors. Large caliber weapons firing consists of  
39 grenades, mortars, artillery and tank fire, anti-tank rockets and guided missiles. These  
40 activities occur at either the Dona Ana Range Complex or at McGregor Range;  
41 demolitions however occur at the Meyer Range area. Additional noise sources include  
42 over 55 M1 Tanks and 85 Bradley Fighting Vehicles, 40 High Mobility Multipurpose  
43 Wheeled Vehicles (HMMWV), 14 120 mm mortar carriers, and 16 155 mm Self-  
44 Propelled Howitzers (tracked). The Organ Mountains, on the west side of Doña Ana  
45 Range supply a natural noise barrier effectively containing noise in that part of the  
46 range.

1  
2 Any new construction needed on Fort Bliss includes mitigation measures for noise  
3 exposure (increased insulation, greater wall thickness, and improved openings including  
4 doors and windows), where appropriate. Recent land trends along the Interstate 10  
5 corridor traveling towards the City of Las Cruces have the potential for future residential  
6 growth. Fort Bliss is continuing to monitor this area and work with Dona Ana County  
7 officials to curb large scale development, and also introduce real-estate disclosure to  
8 individual residential home sites.

9  
10 Fort Bliss also has the largest contiguous tract of virtually unrestricted airspace in the  
11 continental United States at 1,500 square miles. BAAF is responsible for the air mission  
12 of the Army and Army National Guard for training at the installation, supporting fixed-  
13 and rotary-winged operations. The runway is 13,554 feet long by 150 feet wide and is  
14 capable of handling traffic from C-5 Galazys and B-52s. There is also 1,000 feet of  
15 asphalt overrun at the north end, and more than 7 miles of taxiways. As stated earlier,  
16 NZ III, even at BAAF, is contained entirely within the installation. NZ II only extends  
17 beyond a portion of the installation boundary running north, and is essentially a flight  
18 track, where aircraft using BAAF are still gaining altitude. The LUPZ and NZ II at BAAF  
19 does extend over portions of the cantonment area and main post, into family housing  
20 areas. Noise from operations at the El Paso International Airport does extend onto Fort  
21 Bliss and has the potential to have consequences to planned residential and Soldier  
22 housing development to the east of Biggs Army Airfield (Fort Bliss Operational Noise  
23 Management Plan, 2007).

#### 24 25 **4.2.5.2 Environmental Consequences**

26  
27 **CS/CSS, Full Sustainment BDE.** Minor (low) long-term adverse impacts are expected  
28 from an increase of 1,000 to 3,500 Soldiers. There will likely be a minor increase in  
29 small arms weapons training, which will not generate any new noise contours on the  
30 installation, nor is it expected to be heard at off-post locations. This increase is likely to  
31 have only a short-term impact to wildlife adjacent to small arms ranges.

32  
33 **IBCT, Stryker BCT.** Short- and long-term moderate (medium) adverse impacts from  
34 noise are expected. Maneuver impacts are expected to be contained mainly to  
35 roadways. Noise from artillery (e.g., 105mm howitzer) may have an impact to  
36 residential areas during periods of heavy training in a variety of locations. Training in  
37 northern end of McGregor Range and northern and western areas of Doña Ana will not  
38 result in elevated noise levels off-post. Maneuver is expected to be dismounted, mainly,  
39 for the IBCT, and will likely stay to roads and hardened surfaces for the Stryker BCT.

40  
41 **HBCT, Multiple BCTs.** Significant (high) short- and long-term adverse noise impacts  
42 from noise are expected. Residential communities located south of Dona Ana Range  
43 and at the southern end of McGregor Range will experience an increase of noise from  
44 large caliber weapons fire. Current noise contours could change and may result in the  
45 requirement for changes to installation land use. Over time, residential areas near the  
46 installation is expected to experience increased ambient noise levels. Additional firing

1 ranges will be required. Short-term impacts are expected from construction in the  
2 cantonment area and in range areas where the greatest impacts are expected to have  
3 no long-term effects to wildlife. By 2011, Fort Bliss is expecting to triple in size of  
4 Soldier numbers, family, and additional civilian personnel (Fort Bliss Web Site, n.d.,  
5 2007). If the proposed action were implemented at Fort Bliss, site-specific analysis  
6 would need to be conducted, and the operational noise plan would likely need updating.

7  
8 **4.2.6 Soil Erosion**  
9 **4.2.6.1 Affected Environment**

10  
11 Fort Bliss ranges in elevation from 3,800 feet to more than 8,000 feet and is located  
12 within the physiographic boundary of the Basin and Range Province (U.S. Department  
13 of the Army, 1995). Fort Bliss can be divided into three topographic zones. In general,  
14 soils on Fort Bliss are well drained to excessively drained with depth to bedrock ranging  
15 from shallow to very deep.

16  
17 Soil characteristics such as susceptibility to erosion and the suitability for roads, building  
18 construction, and use by military vehicles are a function of many physical and chemical  
19 properties of each soil, in combination with the climate, topography, and vegetation.  
20 Most soils on the North and South Training Areas are highly susceptible to wind  
21 erosion, while McGregor Range contains soils that are highly susceptible to both water  
22 and wind erosion

23  
24 Both direct and indirect effects on soils can be expected as a result of surface-disturbing  
25 activities like off-road vehicle maneuvers at the Fort Bliss Training Complex, as well as  
26 from construction of buildings, roads, firing ranges, and other facilities. The significance  
27 of the effects on soils is related to the areal extent of the impacts and the length of time  
28 necessary for the soils to recover following surface disturbance.

29  
30 ***Tularosa Valley.*** A broad relatively flat desert basin with the surface of the  
31 intermontane basin characterized by 1-to-12 foot high semi-stabilized coppice sand  
32 dune moderately covered with mesquite.

33  
34 ***Otero Mesa.*** An area of low to moderate relieve characterized by a broad,  
35 relatively flat grass-covered surface sloping gently to the east and a sharp, west-facing  
36 escarpment rising steeply from the desert floor.

37  
38 ***Organ, Hueco and Sacramento Mountains.*** These form the high, rugged  
39 mountainous areas on the installation. The Sacramento Mountains (northeast) have a  
40 pronounced west-southwest facing escarpment rising abruptly out of the desert floor.  
41 The Hueco Mountains (southeast) consist of relatively low sub rounded hills. The  
42 Organ Mountains (west) are the steepest, with an elevation of 8,600 feet.

43  
44 There is considerable variability in parent material, development, texture, age and  
45 suitability of the soils on the installation. The soils are mostly calcareous and alkaline,

1 have moderate permeability and are moderately well-drained with the exception of soils  
2 having imperious caliches layers or bedrock near the surface.

3  
4 Soils within the mountainous areas vary from extremely shallow on limestone hills to  
5 deep within the draws. Soils on the eastern third of the Tularosa basin have developed  
6 from alluvial fan material and have high potential for sheet and gully erosion. Soils of  
7 the central and western portions of the basin have formed in eolian sand deposits and  
8 the wind-blown sands form into dunes up to two feet high. Large areas of deep  
9 undulating sands partially stabilized by vegetation occur within the dune areas. Both  
10 dunal areas and undulating sand sheets are prone to wind erosion if the stabilizing  
11 vegetative cover is removed or the soil surface crust is broken.

12  
13 Since the PEIS, a new soil survey was completed for all of Fort Bliss except  
14 approximately 19,160 acres within Lincoln National Forest. The Fort Bliss Soil Survey  
15 database provides updated soils information in a single data source, including physical,  
16 chemical, and engineering properties, as well as limitations for military uses and  
17 ecological site descriptions and classifications. The new soil survey data characterize  
18 current conditions of soils, vegetation, and overall ecology, which provide a baseline for  
19 comparison of the effects of planned future construction and training activities.

#### 20 21 **4.2.6.2 Environmental Consequences**

22  
23 **CS/CSS.** Short- and long-term moderate (medium) adverse impacts are expected due  
24 to the increase in wheeled vehicle traffic on training and range areas. The existing  
25 range roads are old and not designed for heavy truck traffic, and could deteriorate after  
26 repeated use. Areas along the roads can be prone to wind erosion. Off-road  
27 movement increases the potential for impacts on vegetation and soil surfaces, leading  
28 to conditions for wind and water erosion.

29  
30 **Full Sustainment BDE , IBCT, HBCT, Stryker BCT, Multiple BCTs.** Long-term  
31 significant (high) adverse impacts to soils are expected. Dismounted training would not  
32 have a major effect on the basin and flat areas. However, the vehicular element of the  
33 IBCT could have a minor effect in small selected areas. Monitoring soil disturbing  
34 activities (i.e., digging to establish fighting positions) would need to be monitored. In  
35 addition, impact on the plains areas and soils with erosion potential will be greatly  
36 influenced by the moisture content of the soils and temperature at the time of maneuver.  
37 While the Stryker remains on-road for vehicle maneuver training, the poor conditions of  
38 the roadways result in major impacts to adjacent soils. These poor conditions, coupled  
39 with, the weight and mobility characteristics' of the Stryker vehicle, result in soil erosion.  
40 Impact on the plains areas and soils with erosion potential will be greatly influenced by  
41 the moisture content of the soils and temperature at the time of maneuver. Activities  
42 associated with the HBCT require on- and off-road maneuvers with tracked vehicles.  
43 The weight and mobility characteristics' of the tracked vehicles results in slightly  
44 different (and, in some instances, lesser) impacts than that of a Stryker vehicle because  
45 the tracked vehicle compresses the soil and disperses the vehicle weight over a larger  
46 area. Flat to relatively flat areas (vegetation and surface) are prone to impacts from the



1 tracked vehicle maneuvers, turns, and traction. In turn, these areas would be prone to  
2 soil damage and erosion. In a multiple BCT scenario, the number, size, variety and  
3 impact of wheeled and tracked vehicle maneuver would increase. The existing  
4 installation road network would deteriorate resulting in increased soil impacts and  
5 erosion problems. Off-road traffic and maneuvers will increase, which will have  
6 significant adverse impacts to erosion potential.  
7

## 8 **4.2.7 Vegetation and Wildlife/Threatened and Endangered Species** 9 **4.2.7.1 Affected Environment**

10  
11 There are 61 sensitive species of flora and fauna known to occur, or having the  
12 potential to occur, on Fort Bliss. However, Fort Bliss records only four threatened and  
13 endangered species occurring on the installation. More information on these species  
14 can be found in Appendix T.  
15

### 16 **4.2.7.2 Environmental Consequences**

17  
18 **CS/CSS , Full Sustainment BDE, and IBCT.** Minor (low) adverse impacts to wildlife or  
19 vegetation are expected. It is not anticipated that implementation of any of these levels  
20 of increased Soldier activity on the installation will have an adverse impact on the four  
21 listed species or their habitats. The threatened and endangered species recorded on  
22 the installation are managed and protected in accordance with the installation's INRMP  
23 and ESMPs.  
24

25 **HBCT, Stryker BCT, Multiple BCTs.** Short- and long-term moderate (medium)  
26 adverse impacts are expected. Range construction associated with the growth or  
27 addition of a Heavy BCT, Stryker BCT, or associated with 7,000 Soldiers and their  
28 equipment as with the Multiple BCT scenario would have short-term noise, vegetation  
29 and soil impacts that could be mitigated by the installation's Integrated Training Area  
30 Management (ITAM) program. It is not anticipated that implementation of any of these  
31 levels of increased Soldier activity on the installation will have an adverse impact on the  
32 four listed species. The threatened and endangered species recorded on the  
33 installation will continue to be managed in accordance with the installation's INRMP and  
34 ESMPs, and the, terms and conditions identified within biological opinion(s) issued by  
35 the USFWS and any conservation measures identified in ESA, Section 7 consultation  
36 documents.  
37

## 38 **4.2.8 Wetlands** 39 **4.2.8.1 Affected Environment**

40  
41 Fort Bliss contains approximately 1,172 miles of drainage. The majority of these  
42 drainages are found in the northeast, central, and southeast portions of the McGregor  
43 Range. The vast majority of arroyo-riparian drainages on Fort Bliss do not qualify as  
44 jurisdictional wetlands by the U.S. Corps of Engineers (U.S. Army Corps of Engineers.  
45 2007, March).  
46

1                                   **4.2.8.2 Environmental Consequences**

2  
3    **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Minimal  
4 (very low) impact is expected to wetlands. Because of the lack of jurisdictional wetlands  
5 and in place restrictions to training activities in riparian areas, additional training  
6 activities associated with these scenarios will have little to know impact on wetlands.  
7 Activities associated with the increase in Soldiers and their Families within the  
8 cantonment area will also have no impact to wetlands. Construction of new training  
9 areas or modification of existing training areas would result in minimal impact on  
10 existing wetlands.

11                                   **4.2.9 Water Resources**

12                                   **4.2.9.1 Affected Environment**

13  
14  
15    **Water Supply**

16 The Fort Bliss Main Post Water Distribution System supplies water to the Main Post  
17 proper, the lower, middle, and upper Beaumont areas, the William Beaumont Army  
18 Medical Center (WBAMC), and the Logan Heights area. The Main Post can also supply  
19 Biggs Army Airfield (AAF). However, this line is normally closed and Biggs AAF  
20 produces its own water. The Main Post receives its water from two primary sources:  
21 The Tobin Well Field and the Pike Well Field, with a peak production of 15.8 MGD  
22 (Million Gallons per Day). Emergency interconnection with the City of El Paso Water  
23 Utility (EPWU) is also available.

24  
25 Biggs AAF Water Distribution System supplies water to the Biggs AAF proper, East  
26 Biggs and Aero Vista Housing. Water is supplied by two wells with a combined  
27 maximum capacity of 2.8 MGD. Emergency interconnection with the EPWU is also  
28 available. The East Biggs area currently receives water off of the Biggs AAF Grid, but  
29 this areas primary potable water system source will be from the EPWU, once the East  
30 Biggs Water Distribution System is completed. (Estimated 5.0 MGD maximum water  
31 usage).

32  
33 Municipal water for the EPWU is supplied from groundwater from the Hueco and Mesilla  
34 Bolsons and surface water from the Rio Grande. EPWU significantly reduced its  
35 reliance on the pumping of the Hueco Bolson, utilizing wells in the Mesilla Bolson (41  
36 mgd) and reliance on surface water plants which have a combined capacity of 100 mgd.  
37 Under normal river flow conditions, the surface water plants operate seven months (mid  
38 March – mid October) during the year. Current total demand is about 120,000 AF/yr.  
39 Per capita demand has been reduced from about 225 gallons per person per day in the  
40 1970s to about 153 gallons per person per day in 2002. The strategies implemented in  
41 the 1980s and 1990s outlined above have resulted in reduced Hueco Bolson pumping.  
42 However, due to the continued concern regarding brackish groundwater intrusion into  
43 wellfield areas. In order to manage this intrusion EPWU is constructing a desalination  
44 plant which should be online by August 2007, this plant will withdrawal 34,000 afy (30.5  
45 MGD) of brackish water from the Hueco Bolson and produce a projected output of

1 31,000 afy (27.5 MGD) of potable water. EPWU has stated they will provide Fort Bliss  
2 any additional water supply they would require in support of their projected growth.  
3

4 McGregor Range Camp receives potable water from the City of El Paso; water from the  
5 grid also supplies the Meyer. According to the McGregor Range Land Withdrawal the  
6 water line from EPWU has a water supply capacity of 2,115 gpm or 3.046 MGD. Doña  
7 Ana Range Camp water is supplied by two on-site wells, with a combined maximum  
8 capacity of 700 gpm. Water for the Oro Grande Range Camp is produced by the White  
9 Sands Missile Range Current max pumping capacity is ~1,000 gpm. Water from the  
10 Oro Grande Range Camp is trucked to the SHORAD and Red Eye Sites on the North  
11 McGregor Range. Hueco Range Camp is supplied one well that has a capacity of  
12 approximately 250 gallons per minute. Site Monitor is supplied by one well that has a  
13 capacity of about 130 gpm, and an emergency interconnection with the EPWU is also  
14 available (Fort Bliss Environmental Staff, 2007)  
15

### 16 **Wastewater**

17 Wastewater generated at the main cantonment area flows through five connections to  
18 the City of El Paso's sewer system. This wastewater is treated by a privatized system  
19 before receiving additional treatment at the Haskell Street Wastewater Treatment Plant  
20 (WWTP) operated by the City of El Paso. The Haskell Street WWTP has a treatment  
21 capacity of 27.7 MGD. Fort Bliss typically uses approximately 10.5 percent of the  
22 plant's treatment capacity.  
23

24 Wastewater generated at training areas is either treated in lagoons or collected in septic  
25 tanks that flow to drain fields or dry wells.  
26

### 27 **Stormwater**

28 Most of the stormwater runoff from the main cantonment area flows through a series of  
29 storm drainage channels, pipes, and stormwater pump stations to various stormwater  
30 retention ponds. Water collected in these ponds is lost through evaporation and  
31 infiltration; none is discharged to surface waters. There are several small connections  
32 with the City of El Paso's stormwater collection system at the post boundary, mainly  
33 along access roads to the post. These discharges are currently covered by the City of  
34 El Paso's municipal separate storm sewer system permit, but are anticipated to be  
35 covered in the near future by a new permit issued to Fort Bliss.  
36

#### 37 **4.2.9.2 Environmental Consequences,**

38  
39 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Long-  
40 term minor (low) adverse impacts to surface water resources are expected. The  
41 addition of 1,000 to 7,000 Soldiers would likely require the installation to revisit their  
42 SWP3 to incorporate best management practices for any new training activities.  
43 Additionally, any new construction/land disturbance over 0.75 acres will require a  
44 stormwater construction permit which would entail identification and implementation of  
45 mitigation strategies to reduce impacts associated with stormwater runoff during and  
46 after construction.

1  
2 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.**  
3 Significant (high) adverse impacts to water resources are expected. Any growth at Fort  
4 Bliss would likely increase pressures put on the regional water demand. There is a  
5 limited water supply and limited capacity for wastewater treatment for the  
6 region/installation. The Fort Bliss Mission and Master Plan Supplemental  
7 Environmental Impact Statement (SEIS) (March 2007) states there is an expected  
8 increase in on-post population of approximately 18,768, and a daily population of  
9 approximately 21,791 due to BRAC and Transformation, leading to an expected  
10 increase in potable water demand by 4.3 MGD. Though water conservation measures  
11 are currently being incorporated, the garrison would need to upgrade the pipelines from  
12 EPWU connections to meet increased flow. Additionally, as a result of Transformation,  
13 the wastewater load at Fort Bliss is expected to increase by approximately 3.4 MGD  
14 above current levels, equating to roughly 46 percent of the excess capacity of the  
15 Haskell street plant, and off-post levels are expected to increase by roughly 17.2 MGD.  
16 The increase in demand in potable water sources as a result of Army growth would be  
17 more significant than identified in Fort Bliss's Mission and Master Plan SEIS (March  
18 2007); which under the current conditions, population growth in the City of El Paso is  
19 estimated to consume 97 percent of the El Paso Water Utilities (EPWU) available  
20 resources by 2015.

## 21 22 **4.2.10 Facilities**

### 23 **4.2.10.1 Affected Environment**

24  
25 The Main Cantonment Area is the urbanized portion of Fort Bliss, and has been  
26 developed into a wide variety of land uses that comprise the elements necessary for a  
27 complete community. This includes the installation Post Exchange, commissary,  
28 housing and family support services, medical, and mission-support facilities.

29  
30 Infrastructure within the Fort Bliss Training Complex is composed of ground  
31 transportation, utilities, energy, and communication systems. The ROI for these  
32 systems consists of the South Training Areas, Doña Ana Range – North Training Areas,  
33 and McGregor Range (USACE Fort Worth, 2007). According to the Fort Bliss Mission  
34 and Master Plan Final Supplemental Programmatic Environmental Impact Statement  
35 (Fort Bliss, March 2007), facilities (including wastewater treatment) at both Dona Ana  
36 and McGregor ranges already require expansion and upgrading to increase size and  
37 capacity. As part of BRAC (and the baseline for this PEIS) solid waste generation is  
38 expected to increase as well.

39  
40 The region of influence (ROI) for assessing utility and communication systems is made  
41 up of the service areas of each service purveyor serving the facilities operated by Fort  
42 Bliss in the Main Cantonment Area and the surrounding area. El Paso, TX is located to  
43 the southwest of the installation, and Las Cruces is located to the west. Other small  
44 towns and municipalities adjacent to the installation's borders include Chaparral, Lord's  
45 Ranch, and Soldad Estates, including individual residences.

1 **4.2.10.2 Environmental Consequences**

2  
3 The impacts of the Proposed Action on utilities, energy, and communications are  
4 primarily related to projected increases in population on- and off-post. These were  
5 analyzed by estimating per unit consumption on generation rates using the most  
6 recently available data, and then estimating how total consumption or generation rates  
7 would change with the changed population. The increased consumption and generation  
8 were then compared with the ability of existing infrastructure to handle those changes.  
9

10 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Short-  
11 term minimal (very low) impacts to facilities are expected. It is anticipated that the  
12 activities associated with an increase of 1,000 to 7,000 Soldiers would increase facilities  
13 usage within the cantonment and training and range areas. However, the availability of  
14 buildable space and proper short- and long-term planning would allow the installation to  
15 accommodate this level of growth. Expansion and upgrades to existing facilities are  
16 already expected and have already been addressed as part of the baseline of this PEIS  
17 in Fort Bliss's Supplemental PEIS (March 2007).  
18

19 **4.2.11 Energy Demand/Generation**

20 **4.2.11.1 Affected Environment**

21  
22 In the Main Cantonment Area, the energy services include the El Paso Electric  
23 Company (EPEC) and the El Paso Gas Company (EPGC). The line supplying electrical  
24 power to this area from EPEC has a load capacity of 150 megavolt amperes (MVA).  
25 Currently, the Main Cantonment Area has a peak electrical demand of 30 MVA. This  
26 area consumes approximately one percent of power available from EPEC. Natural Gas  
27 is the main heating fuel in this area supplied by EPGC.  
28

29 **4.2.11.2 Environmental Consequences**

30  
31 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Short-  
32 term minor (low) adverse impacts to energy demand/generation are expected. Fort  
33 Bliss is currently well within its energy production capacity to accommodate current and  
34 future needs. The increased Soldier and equipment strength will increase energy usage  
35 and demand, but Fort Bliss is currently well within its energy production capacity. Fort  
36 Bliss SEIS (2007) expects an increase in power consumption from Transformation and  
37 BRAC by 22 percent of the total excess power capacity; and a 45.7 percent. The  
38 addition of 1,000 to 7,000 Soldiers and their Families and civilian support would  
39 continue to increase energy demand. Under the proposed action, the increase in peak  
40 electrical demand could be as great as 12 percent of the current excess in the Main  
41 Cantonment Area and would represent 22 percent of current excess power available  
42 from EPEC. Power may need to be routed to new construction areas and may require  
43 the addition of a substation. Potential increases in natural gas demand could create the  
44 need for additional connections to new construction and increased feeder line sizes  
45 (Fort Bliss Staff, 2007).  
46

1                   **4.2.12 Land Use Conflicts/Compatibility**  
2                   **4.2.12.1 Affected Environment**

3  
4 Fort Bliss is approximately 70 miles in length and varies from 30 to 50 miles in width.  
5 New Mexico contains 994,176 acres of the installation; 125,295 acres lie in Texas. The  
6 Dona Ana Firing Ranges lie on the westernmost portion of the fort. McGregor Missile  
7 Firing Range and Meyer Small Arms Range are located in the central and southern  
8 portions of the installation. McGregor Range is co-managed by Fort Bliss and Bureau  
9 of Land Management (BLM) under a Congressional withdrawal for military use.  
10 McGregor Range includes the Culp Canyon Wilderness Study Area and the McGregor  
11 Black Grama Grassland Area of Critical Environmental Concern. The 800,000-acre  
12 restricted area in the northeastern corner is managed by the BLM as grazing unit areas.  
13 BLM manages cattle grazing leases for those portions of McGregor Range that are not  
14 Army fee owned. Grazing in most cases is very compatible with the military mission.  
15 Within the 800,000-acre restricted area, 18,004 acres are managed as National Forest  
16 land under the jurisdiction of the Department of Agriculture, used by the Army under a  
17 Memorandum of Understanding (MOU) (U.S. Department of the Army, 1995).

18  
19 The Military mission can affect non military uses, activities, and infrastructure including  
20 cattle operations, recreation and right of ways. Issues of development and  
21 encroachment, both on and off the installation, as a result of increased numbers of  
22 military personnel should be considered. Potential for land use changes on McGregor  
23 Range may be in conflict with BLM plans for the range. Sensitive visual resources may  
24 be adversely affected by proposed development and training activities.

25  
26                   **4.2.12.2 Environmental Consequences**

27  
28 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Minor  
29 (low) short and long-term adverse impacts are expected on installation land use due to  
30 the presence of an additional 1,000 Soldiers and their family members. The installation  
31 has sufficient land available to either build the facilities needed for this unit, or would  
32 have sufficient vacant space in buildings that would be suitable for the units' mission.  
33 Though there are some compatibility issues with grazing and recreation at McGregor  
34 Range, the proposed action is not likely to significantly impact land use in those areas.

35  
36                   **4.2.13 Hazardous Materials/Hazardous Waste**  
37                   **4.2.13.1 Affected Environment**

38  
39 Hazardous chemicals used by the installation include acids, corrosives, caustics,  
40 glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints,  
41 cleaning agents, pesticides, herbicides, lubricants, fire retardants, photographic  
42 chemicals, alcohols, insecticides, sealants, and ordnance. (Fort Bliss, 2007) An  
43 Installation Hazardous Waste Management Plan provides detailed information on  
44 training; hazardous waste management roles and responsibilities, and hazardous waste  
45 identification, storage, transportation, and spill control. Fort Bliss is categorized as a  
46 Large Quantity generator of hazardous waste as defined by 44 CFR Parts 262 and 264

1 and is permitted by Texas Commission on Environmental Quality to operate as a  
2 Hazardous Waste Storage Facility (HWSF) (permit #50296). The operating permit was  
3 renewed on March 11, 2002 and is valid for 10 years. The permit allows Fort Bliss to  
4 store hazardous waste at the HWSF for up to one year. (Fort Bliss, 2007)  
5

6 Training exercises and testing activities at Fort Bliss expend a variety of ordnance. The  
7 Fort Bliss explosives ordnance disposal (EOD) unit eliminates explosives hazards on  
8 ranges by detonation in place, or, if safe to do so, by removing the hazard to the EOD  
9 range and detonating there. (Fort Bliss, 2007) Other items of special concern include  
10 medical and bio-hazardous waste, radioactive waste, asbestos, lead-based paint,  
11 pesticides, polychlorinated biphenyls (PCBs), and petroleum storage tanks. Programs  
12 used to manage hazardous waste and materials at Fort Bliss include their Installation  
13 Restoration Program (IRP), Military Munitions Response Program (MMRP),  
14 Compliance-Related Cleanup (CC), and Pollution Prevention (P2).  
15

#### 16 **4.2.13.2 Environmental Consequences**

17  
18 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Minor  
19 (low) adverse impacts are expected to occur at Fort Bliss from the increased generation  
20 of hazardous materials and waste associated with growth of 1,000 to 7,000 Soldiers. It  
21 is anticipated that Fort Bliss would only need to minimally increase its storage and use  
22 of hazardous chemicals during training exercises and installation maintenance. Waste  
23 collection, storage, and disposal processes would remain mostly unchanged, and  
24 current waste management programs would continue. As the number of Soldiers  
25 increase, the installation can expect an increase in the use of hazardous chemicals in  
26 the cantonment and training and range areas. Demolition, renovation, and construction  
27 would mostly likely result in an increase in the generation of asbestos, lead-  
28 contaminated wastes, and other hazardous waste, as well as in increase in the use of  
29 pesticides due to the addition of family housing and other facilities. Waste management  
30 plans may need to be updated to incorporate the increases in mission activities  
31 associated with these scenarios. With the Multiple BCT scenario, generation and  
32 management of hazardous materials and waste, pesticides, petroleum storage tanks,  
33 ordnance and explosives would all be higher than with the other activities, but would  
34 present no significant impacts to the installation.  
35

#### 36 **4.2.14 Traffic and Transportation**

##### 37 **4.2.14.1 Affected Environment**

38  
39 Fort Bliss is located in the southwestern part of Texas, adjacent to the City of El Paso.  
40 The ROI of the affected environment for traffic and transportation aspects of the  
41 proposed action include Fort Bliss, and the City and County of El Paso, Texas. Major  
42 road routes in the area include I-10 and US Route 54. I-10 is an east-west interstate  
43 highway, which passes about a mile from the cantonment area, and through the City of  
44 El Paso. US Route 54 leads from El Paso to points north.  
45

##### 46 **4.2.14.2 Environmental Consequences**

1  
2 **CS/CSS.** Significant (high) adverse impacts are expected to Fort Bliss traffic and  
3 transportation systems due to the presence of an additional 1,000 Soldiers and their  
4 family members. A large percentage of the unit's married population and unmarried  
5 soldiers in the grade of E-6 (Staff Sergeant) and higher, will likely reside in off-post  
6 housing. Spread across the ROI, this population will have *de minimis* impact on the  
7 overall traffic congestion in the neighboring communities. However, the additional off-  
8 post population will contribute to increased traffic congestion, and a decrease of the  
9 LOS, on the road network leading to the installation's cantonment area, particularly  
10 during peak morning and evening hours. The increased population will have a major  
11 effect on traffic congestion on the installation, contribute to a reduction in the LOS on  
12 the installation's road network, and pose a marked increased risk to the safety of  
13 pedestrians and bicyclists.

14  
15 **Full Sustainment BDE. IBCT, HBCT, Stryker BCT, Multiple BCTs.** Significant (high)  
16 adverse impacts are expected on traffic and transportation systems on the installation  
17 due to the presence of an additional 3,000 to 7,000 Soldiers and their family members.  
18 The increase in off-post traffic would have a noticeable impact on traffic in the  
19 community overall and could contribute a notable decrease in the LOS in the road  
20 network leading to the installation, particularly during peak morning and afternoon travel  
21 periods. This level of increase in population would also have a major impact on the  
22 traffic volume on the installation, and contribute to a decrease in LOS on a higher  
23 percentage of the installation's road network. The LOS at US 54 between Van Buren  
24 and Fred Wilson Avenues would continue to be seriously degraded beyond what the  
25 installation is expecting from Transformation and BRAC. Other transportation route  
26 segments expected to be impacted are of the I-10 and Loop 375 of Fred Wilson Avenue  
27 and Airport Road. Additional transportation planning would be necessary for the main  
28 cantonment area.

#### 30 **4.2.15 Cumulative Effects**

31  
32 Fort Bliss is receiving a net increase of 20k Soldiers, as analyzed in the Mission and  
33 Master Plan SEIS of March 2007. The same document analyzed an additional two  
34 HBCTs and 1 Combat Air Brigade (CAB) (including cumulative effects), therefore  
35 cumulative effects analysis of the existing BRAC/IGPBS gain at Bliss with this potential  
36 gain is unnecessary. However, Holloman Air Force Base, which is located near both  
37 Fort Bliss and WSMR, will begin training with F-22s, which is expected to have  
38 cumulative effects to airspace.

39  
40 The City of El Paso is aggressively pursuing economic development, which would mean  
41 significant growth to schools; and direct and indirect impacts to the current  
42 transportation system. Encroachment would likely be of more significance as regional  
43 development continues.

44  
45 Fort Bliss and WSMR are very close, and growth in either has an impact to both  
46 installations and their surrounding communities. The Fort Bliss SEIS did not anticipate



1 growth at WSMR, so even absent additional stationing at Fort Bliss, cumulative effects  
2 analysis will still need to be performed between newly stationed Soldiers and units at  
3 WSMR and existing BRAC/IGPBS stationing at Fort Bliss. Section 4.16.15 of this  
4 document identifies potential cumulative impacts from Army growth at WSMR, and is  
5 summarized below.

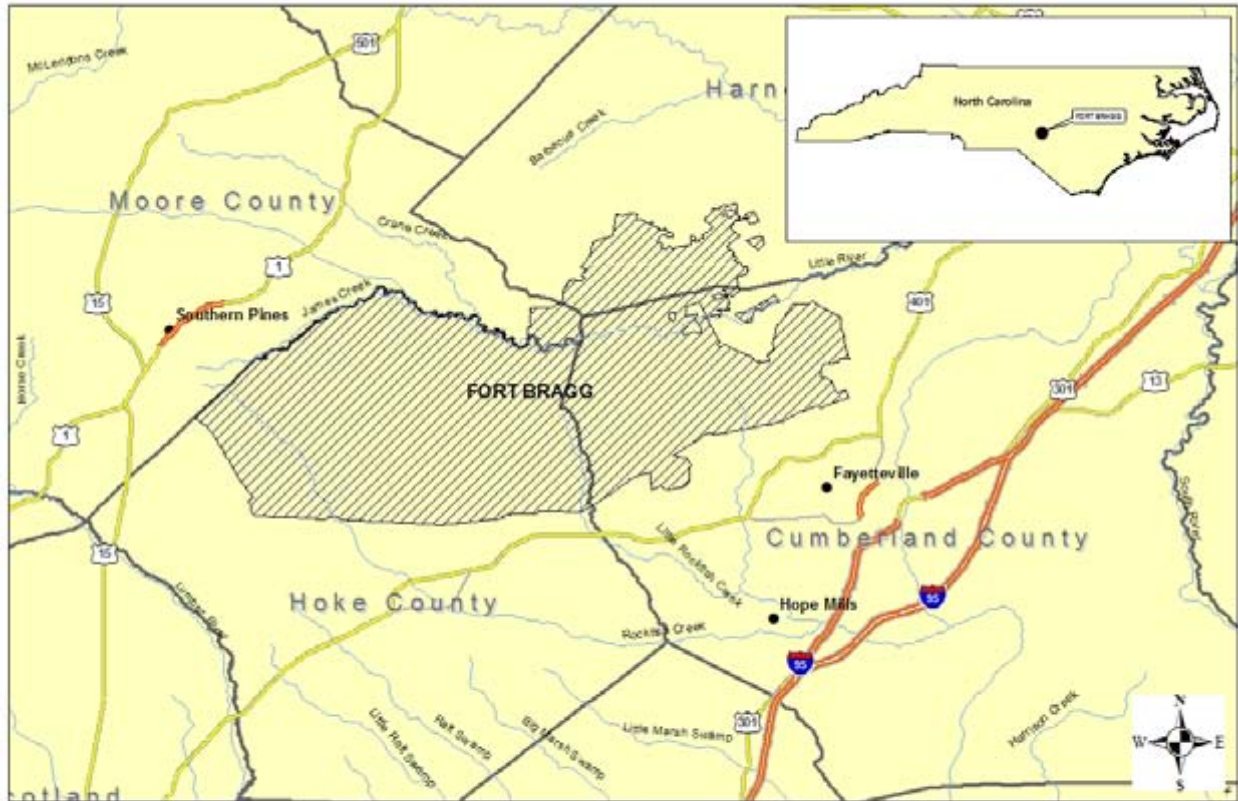
6  
7 The City of Las Cruces recently approved construction of a large development -- too  
8 large to be a result of known growth at Fort Bliss. Additional development outside of the  
9 installation boundary includes construction of a spaceport near Las Cruces, which may  
10 be driving some of that growth. (E-mail from Walter Christensen, Fort Bliss Personnel,  
11 28 June 2007)

12  
13 Cumulative issues impacting both Fort Bliss and WSMR include an expected increase  
14 in water demand from a growing on- and off-post population. Regional growth would  
15 also likely have a socioeconomic impact that needs to be addressed as the schools  
16 become overcrowded. The City of Las Cruces currently has schools that are at or over  
17 capacity. (Conversation with David Scruggs, WSMR, 2007)

## 18 19 20 **4.3 FORT BRAGG, NORTH CAROLINA**

### 21 **4.3.1 Introduction**

22  
23 Fort Bragg, located in south-central North Carolina has approximately 144,872 acres of  
24 range and training maneuver area suited for firing ranges and training areas as well as  
25 approximately 33,000 acres used non-maneuver impact areas (Figure 4.3-1). There are  
26 several areas identified as “drop zones” and are used exclusively for personnel and  
27 equipment parachute training.



**Legend**

- Fort Bragg
- North Carolina Cities
- North Carolina Counties

## Fort Bragg- Installation Location

**Figure 4.3-1 Fort Bragg**

Fort Bragg’s major unit is the XVIII Airborne Corps and its primary subordinate unit, the 82<sup>nd</sup> Airborne Division. The Special Operations Command (SOCOM) (Joint and Army) also has schools, units and training facilities on Fort Bragg.

Fort Bragg has a robust range infrastructure with several unique ranges supporting SOCOM units. Fort Bragg has and is facing challenges of growing adjacent urbanization and from specific Threatened and Endangered Species (TES) (e.g. Red-Cockaded Woodpecker).

Table 4.3-1 contains the Fort Bragg VEC ratings for each of the various stationing action scenarios.

**Table 4.3-1. Fort Bragg VEC Ratings**

Fort Bragg					
VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE (3,000- 3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Low	Medium	Medium	Medium	High

Airspace	Low	Low	Medium	Medium	Medium
Cultural	Low	Low	Low	Medium	Medium
Noise	Low	Low	Low	Medium	High
Soil Erosion Impacts	Medium	High	High	High	Very high
T&E/Other Wildlife	Medium	Medium	High	High	Very high
Wetlands	Medium	Medium	Medium	High	Very high
Water Resources	Medium	Medium	Medium	High	Very high
Facilities	Very high	Very high	Very high	Very high	Very high
Socioeconomics**	Medium	Medium	Medium	Medium	High
*					
Energy Demand/ Generation	Medium	Medium	Medium	Medium	High
Land Use Conflict/ Compatibility	Medium	Medium	Medium	High	Very high
Haz Mat/ Haz Waste	Low	Low	Low	Medium	High
Traffic and Transportation	High	High	High	High	High

1  
2           **4.3.2 Air Quality**  
3                   **4.3.2.1 Affected Environment**  
4

5 The project area includes Hoke and Cumberland counties, North Carolina. In 2003  
6 Cumberland County, which includes all of Fayetteville and large portions of Fort Bragg,  
7 was recommended for nonattainment designation for 8-hour ozone standards. The  
8 State of North Carolina, Cumberland County and the US EPA entered into an Early  
9 Action Compact (EAC) to avoid the official “nonattainment” designation. The purpose of  
10 the EAC is to develop and implement an Early Action Plan that will reduce ground-level  
11 ozone concentrations in the Fayetteville Metropolitan Statistical Area (MSA) to comply  
12 with the 8-hour ozone standard by 31 December 2007. Since the precursors of ozone  
13 are NO<sub>x</sub> and VOCs, any increase in these emissions from sources at Fort Bragg will  
14 potentially affect regional planning. Since Fort Bragg is categorized as a major source  
15 of air pollutants, if the area were designated as nonattainment, the Army would have to  
16 conduct a conformity analysis to determine if a conformity determination would then be  
17 required.  
18

19 The "major source" designation triggers the provisions of 40 CFR 52.21, *Prevention of*  
20 *Significant Deterioration (PSD)*. The PSD provisions require Fort Bragg to assess all  
21 new emission units to determine if their operation constitutes a major modification. The  
22 major source designation also requires Fort Bragg to maintain a Title V Operating  
23 Permit. New construction activities have the potential to exceed 250 tons for criteria

1 pollutants, however, these activities are not stationary sources, and the emissions  
2 significance threshold does not apply.

3  
4 Sources of air contaminants at Fort Bragg include heating plants, incinerators, surface  
5 coating equipment and painting operations, aerospace ground equipment engines, fuel  
6 evaporation sources, and land vehicle and aircraft exhaust. Stationary emissions  
7 sources are regulated by the facility's Title V Air Quality Operating Permis (#04379T26.  
8 In addition to permitted sources, air quality impacts in the form of dust are generated by  
9 vehicular movement, helicopter rotor wash, weapons firing, and ordnance impacts on  
10 the unpaved areas of the installation. Controlled burns associated with forest  
11 management and endangered species programs also generate smoke, which  
12 contributes to the generation of particulate matter.

### 13 14 **4.3.2.2 Environmental Consequences**

15  
16 **CS/CSS.** Minor (low) to no impact to air quality is expected for areas on the installation  
17 and surrounding communities under a CS/CSS scenario. In general, combustion and  
18 fugitive dust emissions will produce localized, short-term elevated air pollutant  
19 concentrations that will not result in any sustained impacts on regional air quality. Long-  
20 term impacts from increased operations and maintenance activities would be minimal  
21 and would not adversely impact regional air quality or Class I PSD areas.

22  
23 **Full Sustainment BDE, IBCT, HBCT.** Moderate (medium) adverse impacts to air  
24 quality are expected to areas on the installation and surrounding communities under  
25 these growth scenarios. It is anticipated the emissions resulting from stationary sources  
26 required for facility operations to support the influx of Soldiers and their Families will  
27 have greater, long-term impacts than those resulting from training. It is anticipated that  
28 the installation would see increases in emissions from equipment required to support  
29 the installation such as fuel storage and dispensing, boiler and incinerator operations  
30 and possible electric peak-shaving generators. NO<sub>x</sub> and VOC increases resulting from  
31 the increase in combustion sources and maintenance/facility operations could affect the  
32 regional EAC planning.

33  
34 **HBCT.** Short- and long-term moderate (medium) adverse impacts to air quality are  
35 expected to areas on the installation and surrounding communities under the HBCT  
36 scenario. Combustion emissions from stationary sources would increase due to the  
37 plus up in infrastructure required to support the influx of new Soldiers and their Families.  
38 NO<sub>x</sub> and VOC increases resulting from the increase in combustion sources and  
39 maintenance/facility operations could affect the regional EAC planning. Additionally, it  
40 is anticipated that more training/operations will occur away from established roads and  
41 tank trails with the HBCT. Fugitive dust emissions remain a localized issue and should  
42 be addressed as an opacity issue if activities are close enough to installation  
43 boundaries that visible emissions leave the installation. Given the wide distribution of  
44 emissions, it is not anticipated that regional air quality would be significantly affected.

1 **Multiple BCTs.** Significant (high) short- and long-term adverse impacts are expected to  
2 air quality in areas on the installation and surrounding communities under a Multiple  
3 BCT scenario. Combustion emissions from stationary sources would increase due to  
4 the increase in infrastructure required to support the influx of new Soldiers and their  
5 Families. Since NO<sub>x</sub> and VOC increases resulting from the increase in combustion  
6 sources and maintenance/facility operations could affect the regional EAC planning.  
7

### 8 **4.3.3 Airspace**

#### 9 **4.3.3.1 Affected Environment**

10  
11 Fort Bragg has 1,075 feet of FAA-designated Special use airspace, up to 29,000 feet.  
12 The installation has access to this airspace continuously, with restrictions, and is  
13 controlled by the FAA of Washington, DC. (US Army Corps of Engineers, 2002)  
14

15 The Aviation Division coordinates and controls airspace in cooperation with Pope Air  
16 Force Base (AFB) and the FAA, and operates Simmons Army Airfield and Camp  
17 Mackall Army Airfield. The division's mission includes coordinating Fort Bragg airspace,  
18 flight simulation training, air traffic control, aircraft refueling operations, flight planning,  
19 flight following services, and aviation weather forecasting. (US Army, Fort Bragg,  
20 January 2006)  
21

#### 22 **4.3.3.2 Environmental Consequences**

23  
24 **CS/CSS, Full Sustainment BDE.** Minor (low) adverse impacts to the Airspace are  
25 expected. While it is anticipated that the activities associated with these two scenarios  
26 would moderately increase activities within the cantonment and training and range  
27 areas, current use of Airspace is not expected to change.  
28

29 **IBCT and HBCT.** Long-term moderate (medium) adverse impacts are expected to  
30 occur to Airspace use under these two scenarios. UAV activities associated with the  
31 IBCT and HBCT would require increased use of existing airspace or use of additional  
32 airspace. Where existing airspace is insufficient, or already saturated with military  
33 activity, installation commanders would have to seek additional special use airspace  
34 designations from the FAA. Future new systems or modifications to existing systems  
35 could also affect airspace use, resulting in greater demand for exclusive military use of  
36 the resource. (US Army Corps of Engineers, 2002) The addition of 12 to 16 unmanned  
37 aerial vehicles would cause conflicts with existing mission requirements, where  
38 competition would exist with the Drop Zones. (Gillin, Installation Questionnaire, 2007)  
39

40 **Multiple BCTs.** Long-term moderate (medium) adverse impacts of increased intensity  
41 are expected to occur to Airspace use under a multiple BCT scenario. Construction or  
42 modification of airfields and training and maneuver areas could result in changes to  
43 existing airspace use. The addition of UAVs would cause conflicts with existing mission  
44 requirements, where competition would exist with the Drop Zones. (Gillin, Installation  
45 Questionnaire, 2007)  
46

1           **4.3.4 Cultural Resources**  
2           **4.3.4.1 Affected Environment**

3  
4 Fort Bragg is located just outside Fayetteville, North Carolina. The installation has an  
5 extensive cultural resources team that includes architectural historians and  
6 archaeologists. The cultural resources staff is integrated with the Fort Bragg training  
7 and range managers to coordinate efforts relating to actions that could cause potential  
8 impacts on historic and archaeological resources. Fort Bragg manages its cultural  
9 resources through its Cultural Resources Management Program in accordance with  
10 the Fort Bragg Integrated Cultural Resources Management Plan (ICRMP; 2001) and  
11 relevant federal legislation such as the National Historic Preservation Act (NHPA), the  
12 Archeological Resources Protection Act (ARPA), and the Native American Graves  
13 Protection and Restoration Act (NAGPRA). The Army regulation used to manage  
14 these cultural resources is Army Regulation (AR) 200-4, *Historic Preservation (Fort*  
15 *Bragg EPAS and the Integrated Cultural Resources Management Plan (ICRMP))*.

16  
17 Fort Bragg currently manages 362 historic buildings, structures, and landscapes that  
18 are listed or considered eligible for listing in the NRHP. These resources are included  
19 in three NRHP-eligible districts (the Old Post Historic District, the John F. Kennedy  
20 Special Warfare College Historic District, and the Overhills Historic District), and nine  
21 NRHP-eligible individual historic resources. One historic building from the antebellum  
22 period – the Long Street Presbyterian Church – is listed on the NRHP. In addition,  
23 Fort Bragg has identified and manages 27 historic cemeteries.

24  
25 A total of 4,525 archaeological sites have been identified at Fort Bragg. The 3,900 pre-  
26 contact sites include Paleo-Indian and Archaic period temporary hunting camps and  
27 stone tool workshops, Woodland period temporary upland camps, and general  
28 habitation and activity sites. The 530 historic sites represent American Indian,  
29 European-American, African-American, and non-military industrial occupations (Fort  
30 Bragg, 2001a). More than 295 archaeological evaluations to determine NRHP eligibility  
31 have been conducted and 90 archaeological sites area considered eligible for listing on  
32 the NRHP. Another 205 archaeological sites are presently protected pending  
33 evaluation for NRHP eligibility (Fort Bragg CRMP 2007).

34  
35           **4.3.4.2 Environmental Consequences**

36  
37 **CS/CSS, Full Sustainment BDE, and IBCT.** A Minor (low) impact to cultural resources  
38 is expected. Established protocols exist at the installation that include coordination and  
39 input from training and range staff and installation cultural resources staff. Efforts are  
40 employed to avoid, minimize, or reduce impacts to installation cultural resources. Fort  
41 Bragg would consult with the NC SHPO in accordance with 36CFR800 to avoid,  
42 minimize, or mitigate any adverse effects resulting from these projects.

43  
44 **HBCT, Multiple BCTs.** Moderate (medium) adverse long-term impacts are expected.  
45 Increased Soldier foot traffic and use of heavy equipment increases the probability of  
46 cultural resources impacts. Currently, efforts are employed to avoid, minimize, or

1 reduce impacts to installation cultural resources. Fort Bragg would consult with the NC  
2 SHPO in accordance with 36CFR800 to avoid, minimize, or mitigate any adverse effects  
3 resulting from these projects.

#### 4 5 **4.3.5 Noise**

##### 6 **4.3.5.1 Affected Environment**

7  
8 There are four major sources of noise at Fort Bragg: vehicles, aircraft, artillery  
9 fire/explosions, and small arms firing. Vehicular noise is created by vehicle  
10 movement, but it is sometimes exacerbated by large troop movements in wheeled or  
11 tracked vehicles. These noises are dampened by terrain, woodlands, and distance  
12 from receptors, such as on-base and off-base residential areas. The impact created  
13 by vehicle noise is rarely considered significant. Aircraft noise is generated by fixed-  
14 and rotary-wing aircraft from Pope AFB, Simmons AAF, and Mackall AAF. These are  
15 intermittent noises that are most intense during takeoff; however, the points of origin  
16 are well within the confines of the post. The most noticeable noise levels are  
17 associated with low-level flight during takeoff and landing.

18  
19 Pope AFB and Simmons AAF have greater noise impacts than Mackall AAF due to the  
20 density of residential development near the east end of the installation and the greater  
21 number of operations. Artillery fire/explosion noise is created by firing large-caliber  
22 weapons, such as the 105mm howitzer, and explosions. Small arms noise is created by  
23 small arms being fired on the ranges.

24  
25 The majority of noise complaints received at Fort Bragg fall into two general categories;  
26 aircraft and artillery. Aircraft overflights account for noise disturbance above the  
27 Deerfield residential subdivision, and the northwestern portion of Spring Lake. Artillery  
28 live-fire is the more significant cause of noise disturbance off the installation. However,  
29 according to the Fort Bragg Final EIS to Determine the Level of Training on the  
30 Overhills Tract (January 2006) recent public meetings did not cite noise from artillery  
31 live-fire or aircraft overflights as a significant concern to residential areas surrounding  
32 the installation. A 1998 Joint Land Use Study, which included Fort Bragg, Pope AFB,  
33 nine surrounding counties, and nineteen municipalities, was conducted to help ensure  
34 long-term sustainable training on Fort Bragg. Land use recommendations that were  
35 developed from that study are currently being implemented. As with Fort Benning,  
36 existing noise does not significantly impact the Red-cockaded Woodpecker population,  
37 or other threatened and endangered species at Fort Bragg.

##### 38 39 **4.3.5.2 Environmental Consequences**

40  
41 **CS/CSS.** Minor (low) adverse impacts are expected from noise generated under the  
42 CS/CSS scenario at Fort Bragg. Noise impacts to wildlife populations may necessitate  
43 the review and update of the installation's INRMP and ESMP to ensure best practices  
44 are considered for additional training requirements. The installation's existing noise  
45 contours would not change. Noise from this action is not expected to be heard outside  
46 the installation boundary.

1  
2 **Full Sustainment BDE.** Minor (low) adverse long-term impacts resulting from  
3 additional noise generation are expected. The impacts are likely to be similar to those  
4 seen from an additional CS/CSS unit. Land use areas would not change, however the  
5 increase of Soldiers on maneuver space will likely require Fort Bragg to amend their  
6 INRMP.  
7

8 **IBCT.** Minor (low) long-term adverse impacts resulting from additional noise generation  
9 are expected. Impacts will be relatively similar in maneuver areas to those from a Full  
10 Sustainment BDE. Interaction with threatened and endangered species is expected to  
11 be the same as that experienced during current training events. Additional artillery fire  
12 is expected and would likely result in the initial increase in flushing RCW from their  
13 nesting places, however, the impacts would be short-term. Increased artillery live-fire  
14 may be heard off-post, but would not exceed current peak noise levels.  
15

16 **HBCT.** Moderate or medium short- and long-term adverse impacts from additional  
17 noise generated by an HBCT are expected. Additional heavy artillery and large caliber  
18 fire could elevate noise levels in off-post residential areas nearby the installation. Noise  
19 contours would likely change, but not to levels that would produce significant impacts.  
20

21 **Multiple BCTs.** Significant (high) adverse impacts are expected as a result of  
22 increased noise levels under the Multiple BCT scenario. Noise zones would possibly  
23 change and the current environmental noise management plan would need to be  
24 updated, with additional studies conducted on potential impacts to current noise  
25 contours. Residential areas adjacent to the installation would experience elevated  
26 noise levels that likely exceed current peak noise thresholds.  
27

## 28 **4.3.6 Soil Erosion**

### 29 **4.3.6.1 Affected Environment**

30  
31 Fort Bragg is located in the Sandhills physiographic province of North Carolina and the  
32 soils are of Coastal Plain origin dominated by the Gilead-Blanney-Lakeland soil mapping  
33 unit. The surface of Fort Bragg is predominantly mantled by sandy soils whose  
34 composition ranges from loose sands to silty and clayey sands in some subsoils. Most  
35 of these soils are well-drained or even excessively well-drained. Poorly drained soils  
36 are primarily limited to flood plain and some terrace deposits that tend to be silty sands  
37 of usually high organic content.  
38

39 Each of the soil types found at the Installation has particular engineering limitations (i.e.,  
40 limits as to what may be constructed on them). These soil types and their limitations  
41 are discussed in detail in the U.S. Geologic Service (USGS) soil surveys for the region.  
42 Soil conservation is a high priority in any area of Fort Bragg that has insufficient ground  
43 cover. This is due primarily to the sandy and easily eroded nature of most soils in the  
44 region. A combination of vegetative and drainage system maintenance is necessary to  
45 address these concerns.  
46



1 **4.3.6.2 Environmental Consequences**

2  
3 **CS/CSS.** The impacts on the training areas of Fort Bragg as a result of a Combat  
4 Service Support are expected to would be medium or moderate. The additional  
5 vehicles along with the added training requirements would put more stress on the  
6 training requirements and already heavily trafficked range maneuver areas and put  
7 them at a higher erosive risk, regardless that CS/CSS are expected to remain in the  
8 maneuver footprint of existing training activities. Any additional stationing action  
9 involving more facilities, Soldiers and equipment would likely have medium to very high  
10 impacts to soil erosion. The affected environment of soils in the Sandhills Region is  
11 highly susceptible to severe soil erosion due to the physical, geological, topographical  
12 and chemical nature of these soils. The action of adding Soldiers to various degrees  
13 (each of these growth scenarios to include BCTs) through direct, indirect and  
14 cumulative impacts from permanent infrastructure (i.e., UA Headquarters) to combat  
15 maneuver capabilities from various battalions and companies will present impacts to  
16 vegetation and soils.

17  
18 The construction of permanent facilities to support a CS/CSS would also be medium.  
19 Simmons Army Airfield and the future Pope Army Airfield would support the potential  
20 aviation requirements (TUAV). Construction projects for any temporary facilities and  
21 ultimately the required permanent facilities have the potential to impact Fort Bragg as it  
22 pertains to soil erosion and storm water management. Fort Bragg, State, and Federal  
23 erosion control and storm water management requirements during and after  
24 construction would minimize any affects from this activity.

25  
26 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** The impacts on the training  
27 areas of Fort Bragg as a result of a Full Sustainment BDE would be of high significance.  
28 The large numbers of additional vehicles with the added training requirements would put  
29 more stress on Fort Bragg's already taxed training areas. The Blaney-Gilead-Lakeland  
30 soil mapping unit present on Fort Bragg is highly susceptible to erosion when put under  
31 the stress of a high frequency of vehicular traffic. The weight and mobility of the tracked  
32 vehicles associated with the HBCT would induce a great level of land disturbance while  
33 in operation, to the soils at Fort Bragg. Multiple BCTs would have a very high or  
34 significant adverse impact to soils. The number, size, and impact of wheeled and  
35 tracked vehicles would rapidly deteriorate the road network and lead to increased  
36 trafficability and erosion problems. The construction of permanent facilities to support  
37 any of these scenarios would also be of high significance. The facilities needed to  
38 house the personal and store the vehicles for such a large unit would add a large  
39 amount of construction to the already heavily constructed cantonment area of Fort  
40 Bragg. Mitigation to minimize the impacts of this construction as it pertains to soil  
41 erosion and storm water management would require thorough design and costly  
42 construction

43  
44 **4.3.7 Vegetation and Wildlife/Threatened and Endangered Species**  
45 **4.3.7.1 Affected Environment**

1 Fort Bragg supports a plethora of significant natural resources, therefore, falls under  
2 jurisdiction of the Sikes Act. Its diversity of habitats provides the necessary resources  
3 for a variety of fish, wildlife and plant species. Wildlife species, both common and  
4 endangered, are important for present and future military missions at the installation.  
5 In general, the health (i.e., population viability) of fish and wildlife populations is an  
6 indicator of a healthy ecosystem. A high quality aquatic, faunal and floral component  
7 equates to a high quality training environment. Both short-term and long-term it is in  
8 interest of the Army to continue supporting a sustainable environment and natural  
9 resources to sustain a military readiness training environment.

10  
11 Various biological inventories indicate there are 197 birds, 39 mammals, 51 reptiles, 44  
12 amphibians, and 50 fish species found on FB. An additional 111 vertebrate species are  
13 suspected to live or migrate through the Installation (FB Public Works Business Center  
14 (PWBC), 2001). Since the military mission, military readiness training and natural  
15 resource management actions affect fish and wildlife habitat, activities, programs have  
16 been designed and integrated to create and enhance habitat that are consistent with  
17 the installation's military mission (FB PWBC, 2001). Appendix T of this document  
18 provides information on the listed species found at Fort Bragg.

19  
20 Throughout this ecosystem on FB a variety of natural plant community types can be  
21 found. Overall, there are total of 33 natural plant communities and variants, consisting  
22 of 23 different vegetative communities, identified on Fort Bragg and Camp Mackall,  
23 which are described in Appendix 6.7.4 of the INRMP (Griffin Social Technologies, 2001)

#### 24 25 **4.3.7.2 Environmental Consequences**

26  
27 **CS/CSS.** Short- and long-term moderate (medium) adverse impacts are expected for  
28 each of these scenarios. Impacts for the CS/CSS scenario would have a medium to  
29 moderate impact on resources. Increased training levels for CS/CSS will not likely have  
30 an adverse affect for all five federal listed species on the installation. Since this action  
31 will likely impact any one or more of the five listed species, informal consultation with  
32 the UFSWS will occur in accordance with the ESA section 7.

33  
34 **Full Sustainment BDE, IBCT.** At the proposed Full Sustainment BDE and IBCT levels,  
35 potential impacts will be increased from moderate (medium) to significant (high).  
36 Increases in facility construction and subsequent levels of training activities on the  
37 installation for the Full Sustainment BDE and IBCT would likely have an adverse affect  
38 on the RCW population at the installation. The threatened and endangered species  
39 recorded on the installation will continue to be managed in accordance with the  
40 installation's INRMP and ESMP, terms and conditions identified within biological  
41 opinion(s) issued by the USFWS and any conservation measures identified in ESA,  
42 Section 7 consultation documents. However, since implementation of any of these  
43 actions may affect any of the recorded listed species, the installation will be required to  
44 conduct a formal Section 7 consultation with the USFWS.

1 **HBCT, Multiple BCTs.** Significantly high short- and long-term adverse impacts are  
2 expected to occur for the HBCT and Multiple BCT scenarios. It is anticipated that  
3 implementation of either of these scenarios would result in a significant impact on the  
4 five listed species. It is possible at the HBCT and Multiple BCT levels that a “take” may  
5 occur for the RCW which would trigger formal consultation stemming from an adverse  
6 affect. The incidental take will likely be from direct loss of a cavity trees(s) or from  
7 forage habitat loss within a managed forage partition that would fall below the minimum  
8 forage Recovery Standard requirement within the 0.5 mile area. Significant amount of  
9 take of the RCW on the installation could drop the current population of RCW below the  
10 recently achieved recovery target for the North Carolina Sandhills East Primary Core  
11 population. This Formal section 7 consultation would likely result in a USFWS  
12 Biological Opinion that would likely require Reasonable and Prudent Measures and  
13 conservation measures to reduce or nullify impacts below a significant threshold that  
14 would facilitate a non jeopardy opinion and not cause a jeopardy opinion.  
15

16 The environmental consequences for vegetation and wildlife concerning all 5 training  
17 scenarios will not be significant. Minimal adverse impacts are expected from direct  
18 habitat removal and indirect impacts to demographics and dispersal. In general,  
19 vegetation will receive minimal adverse impacts from trampling, compaction and  
20 scarification. Wildlife species will be displaced or lost from construction and combat  
21 maneuver activities. Impacts will minimal and not be significant.  
22

### 23 **4.3.8 Wetlands**

#### 24 **4.3.8.1 Affected Environment**

25  
26 Fort Bragg contains approximately 9,600 acres of potential wetlands (US Army,  
27 February, 2007). Palustrine wetlands have unique and important biological functions.  
28 They provide critical habitat for many wildlife species, absorb/abate floodwaters,  
29 improve water quality by removing pollutants, represent important wildlife travel  
30 corridors, enhance aesthetics, and provide recreational, scientific, and educational  
31 values. Wetlands are important in several natural processes, including groundwater  
32 discharge and recharge, flood flow attenuation, sediment stabilization, nutrient  
33 removal or Transformation, stormwater abatement, and as fish and wildlife habitat.  
34

35 Any disturbance to the soil or substrate (bottom material) of a wetland or waterbody,  
36 including a stream bed, is an impact and may adversely affect the hydrology of an area.  
37 Discharges of fill material generally include, without limitation: placement of fill material  
38 that is necessary for the construction of any structure, or impoundment requiring rock,  
39 sand, dirt, or other material for its construction; site-development fills for recreational,  
40 industrial, commercial, residential, and other uses; causeways or road fills; dams and  
41 dikes; artificial islands; property protection or reclamation devices such as riprap, groins,  
42 seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and  
43 outfall pipes and sub-aqueous utility lines; fill associated with the creation of ponds; and  
44 any other work involving the discharge of fill or dredged material. A Corps permit is  
45 required whether the work is permanent or temporary.  
46

1                                   **4.3.8.2 Environmental Consequences**

2  
3    **CS/CSS, Full Sustainment BDE, IBCT.** Moderate (medium) short- and long-term  
4 adverse impacts to wetlands are expected due to the abundance of wetlands and  
5 streams within the Cantonment Area. Currently, most of the unrestricted developable  
6 upland areas have been development; therefore remaining areas within the Cantonment  
7 are less desirable and in closer proximity to low-lying wetland areas or streams. In  
8 many parts of the Cantonment Area, the potential developable areas have reached its  
9 capacity. Almost all of the developable uplands have been developed, as such; any  
10 large facility requirements to support UA headquarters, Battalions, and companies,  
11 within the cantonment Area, will likely provide unavoidable impacts to wetlands or  
12 streams. However, due to the minor increase of additional Soldiers this is not expected.

13  
14    **HBCT and Multiple BCTs.** Significant (high) adverse impacts to wetland areas are  
15 expected with the stationing actions of the HBCT and Multiple BCT scenarios. The  
16 presence of an additional 3,800 to 7,000 Soldiers and the related facility construction,  
17 equipment staging, training, and maneuver activities have the potential to impact  
18 existing wetland areas, directly or indirectly. Impact minimization strategies will likely  
19 not be able to support unavoidable impacts. Wetland impacts will likely be within the  
20 CWA section 404 regulatory Nationwide permitting process threshold. Some of the  
21 impacts will likely require compensatory wetland mitigation measures. Stationing  
22 actions for the HBCT and Multiple BCTs, in the Cantonment Area, will likely be high to  
23 very high impacts. Within the main cantonment Area, unavoidable impacts to wetlands  
24 and streams from large facility requirements will likely go beyond the 0.5 acre impact  
25 threshold and require an Individual Permit with associated compensatory mitigation  
26 costs, in accordance with the CWA section 404 regulatory permit requirements terms  
27 and conditions. Impacts to wetlands will be very high but not reach a significant impact  
28 due to offsetting mitigation measures. Direct impacts from discharge of fill material into  
29 wetland and or streams is expected from construction of facilities (i.e., grading, utilities,  
30 and roads) and from major military training combat maneuver activities.

31                                   **4.3.9 Water Resources**  
32                                   **4.3.9.1 Affected Environment**

33  
34  
35    **Water Supply**

36 The Fort Bragg Water Treatment Plant (WTP) was privatized in October 2006. It is  
37 operated by a contractor until such time as the potable water lines from Fayetteville  
38 PWC and Harnett County can be constructed. At that time the water treatment plant  
39 will cease operations and Fort Bragg will purchase water from the two contractors  
40 (2009/10). Fort Bragg currently still owns, operates, and maintains the water  
41 distribution system serving Fort Bragg and Pope AFB. It includes), distribution lines,  
42 and storage. Plans are underway for the system to be privatized in FY 2008/09.  
43 Source water for the cantonment area and Pope AFB is withdrawn from the Little River,  
44 which is part of the Cape Fear River Basin system, while the training area is supplied  
45 as needed by groundwater wells. The minimum flow in the Little River at the two Fort  
46 Bragg intakes is approximately 20 million gallons per day (mgd), which is available to

1 Fort Bragg under any condition. Additional water is available from two impoundments,  
2 McKellars Lake and McArthur Lake, which have 37,500 acre-feet of combined storage.  
3 Water would be released from these two impoundments to the Little River with supply  
4 withdrawn at the existing intake structures under emergency conditions. Their use as  
5 sources of water supply has never been necessary.  
6

7 The Cantonment's water storage system consists of six elevated storage tanks, one  
8 standpipe and two ground storage tanks. The total storage volume of potable water is  
9 approximately 3,650,000 gallons, with an additional 575,000 gallons reserved for fire  
10 protection at Simmons AAF. Using the method that storage must be equal to 50  
11 percent of daily domestic consumption plus industrial requirements, currently 3,184,000  
12 gallons, storage is adequate for the current population (Fort Bragg, 2004). In general,  
13 the placement of the water storage facilities is adequate unless new development  
14 occurs in the area of Gruber Road between Reilly Street and Bragg Boulevard. Should  
15 this occur, small-to-moderately sized, elevated storage may be required. With the  
16 exception of the Tank Hill reservoir, the water storage tanks are in good to excellent  
17 condition (Fort Bragg, 2004).  
18

## 19 **Wastewater**

20 Fort Bragg privatized its waste water treatment plant in October 2006. It is currently  
21 operated by a contractor until such time a sewer line can be constructed to the Harnett  
22 County Waste Water Treatment Plant. At that time Fort Bragg will connect to the line  
23 and all of the waste water will be conveyed to the Harnett County Plant. The Fort Bragg  
24 plant will cease operation. Currently Fort Bragg still operates collection system (sewer  
25 lines), and lift station. Portable toilets and individual septic tanks serve firing ranges,  
26 drop zones, bivouac grounds, outlying permanent structures and other outlying areas.  
27 Portable toilets are located as needed to serve training requirements (Fort Bragg,  
28 2004). The wastewater treatment plant was constructed in 1941, but since has been  
29 upgraded and was rebuilt in 1991. The plant has a design capacity of 8 mgd with a  
30 maximum hydraulic capacity of 13 mgd. Approximately 3 mgd of flow has been  
31 documented during dry weather; however, wet weather flows approaching 12 mgd  
32 have been recorded. These high, wet weather flows likely are short duration or  
33 instantaneous flow rates. The treatment plant has been able to meet effluent discharge  
34 requirements even at these higher flows. In 2002, Yearly Average Daily Flow was 4.67  
35 mgd for an effective population of 50,937, yielding a daily per capita flow of 93 gallons.  
36 A more recent assessment indicated an average daily domestic flow of 5.5 mgd (Fort  
37 Bragg, 2005d). Problems with the collection system have caused numerous sewage  
38 spills and floods. In some areas, 25-inch pipes empty into 14-inch pipes, causing  
39 failure under high pressure and flow. Overall, however, the sanitary sewer collection  
40 system reportedly provides adequate service, but public works personnel know rain-  
41 induced infiltration at manholes is a major problem. On one occasion, a wastewater  
42 flow of 13.2 mgd was recorded during a rainfall of 3.25 inches (Fort Bragg, 2004).  
43 Large sewer mains (gravity and/or force mains) run through all of the areas under  
44 evaluation, however the age and condition of the sanitary collection system generally  
45 suggests that existing sewers will need to be carefully evaluated at each site and that  
46 new sewers and extensions are likely to be needed to support new development.

1  
2 Fort Bragg also operates a Central Vehicle Wash Facility. Facility management  
3 practices have been effective in meeting the conditions of the permit. Additionally, the  
4 installation operates the Lamont West Borrow Pit that meets all permit conditions.  
5

#### 6 **4.3.9.2 Environmental Consequences**

7

8 **CS/CSS, Full Sustainment BDE, IBCT.** Moderate (medium) adverse impacts to water  
9 resources are expected. Given the existing population of Fort Bragg, the addition of a  
10 CS/CSS will not have a significant impact to the watershed, water demand, and  
11 associated treatment systems. Any new construction/land disturbance over 0.75 acres  
12 will require a stormwater construction permit.  
13

14 **HBCT.** Long-term significant (high) adverse impacts to water resources are expected.  
15 Motorpool activities and washing of field-driven heavy-tracked vehicles would produce  
16 an increase on water demand and associated treatment. The existing wastewater  
17 treatment plant is almost at maximum capacity. Fort Bragg may need to construct new  
18 washing systems to manage heavy-tracked vehicles. The installation would also need  
19 to revisit their Stormwater Pollution Prevention Plan (SWP3) to incorporate best  
20 management practices for any new training activities. Additionally, any new  
21 construction/land disturbance over 0.75 acres will require a stormwater construction  
22 permit which would entail identification and implementation of mitigation strategies to  
23 reduce impacts associated with stormwater runoff during and after construction.  
24

25 **Multiple BCTs.** High significant (very high) adverse impacts to water resources are  
26 expected under a Multiple BCT scenario. The influx of an additional 7,000 Soldiers and  
27 their Families, as well as the increases in equipment use and maintenance will result in  
28 a substantial increase in water demand and wastewater treatment requirements (e.g.,  
29 motorpool activities and washing of heavy-tracked vehicles). The existing wastewater  
30 treatment plant is almost at maximum capacity. Upgrades or modifications may be  
31 necessary to accommodate the increased demand under this scenario. Construction of  
32 new washing systems to manage heavy-tracked vehicles may be necessary. The  
33 installation would also need to revisit their Stormwater Pollution Prevention Plan  
34 (SWP3) to incorporate best management practices for any new training activities.  
35 Additionally, any new construction/land disturbance over 0.75 acres will require a  
36 stormwater construction permit which would entail identification and implementation of  
37 mitigation strategies to reduce impacts associated with stormwater runoff during and  
38 after construction.  
39

### 40 **4.3.10 Facilities**

#### 41 **4.3.10.1 Affected Environment**

42

43 Fort Bragg currently supports a combined military and civilian population of about  
44 65,000. The bulk of the installation's acreage is dedicated to operational areas for field  
45 maneuvers, exercises, firing ranges, impact areas, and parachute drop zones. The  
46 primary mission is the training of airborne Soldiers. In broad terms, continuing

1 operations at Fort Bragg include general maintenance and repair, land management,  
2 utility systems operation and commercial activities.

3  
4 Approximately 8,300 acres of Fort Bragg comprise the cantonment area, located in the  
5 eastern part of the installation, and includes approximately 5,168 buildings. Nearly all  
6 military maintenance and commercial facilities, supply facilities, operation and training  
7 facilities, various community facilities, and family and Soldier housing areas are located  
8 in the cantonment area. (US Army IMA Southeast Division, 2006)

9  
10 Fort Bragg's current land use pattern is described in detail in the 2004 *Fort Bragg*  
11 *Master Plan Long Range Component*. Fort Bragg covers a land area that stretches  
12 approximately 27 miles from east to west and 16 miles from north to south at its most  
13 extreme points. According to current real estate records, Fort Bragg proper  
14 encompasses 152,843 acres with a total land area of 160,760 acres (251 square miles).  
15 (US Army, February 2006). Generally, the Installation is divided into three broad  
16 categories of land use; Cantonment, Green Belt, and range and training areas. Fort  
17 Bragg's Cantonment is the urbanized portion of the installation, which has been  
18 developed into a wide variety of land uses that comprise the elements necessary for a  
19 complete community. (US Army, January 2006)

20  
21 The Cantonment Area is severely constrained and fully developed. Fort Bragg is  
22 currently at a deficit of approx. 1.5 million sq ft short in company operations facilities and  
23 approx. 1 million sq ft in vehicle maintenance shop facilities. An addition of BCTs would  
24 significantly impact already strained space requirements. Additional facilities from the  
25 Army Growth project would significantly impact the following areas: facilities, personnel,  
26 equipment, services, common levels of support and training lands.

#### 27 28 **4.3.10.2 Environmental Consequences**

29  
30 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Significant adverse  
31 (Very High) impacts to facilities are expected. It is anticipated an increase of 1,000  
32 Soldiers would increase activities within the cantonment area including associated  
33 schools, housing and family-use centers, including but not limited to, increased usage of  
34 the Post Exchange, commissary, and medical and family support facilities. Activities  
35 within the training and range areas would be limited to existing firing ranges and  
36 roadways. However, these activities would have to be scheduled to coordinate with  
37 existing mission activities.

38  
39 As the number of Soldiers increase with the scenarios listed, the impacts may become  
40 even more exaggerated to varying degrees. Increased activities (by 3,000 to 7,000  
41 Soldiers and heavier equipment in the training areas would cause significant adverse  
42 long-term effects. The installation real property management plan (RPMP) may require  
43 significant modifications. Currently, Fort Bragg has no buildable space available for  
44 new construction. The BRAC movement from Pope Air Force Base in FY07 has not  
45 been included for consideration. Any construction at Fort Bragg is resource intensive.  
46 The current facilities cannot be readily expanded to accommodate an increase in

1 Soldier levels or training activity due to a lack of buildable space. Plans for future  
2 construction have included using the former Ammunition Storage Point (ASP) as  
3 buildable space once a new ASP is constructed. However, without an ASP to build on,  
4 no substantial growth can be supported. Force Protection security concerns continue to  
5 be an issue at Fort Bragg (Gillin, Installation Questionnaire, 2007). The use of the  
6 Sustainable Installations Regional Resource Assessment (SIRRA) may prove beneficial  
7 in determining the extent of impacts on facilities (Canter et al, 2007).  
8

### 9 **4.3.11 Energy Demand/Generation**

#### 10 **4.3.11.1 Affected Environment**

11  
12 Fort Bragg's energy needs are currently met by a combination of natural gas and  
13 electric power, both of which are provided by private utilities.  
14

15 **Electricity.** Progress Energy provides electric power to Fort Bragg via a 230-kilovolt  
16 (kV) line into a 50,000 kilovolt-amperes (kVA) main substation in Main Post Area. Pope  
17 AFB receives its power from the Fort Bragg system. Power lines are aerial and installed  
18 with telephone and cable distribution systems on common poles. Sandhills Utility  
19 Services, LLC, operates and maintains the conductor, poles, transformers and  
20 streetlights. Power demand has reportedly increased steadily; however, Progress  
21 Energy has been able to meet this load growth. Future decreases in energy  
22 consumption and cost are projected as a result of greater energy efficiency and real-  
23 time pricing task orders (Fort Bragg, 2004).  
24

25 **Natural Gas.** Fort Bragg has nine medium to large, central heating systems, which  
26 include a variety of field-erected and packaged equipment units. There are also six  
27 central cooling systems and numerous individual cooling systems on Fort Bragg. Many  
28 operational buildings and virtually all family housing units are heated by self-contained,  
29 decentralized units. Natural gas-fired central boilers and circulating hot water systems  
30 serve major building complexes. Either oil- or gas-fired, hot air furnaces or heat pumps  
31 serve smaller buildings, duplexes and single family units. Natural gas is supplied by  
32 pipeline from Piedmont Natural Gas. The ability of the natural gas supplier to meet an  
33 increase in future demands, if necessary, is unknown. The ability of the distribution  
34 system to meet increases in demand also is unclear due to insufficient data. No study  
35 of the capability of the gas supplier to meet any increases in future load requirements  
36 has been performed. Current capabilities appear to be adequate based on operating  
37 experience of public works personnel (Fort Bragg, 2004).  
38

#### 39 **4.3.11.2 Environmental Consequences**

40  
41 **CS/CSS, Full Sustainment BDE, IBCT, HBCT.** Long-term moderate (medium)  
42 adverse impacts are expected. The addition of 1,000 to 7,000 Soldiers represents a  
43 small fraction of the overall mission activity at Fort Bragg. The expected impact on  
44 energy demand/generation from this action is not significant. Some new electrical and  
45 natural gas infrastructure may need to be constructed to supply energy to additional  
46 personnel. Apart from the initial expansion of the energy infrastructure to accommodate



1 the new unit (barracks, motor pools, miscellaneous facilities, etc.) there is no limiting  
2 factor present to suggest a potential impact to any varying degree, however, one could  
3 expect minor incremental increases in capital investment in energy upgrades between  
4 the Full Sustainment BDE, IBCT, and HBCT.

5  
6 **Multiple BCTs.** Significant (high) long-term adverse impacts to energy  
7 demand/generation are expected. The addition of multiple BCTs, with an estimated  
8 increase of 7,000 Soldiers, is anticipated to result in significant energy  
9 demand/generation at the installation. New electrical and natural gas infrastructure  
10 would likely need to be constructed in order to accommodate the increase in usage,  
11 thus equating to the significant impacts to energy demand.

### 12 13 **4.3.12 Land Use Conflicts/Compatibility**

#### 14 **4.3.12.1 Affected Environment**

15  
16 Fort Bragg is situated in the Sandhills of North Carolina, and consists of 160,760 acres  
17 (250 square 27 miles). Fort Bragg is the home of the 18th Airborne Corps and the U.S.  
18 Army Special Operations Command. With some 45,000 military personnel and  
19 approximately 8,000 civilian employees, the installation is one of North Carolina's  
20 largest employers.

21  
22 Fort Bragg proper includes a cantonment area, the Weapons Range and Training Area,  
23 Pope Air Force Base (AFB) (leased from the Army by the Air Force), and Simmons  
24 Army Airfield (AAF). Fort Bragg also includes two satellite areas, including Camp  
25 Mackall, a 7,919-acre subinstallation located 6.6 miles to the southwest, and the  
26 Richmond (Hoffman) tract, a 100-acre parcel located southwest of Fort Bragg in  
27 Richmond County, which is used for training

28  
29 Fort Bragg proper is irregularly shaped, stretching approximately 27 miles east/west and  
30 16 miles north/south at its most distant points. The cantonment area is located in the  
31 southeastern end of the installation in Cumberland County; the Weapons Range and  
32 Training Area is primarily located in the central and western portions of the installation in  
33 Hoke, Cumberland, Harnett, and Moore Counties.

34  
35 The cantonment area, which occupies approximately 8,300 acres, is situated in  
36 the southeastern portion of the installation and includes a mix of administrative,  
37 operational, recreational, and community facilities, as well as vehicle maintenance and  
38 related facilities. Pope AFB is on the northwest end and contains approximately 2,000  
39 acres. Simmons AAF (579 acres) is located in the southeast corner of the cantonment  
40 area. The major community facilities (e.g., hospitals, schools, housing) are located in  
41 the middle of the cantonment area. As of October 17, 2002, the cantonment area  
42 consisted of 4,196 buildings making up approximately 27,662 square feet of building  
43 space (US Army Corps of Engineers, 2003).

#### 44 **4.3.12.2 Environmental Consequences**

1 **CS/CSS.** There will be moderate (medium) long-term environmental impacts on  
2 installation land use due to the presence of an additional 1,000 Soldiers and their family  
3 members assigned to the installation. The installation does not have sufficient land  
4 available to either build the facilities needed for this unit, and/or would have sufficient  
5 vacant space in buildings that would be suitable for the units' mission. Additionally, the  
6 land, or existing facilities, are located such that surrounding facilities are compatible with  
7 the additional CS/CSS unit. The facilities for this unit would not be contiguous, but  
8 would be within a distance of one-half mile.

9  
10 **Full Sustainment BDE, IBCT.** There will be moderate (medium) long-term  
11 environmental impacts on installation land use due to the presence of an additional  
12 3,000 to 3,500 Soldiers and their family members assigned to the installation. The  
13 installation will not have enough existing facilities, located in areas with comparable land  
14 uses to accommodate a Sustainment BDE. The installation will not have sufficient land  
15 compatible with tactical unit requirements on which to build facilities necessary for this  
16 unit. New or existing facilities would roughly require 150 acres, and there are  
17 noncontiguous parcels of land that size available for development on the cantonment  
18 area. Building new facilities would require construction on, or adjacent to, existing  
19 training facilities, such that those training facilities become unusable. This, in turn,  
20 would cause a measurable decrease of the installation's capacity to train Soldiers.  
21 Building new facilities could also require construction on, or immediately adjacent to,  
22 environmentally sensitive areas, such as wetlands, requiring extensive, and/or  
23 expensive mitigation actions.

24  
25 **HBCT.** There would be significant (high) long-term environmental impacts on  
26 installation land use due to the presence of an additional 3,800 to 4,000 Soldiers and  
27 their Families assigned to the installation. The impacts would be similar to, but  
28 incrementally greater than that of a Sustainment BDE or IBCT, due to the make-up of a  
29 heavy BCT. Tracked vehicles are particularly damaging to the easily-erodible soils  
30 found on the installation. The training lands are currently maintained for airborne and  
31 light infantry operations and armored elements would be incompatible with the present  
32 training land use and level of maintenance required for the management of threatened  
33 and endangered species.

34  
35 **Multiple BCTs.** There will be significant adverse (very high) adverse long-term  
36 environmental impacts on installation land use due to the presence of an additional  
37 7,000, or more Soldiers and their Families assigned to the installation. The installation  
38 will not have enough existing facilities, located in areas with comparable land uses to  
39 accommodate multiple BCTs. New or existing facilities would not be contiguous, and  
40 distant from Soldier support facilities and training and maneuver ranges. Building new  
41 facilities for multiple BCTs could require construction on, or adjacent to, existing training  
42 facilities, such that those training facilities become unusable. This, in turn, would cause  
43 a measurable decrease of the installation's capacity to train Soldiers. Building new  
44 facilities could also require construction on, or immediately adjacent to, environmentally  
45 sensitive areas such as wetlands, requiring extensive, and/or expensive mitigation  
46 actions.

1  
2 **4.3.13 Hazardous Materials/Hazardous Waste**  
3 **4.3.13.1 Affected Environment**  
4

5 Hazardous materials are used in most facilities at Fort Bragg, ranging from small  
6 quantities of cleaners and printing supplies to larger quantities of fuels, oils, and  
7 chemicals. Executive Order 13423 states that all appropriate organizational levels  
8 including appropriate facilities, organizations, and acquisition activities, shall develop  
9 written goals and support actions to identify and reduce the release and use of toxic  
10 and hazardous chemicals and materials, including toxic chemicals, hazardous  
11 substances, ozone depleting substances (ODS's), and other pollutants that may result  
12 in significant harm to human health or the environment. The Fort Bragg Hazardous  
13 Waste Management Plan (HWMP) FB 200-2 states that it is the Army's goal to  
14 continuously reduce hazardous waste generation by seeking non-hazardous  
15 substitution of hazardous materials, finding and developing markets for waste as a  
16 recyclable material, and promoting the total use of hazardous materials (Fort Bragg,  
17 HWMP 2006).

18  
19 Hazardous wastes are generated at Fort Bragg from various operations and facilities.  
20 The installation generates more than 1,000 kilograms (2,200 pounds) of hazardous  
21 waste per month and maintains a large quantity generator status under RCRA.  
22 Currently Fort Bragg operates under a RCRA Hazardous Waste Storage permit, EPA  
23 Permit ID Number NC 8210020121 (200-2), which authorizes storage of hazardous  
24 waste for a period of 90 days and Universal Waste for a period of one year in  
25 containers in Building 3-1240. In addition to Department of Public Work's (DPW)  
26 storage facility, there are two 90-day storage facilities on Fort Bragg, located at the  
27 Womack Army Medical Center (Building 4-2817) and the Defense Reutilization and  
28 Marketing Office (DRMO) 90 day site.

29  
30 Typical wastes routinely generated by on-going operations at Fort Bragg include  
31 universal waste, hazardous medical waste, weapons cleaning materials, chemical  
32 identification kits and mask filters, paint and paint-related products, pesticides,  
33 adhesives and sealants, solvents, battery acid, photographic developer and fixer  
34 solutions, fuel filters, contaminated fuel, and spent parts washer filters (Fort Bragg,  
35 HWMP 2006). A large amount of waste solvent is generated by leased part washers  
36 and government-owned part washers. The waste solvent generated by the leased  
37 machines is taken off site for recycling. The waste solvent from the government-owned  
38 machines are collected in drums, taken to the DPW-ECB 90 day accumulation site for  
39 recycling or to be processed for disposal thru DRMO 90 day site. In 2005, Fort Bragg  
40 generated 158.6 tons of hazardous waste, of which 63 tons was spent solvents from  
41 parts washers (Fort Bragg Hazardous Waste and Recycling Office (HWRO), 2006). In  
42 addition to hazardous waste, some regulated medical waste is generated through  
43 activities at the medical center, clinics, and field training exercises. This waste is  
44 collected in disposable red biohazard bags which are then placed in lined boxes.  
45 Medical waste is managed by contractors who take the waste off-site for incineration  
46 (Fort Bragg, 2004). Some medical waste may be radioactive (e.g., by products of

1 therapy/treatments and diagnostic medical imaging). The procedures and practices for  
2 handling of radioactive medical waste are licensed under the Nuclear Regulatory  
3 Commission and the Department of the Army Radioactive Materials Authorization.  
4 Waste with a short half-life is stored in a secure locker at the Womack Army Medical  
5 Center, and waste with a long half-life is stored in the Preventive Medicine Bunker. All  
6 radioactive wastes are stored for ten half-lives and then disposed of by an approved  
7 contractor (Fort Bragg 2004).

#### 8 9 **4.3.13.2 Environmental Consequences**

10  
11 **CS/CSS, Full Sustainment BDE, and IBCT.** Long-term minor (low) adverse impacts  
12 are expected to hazardous materials and waste for each of these scenarios. It is  
13 anticipated that Fort Bragg would increase its storage and use of hazardous chemicals  
14 during training exercises and installation maintenance with the increase of Soldiers and  
15 increased training activities. Demolition, modification, and construction of new facilities  
16 would mostly likely generate slightly higher levels of solid and municipal wastes. This is  
17 expected to have a negligible effect on the landfill that receives the waste. The increase  
18 in these wastes would result in no adverse impacts because the wastes would be  
19 managed in accordance with current standards and regulations. The hazardous waste  
20 disposal facilities would be adequate to manage the increase in hazardous waste.  
21 Waste management programs may be updated as needed.

22  
23 **HBCT.** There will be moderate (medium) long-term adverse environmental impacts  
24 from hazardous materials and wastes. The volume of hazardous waste would be  
25 slightly higher than what is expected for an IBCT, and this would require an additional  
26 on-site investigation with the addition of an HBCT. (Gillin, Installation Questionnaire,  
27 2007) Waste management plans would be updated as needed to incorporate mission  
28 activities associated with the new units stationed at Fort Bragg and expanded training  
29 activities.

30  
31 **Multiple BCTs.** The establishment of multiple BCTs at Fort Bragg would result in  
32 significant (high) adverse long-term environmental impacts from hazardous materials  
33 and waste. Generation and management of hazardous materials and waste would be  
34 higher than with the other actions, and would require an additional on-site investigation  
35 with the addition of multiple BCTs. (Gillin, Installation Questionnaire, 2007) Waste  
36 management plans would be updated as needed to incorporate mission activities  
37 associated with the new units stationed at Fort Bragg and expanded training activities.

#### 38 39 **4.3.14 Traffic and Transportation**

##### 40 **4.3.14.1 Affected Environment**

41  
42 Fort Bragg is located between Spring Lake and Fayetteville, North Carolina. Currently  
43 Fort Bragg is accessible through the I-95 and US-NC highway system. Interstate 95 is  
44 located about 12 miles east of the post and is accessible through local arterial roads.  
45 The Fayetteville Outer Loop (I-295) is planned to connect to Fort Bragg through a  
46 limited access highway. The expected completion of this project is 2012.

1 ¶ *Off Post Roadways Connecting Fort Bragg*

2 The main roads that provide access to Fort Bragg are the All American Freeway,  
3 NC87(Bragg Blvd.) and NC87-210 (Murchison Rd.) All American Freeway is a four  
4 lane divided roadway that is the main access connector into Fort Bragg. All visitors are  
5 directed to use this gate for entry.

6  
7 Bragg Blvd. is a four lane road that runs in a north -south direction and is part of the  
8 regional road network running through Fort Bragg. Fort Bragg has requested for  
9 security reasons that the section of Bragg Blvd that runs through the post for closure to  
10 off post traffic in the near future. The Bragg Blvd. civilian traffic will be diverted to  
11 Murchison Rd.

12  
13 North Carolina Department of Transportation is planning to expand the section of  
14 Murchison Rd. parallel to the section of Bragg Blvd. that will be closed to six lanes to  
15 accommodate the future traffic. This Project has a letting date of 2008. The Fort Bragg  
16 road system that connects to the North Carolina Department of Transportation  
17 (NCDOT) roads is already experiencing capacity level failure. At this time Fort Bragg  
18 has not had the capacity to develop roadway projects to offset the existing traffic  
19 congestion. Additional troop increases will contribute to an additional decrease in  
20 capacity levels on the Fort Bragg road system. The increased traffic volumes will create  
21 congestion which increases accident problems for  
22 motorist and pedestrians on the post.

23  
24 *Access Control Points (ACP)*

25 There are sixteen ACPs or gates that control entry into Fort Bragg. The gates are  
26 located throughout the perimeter of the Cantonment area. At each manned gate,  
27 security guards check vehicles before allowing access into the installation. Initially all  
28 these gates were manned full time. Budget limitations have forced the base to limit  
29 operation and close some of these ACPs. Additional troop increases will compound the  
30 problem of daily access to the base for the troops and civilian employees.

31  
32 *Parking*

33 There are two distinct areas at Fort Bragg where parking availability presents different  
34 conditions. The Womack Army Medical Center, the PX and commissary locations were  
35 observed to have adequate parking capacity. However, the Historic District, Soldier  
36 Support Center, most training centers have inadequate parking capacity. This makes  
37 illegal parking an ongoing occurrence. The problem is compounded with the planned  
38 FORSCOM facility project. Additional parking demands associated with this project  
39 have not been resolved. Most Soldiers that live or commute to the base have at least  
40 one vehicle. The base is reviewing options such as satellite parking, shuttle system and  
41 parking decks. These plans will have to be incorporated into the off post regional  
42 transportation network for optimum efficiency. Additional troop increases without  
43 solving this problem increases stress on the troops and civilian employees.

44  
45 *Housing*

46 Available housing on the base is scarce. It is unlikely that current and future base

1 facilities will be able to accommodate the increase of troop levels already planned.  
2 Currently Fort Bragg is completing an off post site off NC87 called the Northern Training  
3 Area (NTA). The NTA has the capacity to accommodate 2500 homes. Private  
4 developers are also developing land adjacent to NTA with the capacity to accommodate  
5 10,000 homes. This development is planned to address the existing growth to Fort  
6 Bragg. The traffic generation potential for 12,500 residences is 125,000 vehicle trips  
7 per day. A large percentage of this volume will be commuting to Fort Bragg. The  
8 existing road system on Fort Bragg cannot service this amount of traffic much less  
9 additional troop increases.

#### 10 11 **4.3.14.2 Environmental Consequences**

12  
13 **CS/CSS.** There will be significant (high) adverse short- and long-term environmental  
14 impacts on traffic and transportation systems on the installation due to the presence of  
15 an additional 1,000 Soldiers and their family members assigned to the installation. A  
16 large percentage of the unit's married population, and unmarried soldiers in the grade of  
17 E-6 (Staff Sergeant) and higher, will likely reside in off-post housing. Spread across the  
18 ROI, this population will have de minimis impact on the overall traffic congestion in the  
19 neighboring communities. However, the additional off-post population will contribute to  
20 increased traffic congestion, and a decrease of the LOS, on the road network leading to  
21 the installation's cantonment area, particularly during peak morning and evening hours.  
22 The increased population will have a significant effect on traffic congestion on the  
23 installation, contribute to a reduction in the LOS on the installation's road network, and  
24 pose significant increased risk to the safety of pedestrians and bicyclists.

25  
26 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be significant (high)  
27 adverse short- and long-term environmental impacts on traffic and transportation  
28 systems on the installation due to the presence of an additional 3,000 to 7,000 Soldiers  
29 and their family members assigned to the installation. The increase in off-post traffic  
30 would have a noticeable impact on traffic in the community overall and could contribute  
31 a notable decrease in the LOS in the road network leading to the installation, particularly  
32 during peak morning and afternoon travel periods. This level of increase in population  
33 would also have a significant impact on the traffic volume on the installation, and  
34 contribute to a decrease in LOS on a higher percentage of the installation's road  
35 network. The increased traffic volume in both the neighboring community and on the  
36 installation would pose an increased level of risk to the safety of pedestrians and  
37 bicyclists.

#### 38 39 **4.3.15 Cumulative Effects**

##### 40 41 **Past and Present Actions**

42 Past and present actions at Fort Bragg include those that were completed prior to and  
43 those that were in progress. These include past actions at Fort Bragg as well as past  
44 actions in the Fort Bragg ROI. These actions include, but are not limited to:

- 45  
46 • Training activities conducted at Fort Bragg and Pope AFB

- 1 • Construction, alteration, repair, rehabilitation and maintenance of buildings,  
2 structures, site improvements, and utility systems as required ensuring that assets  
3 are capable of meeting the facility requirements of changing training standards,  
4 mission requirements, educational initiatives and programs, administrative  
5 organizations, and weapons systems. Construction activities included in the  
6 consideration of past and present actions include the existing facilities at Fort Bragg,  
7 construction projects currently in progress, and those funded for construction;
- 8 • Grounds maintenance at Fort Bragg as necessary to ensure the long-term viability  
9 of plant growth, reduce pest and insect infestations, reduce the potential for  
10 inadvertent power outages caused by trees and tree limbs falling onto power lines,  
11 and to maintain a professional, military appearance;
- 12 • Natural and cultural resources management programs including the continued  
13 adherence to Fort Bragg's management plans that have been designed to protect  
14 the existing diverse fish, wildlife and plant habitats present on the Installation. The  
15 Installation would continue coordination with the SHPO and the ACHP concerning  
16 management of cultural resources. Natural and cultural resources management  
17 policies and actions at Fort Bragg include the continuation of programs to reduce  
18 and eliminate damage to the environment such as the INRMP, ESMP, and ICRMP,  
19 as well as ESA Section 7 Consultation with the USFWS when applicable;
- 20 • Continued MWR activities at Fort Bragg;
- 21 • Operation of Pope Air Force Base proximate to Fort Bragg, including airfield  
22 operations, other military missions, and the maintenance, repair and operation of  
23 facilities and infrastructure; and
- 24 • Past development and land use patterns within the Fort Bragg region that comprise  
25 the affected environment as described in this EA and are considered as part of the  
26 environmental baseline conditions. Land use adjacent to Fort Bragg is characterized  
27 primarily as rural residential with urban encroachment occurring in the eastern area.
- 28 • Current resource management programs, land use activities and development  
29 projects that are being implemented by other governmental agencies and the private  
30 sector (where they can be identified) within the cumulative impact analysis areas. In  
31 most cases, the characteristics and results of these past and present actions are  
32 described in the Affected Environment sections under each of the resource  
33 categories covered in this EA

### 34 35 **Reasonably Foreseeable Future Actions**

36 There are a number of reasonably foreseeable projects that may occur simultaneously  
37 with construction activities for the Proposed Action. The projects included in the  
38 proposed action are those BRAC, BRAC Discretionary and other Transformation  
39 projects considered ripe for development at the time this EA was prepared. Other  
40 BRAC, BRAC Discretionary and other Transformation projects not ripe for analysis were  
41 considered under the cumulative impacts analysis, along with other past, present and  
42 reasonably foreseeable projects. These projects, which will help Fort Bragg, continue to  
43 fulfill its mission requirements, include both those occurring off-post and those occurring  
44 on-post. A sample list of reasonably foreseeable projects to be undertaken at Fort  
45 Bragg as well as in the region includes:  
46

- 1 • PN 53555, Barracks Complex Third BCT, Phase III
- 2 • PN 54911, Child Development Center, Northern Training Area (NTA)
- 3 • PN 55121, Digital Multipurpose Range Complex
- 4 • PN 57317, Barracks Complex Third BCT, Phase IV
- 5 • PN 57791, Engineer Assault Course
- 6 • PN 58489, Whole Barracks Renewal/Butner Road, Phase V
- 7 • PN 58491, Whole Barracks Renewal, Phase V
- 8 • PN 59616, Whole Barracks Renewal/DIVARTY
- 9 • PN 62467, Ammunition Supply Point
- 10 • PN64379, Pope Air Force Base Fire Station/Control Tower
- 11 • PN 64426, Multifunctional Aviation Brigade Complex
- 12 • PN 64914, 1st BCT Vehicle Maintenance Facility
- 13 • PN 64915, 2nd BCT Vehicle Maintenance Facility
- 14 • Relocate the 440th Airlift Wing's operations and maintenance Expeditionary Combat
- 15 Support (ECS) manpower from General Mitchell Air Reserve Station (ARS),
- 16 Wisconsin to Pope AFB (BRAC Action)
- 17 • Relocate eight C-130H aircraft from 911th Airlift Wing (AFRC) at Pittsburgh
- 18 International Airport (IAP)
- 19 • Air Reserve Station (ARS), Pennsylvania to Pope AFB, NC (BRAC Action)
- 20 • Relocate eight C-130H aircraft from Yeager Airport Air Guard Station (AGS) to Pope
- 21 AFB, NC (BRAC Action)
- 22 • Relocate the HQ FORSCOM VIP Explosive Ordnance Support from Fort Gillem, GA,
- 23 to Pope AFB, NC (BRAC Action)
- 24 • Clear 5 acres of pine forest in the SOTF area, north of the FARP
- 25 • Realign Pope AFB, NC and transfer real property accountability to the Army at Fort
- 26 Bragg, NC (BRAC Action)
- 27 • Utilize and expand current Fort Bragg ammunition supply point
- 28 • Ammunition Supply Point at Pope AFB
- 29 • Northern Training Area – Housing
- 30 • Three Fort Bragg road improvements (Widen Gruber Road intersection at Zabitosky,
- 31 widen Gruber Road intersection at Reilly Road and widen/resurface Vass Road to
- 32 Morrison Bridge)
- 33 • Closure of Bragg Blvd to civilian through trips.
- 34 • Murchison Road Expansion.
- 35 • Preliminary design of intersections and/or potential interchange ramps is not
- 36 complete yet. However, the design needs to include traffic increase due to the
- 37 implementation of the action (and cumulative effects) and the placement of the
- 38 ACPs to Fort Bragg. Need to check queuing at ACPs, intersections and highway
- 39 ramps.
- 40 • Randolph Street Expansion.
- 41 • Opening of the Manchester Road ACP to Pope AFB.
- 42 • Projects from the 2004-2010 Metropolitan Transportation Improvement Program
- 43 (MTIP). Includes the construction of the Fayetteville Outer Loop (I-295).
- 44 • Widen I-95 from county line to county line, total 12 lanes (FAMPO Highway Plan).



- 1 • Continued development pressure around the Fort Bragg/Pope AFB perimeter,  
2 particularly in Cumberland, Harnett, Moore, and Hoke Counties  
3

4 Fort Bragg expects cumulative impacts from ongoing training activities in conjunction  
5 with Army growth stemming from short-term and long-term repeated combat maneuvers  
6 throughout all seasonal conditions. Additionally, the action of adding Soldiers to various  
7 degrees (each of these growth scenarios to include BCTs) through direct, indirect and  
8 cumulative impacts from permanent infrastructure (i.e., UA Headquarters) to combat  
9 maneuver capabilities from various battalions and companies will present mission  
10 impacts to vegetation and soils.

11  
12 A cumulative impact is defined as “the impact on the environment which results from the  
13 incremental impact of the action when added to other past, present, or reasonably  
14 foreseeable future actions regardless of what agency (federal or non-federal) or person  
15 undertakes such other action” (40 CFR 1508.7). The section goes on to note that “such  
16 impacts can result from individually minor but collectively significant actions taking place  
17 over a period of time.” Cumulative impacts associated with implementation of the  
18 Realignment (Preferred) Alternative are the incremental impacts of the Realignment  
19 actions when added to the actions of other past, present, or reasonably foreseeable  
20 future actions (US Army Corps of Engineers, Mobile District, 2005)<sup>3</sup>.

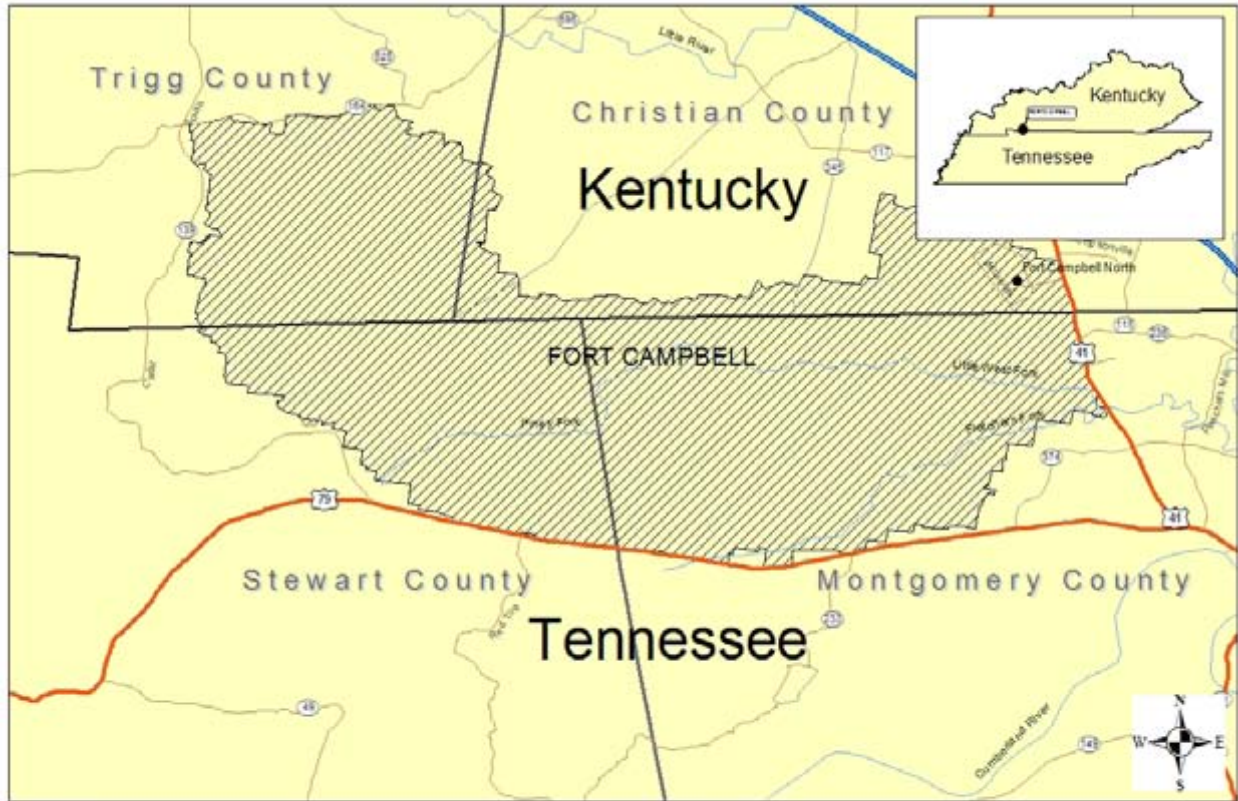
## 21 22 **4.4 FORT CAMPBELL, KENTUCKY**

### 23 **4.4.1 Introduction**

24  
25 Fort Campbell is an Army installation located on 104,400 acres in Montgomery and  
26 Stewart counties, Tennessee, and Trigg and Christian counties, Kentucky (Figure 4.4-  
27 1). About 12 percent of the installation is developed, while about 88 percent is  
28 undeveloped rear area maintained for military training. In the rear area, forests,  
29 streams, fields, and other natural settings are maintained to provide a realistic context  
30 for training activities. The rear area contains about 26,002 acres of ranges and impact  
31 areas, 65,800 acres of light maneuver area, and the 2,602-acre former Clarksville Base.  
32 Except for roads, cleared areas, and structures associated with training ranges,  
33 heliports, storage, and support facilities, most of the rear area consists of natural habitat  
34 including forests, old fields, fields leased for agriculture, lakes, streams and wetlands.  
35

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<sup>3</sup> The installation has identified other past, present, and reasonably foreseeable future projects that may present cumulative impacts as a result of growth at Fort Bragg. This information will be updated in the next iteration of this document.



## Fort Campbell- Installation Location

**Figure 4.4-1 Fort Campbell**

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21

While wildlife and natural habitat exist within the impact areas, these areas are off-limits to personnel due to hazards associated with unexploded ordnance. Aerial photography is used to evaluate habitat conditions with the impact areas. However, those areas cannot be actively inventoried, managed, or monitored using surveys in the field. Management activities and objectives described in this Plan do not involve the impact areas.

Fort Campbell has several areas identified as “drop zones” and “landing zones” used primarily for parachute training and air assault (helicopter operations) training.

Approximately 9,276 acres of the installation is cantonment area, which includes the main post, as well as the Campbell Army Airfield (CAAF). Vegetation in the cantonment area is primarily ornamental lawns, shrubs, and trees cultivated for aesthetic purposes; there are no natural terrestrial or aquatic communities in the cantonment area. Only limited natural resources management activities (e.g., pest management and urban forest management which is conducted in the cantonment area) is within the scope of this document.

1 Fort Campbell supports the third largest military population in the Army and the seventh  
 2 largest in the Department of Defense (DoD). Fort Campbell is the home of the  
 3 Screaming Eagles of the 101st Airborne Division (Air Assault) and tenant units totaling  
 4 approximately 30,000 active duty personnel. The major command is the 18th Airborne  
 5 Corps and United States Army Forces Command (FORSCOM). Fort Campbell also is  
 6 home to the 159th Combat Aviation Brigade, 5th Special Forces Group (ABN), 160th  
 7 Special Operations Aviation Regiment (SOAR), 31st Military Police Detachment, 58th  
 8 Aviation Regiment, 1st Battalion, 2nd Battalion, 61st Engineer Battalion, 95th  
 9 Maintenance Company, 101st Support Group (Corps), 249th Engineer Battalion, and  
 10 902nd Military Intelligence Group. The Air Force has two units at Campbell Army  
 11 Airfield: 19th Air Support Operation Squadron and 621st Air Mobility Operations Group.

12  
 13 The mission of the 101st Airborne Division (Air Assault) is to deploy in 18 hours  
 14 worldwide, to destroy enemy armed forces and to control land area, including  
 15 populations and resources by employing the unique capabilities of the air assault  
 16 division. The air assault capabilities and aviation assets greatly enhance the division's  
 17 world-wide mission. Primary weapon systems are the Air Assault qualified infantry  
 18 Soldier, Apache helicopter, Hellfire Missile System, Mark 19 Grenade Launcher, 105-  
 19 mm Howitzer Avenger.

20  
 21 Fort Campbell's primary mission is to advance the combat readiness of the 101st  
 22 Airborne Division (Air Assault) and the non-divisional units, including the 2nd BCT and  
 23 159th CAB, posted at the installation through training, mobilization, and deployment.  
 24 Deployment capabilities include combat equipped Soldiers, tactical vehicles, weapons  
 25 and ammunition, and logistical equipment to sustain thousands of Soldiers in a tactical  
 26 environment for an extended period of time. The installation serves as a Premier Power  
 27 Projection Platform for the Division and for major Special Operations Command units.

28  
 29 Table 4.4-1 contains the Fort Campbell VEC ratings for each of the various stationing  
 30 action scenarios.

31  
 32 **Table 4.4-1. Fort Campbell VEC Ratings**

<b>Fort Campbell</b>					
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BDE (3,000- 3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Low	Medium	Medium	Medium	High
Airspace	Low	Low	Medium	Medium	Medium
Cultural	Medium	Medium	Medium	High	High
Noise	Low	Low	Low	Medium	Medium
Soil Erosion Impacts	Medium	High	High	High	Very High
T&E/Other Wildlife	Medium	Medium	Medium	Medium	High

Wetlands	Low	Low	Low	Low	Low
Water Resources	Medium	High	High	High	Very High
Facilities	Low	High	High	High	Very High
Socioeconomics	Medium	High	High	High	High
Energy Demand/ Generation	Medium	High	High	High	High
Land Use Conflict/ Compatibility	Low	High	High	High	Very High
Haz Mat/ Haz Waste	Low	Medium	Medium	Medium	High
Traffic and Transportation	High	High	High	High	High

1  
2           **4.4.2 Air Quality**  
3                   **4.4.2.1 Affected Environment**  
4

5 The project area includes Christian and Trigg Counties, Kentucky and Stewart and  
6 Montgomery Counties, Tennessee. Fort Campbell is designated as a major source for  
7 criteria air pollutants (cap) and hazardous air pollutants (HAP). The portions of Fort  
8 Campbell in Christian and Montgomery Counties are currently designated as  
9 maintenance areas for the attainment of the ozone National Ambient Air Quality  
10 Standards (NAAQS). Accordingly, new activity which emits ozone precursors (NOx and  
11 VOCs) is subject to being affected by of the requirements of at least Subpart B of 40  
12 CFR 93, *Determining Conformity of Federal Actions to State and Federal*  
13 *Implementation Plans* and as incorporated in the Kentucky and Tennessee State  
14 Implementation Plans (SIPs). Fort Campbell is required to have Title V operating  
15 permits from the states of Kentucky and Tennessee.

16  
17 In order to preclude the possibility of triggering *New Source Review* (NSR) requirements  
18 [both nonattainment NSR and *Prevention of Significant Deterioration* (PSD)], Fort  
19 Campbell has agreed as part of the Title V operating permits to installation wide (both  
20 Kentucky and Tennessee portions) limits on all CAP emissions except carbon monoxide  
21 (CO) and lead (Pb). Accordingly, an analysis of potential increases of those CAPs  
22 would have to be conducted to determine if the “agreed to limits” would require  
23 negotiations for revised (higher) limits.

24  
25 Traditional sources of stationary air contaminants at Fort Campbell include institutional  
26 boiler plants (permitted) and other fossil fueled indirect heating equipment such as  
27 furnaces and hot water heaters; a small classified document incinerator; tactical vehicle,  
28 aircraft and other equipment repair surface coating operations (permitted); a  
29 perchloroethylene dry cleaning facility (permitted); stationary diesel fuel fired emergency  
30 electric generators; JP-8, No. 2 fuel oil, and gasoline handling facilities; solvent metal  
31 cleaning units (using non-halogenated organic compounds); and jet engine test cells.  
32 Most of the over 3,000 stationary air contaminant sources are classified as insignificant

1 activities, not requiring operation permits; however, the operations must be in  
2 compliance with applicable SIP standards.

3  
4 There is also a measurable impact on air quality resulting from the operation of mobile  
5 sources such as tactical ground vehicles, aircraft, personally owned vehicles  
6 (installation personnel and contractors), construction equipment, school buses, and  
7 other government owned/leased vehicles. Informal investigations indicate that mobile  
8 sources in the area are contribute to the majority of the emissions of ozone precursors,  
9 fine particles (PM<sub>2.5</sub>) and inhalable course particles (PM<sub>10</sub>), and greenhouse gases.

10  
11 In addition, fugitive emissions of airborne particulate matter are generated by mobile  
12 source travel and training exercises over paved and unpaved roadways, trails and other  
13 training areas. Fugitive emissions also result from prescribed land management burns.

#### 14 15 **4.4.2.2 Environmental Consequences**

16  
17 The most significant impact on air quality will result from fossil fuel sources based on  
18 the results of an analysis of effects of force Transformation at Fort Campbell. The  
19 Transformation does not require a Guaranteed Capacity Rate (GCR) analysis since no  
20 temporary or permanent ozone precursors are necessary, a Record of Non-applicability  
21 was issued. Installation/use of additional fossil fuel emitters will increase CAP and HAP  
22 emissions. The significance of the increased emissions because of Transformation is  
23 not amenable to analysis at this point. The environmental consequences of assigning  
24 new units to Fort Campbell are based on the conclusions found in the RONA mentioned  
25 above. Weapon's training was not considered in the RONA. Additional unit assignments  
26 will increase the mass and duration of fugitive air borne particulate.

27  
28 **CS/CSS.** It is estimated that there would be minor (low) short- and long-term adverse  
29 impacts to the ambient air quality on the installation and surrounding communities  
30 resulting from restationing a CS/CSS unit and its 1,000 Soldiers. The installation does  
31 not anticipate a major amount of construction to accommodate this level of growth;  
32 therefore short-term air quality impacts may be expected.

33  
34 **Full Sustainment BDE, IBCT, HBCT.** It is estimated that there would be moderate  
35 (medium) short- and long-term adverse impacts to the ambient air quality on the  
36 installation and surrounding communities resulting from the restationing of a BCT of up  
37 to 3,800 Soldiers. Additionally, Fort Campbell expects any increase of approximately  
38 3,500 Soldiers or more will result in an increase of approximately 6,000 POVs on the  
39 installation, contributing to the air quality issues.

40  
41 **Multiple BCTs.** It is estimated that there would be significant (high) short- and long-  
42 term adverse impacts to the ambient air quality on the installation and surrounding  
43 communities under the Multiple BCT scenario, which would increase the active duty  
44 military population by approximately 7,000 Soldiers. The estimated high adverse impact  
45 also takes in consideration the additional infrastructure required to support an

1 anticipated substantial increase in dependents population utilizing Fort Campbell  
2 facilities.

### 4 4.4.3 Airspace

#### 5 4.4.3.1 Affected Environment

6  
7 Fort Campbell has 128 square miles of FAA-designated Special use airspace, up to  
8 27,000 feet. 4 BCT's reside at Campbell, plus 2 CAB's and also 5th Special Forces and  
9 the 160th Special Operations Aviation Regiment, which is the same size as a CAB.  
10 Area R3702 accommodates artillery, rockets, mortars, and other ordnance. Also within  
11 this area Army aviation conducts brigade and battalion-level training. Generally, if one  
12 of the four existing BCTs are operating in the rear training area they are supported by  
13 one of the CABs.

14  
15 Each of the four BCT's has unmanned aerial vehicles. Each BCT has 4 RQ-7B Shadow  
16 UAV and approximately 18 RQ-11A Raven UAV. The Shadow is 14 x 9 feet UAV and  
17 the Raven is a 6 x 4 UAV. The Shadow is a 350K model that works well due to its  
18 advanced systems. The Raven is a 50 - 60K UAV that does not work well in the tree  
19 environment at Fort Campbell.

20  
21 Additional special use airspace totals 540 square miles which can be used by aviation,  
22 but not ground forces performing live-fire exercises. Fort Campbell has authorization to  
23 fly the Shadow outside of the restricted area airspace, with a chase aircraft, and into the  
24 540 square miles of additional special use airspace. The 12 Warriors, the 58 x 29 feet  
25 UAV schedule for Fort Campbell in FY09, will be flown in the restricted area or utilize a  
26 chase aircraft to fly outside of it.

#### 27 4.4.3.2 Environmental Consequences

28  
29  
30 **CS/CSS and Full Sustainment BDE.** There will be minor (low) short- and long-term  
31 adverse impacts to airspace under these two scenarios. It is anticipated that the  
32 activities associated with an increase of 1,000 to 3,500 Soldiers would increase  
33 activities within the cantonment and training and range areas; however, there would be  
34 no expected effects to airspace use. These activities would have to be scheduled to  
35 coordinate with existing mission activities.

36  
37 **IBCT and HBCT.** There will be minor (low) short- and long-term adverse impacts to  
38 airspace use. UAV associated with an IBCT or HBCT would require increased use of  
39 existing airspace or use of additional airspace. Where existing airspace is insufficient,  
40 or already saturated with military activity, installation commanders would have to seek  
41 additional special use airspace designations from the FAA. Future new systems or  
42 modifications to existing systems could also affect airspace use, resulting in greater  
43 demand for exclusive military use of the resource. (US Army Corps of Engineers, 2002)

44  
45 **Multiple BCTs.** Minor (low) short- and long-term adverse impacts to airspace use are  
46 expected. As with the IBCT and HBCT scenarios, UAV activities associated with a

1 multiple BCTs would require increased use of existing airspace or use of additional  
2 airspace. Construction or modification of airfields and training and maneuver areas  
3 could result in changes to existing airspace use.

#### 4 5 **4.4.4 Cultural Resources**

##### 6 **4.4.4.1 Affected Environment**

7  
8 The affected environment for Fort Campbell is the 105,000 acre footprint of the  
9 installation. Additionally, the installation straddles two states, Tennessee and Kentucky,  
10 with two counties in each state containing portions of the installation. This means that  
11 all federal undertakings that could potentially impact historic and/or archaeological  
12 resources must be coordinated with the corresponding SHPO.

13  
14 The APE at Fort Campbell for purposes of compliance with Section 106 of the NHPA  
15 includes the entire area within the military reservation for Fort Campbell, over 105,000  
16 acres. The inventory of cultural resources at Fort Campbell includes over 1,400  
17 archaeological sites, 320 of which are considered eligible or potentially eligible for the  
18 National Register of Historic Places. There are over 2,000 buildings considered eligible,  
19 most of which are World War II temporary structures or Capehart/ Wherry era family  
20 housing units.

21  
22 The former Clarksville Base is a 2,600 acre historic district and Cold War property with  
23 over 200 contributing structures and features. It is considered eligible for its  
24 associations with the storage and maintenance of nuclear weapons in the earlier  
25 phases of the Cold War.

26  
27 There are six prehistoric archaeological sites that have in the past yielded human  
28 remains and funerary items. These sites are considered highly significant by federally  
29 recognized Indian tribes whose lands once included in area of Fort Campbell. One of  
30 the known burial sites is within the bounds of the Clarksville Base Historic District in  
31 close proximity to lands most likely to be needed for new facilities in support of a BCT  
32 under all alternatives. The inventory of archaeological sites includes 123 historic era  
33 cemeteries left in place during the original establishment of Camp Campbell in 1942.

34  
35 Most of the training lands at Fort Campbell outside of the impact areas have received at  
36 least an initial survey for archaeological sites. Unfortunately, several earlier  
37 archaeological surveys have been documented to be sub-standard and the initial  
38 surveys were not designed to locate deeply buried sites in alluvial and colluvial soils.  
39 Some of the alternatives under consideration would increase the risk of damage to  
40 deeply buried sites and may trigger a need to re-examine the possibility of  
41 archaeological sites in the deeper settings.

42  
43 The general management of cultural resources at Fort Campbell is guided by an  
44 Integrated Cultural Resources Management Plan adopted in 2002, and by the terms of  
45 a Programmatic Agreement among Fort Campbell, the Tennessee Historical  
46 Commission, and the Kentucky Heritage Council, renewed in 2003. The current military

1 training activities at Fort Campbell avoid damaging cultural resources by limiting  
2 mechanically assisted digging to areas approved by ITAM permits. Routine passage of  
3 troops and vehicles in the training areas is prohibited in the historic era cemeteries. The  
4 existing dig permits process reduces impacts to cultural resources. The process is run  
5 by the ITAM program and is very effective. Eligible sites are recorded as no dig areas  
6 on GIS within the training areas.

#### 7 8 **4.4.4.2 Environmental Consequences** 9

10 **CS/CSS.** Minor (low) short- and long-term impacts on cultural resources in the  
11 maneuver training areas are expected. Impacts are anticipated to result from the  
12 increased frequency and intensity of training activities throughout the maneuver training  
13 areas, increasing the likelihood of incidental and inadvertent damage to archaeological  
14 sites. Under these alternatives, wheeled vehicles will continue to make routine  
15 passage over varied terrain in several different training activities.

16  
17 **Full Sustainment BDE, IBCT.** Moderate (medium) impacts are expected. New  
18 facilities in support of all three BCT types would likely be located within the Clarksville  
19 Base Historic District if Fort Campbell is selected for the proposed action. This would  
20 cause an adverse effect to the integrity of this Cold War property. Fort Campbell would  
21 need SHPO coordination and resolution of adverse effects through adoption of an MOA  
22 with specified mitigations measures. The consultations with the SHPO may be  
23 protracted and the costs of mitigation substantial. Since one of the known prehistoric  
24 burial sites is in relatively close proximity to lands likely to be needed for new BCT  
25 facilities, several Indian tribes may be concerned about adequate protection of the burial  
26 area from disturbance and looting. Increased disturbances would introduce a risk of  
27 damage to archaeological sites that is not present in the current array of training  
28 impacts. These increased impacts could require re-opening consultations regarding  
29 terms of the ICRMP and Programmatic Agreement stipulating which training actions  
30 may regularly take place without further SHPO consultation.

31  
32 **HBCT.** Significant (high) impacts to cultural resources are expected both from  
33 increased frequency of the use of maneuver training areas as is true for the other  
34 alternatives, but also because the use of the heavier vehicle types and tracked vehicles  
35 will introduce different kinds of impact to the terrain. The use of heavier equipment in  
36 the maneuver training areas will introduce a much greater degree of threat to  
37 archaeological sites due to erosion in upland areas and much deeper incidental  
38 disturbances of ground in alluvial and colluvial settings. These additional impacts will  
39 probably trigger a need to terminate and replace Fort Campbell's Programmatic  
40 Agreement with two State Historic Preservation Offices in order to adequately deal with  
41 this new range of impacts from the training activities at Fort Campbell.

42  
43 **Multiple BCTs.** Significant (high) impacts to cultural resources are expected. Under a  
44 Multiple BCT scenario impacts would be similar but increasingly more intense than for  
45 an HBCT. These would include more adverse effects to Clarksville Base historic



1 district, and greater, more frequent impacts to archaeological sites and cemeteries in  
2 the maneuver training areas.

3  
4 **4.4.5 Noise**  
5 **4.4.5.1 Affected Environment**  
6

7 Noise Zone II (normally incompatible with nose sensitive land uses) and Zone III  
8 (incompatible) from range firing extend off the installation in several locations. The  
9 LUPZ Noise Zone contours contain some incompatible land uses. Furthermore, future  
10 residential development adjacent to the installation threatens to encroach on Fort  
11 Campbell by establishing additional incompatible land use zones.

12  
13 Fort Campbell is made up of three general use areas, maneuver, impact areas, and the  
14 built-up area or cantonment area which includes Campbell Army Airfield and Sabre  
15 Army heliport. Noise from training persists year-round as the installation is responsible  
16 for training more than 45,000 Soldiers annually. Military operations supported include  
17 Airborne and Air Assault, Air Defense including a significant amount of artillery, a variety  
18 of small and large caliber fire, and maneuver. Artillery, mortar, and tank gun fire does  
19 occur after 2300 hours, or 11:00 PM. Normal operational hours for aviation training are  
20 from 1600 to 0200, or 4:00 PM to 2:00 AM. Fort Campbell publishes a weekly training  
21 schedule to keep the public informed, especially in advance of heavy training periods.

22  
23 **4.4.5.2 Environmental Consequences**  
24

25 **CS/CSS.** Minor (low) major impacts are expected. Any air power supporting these  
26 Soldiers will not significantly add to- or degrade the operational capabilities of the  
27 installation or the noise generated from everyday activities.

28  
29 **Full Sustainment BDE.** Minor (low) adverse noise impacts are expected from the  
30 addition of up to 3,500 Soldiers. Maneuver areas would see a general increase in traffic  
31 which will stay mainly on range course trails or hardened surfaces, effectively  
32 minimizing any impacts to noise contours, and thus to wildlife in the area of the  
33 maneuver ranges. The noise zones impacted from air traffic (general purpose and  
34 attack helicopters) is already heavily trafficked and would not see a significant increase  
35 in use or operations.

36  
37 **IBCT.** Only minor (low) short-term adverse impacts are expected from fielding an IBCT  
38 to Fort Campbell. The installation and surrounding areas would experience  
39 approximately the same impacts as with a Full Sustainment BDE; however, a general  
40 small increase in large caliber artillery fire could be expected. Artillery fire associated  
41 with an IBCT would be relatively minor when compared to the large caliber fire already  
42 occurring at the installation.

43  
44 **HBCT.** There will be an overall moderate (medium) long-term adverse impact expected  
45 to wildlife including T&E species, and to residential areas adjacent to the installation. A  
46 heavy brigade would increase the amount of noise generated from large caliber

1 weapons fire on the installation, but would likely not elevate noise to levels that exceed  
2 current peak noise thresholds. Residential communities would have an overall medium  
3 impact, but noise contours would likely not change. Noise would increase in natural  
4 areas. The installation may need to review its INRMP and ESMP, especially for  
5 evening and nighttime operations when their endangered species are most active.  
6

7 **Multiple BCTs.** Only a moderate (medium) long-term noise impact is expected. As  
8 with an HBCT, multiple BCTs would elevate current noise levels, but would not likely  
9 exceed current peak noise thresholds. The installation already has mitigations in place  
10 to help reduce current noise. Noise contours might change and LUPZs might need to  
11 be reviewed for further changes. Fort Campbell would need to update their IENMP.  
12

#### 13 **4.4.6 Soil Erosion**

##### 14 **4.4.6.1 Affected Environment**

15  
16 Fort Campbell topography includes gently rolling hills with steep dissected hilly land  
17 along the western boundary. Elevation ranges from 400 feet to 700 feet.  
18

19 Fort Campbell is located in the Western Highland Rim of the Lexington Plain (KY) and  
20 the Highland Rim Plateau (TN). There are 30 soil mapping units and half of these have  
21 moderate to severe potential for erosion. Erosion is influenced by the soil composition,  
22 slope, fires, and annual rainfall. At one time Fort Campbell used a firebreak system  
23 which impacted soil erosion. The installation has closed the firebreak system through  
24 obliteration of breaks by land smoothing and reseeding. Some of the breaks were  
25 upgraded to gravel forest access roads.  
26

27 Stream crossings too have been closed and revegetated as well. The installation was  
28 notified of a 401D Violation in regards to the sediment in the streams exceeding the  
29 Clean Water Act standards. None of the bridges or culverts on the installation are rated  
30 to support a Tank. Only a few are rated as capable of supporting Bradley Fighting  
31 Vehicles. Most of the wheeled vehicle traffic on the installation is on gravel secondary  
32 roads and range access roads.  
33

##### 34 **4.4.6.2 Environmental Consequences**

35  
36 **CS/CSS.** There will be a moderate-level (medium) impact from the wheeled vehicles in  
37 these units. However, CS/CSS activities occur at designated locations that are  
38 monitored through the ITAM program. Although erosion occurs, it is contained and  
39 repaired. The condition of existing (unimproved) range roads and their ability to support  
40 for heavy truck traffic would have to be evaluated.  
41

42 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be (high) significant  
43 (long-term) adverse impacts on soils. Though the Full Sustainment BDE is expected to  
44 stay on roads and hardened surfaces, some off-road training may occur, which given  
45 the current soil conditions, would result in significant soil impacts. Dismounted training  
46 associated with the vehicles of the IBCT could have a greater effect in small selected

1 areas on ranges. The addition of any BCT will have increased the number of BCTs to  
2 five utilizing the training area. The HBCT will have a significant impact on roads and off-  
3 road areas. The terrain will likely show the impact from the vehicle maneuvers, turns  
4 and traction, digging, and deep ruts. These areas could then be more prone to water  
5 erosion, and due to the number of tracked vehicles in an HBCT and the weight and  
6 mobility characteristics of the tracked vehicles. Training opportunities for the HBCT  
7 could be limited by current vegetation patterns on the installation. An overall long-term,  
8 significant adverse (very high) impact will result from stationing multiple BCTs at Fort  
9 Campbell, given that the number, size, variety and impact of wheeled and tracked  
10 vehicles that accompany this level of growth. The road network will likely require a  
11 significant amount of maintenance, over-and-above the installation's current level, as  
12 the roads may deteriorate rapidly leading to trafficability and erosion problems.

#### 14 **4.4.7 Vegetation and Wildlife/Threatened and Endangered Species** 15 **4.4.7.1 Affected Environment**

17 The terrestrial environment of Fort Campbell consists primarily of hardwood forests,  
18 pine plantations, grasslands or barrens, and some agricultural lands (Figure 3-11).  
19 Before the federal government obtained the land in 1941, most of the area had been  
20 cleared for cultivation. Woodlands currently occupy more than 50,000 acres on Fort  
21 Campbell, nearly half of the installation's total area. Hardwood forests dominate the  
22 natural landscape in both physiographic subsections. Oak and oak-hickory associations  
23 occur most frequently, though more mesophytic community types occur on some slopes  
24 and ravines, including the western form of the mixed mesophytic forest in a few rare  
25 cases (Chester and Ellis, 1989).

27 The barrens of Fort Campbell occupy 3,500 to 4,500 acres and are predominantly  
28 composed of moderate to tall perennial native warm season grasses, many of which are  
29 also found in tallgrass prairies of the Midwest. Some of the more prevalent grass  
30 species include big bluestem (*Andropogon gerardii*), broomsedge (*Andropogon*  
31 *virginicus*), two-edged panic grass (*Panicum anceps*), little bluestem (*Schizachyrium*  
32 *scoparium*), and Indian grass (*Sorghastrum nutans*). The forest matrix surrounding  
33 these grasslands is dominated by oak (*Quercus* spp) and pine (*Pinus* spp.) plantations.  
34 To place this ecosystem in a regional context, the barrens found on Fort Campbell are  
35 part of a once-much-larger area referred to as the Big Barrens of Kentucky or Kentucky  
36 Meadows. The Big Barrens encompass a crescent-shaped area that extends from the  
37 Ohio River, approximately 56 kilometers west of Louisville, southward into Tennessee,  
38 and westward almost reaching the Cumberland River (Chester, 1988). The  
39 southernmost part of the ecoregion extends into the northwestern Highland Rim section  
40 of Tennessee; barrens are found mostly in northern Montgomery and Robertson  
41 Counties and northeastern Stewart County. Those barrens are closely associated with  
42 karst topography underlain by cavernous Mississippian limestone.

44 The vegetation significance of the barrens in eastern North America include factors  
45 such as high rates of endemism, endangered species, and species at or near the limit of  
46 their range (Chester, 1988). However, most of the barrens have now been destroyed or

1 disturbed to such an extent that few representatives of the original flora remain. Major  
2 causes of the prairie loss include cultivation, a lack of fire, invasive species, or  
3 development. It is quite likely that Fort Campbell harbors the largest remaining remnant  
4 barrens east of the Mississippi River (Jones, personal communication, 1998b).

5  
6 Fort Campbell has conducted various surveys to inventory mammals, birds, fish,  
7 amphibians, reptiles, and insects on the installation. Fort Campbell wildlife biologists  
8 routinely survey game mammals, bird, and fish to monitor population trends. In 2004,  
9 Fort Campbell initiated a Biodiversity Initiative, designed to inventory the seldom  
10 sampled aquatic environments of the installation; surveys for adult aquatic insects and  
11 fish have been implemented, and surveys for crayfish, aquatic snails, and terrestrial  
12 insects are planned. Annual surveys conducted by the Natural Resource Programs  
13 since 1992 are a primary source of information about the presence and distribution of  
14 non-game wildlife on Fort Campbell. Other project- or area-specific studies have also  
15 been conducted.

16  
17 Forty species of mammals have been recorded and/or documented on Fort Campbell.  
18 Nearly 200 species of birds have been recorded on Fort Campbell. The installation  
19 supports diverse groups of songbirds, waterfowl, wading birds, and raptors. The only  
20 federally listed species of bird observed one Fort Campbell is the bald eagle (*Haliaeetus*  
21 *leucocephalus*)<sup>4</sup>. Results of herpetofaunal surveys identified five species of turtles, four  
22 species of lizards, 16 species of snakes (including two venomous species), 13 species  
23 of salamander, and 12 species of frogs and toads. Surveys for fish conducted in Fort  
24 Campbell streams and lakes between 1994 and 2004 indicate approximately 60 fish  
25 species are present on the installation.

26  
27 Fort Campbell is home to two federally listed endangered species, 21 wildlife species  
28 listed as threatened or endangered by Kentucky and/or Tennessee, and 23 species  
29 considered special concern, in need of management, rare, or declining by one or both  
30 states. More information on these species can be found in Appendix T.

#### 31 **4.4.7.2 Environmental Consequences**

32  
33  
34 **CS/CSS, Full Sustainment BDE, IBCT, and HBCT.** Short- and long-term minor (low)  
35 impacts are expected. It is anticipated that implementation of any of these scenarios of  
36 increased activity may have an impact on the two listed species and SAR. Increased  
37 Soldier training at any level will likely affect endangered species found on Fort  
38 Campbell. Increased training will likely promote increased sedimentation into  
39 installation streams as Fort Campbell is located in a highly erodible area. This has  
40 negative effects on the macroinvertebrates inhabiting the stream bottom, which are a  
41 major forage source for endangered bats found on the installation. Upon  
42 implementation of a proposed action, the threatened and endangered species recorded  
43 on the installation would continue to be managed in accordance with the installation's

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<sup>4</sup> As of 8 August 07, the Bald Eagle is no longer afforded protection under the Endangered Species Act (ESA). However, it is protected under the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very similar to the ESA.

1 INRMP and ESMP, and by the terms and conditions identified within biological  
2 opinion(s) issued by the USFWS and including any previously implemented  
3 conservation measures identified in ESA, Section 7 consultation documents. However,  
4 since each of the proposed actions may affect any of the recorded listed species, the  
5 installation will be required to consult with the USFWS either informally or formally,  
6 depending on whether the proposed action will result in a “take” to accommodate  
7 training requirements.

8  
9 **Multiple BCTs.** Short- and long-term minor (low) impacts are expected. It is  
10 anticipated that implementation of this level of Soldier strength may have a greater  
11 impact than the other four proposed scenario increases. The threatened and  
12 endangered species recorded on the installation will continue to be managed in  
13 accordance with the installation’s INRMP and ESMP, terms and conditions identified  
14 within biological opinion(s) issued by the USFWS and any conservation measures  
15 identified in ESA, Section 7 consultation documents. However, since this action may  
16 affect any of the recorded listed species, the installation will be required to consult with  
17 the USFWS either informally or formally, depending on whether take is anticipated to  
18 occur. The need for formal consultation may be more likely needed than for the other  
19 proposed actions.

#### 20 21 **4.4.8 Wetlands**

##### 22 **4.4.8.1 Affected Environment**

23  
24 Fort Campbell contains approximately 2,612 acres of wetlands (INRMP, Fort Campbell,  
25 2005). In 2000, all wetlands on Fort Campbell were delineated. Of the identified 2,612  
26 acres, 792 acres were found to be jurisdictional by the USACE (Fort Campbell GIS,  
27 2007). Most wetlands on the installation are palustrine. A 36-acre mitigation site was  
28 established on the installation to offset past construction activities.

##### 29 30 **4.4.8.2 Environmental Consequences**

31  
32 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, and Multiple BCTs.** Minor (low)  
33 impacts to installation wetlands are expected as a result of the restationing of units to  
34 Fort Campbell. Wetlands are designated as non-training areas. Minimal impacts have  
35 occurred in the past and no major impacts are expected with the increase in troop  
36 strength. Fort Campbell proactively monitors wetland areas and enforces ensures that  
37 training will be assigned to established training areas.

#### 38 39 **4.4.9 Water Resources**

##### 40 **4.4.9.1 Affected Environment**

41  
42 Fort Campbell’s major water usages are for water supply, recreation, training, and  
43 aquatic habitat. Vehicular traffic is limited to crossings at bridges and hardened stream  
44 crossings within these areas. The majority of streams are impaired by on-going military  
45 and non-military activities.

1 **Surface Water and Watersheds**

2 Fort Campbell has 422 stream miles and four man-made lakes. All streams are  
3 impaired (including from sediment transport) and listed as state priority waterways for  
4 total maximum daily load (TMDL) development.

5  
6 The Little West Fork, Saline Creek, and Casey Creek make up Fort Campbell's three  
7 subwatersheds, all of which drain into the Cumberland River. The Little West Fork  
8 Watershed has 297 stream miles and supports Fort Campbell's water supply system.  
9 The Saline Creek Watershed (79 stream miles) drains approximately 19 miles of the  
10 installation's western portion. Installation training exercises and dredging for gravel are  
11 known to cause erosion along this watershed. The 49 stream miles of the Casey Creek  
12 Watershed drain a small portion of the northwestern edge of the installation.

13  
14 Lake Kyle is a 75.3-acre lake located in the southwestern portion of the installation.  
15 Water pumping, helicopters lowering personnel into the lake, and battalion-sized  
16 elements camping adjacent to the lake are a few of the training activities that occur in  
17 and around Lake Kyle. Lake Taal, a 25.2-acre lake, is located south of Clarksville Base.  
18 Approximately 25 percent of the lake has been filled with sediments.

19  
20 **Water Supply**

21 Boiling Spring is Fort Campbell's primary source of drinking water. It receives  
22 groundwater from the Boiling Spring groundwater basin that is approximately 50 square  
23 miles. Fort Campbell's drinking water system is a privatized system with a 7.6 MGD  
24 capacity.

25  
26 **Wastewater**

27 Fort Campbell's privatized wastewater treatment plant services the cantonment area,  
28 Campbell AAF, and Sabre Heliport. The 4 MGD facility provides both primary and  
29 secondary treatment and meets all applicable water quality standards. Additional  
30 generations of solid wastes are within the capacity of local and regional waste disposal  
31 facilities.

32  
33 **Stormwater**

34 The most significant problem at Fort Campbell is related to sediment and erosion  
35 controls at construction locations. The installation and the US Army Corps of Engineers  
36 (USACE) are working with construction contractors to ensure that proper storm water  
37 controls are implemented, operated, and maintained at construction sites. The ability of  
38 the installation and USACE to properly enforce these requirements has been limited in  
39 the past, but is improving. Other activities that may be contributing to the sediment and  
40 erosion problems include runoff from agricultural operations, military training, vehicle  
41 fluid spillage, pesticides, fertilizers, and animal waste.

42  
43 **4.4.9.2 Environmental Consequences**

44  
45 **CS/CSS.** Long-term moderate (medium) adverse impacts to water resources are  
46 expected. The addition of a CS/CSS would increase water demand for consumption.

1 There will also be an impact on watersheds as all streams are listed as state priority  
2 waterways for TMDL development. Currently, Fort Campbell has issues with sediment  
3 and erosion control. The installation would also need to revisit their Stormwater  
4 Pollution Prevention Plan to incorporate best management practices for any new  
5 training activities. Additionally, any new construction/land disturbance over 0.75 acres  
6 will require a stormwater construction permit which would entail identification and  
7 implementation of mitigation strategies to reduce impacts associated with stormwater  
8 runoff during and after construction.  
9

10 **Full Sustainment BDE, IBCT, HBCT.** Long-term significant (high) adverse impacts to  
11 water resources are expected. The increase in water consumption could require  
12 upgrades to the private water and wastewater treatment systems, even with the Full  
13 Sustainment BDE and the IBCT with their 3,000 to 3,500 Soldiers. Water demand is  
14 expected to increase with a higher amount of Soldiers stationed at the installation as  
15 with the 3,800 to 4,000 Soldiers associated with the HBCT. Motorpool activities and  
16 washing of field-driven heavy-tracked vehicles associated with the HBCT would produce  
17 a considerable increase on water demand and associated treatment. Currently, Fort  
18 Campbell has issues with sediment and erosion control. Fort Campbell may need to  
19 construct new washing systems to manage heavy-tracked vehicles. There will also be  
20 an impact on watersheds as all streams are listed as state priority waterways for TMDL  
21 development. Additionally, any new construction/land disturbance over 0.75 acres will  
22 require a stormwater construction permit which would entail identification and  
23 implementation of mitigation strategies to reduce impacts associated with stormwater  
24 runoff during and after construction.  
25

26 **Multiple BCTs.** Significant (very high) adverse impacts to water resources are  
27 expected. Water demand would significantly increase with 7,000 Soldiers and their  
28 Families. Motorpool activities and washing of field-driven vehicles would produce a  
29 substantial increase on water demand and associated treatment. Such an increase  
30 would require upgrades to the installation's private water and wastewater treatment  
31 system. There would be an expected impact on watersheds as all streams are listed as  
32 state priority waterways for TMDL development. Fort Campbell would likely need to  
33 construct new washing systems to manage the additional vehicles. The installation  
34 would also need to revisit their Storm Water Pollution Prevention Plan to incorporate  
35 best management practices for any new training activities.  
36

#### 37 **4.4.10 Facilities**

##### 38 **4.4.10.1 Affected Environment**

39

40 Fort Campbell is located approximately 17 miles south of Hopkinsville, Kentucky and 8  
41 miles north of Clarksville, Tennessee. The post straddles the Kentucky-Tennessee  
42 border; approximately 70,000 acres (two-thirds of the total area) of the installation are  
43 located in Tennessee (*Fort Campbell Ranges and Training Land Program (RTLTP)*  
44 *Development Plan*, US Army, 2004).  
45

1 Built-up areas include the cantonment area, the former Clarksville Base, the  
2 Montgomery County Landfill, and several small solid waste management units. A  
3 variety of small land uses are located in the built-up areas including administration,  
4 operational training and maintenance, landing strips for fixed-wing aircraft and  
5 helicopters, motor pools, supply and storage, maintenance, commercial and medical  
6 services, industrial, community facilities, Soldier and family housing, recreation, open  
7 space, and two small lakes.

8  
9 Fort Campbell has facility and real estate issues. The Master Plan prepared in fall 2006  
10 included the Clarksville Base area. Accepting additional Soldiers could invalidate the  
11 current BCT plan that the installation has in place. A housing market analysis is  
12 currently being undertaken. Fort Campbell is similar to Fort Bragg in that there is no  
13 buildable space available except within the training lands (Zirkle, Installation  
14 Questionnaire, 2007). Fort Campbell needs additional land to support the training  
15 requirements of assigned units that train on the installation. Fort Campbell has only 39  
16 percent of the total maneuver area needed to train the 101st Division's platoon,  
17 company, and battalion mission essential tasks. The shortage of maneuver area is  
18 even greater when adding the maneuver area requirements of the 5th Special Forces  
19 Group (SFG) (A). This project has a Headquarters, Department of the Army- Training  
20 Integration Support Group (HQDA TISG) categorization of revitalization (R). This  
21 training shortfall is expected to persist with an additional BCT. Fort Campbell does  
22 however have sufficient range throughput capability to support an additional BCT.

#### 23 24 **4.4.10.2 Environmental Consequences**

25  
26 **CS/CSS.** Short- and long-term minor (low) adverse impacts are expected. It is  
27 anticipated an increase of 1,000 Soldiers would increase activities within the  
28 cantonment, including but not limited to, increased usage of the Post Exchange,  
29 commissary, medical, and family support facilities. There is a current lack of buildable  
30 space at Fort Campbell.

31  
32 **Full Sustainment BDE, IBCT, HBCT.** Significant (high) impacts are expected to  
33 facilities. As with the CS/CSS, increased Soldier strength of 3,000 to 4,000 would be  
34 reflected through increased usage throughout the Cantonment Area. The lack of  
35 available buildable space on Fort Campbell poses a challenge to implementation of the  
36 ACP at this level. The installation real property management plan (RPMP) would  
37 require modifications to allow for implementation of the ACP. A study using SIRRA  
38 would also be beneficial. An excess aggregate demand on facilities and infrastructure  
39 required by a HBCT could lead to an overall degradation of facilities quality.

40  
41 **Multiple BCTs.** Significant (very high) impacts are expected to facilities. There is a  
42 high probability that multiple BCTs and 7,000 Soldiers would increase congestion  
43 beyond the carrying capacity of the cantonment infrastructure. The lack of available  
44 building space would contribute to this. It is highly unlikely that the installation RPMP  
45 could accommodate this iteration of proposed action. The level of construction required  
46 at this level is resource intensive and potentially beyond the ability of Fort Campbell to



1 sustain. The excess aggregate demand on cantonment facilities and infrastructure  
2 required by multiple BCTs may lead to system degradation or non-compliant regulatory  
3 issues.

#### 4 5 **4.4.11 Energy Demand/Generation**

##### 6 **4.4.11.1 Affected Environment**

7  
8 Fort Campbell's energy needs are currently met by a combination of electric power and  
9 natural gas. Electric power is provided by the Tennessee Valley Authority, and natural  
10 gas is supplied primarily by the Clarksville Gas and water department.

11  
12 **Electricity.** Electric power is supplied to Fort Campbell through a single substation.  
13 Transmission lines serving the installation from the substation currently have the  
14 capacity to serve the installation during peak demand.

15  
16 **Natural Gas.** Natural gas is supplied by a gas distribution system which runs  
17 throughout the cantonment area.

##### 18 19 **4.4.11.2 Environmental Consequences**

20  
21 **CS/CSS.** Long-term minor (low) adverse impacts are expected. The addition of a  
22 CS/CSS unit represents a small part of the overall mission activity at Fort Campbell.  
23 Some new electrical and natural gas infrastructure may need to be constructed to  
24 supply energy to additional personnel.

25  
26 **Full Sustainment BDE and IBCT.** Significant (high) impacts on energy  
27 demand/generation at Fort Campbell are expected. A Full Sustainment BDE or IBCT,  
28 with nearly 3,500 Soldiers, will have an incrementally larger impact than the CS/CSS  
29 just in terms of the number of additional Soldiers and activities associated with this  
30 scenario. New electrical and natural gas infrastructure will need to be constructed in  
31 order to accommodate the increase in usage.

32  
33 **HBCT.** Significant (high) impacts on energy demand/generation are expected. Impacts  
34 are similar to the IBCT scenario, with just a slight increase in the number of Soldiers  
35 and activities associated with the unit. The addition of an HBCT would also have a  
36 major impact on energy demand at Fort Campbell, with the need for new infrastructure  
37 to be put in place to accommodate the electrical and natural gas demand from increase  
38 in personnel.

39  
40 **Multiple BCTs.** Significant (high) impacts are expected. The addition of multiple BCTs,  
41 with an estimated increase of 7,000 Soldiers, is anticipated result in a considerable  
42 impact on energy demand/generation at the installation. New electrical and natural gas  
43 infrastructure will need to be constructed in order to accommodate the increase in  
44 usage, including new substations to transfer the electricity, and new connections and  
45 lines to transport natural gas.

1                   **4.4.12 Land Use Conflicts/Compatibility**  
2                   **4.4.12.1 Affected Environment**

3  
4 Fort Campbell consists of approximately 105,347 acres. The installation is composed of  
5 three general use areas including maneuver areas, range and impact areas, and built-  
6 up areas. The largest portion of Fort Campbell is used as training and maneuver areas.  
7 Approximately 70,000 acres or two-thirds of the installation is set aside as maneuver  
8 area. The training and maneuver areas are generally located west of Range Road and  
9 the former Clarksville Base. The second largest portion of the installation is set aside  
10 for range and impact areas. The range and impact areas are also located west of  
11 Range Road and are surrounded by training and maneuver areas. Approximately  
12 20,700 acres, or about one-fifth of the installation, is designated for range and impact  
13 areas. The built-up areas account for the remaining, approximately 14,000 acres, of the  
14 installation land area. Fort Campbell is currently using 2,602 acres from the Clarksville  
15 Base to support training. Additional facilities are being planned for construction in that  
16 area and will likely substantially reduce the impacts to facilities on Fort Campbell upon  
17 completion.

18  
19 The built-up area includes the main Cantonment area (5,213 acres), Campbell Army  
20 Airfield (3,385 acres) and Sabre Heliport (110 acres). The built-up areas contain a  
21 mixture of smaller land uses including administration, operational training, operational  
22 maintenance, supply and storage, post maintenance, commercial services, community  
23 facilities, Soldier housing, family housing, recreation, open space and lakes. The  
24 majority of the smaller land use development is located in the Cantonment area south of  
25 Campbell Army Airfield and north of former Clarksville Base. The Cantonment area  
26 south of the Tennessee-Kentucky state line is included as part of the City of Clarksville  
27 for statistical purposes only. Off-post light sources, including from the City of  
28 Clarksville, encroach upon the nighttime training activities and operations in Fort  
29 Campbell's training areas, and would likely worsen with any significant increase in  
30 Soldier strength especially if nighttime training activities are pushed closer to the  
31 installation boundary. Encroachment from commercial development nearby installation  
32 boundaries will continue to impact the Army mission at Fort Campbell.

33  
34                   **4.4.12.2 Environmental Consequences**

35  
36 **CS/CSS.** There will be minor (low) short- and long-term environmental impacts on  
37 installation land use due to the presence of an additional 1,000 Soldiers and their family  
38 members assigned to the installation. The installation has sufficient land available to  
39 either build the facilities needed for this unit, and/or would have sufficient vacant space  
40 in buildings that would be suitable for the units' mission. Additionally, the land, or  
41 existing facilities, are located such that surrounding facilities are compatible with the  
42 additional SCS/CSS unit. The facilities for this unit would not be contiguous, but would  
43 be within a distance of one-half mile.

44  
45 **Full Sustainment BDE, IBCT, HBCT.** Significant (high) impacts are expected on  
46 installation land use due to the presence of an additional 3,000 to 3,500 Soldiers and

1 their family members assigned to the installation. The installation will not have enough  
2 existing facilities, located in areas with comparable land uses to accommodate a Full  
3 Sustainment BDE. The installation will not have sufficient land compatible with tactical  
4 unit requirements on which to build facilities necessary for a unit. New or existing  
5 facilities would not be contiguous, and distant from Soldier support facilities and training  
6 and maneuver ranges. Building new facilities would require construction on, or adjacent  
7 to, existing training facilities, such that those training facilities become unusable. This,  
8 in turn, would cause a measurable decrease of the installation's capacity to train  
9 Soldiers. Building new facilities could also require construction on, or immediately  
10 adjacent to, environmentally sensitive areas, such as wetlands, requiring extensive,  
11 and/or expensive mitigation actions.

12  
13 **Multiple BCTs.** There will be high-significant (very high) short- and long-term  
14 environmental impacts on installation land use due to the presence of an additional  
15 7,000, or more Soldiers and their Families assigned to the installation. The installation  
16 will not have enough existing facilities, located in areas with comparable land uses to  
17 accommodate multiple BCTs. New or existing facilities would not be contiguous, and  
18 distant from Soldier support facilities and training and maneuver ranges. Building new  
19 facilities for multiple BCTs could require construction on, or adjacent to, existing training  
20 facilities, such that those training facilities become unusable. This, in turn, would cause  
21 a measurable decrease of the installation's capacity to train Soldiers. Building new  
22 facilities could also require construction on, or immediately adjacent to, environmentally  
23 sensitive areas such as wetlands, requiring extensive, and/or expensive mitigation  
24 actions.

#### 25 26 **4.4.13 Hazardous Materials/Hazardous Waste**

##### 27 **4.4.13.1 Affected Environment**

28  
29 Hazardous materials and waste are from underground storage tanks (USTs) and  
30 aboveground storage tanks; pesticides; lead-based paint (LBP); asbestos;  
31 polychlorinated biphenyls (PCBs); radon; and unexploded ordnance (UXO). Each  
32 installation operates under a Hazardous Waste Management Program that manages  
33 hazardous waste to promote the protection of public health and the environment. Army  
34 policy is to substitute nontoxic and non-hazardous materials for toxic and hazardous  
35 ones; ensure compliance with local, state, and federal hazardous waste requirements;  
36 and ensure the use of waste management practices that comply with all applicable  
37 requirements pertaining to generation, treatment, storage, disposal, and transportation  
38 of hazardous wastes. The program reduces the need for corrective action through  
39 controlled management of solid and hazardous waste. (US Army Corps of Engineers,  
40 February, 2002)

##### 41 42 **4.4.13.2 Environmental Consequences**

43  
44 **CS/CSS.** There will be minor (low) long-term environmental impacts from hazardous  
45 materials and waste. It is anticipated that Fort Campbell would minimally increase its  
46 storage and use of hazardous chemicals during training exercises and installation

1 maintenance with an increase of 1,000 Soldiers. Waste collection, storage, and  
2 disposal processes would remain mostly unchanged, and current waste management  
3 programs would continue.

4  
5 **Full Sustainment BDE.** Minor (low) short- and long-term environmental impacts from  
6 hazardous materials and waste would be expected with an increased Soldier strength of  
7 3,000 to 3,500. Direct beneficial and adverse impacts would be expected. Direct  
8 beneficial impacts include activities associated with land transactions where the Army  
9 would continue to operate under its Installation Restoration Program (IRP) to return  
10 contaminated lands to fully usable status. Direct adverse impacts include increased  
11 facility construction and modification. (US Army Corps of Engineers, February, 2002)  
12 The increase in these wastes would result in no adverse impacts because the wastes  
13 would be managed in accordance with current standards and regulations.

14  
15 **IBCT.** There will be minor (low) short- and long-term environmental impacts from  
16 hazardous materials and waste associated with the addition of an IBCT. Materials  
17 used, stored, and handled would increase; however, existing procedures, regulations,  
18 and facilities would be able to meet storage, use, and handling requirements. No  
19 adverse impacts would be anticipated. The hazardous waste disposal facilities would be  
20 adequate to manage the increase in hazardous waste. Waste management programs  
21 may be updated as needed.

22  
23 **HBCT.** There will be significant (high) short- and long-term environmental impacts from  
24 hazardous materials and wastes. With the addition of 3800 to 4,000 Soldiers,  
25 substantial urban and semi-urban settings to support training and future mission  
26 requirements would be needed. Many projects involve the use, generation, and storage  
27 of hazardous materials and wastes during facility demolition, renovation, or  
28 construction. The demand for additional storage and disposal capacity would have to  
29 be met at the local level at the installation. Army policies, regulations, and guidelines  
30 that manage the use, storage, and disposal of materials and wastes would need to be  
31 updated to reflect the change in mission at Fort Campbell and expanded training  
32 activities.

33  
34 **Multiple BCTs.** The establishment of multiple BCTs at Fort Campbell would result in  
35 significant (high) short- and long-term environmental impacts from hazardous materials  
36 and waste. Generation and management of hazardous materials and waste, pesticides,  
37 petroleum storage tanks, ordnance and explosives would all be higher than with the  
38 other actions, and waste management plans would need to be updated to reflect the  
39 change in mission and expanded training activities. The addition of multiple BCTs may  
40 require an additional on-site investigation.

41  
42 **4.4.14 Traffic and Transportation**  
43 **4.4.14.1 Affected Environment**  
44

45 Fort Campbell straddles the border between Kentucky and Tennessee, with the  
46 installation cantonment area in Kentucky; approximately 15 miles south of Hopkinsville,

1 KY and approximately 10 miles north of Clarksville, TN. The region of influence (ROI)  
2 for this proposed action includes Fort Campbell, Christian and Todd Counties in  
3 Kentucky, and Montgomery and Stewart Counties in Tennessee. Other communities  
4 adjacent to Fort Campbell include Big Rock, Bumpus Mills, and Woodlawn in  
5 Tennessee and LaFayette, Oak Grove and Roaring Springs in Kentucky (Robert and  
6 Company, 1996). Fort Campbell is expecting an increase of 6,000 POVs with an  
7 incoming IBCT (Fort Campbell, 2007). There are no waterways or maritime shipping at  
8 this installation. Due to recent community development projects on or near the  
9 installation, the Regional Planning Commission concluded a likely increase in traffic  
10 levels at Fort Campbell, exceeding the threshold and warranting further analysis and  
11 growth master planning.

#### 12 13 **4.4.14.2 Environmental Consequences**

14  
15 **CS/CSS.** There will be significant (high) short and long-term environmental impacts on  
16 traffic and transportation systems on the installation due to the presence of an additional  
17 1,000 Soldiers and their family members assigned to the installation. A large  
18 percentage of the unit's married population, and unmarried soldiers in the grade of E-6  
19 (Staff Sergeant) and higher, will likely reside in off-post housing. Spread across the  
20 ROI, this population will have de minimis impact on the overall traffic congestion in the  
21 neighboring communities. However, the additional off-post population will contribute to  
22 increased traffic congestion, and a decrease of the LOS, on the road network leading to  
23 the installation's cantonment area, particularly during peak morning and evening hours.  
24 The increased population will greatly effect on traffic congestion on the installation,  
25 contribute to a reduction in the LOS on the installation's road network, and pose  
26 increased risks to the safety of pedestrians and bicyclists.

27  
28 **Full Sustainment BDE.** There will be significant (high) short and long-term  
29 environmental impacts on traffic and transportation systems on the installation due to  
30 the presence of an additional 3,000 to 3,500 Soldiers and their family members  
31 assigned to the installation. The increase in off-post traffic would have a noticeable  
32 impact on traffic in the community overall and could contribute a notable decrease in the  
33 LOS in the road network leading to the installation, particularly during peak morning and  
34 afternoon travel periods. This level of increase in population would also have a major  
35 impact on the traffic volume on the installation, and contribute to a decrease in LOS on  
36 a higher percentage of the installation's road network. The increased traffic volume in  
37 both the neighboring community and on the installation would pose an increased level  
38 of risk to the safety of pedestrians and bicyclists.

39  
40 **IBCT.** There will be significant (high) short- and long-term environmental impacts on  
41 traffic and transportation systems on the installation due to the presence of an additional  
42 3,500 Soldiers and their family members. The increase in traffic congestion,  
43 accompanying decrease in LOS, and increased safety risk to pedestrians and bicyclists  
44 would be slightly higher than that posed by the presence of a Full Sustainment BDE.  
45

1 **HBCT.** There will be significant (high) short- and long-term environmental impacts on  
2 traffic and transportation systems on the installation due to the presence of an additional  
3 3,800 to 4,000 Soldiers and their family members. The increase in traffic congestion,  
4 accompanying decrease in LOS, and increased safety risk to pedestrians and bicyclists  
5 would be slightly higher than that posed by the presence of a Full Sustainment BDE.  
6

7 **Multiple BCTs.** There would be significant (high) short- and long-term environmental  
8 impacts on traffic and transportation systems on the installation due to the presence of  
9 an additional 7,000 Soldiers, or more, and their family members. The impact on the  
10 traffic congestion in the local communities from this increased population level would be  
11 noticeable in the community at large and would likely cause a decrease in LOS in the  
12 community's road network, and would likely cause a decrease in the LOS on the road  
13 network leading to the installation. This increase in both Soldier and family-member  
14 population would cause a major impact on the LOS of the installation's road network  
15 and pose an increased risk to the safety of pedestrians and bicyclists.  
16

#### 17 **4.4.15 Cumulative Effects**

18  
19 Soil erosion is considered to have the most significant amount of cumulative impacts to  
20 Fort Campbell. Any increase in Soldier strength at the combat brigade level will  
21 continue to deteriorate the roads and trails of the installation and increase  
22 sedimentation. Fort Campbell has already received a 401D Clean Water Act violation  
23 for water quality due to excessive sedimentation in streams at or around range areas.  
24 Further deterioration of water quality from sedimentation will likely have a negative  
25 indirect impact to the Indiana Bat and Gray Bat populations, which utilize Fort  
26 Campbell's streams for foraging. The decrease in water quality would reduce the Bat's  
27 food source (insects) number and availability. Stream impacts could also directly affect  
28 the installation's efforts to improve the Red River watershed, of which many of the  
29 streams are already impaired due to siltation. Fort Campbell is within the headwaters of  
30 this watershed.  
31

32 The potential increase in Soldier strength would potentially lead to new developments  
33 outside the installation boundary to accommodate this level of growth, resulting in a  
34 greater degree of encroachment above which the installation is already experiencing.  
35 Further encroachment is expected to result in training restrictions due to safety and  
36 noise issues.  
37

## 38 **4.5 FORT CARSON, COLORADO**

### 39 **4.5.1 Introduction**

40  
41 Fort Carson, located in central Colorado, has approximately 90,000 acres of maneuver  
42 area suited for vehicle and non-vehicular military training (Figure 4.5-1). It has long  
43 supported armored/mechanized unit training and dismounted infantry unit training.  
44



## Fort Carson- Installation Location

**Legend**  
 ● Colorado Cities  
 ▨ Fort Carson  
 □ Colorado Counties

**Figure 4.5-1 Fort Carson**

Currently, the major units stationed at Fort Carson include the Division West, First Army Command Group; the 4<sup>th</sup> Infantry Division (all units not yet present); the 2<sup>nd</sup> Brigade, 2<sup>nd</sup> Infantry Division; the 43<sup>rd</sup> Area Support Group, the 10th Special Forces Group (Airborne); and the 71st Explosive Ordnance Detachment Group. Fort Carson possesses robust range infrastructure capabilities designed to support both conventional Army and Special Forces units. Piñon Canyon Maneuver Site (PCMS) is a satellite maneuver training area which is primarily used to meet the training requirements of units stationed at Fort Carson. Potential impacts to resources at PCMS resulting from training of newly stationed units at Fort Carson are evaluated in this section along with the projected impacts to Fort Carson.

Table 4.5-1 and 4.5-2 contains the Fort Carson VEC ratings for each of the various stationing action scenarios.

**Table 4.5-1. Fort Carson VEC Ratings**

Fort Carson						
VEC	CS/CSS Units (1,000	Full Sustainment	IBCT (3,500	HBCT (3,800-4,000	Stryker BCT (4,000	Multiple BCTs (7,000

	Soldiers)	Brigade (3,000-3,500 Soldiers)	Soldiers)	Soldiers)	Soldiers)	Soldiers)
Air Quality	High	Very High	Very High	Very High	Very High	Very High
Airspace	Low	Medium	Medium	Medium	Medium	Medium
Cultural	Low	Low	Medium	Medium	Medium	Medium
Noise	Low	Low	Medium	Medium	Medium	High
Soil Erosion Impacts	Medium	Medium	Medium	High	High	High
T&E/Other Wildlife	Medium	Medium	Medium	Medium	Medium	High
Wetlands	Low	Low	Medium	Medium	Medium	Medium
Water Resources	Low	Medium	Medium	Medium	Medium	High
Facilities	Medium	High	High	High	High	High
Socioeconomics	Low	Medium	Medium	Medium	Medium	High
Energy Demand/ Generation	Low	Medium	Medium	Medium	Medium	High
Land Use Compatibility	Low	Low	Medium	Medium	Medium	High
Haz Mat/ Haz Waste	Low	Low	Medium	Medium	Medium	Medium
Traffic and Transportation	Medium	Medium	Medium	Medium	Medium	High
<b>Unique Issues</b>						
Wildfire Mgmt	Low	Low	Low	Medium	Medium	Medium
Vegetation	Medium	Medium	Medium	High	High	High
Habitat	Medium	Medium	Medium	High	High	High
Noxious Weeds	Medium	Medium	Medium	Medium	Medium	High
Hunting/ Recreation	Low	Medium	Medium	Medium	Medium	High

1

2 **Table 4.5-2. Fort Carson – Pinon Canyon Maneuver Training Site VEC Ratings**

<b>Maneuver Training Site (Carson Units Training)</b>						
VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment Brigade (3,000-3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800-4,000 Soldiers))	Stryker BCT (4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Low	Low	Medium	Medium	High	High
Airspace	Low	Low	Low	Low	Low	Low



Cultural	Medium	Medium	Medium	High	High	High
Noise	Low	Low	Low	Medium	Medium	Medium
Soil Erosion	Medium	Medium	Medium	High	High	High
T&E/Other Wildlife	Medium	Medium	Medium	Medium	High	High
Wetlands	Low	Low	Low	Low	Low	Low
Water Resources	Low	Low	Low	Low	Medium	Medium
Facilities	Low	Medium	Medium	Medium	Medium	Medium
Socioeconomics	High	High	High	High	High	High
Energy Demand/ Generation	Low	Low	Low	Medium	Medium	Medium
Land Use Compatibility	Low	Low	Low	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Low	Low	Low	Medium	Medium
Traffic and Transportation	Low	Medium	Medium	Medium	High	High
<b>Unique Issues</b>						
Wildfire Mgmt	Low	Low	Low	Medium	Medium	Medium
Vegetation	Medium	Medium	Medium	High	High	High
Habitat	Medium	Medium	Medium	High	High	High
Noxious Weeds	Medium	Medium	Medium	High	High	High
Hunting and Recreation	Low	Medium	Medium	High	High	High

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**4.5.2 Air Quality**  
**4.5.2.1 Affected Environment**

**Fort Carson**

Fort Carson is within the air quality control areas of El Paso, Fremont, and Pueblo Counties, including the City of Colorado Springs. El Paso County is in attainment for all pollutants except CO. The Colorado Springs area is in attainment for all Clean Air Act criteria pollutants, and achieved attainment status for carbon monoxide (CO) on October 25, 1999. As a part of the redesignation, the Colorado Springs area is under a CO Maintenance Plan until 2015 to demonstrate compliance with the NAAQS.

Air pollutant emissions at Fort Carson are generated mainly through the combustion of fossil fuels in equipment such as boilers and motorized vehicles. Combustion products

1 include mainly CO, nitrogen oxide (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), and particulate matter  
2 (PM) both as PM<sub>10</sub> and PM<sub>2.5</sub>. There are no NO<sub>2</sub> or SO<sub>2</sub> monitoring stations within the  
3 Colorado Springs area. Mobile source emissions (i.e., cars, trucks, and other motor  
4 vehicles) are elevated during heavy travel times (e.g., open and close of business  
5 times). Traffic congestion typically raises the amount of CO exhaust emissions on the  
6 installation through an increase in the number of vehicles operating within a given area  
7 and longer idling times.

8  
9 Tank and other military vehicle maneuvers on unpaved roads contribute to emission of  
10 PM. Painting and coating activities, fuel storage, fuel operations, and chemical usage  
11 contribute to emissions of volatile organic compounds (VOCs) and hazardous air  
12 pollutants (HAPs). To a lesser extent, landfill-related emissions, military training  
13 activities, and fire training activities emit VOCs and various HAPs.

14  
15 Prescribed burns, a source of CO, are initiated at Fort Carson through a detailed set of  
16 procedures outlined in a Prescribed Burn Planning Document. Constant monitoring  
17 occurs during the prescribed fire to ensure that air quality and safety are not  
18 compromised. Implementation of the Prescribed Burn Plan includes obtaining the  
19 required state and county permits. Prescribed burning is a process that targets areas  
20 that are vulnerable to spontaneous fires due to range operations, and in areas with  
21 heavy fuel buildups (Final Environmental Impact Statement (FEIS), 2007).

22  
23 Fort Carson is considered a Title V major source because it is designated as one of the  
24 28 specially listed source categories described by EPA and has the potential to emit  
25 more than 100 tons of pollutants per year. Emissions would be emitted from stationary  
26 equipment such as boilers, generators, paint booths, and parts cleaners. Any net  
27 increase of criteria pollutants that would result in a "major modification" would subject  
28 Fort Carson to the prevention of significant deterioration review requirements (40 CFR  
29 52.21). The Colorado Air Quality Control Commission (AQCC) regulates the emissions  
30 of PM, smoke, CO, nitrogen oxides (NO<sub>x</sub>), and sulfur oxides (SO<sub>x</sub>) by implementing  
31 opacity and emission limits. Opacity limits are set to keep areas free of haze and to  
32 ensure that visibility long-term is not adversely affected. Obscurants include smoke and  
33 other visibility-reducing products used for military training. Facilities that are considered  
34 major stationary sources of pollutant emissions are a part of the Air Pollution Control  
35 District (APCD)-administered Title V Operating Permit Program. The Title V Operating  
36 Permits include listings of all air pollution regulatory requirements applicable to the  
37 source. Fort Carson's Title V Operating Permit also limits the use of smoke munitions  
38 and the generation of fog oil smoke for training exercises.

39  
40 The *Fugitive Dust Control Plan* (Directorate of Environmental Compliance and  
41 Management (DECAM), 2004a) was established as a part of the state enforceable best  
42 management practice at Fort Carson to minimize dust impacts to air quality. The plan  
43 was approved by the Colorado Department of Public Health and Environment in August  
44 2005. Additionally, site-specific land disturbance permits and dust suppression  
45 regulations and procedures are applicable and are implemented at Fort Carson.

1 **Pinon Canyon Maneuver Training Site**

2  
3 At the Maneuver Training Site, the Region of Influence (ROI) for air quality includes the  
4 facility and Las Animas County, Colorado. The EPA regional air pollutant emission  
5 summary for Las Animas County includes emissions from industrial-source fuel  
6 combustion, petroleum-related industries, other industrial processes, use of solvents,  
7 storage and transport services, waste disposal, recycling, highway vehicles, off-highway  
8 vehicles, agricultural activities, and miscellaneous fugitive dust sources. Vehicle  
9 exhaust is the major source for VOCs, NO<sub>x</sub>, and SO<sub>2</sub>. Combustion from wildfires is the  
10 major source for CO, and fugitive dust from unpaved roads is the major source for PM<sup>10</sup>.

11  
12 Las Animas County and the surrounding air quality region are classified as being in  
13 attainment for all criteria pollutants. Currently, there is no requirement for Prevention of  
14 Significant Deterioration analysis for Maneuver Training Site because it is located in an  
15 attainment area and it is not a major source of air pollutants under the provisions of the  
16 Clean Air Act (CAA).

17  
18 **4.5.2.2 Environmental Consequences**

19  
20 **Fort Carson**

21  
22 Short- and long-term significant adverse impacts to air quality are expected from  
23 construction and operation activities resulting in increases in fugitive dust and exhaust  
24 emissions. Short-term impacts are associated with construction activities. Long-term  
25 operational impacts result from increases in emission sources related to general  
26 population increases (such as the use of heating units and additional mobile sources);  
27 and increases in land use and training requirements.

28  
29 Air emissions are evaluated in accordance with federal and state air pollution laws and  
30 regulations. The air quality analysis evaluates whether the action:

- 31 • has the potential to contribute to a violation of the NAAQS, and  
32 • does or does not comply with the General Conformity rule.

33  
34 **CS/CSS.** Potentially significant (high) adverse impacts to air quality are possible from  
35 this stationing scenario. The introduction of an additional 1,000 Soldiers and their  
36 Families under the CS/CSS unit scenario would result in increased stationary and  
37 mobile source emissions. Under this unit scenario, increased traffic congestion (and  
38 resulting mobile source emissions) are not expected to cross thresholds established in  
39 the *Fort Carson Comprehensive Transportation Study* (FEIS, 2007). Personnel  
40 increases for the stationing of a CS/CSS unit are less than those analyzed in the study.  
41 In addition, the increase in off-post traffic and resulting mobile source emissions under  
42 the CS/CSS unit scenario are not expected to exceed regulatory thresholds.

43  
44 Long-term significant (high) adverse impacts are anticipated from the increased use of  
45 tactical mobile sources, as resulting from increased training exercises. Tactical mobile  
46 sources and the associated training activities have the potential to result in impacts to

1 air quality from increased emissions of fugitive dust (PM) and vehicle exhaust. An  
2 increase in training exercises may not require an increase in the use of obscurants for  
3 training in excess of existing permit limits (FEIS, 2007). Increases in criteria pollutants  
4 have the potential to violate the NAAQS.

5  
6 **Full Sustainment BDE, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** Short- and  
7 long-term significant (very high) adverse impacts to air quality would be anticipated  
8 under this stationing scenario. Stationing of units ranging from a Full Sustainment BDE  
9 (3000-3500 Soldiers) to BCT scenarios that include a Stryker BCT (4,000 Soldiers) and  
10 Multiple BCTs (7,000 Soldiers) are expected to result in significant impacts to air quality  
11 on the installation and the surrounding community. Mobile source emissions are  
12 expected to increase on the installation and the surrounding area due to the influx of  
13 Soldiers and their Families. Vehicles traversing Interstate 25, located on the eastern  
14 edge of the installation, are also a contributor to mobile source emissions in surrounding  
15 area. Infrastructure upgrades required to support the influx of Soldiers and their  
16 Families are expected to result in a significant increase of combustion emissions from  
17 stationary sources.

18  
19 Fugitive dust emissions remain a concern and any increased emissions add to the very  
20 large mitigation burden already facing the installation. Opacity regulations must also be  
21 considered if activities are close enough to installation boundaries that visible emissions  
22 travel beyond installation boundaries.

### 23 24 **Pinon Canyon Maneuver Training Site**

25  
26 **CS/CSS and Full Sustainment Brigade.** Long-term minor (low) adverse impacts to air  
27 quality are expected for training activities under these two unit scenarios. Stationing a  
28 CS/CSS unit or Full Sustainment Brigade at Fort Carson that would train at the  
29 Maneuver Training Site would not considerably increase off-road activity at PCMS since  
30 these units are expected to mainly stay on roads and hardened surfaces while  
31 conducting operations in support of BCTs. Under the evaluation conducted for the  
32 *PCMS Transformation EIS*, emissions from off-road training activities and off-post  
33 transportation were analyzed and compared with national threshold levels. The PCMS  
34 evaluation indicates that impacts from increases in off-road vehicle emissions would be  
35 far below applicable thresholds and would not violate the NAAQS or visibility standards.  
36 Convoy travel between Fort Carson and the Maneuver Training Site was also evaluated  
37 in the *PCMS Transformation EIS* (FEIS, 2007). It was determined that emissions from  
38 increased convoy travel would not result in impacts to air quality.

39  
40 **IBCT or HBCT.** Long-term moderate (medium) adverse impacts to air quality are  
41 expected at the Maneuver Training Site under these two unit scenarios. Combustion  
42 emissions from stationary sources would increase due to new construction, or  
43 modifications to existing infrastructure, necessary to support the influx of new Soldiers  
44 and related training activities. Fugitive dust emissions are already an issue at the  
45 Maneuver Training Site during training exercises. Opacity regulations must also be

1 considered if activities are close enough to site boundaries that visible emissions are  
2 transferred off of the Maneuver Training Site.

3  
4 **Stryker BCT or Multiple BCTs.** Long-term significant (high) adverse impacts to air  
5 quality are expected at Maneuver Training Site under these two unit scenarios. As with  
6 the IBCT and HBCT scenarios, combustion emissions from stationary sources would  
7 significantly increase due to the construction or modification in infrastructure required to  
8 support the influx of new Soldiers and related training activities. Increased intensity of  
9 training area use, including additional maneuver activities and requirements, under  
10 these two scenarios result in the highest level of impact to air quality within the  
11 Maneuver Training Site. Fugitive dust emissions and opacity regulations must also be  
12 considered if training activities occur close to the site boundary, particularly if emissions  
13 beyond the threshold have the potential to travel off-site.

### 14 15 **4.5.3 Airspace** 16 **4.5.3.1 Affected Environment**

#### 17 18 **Fort Carson**

19  
20 Fort Carson has 152 square miles of FAA-designated Permanent restricted use and  
21 Special use airspace, with no limit in altitude. The installation has access to this  
22 airspace continuously, and is controlled by the FAA of Denver, CO. (US Army Corps of  
23 Engineers, 2002)

24  
25 Fort Carson airspace includes helicopter, rotary- and fixed-wing, and transient aircraft  
26 flights. The U.S. Air Force and Air National Guard use the reservation's airspace. FAA  
27 and Fort Carson established permanent restricted airspace over the installation to  
28 prevent flights from unauthorized aircraft. Civilian aircraft are restricted and military  
29 aircraft are permitted under controlled conditions while firing, including artillery, mortar,  
30 and missile projectiles, is in process. Airspace adjacent to Fort Carson is used by  
31 commercial and military institutions (US Army Corps of Engineers, 1995).

32  
33 Air operation ranges on Fort Carson consist of the Air Burst Range and Butts Army  
34 Airfield.

#### 35 36 **Pinon Canyon Maneuver Training Site**

37  
38 Airspace at the Maneuver Training Site is used for tactical high-speed flight training for  
39 fighter or bomber aircraft. This military operations area extends from 100 feet above  
40 ground level to an altitude of 10,000 feet. Federal airways pass over and surround the  
41 Maneuver Training Site. Two instrument routes exist in these airways, and military  
42 aircraft use them for tactical maneuvers (US Army Corps of Engineers, 1995). There  
43 are no restricted designations for military or civilian use of airspace over the Maneuver  
44 Training Site.

#### 45 46 **4.5.3.2 Environmental Consequences**

1  
2 **Fort Carson**  
3

4 **CS/CSS.** Long-term minor (low) adverse impacts to air space use are expected. It is  
5 anticipated that the activities associated with an increase of 1,000 Soldiers would  
6 moderately increase activities within the cantonment and training and range areas.  
7 Activities within the training and range areas may be limited to existing firing ranges and  
8 roadways. These activities may have to be scheduled to coordinate with existing  
9 mission activities.

10  
11 **Full Sustainment Brigade.** Short- and long-term moderate (medium) adverse impacts  
12 to air space use are expected. An increase of Soldier strength by 3,000 to 3,500 would  
13 be reflected within the cantonment and increased usage of the training and range areas  
14 which could limit air space availability during training. Activities requiring airspace, such  
15 as unmanned aerial vehicle training, would be coordinated with existing mission  
16 activities.

17  
18 **IBCT, HBCT, Stryker BCT, and Multiple BCTs.** Short- and long-term moderate  
19 (medium) adverse impacts to air space use are expected. Training activities associated  
20 with these units would require increased use of existing airspace or use of additional  
21 airspace. Where existing airspace is insufficient, installation commanders may have to  
22 seek additional special use airspace designations from the FAA. Future new systems  
23 or modifications to existing systems could also affect airspace use, resulting in greater  
24 demand for exclusive military use of the resource. (US Army Corps of Engineers, 2002).  
25 The additional of new BCTs and their airspace requirements for tactical unmanned  
26 aerial vehicles and joint training are not anticipated to generate significant impacts.  
27

28 **Pinon Canyon Maneuver Training Site**  
29

30 **CS/CSS, Full Sustainment Brigade, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**  
31 Long-term minor (low) adverse impacts to air space use are expected as a result of  
32 units stationed at Carson training at the Maneuver Training Site. Activities within the  
33 training and range areas would be limited to existing firing ranges and roadways. In the  
34 larger BCT unit scenarios, intensity of use of air space may increase; however this  
35 increase is yet to be determined as UAVs are not currently training at the Maneuver  
36 Training Site.  
37

38 **4.5.4 Cultural Resources**  
39 **4.5.4.1 Affected Environment**  
40

41 **Fort Carson**  
42

43 Cultural resources management on Fort Carson encompasses conservation of  
44 resources of significance to the history or prehistory of the United States and of  
45 traditional, religious, and cultural importance to Native Americans. Archeological and  
46 historical studies have been conducted on the land encompassed by Fort Carson for the

1 past 60 years. To date, 1,693 archeological sites have been recorded on Fort Carson,  
2 of which 131 have been determined to be eligible for the National Register of Historic  
3 Places (National Register). Prehistoric sites predominate on Fort Carson,  
4 encompassing approximately 82 percent of the total number of sites recorded to date.  
5 Both prehistoric and historic rock art is found on Fort Carson, with prehistoric elements  
6 predominating.

7  
8 The Turkey Creek Rock Art District, designated as eligible for the National Register in  
9 1976, contains at least 31 archaeological sites, 5 of which are known to contain rock art  
10 (FEIS, 2007). Three National Register-eligible Historic Districts are also located on Fort  
11 Carson: the Old Hospital Complex, the Wastewater Treatment Plant and Incinerator  
12 Complex, and the Turkey Creek Recreation Area. In all, 68 buildings are contributing  
13 properties of these Historic Districts.

14  
15 Paleontological resources (fossil remains) are located on Fort Carson but are not  
16 classified as cultural resources. While fossils are important scientific resources, they do  
17 not have the same federal mandates for identification and protection as cultural  
18 resources at Fort Carson (or at other Army installations). The Army, however, avoids  
19 impacting paleontological resources as part of its management of Fort Carson. Three  
20 paleontological studies have been conducted at Fort Carson, and 53 localities of  
21 deposits have been documented, 15 of which were determined to be of high  
22 paleontological significance based on presence of rare taxa, unique or unusual geologic  
23 setting, presence of many different taxa, presence of vertebrate fossils, and presence of  
24 a new taxon (FEIS, 2007).

25  
26 Eleven federally recognized Indian tribes have expressed a cultural affiliation with land  
27 at Fort Carson. Fort Carson has inventoried its collection and completed repatriation of  
28 all human remains and culturally identified artifacts in accordance with the Native  
29 American Graves Protection and Repatriation Act (NAGPRA) and associated  
30 regulations (43 CFR 10) (USACE, 1997). A Comprehensive Agreement (CA) between  
31 Fort Carson and the 11 tribes for tribal access, privacy, and inadvertent discovery of  
32 human remains and other cultural items was finalized and signed in 2005 and 2006.  
33 Traditional cultural properties and sacred sites have also been identified on Fort  
34 Carson.

### 35 36 **Pinon Canyon Maneuver Training Site**

37  
38 Cultural resources management on the Maneuver Training Site encompasses  
39 conservation of resources of significance to the history or prehistory of the United States  
40 and of traditional, religious, and cultural importance to Native Americans. Although  
41 archaeologists identified sites in the area prior to 1980, large-scale archaeological  
42 investigations of the region did not occur until the early 1980s in preparation for the  
43 opening of the PCMS. To date, 5,113 archaeological sites have been recorded on the  
44 PCMS, of which 488 have been determined eligible for inclusion in the National Register  
45 of Historic Places (National Register). Prehistoric sites predominate on the Maneuver  
46 Training Site, encompassing approximately 77 percent of the total number of sites

1 recorded. Both prehistoric and historic rock art is found on the Maneuver Training Site,  
2 with prehistoric elements predominating. Most rock art is located on and along the  
3 Hogback formation and in the canyon areas, but other isolated panels and sites exist in  
4 open prairie settings.

5  
6 The only intact architectural properties on the Maneuver Training Site with construction  
7 predating Army acquisition are homesteads. These were all abandoned by 1983, many  
8 having been unoccupied since the 1920s. The varying condition of these properties  
9 resulted in their treatment as both archaeological sites and historic architectural  
10 properties. There 11 Historic District-eligible properties on the PCMS, most with  
11 contributing and non-contributing properties.

12  
13 Paleontological resources (fossil remains) are located on the Maneuver Training Site  
14 and throughout the surrounding area, but they are not classified as cultural resources.  
15 While fossils are important scientific resources, they do not have the same federal  
16 mandates for identification and protection as cultural resources at the Maneuver  
17 Training Site (or at other Army facilities). The Army, however, avoids impacts to  
18 paleontological resources as part of its management of the Maneuver Training Site.  
19 The Purgatoire River valley and its tributaries and side canyons contain abundant and  
20 diverse paleontological resources, including trace, plant, and invertebrate fossils  
21 spanning Permian through Cretaceous geological periods. Two paleontological studies  
22 have been conducted on the Maneuver Training Site, and 13 localities of deposits have  
23 been documented. Four of these localities were determined to be of high  
24 paleontological significance based on the presence of rare taxa, the diversity of plant  
25 and animal fossils, and the abundance of fossils in a stratigraphic unit (FEIS, 2007).

26  
27 Eleven federally recognized Indian tribes have expressed a cultural affiliation with land  
28 at the Maneuver Training Site. Fort Carson has inventoried its collection and completed  
29 repatriation of all human remains and culturally identified artifacts in accordance with  
30 the Native American Graves Protection and Repatriation Act (NAGPRA) and associated  
31 regulations (43 CFR 10) (USACE, 1997). A Comprehensive Agreement (CA) between  
32 Fort Carson and the 11 tribes for tribal access, privacy, and inadvertent discovery of  
33 human remains and other cultural items was finalized and signed in 2005 and 2006. On  
34 the Maneuver Training Site, 5 sacred sites, 3 Traditional Cultural Properties (TCPs),  
35 and 2 sites of concern have been identified. The Hogback Traditional Site was  
36 identified as a TCP by the Jicarilla Apache Nation in a 2005 Memorandum of  
37 Understanding with Fort Carson.

#### 38 **4.5.4.1 Environmental Consequences**

##### 39 **Fort Carson**

40  
41 The consequences of the various stationing actions have the potential to impact nearly  
42 all available land within the boundaries of Fort Carson, and all forms of military activities  
43 have the potential to adversely affect cultural resources. Fort Carson's Cultural  
44 Resources Manager (CRM) evaluates all activities to identify resources that may be  
45  
46



1 affected, determine effects, and initiate the Section 106 consultation process as  
2 mandated by the National Historic Preservation Act (NHPA), prior to the initiation of  
3 ground-disturbing activities.

4  
5 The Cantonment at Fort Carson has been completely surveyed for cultural resources  
6 and is devoid of known prehistoric sites. The inventory and evaluation of historic  
7 properties through the Cold War era is ongoing, and it is not anticipated that activities  
8 associated with this action on the Cantonment may have an adverse impact to these  
9 cultural resources. In addition, there should be no adverse impact to the two Historic  
10 District-eligible locations within the Cantonment. Should future construction projects  
11 pose an adverse impact to identified historic properties in the Cantonment, Section 106  
12 consultation procedures would be followed.

13  
14 **CS/CSS and Full Sustainment Brigade.** Minimal adverse impacts to cultural  
15 resources are expected for activities within Fort Carson under this stationing scenario.

16  
17 **IBCT, HBCT, Stryker BCT, and Multiple BCTs.** Short- and long-term moderate  
18 (medium) adverse impacts to cultural resources are expected for activities within Fort  
19 Carson. The increased number of Soldiers and their Families under these scenarios  
20 presents a higher potential for impacts to cultural resources on Fort Carson than those  
21 under the CS/CSS and Full Sustainment BDE scenarios.

22  
23 The types of equipment, training, and construction activities associated with the  
24 numbers of Soldiers and their families identified for each of these unit scenarios have  
25 the potential to affect cultural resources. As such, the following would apply in  
26 accordance with Section 106 of the NHPA and the stipulations of all agreement and  
27 management documents in force for Fort Carson, unless a project-specific agreement  
28 has been developed through the consultation process (FEIS, 2007):

- 29  
30
- 31 • Areas that have been inventoried for cultural resources and which contain no  
32 historic properties eligible for inclusion in the National Register would be open  
33 for unrestricted use because there is no potential for adverse impacts to  
34 significant resources.
  - 35 • Areas that have been inventoried for cultural resources and which contain  
36 known historic properties eligible for inclusion in the National Register may be  
37 used for dismounted training only, with no vehicle traffic or construction, until the  
38 proposed use area had been evaluated to determine that cultural resources  
39 could be protected against adverse impacts. If impacts could not be avoided,  
40 further consultation with the Colorado SHPO and/or Native American Tribes, if  
41 applicable, regarding mitigation would occur prior to ground-disturbing activities.
  - 42 • Areas that have not been inventoried for cultural resources would not be used  
43 for activities other than dismounted training, with no vehicle traffic or  
44 construction, until an archaeological investigation had been conducted and  
45 cultural resources determined eligible for the National Register evaluated  
46

1 against potential adverse impacts. If impacts could not be avoided, further  
2 consultation with the Colorado SHPO and/or Native American Tribes, if  
3 applicable, regarding mitigation would occur prior to ground-disturbing activities.  
4

5 Environmental awareness training would be held for Soldiers on the identification,  
6 avoidance, and protection of cultural resources. In the event cultural materials and/or  
7 human remains were uncovered in the course of ground-disturbing activities, Fort  
8 Carson's "Inadvertent Discovery of Archaeological Resources or Burials" Standard  
9 Operating Procedure (SOP) and the "NAGPRA" SOP would be applied and enforced  
10 (FEIS, 2007).  
11

## 12 **Pinon Canyon Maneuver Training Site**

13

14 The consequences of the various stationing actions have the potential to adversely  
15 affect cultural resources within the PCMS boundaries. Fort Carson's Cultural  
16 Resources Manager (CRM) evaluates all activities to identify resources that may be  
17 affected, determine effects, and initiate the Section 106 consultation process as  
18 mandated by the National Historic Preservation Act (NHPA), prior to the initiation of  
19 ground-disturbing activities. The Cantonment at the Maneuver Training Site has been  
20 completely surveyed for cultural resources and is devoid of known prehistoric sites.  
21

22 **CS/CSS, Full Sustainment BDE, and IBCT.** For reasons stated in the previous  
23 paragraphs, short- and long-term moderate (medium) adverse impacts to cultural  
24 resources are expected for activities within the Maneuver Training Site.  
25

26 **HBCT, Stryker BCT, and Multiple BCTs.** Short- and long-term significant (high)  
27 adverse impacts to cultural resources are expected for activities within the Maneuver  
28 Training Site. The increased number of Soldiers and the related training activity  
29 requirements under these scenarios presents a higher potential for impacts to cultural  
30 resources at the Maneuver Training Site than those under the CS/CSS and Full  
31 Sustainment BDE scenarios.  
32

33 The type of equipment, training, and construction activities associated with the number  
34 of Soldiers identified for these units has the potential to affect cultural resources. As  
35 such, the following would apply in accordance with Section 106 of the NHPA and the  
36 stipulations of all agreement and management documents in force for Fort Carson and  
37 the Maneuver Training Site, unless a project-specific agreement has been developed  
38 through the consultation process (FEIS, 2007):  
39

- 40 • Areas that have been inventoried for cultural resources and which contain no  
41 historic properties eligible for inclusion in the National Register would be open  
42 for unrestricted use because there is no potential for adverse impacts to  
43 significant resources.
- 44
- 45 • Areas that have been inventoried for cultural resources and which contain  
46 known historic properties eligible for inclusion in the National Register may be

1 used for dismounted training only, with no vehicle traffic or construction, until the  
2 proposed use area had been evaluated to determine that cultural resources  
3 could be protected against adverse impacts. If impacts could not be avoided,  
4 further consultation with the Colorado SHPO and/or Native American Tribes, if  
5 applicable, regarding mitigation would occur prior to ground-disturbing activities.  
6

- 7 • Areas that have not been inventoried for cultural resources would not be used  
8 for activities other than dismounted training, with no vehicle traffic or  
9 construction, until an archaeological investigation had been conducted and  
10 cultural resources determined eligible for the National Register evaluated  
11 against potential adverse impacts. If impacts could not be avoided, further  
12 consultation with the Colorado SHPO and/or Native American Tribes, if  
13 applicable, regarding mitigation would occur prior to ground-disturbing activities.  
14

15 Environmental awareness training would be held for Soldiers on the identification,  
16 avoidance, and protection of cultural resources. In the event cultural materials and/or  
17 human remains were uncovered in the course of ground-disturbing activities, Fort  
18 Carson's "Inadvertent Discovery of Archaeological Resources or Burials" Standard  
19 Operating Procedure (SOP) and the "NAGPRA" SOP would be applied and enforced  
20 (FEIS, 2007).  
21

## 22 **4.5.5 Noise**

### 23 **4.5.5.1 Affected Environment**

#### 24 **Fort Carson**

25  
26  
27 Noise-sensitive areas adjacent to Fort Carson include Cheyenne Mountain State Park  
28 and the communities of Colorado Springs, Security, Widefield, and Fountain to the  
29 north. Other noise-sensitive areas include Turkey Canyon Ranch and Red Rock Valley  
30 Estates along the western boundary, and El Rancho and Midway Ranch along the  
31 eastern boundary. Noise-sensitive locations adjacent to the southern boundary of Fort  
32 Carson include the communities of Penrose and Pueblo West, which are located to the  
33 southwest and southeast, respectively. Noise-sensitive areas within Fort Carson are  
34 limited to the cantonment area.  
35

36 Sources of noise associated with Fort Carson include aircraft and traffic as well as  
37 large- and small-caliber weapons. The primary sources of noise are the firing of  
38 weapons, specifically large-caliber weapons such as artillery and tank main guns, as  
39 well as the operation of military aircraft at BAAF. Secondary sources of noise include  
40 motor vehicle traffic, consisting of cars, trucks, and tracked vehicles (FEIS, 2007).  
41

42 Noise extends beyond the installation boundary at Butts Army Airfield. Airburst Range  
43 123 has flight tracts that are relatively dispersed, and do not generate any substantial  
44 noise. Large caliber weapons firing ranges have zones that are normally incompatible  
45 (Noise Zone II) and incompatible (Noise Zone III) which extend beyond the installation  
46 boundary to the south-southwest of Fountain, and to the east and west. High rates of

1 development in these areas threaten to exacerbate incompatibility issues and encroach  
2 on the military mission of Fort Carson (CHPPM, January 2006).

### 4 **Pinon Canyon Maneuver Training Site**

6 There are limited noise receptors at the Maneuver Training Site due to the character  
7 and nature of land surrounding the installation (i.e., ranch land). Although the  
8 population within the project area is increasing, the human presence within the project  
9 area remains low. Noise-sensitive locations adjacent to the Maneuver Training Site  
10 consist of a limited number of residences around the installation periphery. No other  
11 noise-sensitive areas are located adjacent to the Maneuver Training Site.

13 The primary sources of noise at the Maneuver Training Site originate from short-term  
14 military training exercises at the small-caliber weapons ranges and from military aircraft  
15 operations at the combat assault landing strip (CAL) by C-130 aircraft. Live-fire  
16 weapons larger than .50 caliber machine guns are currently not used at the Maneuver  
17 Training Site (Renn, 2006). Weapons fired on small arms ranges located on the PCMS  
18 produce a low level of noise that does not register off-post. Noise is also generated  
19 during maneuver training, including brigade-level large-scale force-on-force maneuvers,  
20 and dismounted Soldier training (CHPPM, January 2006). Baseline environmental  
21 noise conditions at the Maneuver Training Site are approximately 48 dB, increasing by  
22 about 10 dB during periods of training (Fort Carson, 2005). Current noise levels at the  
23 PCMS are not significant. During all training operations at the Maneuver Training Site,  
24 units undergo resource protection and stewardship training, including procedures that  
25 alleviate their noise impacts, such as aviation rules (CHPPM, 2006).

#### 27 **4.5.5.2 Environmental Consequences**

### 29 **Fort Carson**

31 **CS/CSS and Full Sustainment Brigades.** Short-term minor (low) adverse impacts to  
32 sensitive noise receptors are expected. Activities related to an increase of 1,000  
33 Soldiers and their Families would have minor noise impacts within the installation. It is  
34 expected that wildlife on the installation would adjust quickly to the increased human  
35 presence. Noise contours would not likely change under these unit scenarios.

37 **IBCT, HBCT, and Stryker BCT.** Short- and long-term moderate (medium) adverse  
38 impacts to sensitive noise receptors are expected. An increase in artillery fire  
39 associated with the proposed action may further extend periods of training noise to off-  
40 post locations. Currently, those areas are not significantly impacted; however  
41 encroachment from residential zones adjacent to the installation may cause Fort Carson  
42 to adjust training schedules in the future. Under these unit scenarios, current noise  
43 contours are not likely to change. Encroachment of residential communities adjacent to  
44 the installation border may continue. An increase in the intensity of use of the impact  
45 area, and noise generated from both the impact area and the firing point may require  
46 Fort Carson to re-evaluate noise contours and adjust training schedules accordingly.

1  
2 **Multiple BCTs.** Short- and long-term significant (high) adverse impacts to sensitive  
3 noise receptors are expected. Noise levels are expected to increase to levels above the  
4 current conditions under this unit scenario. Due to encroachment concerns, additional  
5 site-specific noise analyses and an update of its Noise Management Plan may be  
6 needed. Noise generation from a significant increase in large caliber weapons firing in  
7 NZ II and NZ III threaten to aggravate incompatibility issues with those communities  
8 continuing to encroach on the military mission at Fort Carson.  
9

## 10 **Pinon Canyon Maneuver Training Site**

11  
12 **CS/CSS, Full Sustainment BDE, IBCT.** Short- and long-term minor (low) adverse  
13 impacts to noise receptors are expected. Under these unit scenarios, noise generated  
14 from training activities (i.e., small arms ranges; increased human presence and  
15 vehicular traffic) is not expected to be measurable beyond the maneuver site boundary.  
16 Although the population within the project area is increasing and would result in  
17 increased noise receptors, increased impacts are not expected because noise levels at  
18 the Maneuver Training Site are not expected to be measurable beyond the site  
19 boundary.  
20

21 **HBCT, Stryker BCT and Multiple BCTs.** Short- and long-term moderate (medium)  
22 adverse impacts to noise receptors are expected at the Maneuver Training Site. Under  
23 the Stryker BCT unit scenario, increased maneuver activities and increased human  
24 presence would increase noise emissions on the Maneuver Training Site. Due to  
25 maneuver space requirements of the Stryker, noise emissions are expected to increase  
26 beyond the existing maneuver areas and may increase to levels that would be  
27 measurable beyond the installation boundary. In addition, activities occurring under the  
28 HBCT and Multiple BCT scenarios are expected to generate noise levels at a rate  
29 higher than those for the IBCT scenario. Current noise zones may need to be updated  
30 to include additional maneuver areas and to verify compatibility. As a result, a separate  
31 Noise Management Plan for the PCMS may need to be developed.  
32

### 33 **4.5.6 Soil Erosion**

#### 34 **4.5.6.1 Affected Environment**

## 35 **Fort Carson**

36  
37  
38 Soil types commonly occurring in the region are aridisol (dry, desert-like soils) and  
39 entisol (soils that do not show any profile development and which are largely unaltered  
40 from their parent rock) soils (USACE, 2002a). These soil types are characterized by  
41 moderate-to-severe erodibility, landslides, and unstable clay formation movement due  
42 to variations in moisture content and temperature (USACE, 2002a).  
43

44 Thirty-four soil categories and 65 soil associations have been recognized on Fort  
45 Carson. Predominant soil associations identified are the Penrose-Minnequa Complex,  
46 Penrose-Rock Complex, Schamber-Razor Complex, and Razor-Midway Complex

1 (DECAM, 2002a). The Penrose-Minnequa and Penrose-Rock complexes occur in the  
2 southern portion of Fort Carson, in Pueblo and Fremont counties (FEIS, 2007).

3  
4 The Cantonment, located in the northern portion of Fort Carson, is the most highly  
5 developed area on the installation and contains post housing, administration,  
6 recreational, and other support facilities. Native soils and vegetation occur throughout  
7 the Cantonment, primarily in the southern portion, and are broken up by local areas of  
8 disturbed soils.

9  
10 BAAF, located on the eastern side of the post adjacent to and south of Wilderness  
11 Road, is semi-developed. The airfield contains a landing strip, paved areas, and support  
12 facilities. The land surrounding BAAF contains native soils and vegetation that are  
13 broken up by local areas of disturbance. The least-disturbed soils at BAAF occur in the  
14 southwestern portion of the airfield.

15  
16 The downrange area on Fort Carson covers the majority of land on post, is relatively  
17 undeveloped, and supports the greatest area of native undisturbed soils. The western  
18 portion of the downrange area has a high degree of wind erosion associated with  
19 disturbed soils (areas that have been cleared for training operations, including berms).

20  
21 Soil erosion is a problem at Fort Carson. Soils of greatest concern for erosion are  
22 clays, silty clays, and clay loams. In particular, the eastern portion of Fort Carson,  
23 located within the Fountain Creek Watershed, contains soils that have been identified  
24 as being moderately to highly susceptible to erosion (DECAM, 2002a).

## 25 26 **Pinon Canyon Maneuver Training Site**

27  
28 The Maneuver Training Site is distinguished by topographic features such as mesas,  
29 cuestas, dissected plateaus, deep canyons, and volcanic formations. Soil types  
30 commonly occurring are aridisol and entisol soils. These soil types are characterized by  
31 moderate to severe soil erodability, landslides, and unstable clay formation movement  
32 attributable to variations in moisture content and temperature (FEIS, 2007). Soil  
33 conditions vary on the Maneuver Training Site and special foundations are required  
34 from roads and bridges at some locations. Extensive overgrazing (prior to 1983),  
35 vegetation removal and soil compaction from mechanized training have contributed to  
36 erosion and erosion potential.

### 37 38 **4.5.6.2 Environmental Consequences**

#### 39 40 **Fort Carson**

41  
42 **CS/CSS, Full Sustainment Brigade, and IBCT.** There would be moderate (medium)  
43 short- and long-term adverse impacts due to the large number of wheeled vehicles in  
44 the Sustainment Brigade. The condition of existing (unimproved) range roads and their  
45 ability to support heavy truck traffic would have to be evaluated. These roads could be  
46 prone to water erosion, so road construction, hardening and maintenance practices

1 would have to be reviewed and modified. Off-road movement may impact soil erodibility  
2 based on disturbance to vegetation and soil surfaces, and moisture content and  
3 temperatures. The training could directly cause erosion on the mountains or set the  
4 conditions for wind and water erosion. Dismounted training is not expected to have a  
5 significant effect on the basin and flat areas.

6  
7 **HBCT, Stryker BCT, and Multiple BCTs.** Significant (high) impacts are expected.  
8 The HBCT and multiple BCTs may have a major impact on roads and off-road areas  
9 due to the number of tracked vehicles in these units and the weight and mobility  
10 characteristics' of the tracked vehicles. Mountainous areas or other areas with a slope  
11 of greater than 30% would not be affected by the tracked vehicles. Flat to relatively flat  
12 areas (vegetation and surface crust) would show the impact from the vehicle  
13 maneuvers, turns and traction. These areas could then be prone to wind and water  
14 erosion.

15  
16 The Stryker BCT may have a significant impact on roads and off-road areas due to the  
17 number of Strykers and the weight and mobility characteristics' of the Stryker vehicle.  
18 Mountainous areas or other areas with a slope of greater than 30% would not be  
19 affected by the Stryker. Flat to relatively flat areas (vegetation and surface crust) would  
20 show the impact from the Stryker's maneuvers, turns and traction. These areas could  
21 then be prone to wind and water erosion.

22  
23 An overall significant impact would result from Multiple BCTs, given that the number,  
24 size, variety and impact of wheeled and tracked vehicles would increase as well. The  
25 road network would deteriorate rapidly leading to trafficability and erosion problems.  
26 Off-road traffic and maneuvers would increase, which would have a major negative  
27 impact on surface vegetation and surface crust. Conditions for potential wind and water  
28 erosion would increase.

### 29 30 **Pinon Canyon Maneuver Training Site**

31  
32 **CS/CSS, Full Sustainment Brigade, IBCT.** There may be a moderate (medium)  
33 impact from the wheeled vehicles in these units. Off-road movement could have an  
34 impact on vegetation and soil surfaces, leading to the conditions for erosion. The  
35 condition of existing (unimproved) range roads and their ability to support for heavy  
36 truck traffic would have to be evaluated. These roads could be prone to erosion, so  
37 road construction, hardening and maintenance practices would have to be reviewed and  
38 modified. Off-road movement would impact soil erodibility based on disturbance to  
39 vegetation and soil surfaces.

40  
41 **HBCT, Stryker BCT, Multiple BCTs.** These units are anticipated to result in potentially  
42 significant (high) impacts to off-road areas due to the number of tracked and wheeled  
43 vehicles, as well as their weight and mobility characteristics. Flat and rolling areas  
44 (vegetation and surface crust) would show the impact from the vehicle maneuvers, turns  
45 and traction. These areas could then be prone to erosion. Given that the number, size,  
46 variety and impacts of wheeled and tracked vehicles, off-road traffic and maneuvers

1 would increase. Conditions for potential erosion would increase in areas with increased  
2 traffic.

#### 4 **4.5.7 Vegetation and Wildlife/Threatened and Endangered Species** 5 **4.5.7.1 Affected Environment**

##### 7 **Fort Carson**

8 Ten animal and two plant species that are on the USFWS list of endangered,  
9 threatened and candidate species are found in El Paso, Pueblo, and Fremont counties.  
10 No critical habitat for these species has been designated or proposed for designation in  
11 these counties (USFWS, 2005; Linner, 2006). No federally listed threatened or  
12 endangered plant species or candidates for federal listing are known to occur on Fort  
13 Carson, and no portion of Fort Carson has been designated or proposed for designation  
14 as critical habitat for listed plant species (USACE, 2005; Linner, 2006). Fort Carson has  
15 also been excluded from critical habitat for the Mexican Spotted Owl (MSO) based on  
16 the installation's INRMP providing a benefit to the species. The following three federally  
17 listed wildlife species are known to use Fort Carson: Mexican Spotted Owl, Greenback  
18 Cutthroat Trout, and Arkansas Darter. Threatened and endangered wildlife species are  
19 protected by Colorado state law, but species of concern are identified for planning  
20 purposes only (FEIS, 2007). More information on federally listed species is found in  
21 Appendix T of this document.

##### 23 **Pinon Canyon Maneuver Training Site**

24  
25 The Maneuver Training Site is located within the Central Shortgrass Prairie Ecoregion,  
26 which includes all the plains of Colorado east of the Rocky Mountains and an  
27 approximately equal area in adjacent Great Plains states and Texas. The ecoregion is  
28 characterized by rolling to undulating plains and tablelands of low relief and occasional  
29 canyons, buttes, badlands, and isolated mountains. Shortgrass prairie, mixed-grass  
30 prairie, and sandsage prairie community types dominate the Central Shortgrass Prairie  
31 Ecoregion. Other community types, such as pinyon pine-juniper woodlands and  
32 deciduous riparian forests, occur less frequently (FEIS, 2007).

33  
34 Bald eagles primarily use the southwestern grassland section of the Maneuver Training  
35 Site (DECAM, 2002a). No evidence of bald eagles nesting on PCMS has been found  
36 (DECAM, 2002a and USACE, 2005). Since the composition of this document, Bald  
37 Eagles have been removed from the Threatened and Endangered Species list by the  
38 USFWS.

39  
40 No plant species appear on the USFWS lists of federally listed endangered, threatened,  
41 and candidate species for Las Animas or Otero counties, and no critical habitat for  
42 these species has been designated or proposed for designation in Las Animas County  
43 or any adjoining county (USFWS, 2005 and Linner, 2006). No federally listed threatened  
44 or endangered plant species or candidate for federal listing is known to occur at PCMS.

#### 46 **4.5.7.2 Environmental Consequences**



1  
2 **Fort Carson**

3  
4 **CS/CSS, Full Sustainment Brigade, IBCT, HBCT, and Stryker BCT.** Minimal  
5 adverse impacts are expected. One species currently recorded as contiguous has been  
6 recorded on the installation in the past. The installation would continue to manage its  
7 natural resources and potential habitat for the endangered species in accordance with  
8 the installation INRMP and any conservation measures identified in any ESA, Section 7  
9 consultation documents.

10  
11 **Multiple BCTs.** Significant adverse impacts are possible under this stationing scenario.  
12 Similar to the other levels of Soldier strength, there is a potential that this action could  
13 impact listed species currently recorded as contiguous to the installation. There is a  
14 greater likelihood that formal consultation would be required for implementation of this  
15 action. Activities associated with this action may affect the installation's ability to  
16 implement the management and conservation measures identified in the installation's  
17 INRMP that were/are essential for their exclusion from Mexican Spotted Owl critical  
18 habitat designation. This action may significantly impact the candidate species that  
19 occurs onsite. The Mexican Spotted Owl currently exists at numerous locations which  
20 are widely distributed, and the USFWS considers this species fairly stable.

21  
22 Under this stationing scenario, the installation's vegetative communities could be  
23 potentially degraded, and the prevalence of invasive or noxious weed species would  
24 likely increase from training disturbance and higher rates of unnatural wildfire caused by  
25 increased live-fire training.

26  
27 **Pinon Canyon Maneuver Training Site**

28  
29 **CS/CSS, Full Sustainment BDE, IBCT, HBCT.** Under stationing scenarios for a new  
30 BCT (any type), short- and long-term moderate (medium) adverse impacts are expected  
31 on wildlife (there are no listed species known to occur on the Maneuver Training Site)  
32 species recorded on the installation. The only federally-listed threatened wildlife  
33 species known to use the Maneuver Training Site is the bald eagle (which was de-listed  
34 by the USFWS in July 2007), which is a late fall-through-winter resident and migrant.  
35 Bald eagles primarily use the southwestern grassland section of the installation. No  
36 evidence of bald eagles nesting on the Maneuver Training Site has been found. (US  
37 Army Corps of Engineers, PCMS FEIS, 2007). Implementation of any of these levels of  
38 Soldier strength could have an impact on this species, especially if the species nests on  
39 the Maneuver Training Site in the future.

40  
41 Bald Eagle's are still be protected under the Bald and Golden Eagle Protection Act and  
42 Migratory Bird Treaty Act, even though the Endangered Species Act (ESA) no longer  
43 applies. The Maneuver Training Site will continue to manage its natural resources in  
44 accordance with the Fort Carson INRMP and any conservation measures identified in  
45 another documents implementing applicable laws and regulations. A number of the  
46 special status species occurring on the Maneuver Training Site are priority Army

1 species at risk (SAR). Conservation efforts would need to be implemented to ensure  
2 populations are not significantly impacted to the point that a listing action may be  
3 warranted.

4  
5 **Stryker BCT, Multiple BCTs.** Short- and long-term significant (high) adverse impacts  
6 to wildlife are expected at PCMS under these unit growth scenarios. It is anticipated  
7 that implementation of these stationing scenarios will have potentially significant  
8 impact on wildlife and vegetation. Management and conservation of the species and  
9 habitat will continue to be implemented in accordance with the Fort Carson INRMP,  
10 however, increased soil disturbance and wild fire events caused by training would be  
11 projected to impact PCMS wildlife and vegetation. Impacts could affect special status  
12 plant species such as Dwarf Milkweed (*Asclepias uncialis*), which occur at PCMS.

#### 14 **4.5.8 Wetlands**

##### 15 **4.5.8.1 Affected Environment**

#### 17 **Fort Carson**

18  
19 Fort Carson contains approximately 1,076 acres of wetlands (US Army, December,  
20 2005). Wetlands generally occur as riparian or channel wetlands along drainages or  
21 are small and isolated. The majority (70 percent) of wetlands on Fort Carson are  
22 palustrine emergent wetlands (USFWS, 1991). Most of these are less than one acre in  
23 area. In the downrange training area of Fort Carson, isolated wetlands can occur where  
24 a dam has been built for erosion control or water storage, and most are only one to two  
25 acres in size. The largest downrange wetland area, totaling approximately 100 acres, is  
26 on the upper Reaches of Teller Reservoir. Where six very small springs occur on Fort  
27 Carson, each has a small associated wetland area. Wetland areas are also distributed  
28 throughout the cantonment area, typically in natural or stormwater runoff drainages and  
29 in an area south of BAAF (DECAM, 2002a).

30  
31 In 2002, USACE issued a regional permit to Fort Carson (USACE, 2002b). This permit  
32 authorizes Fort Carson to conduct erosion control activities on post that may result in  
33 minimal individual and cumulative impacts to wetlands from dredge and fill activities.  
34 Typical erosion control measures include erosion control and stock watering  
35 impoundments, bank sloping of erosion courses, check dams, rock armor, hardened  
36 crossings, culverts and bridges, erosion control terraces and water diversions, water  
37 turnouts, and other erosion control activities approved by USACE. As described in the  
38 INRMP (DECAM, 2002a), the wetland and riparian area buffers are generally protected  
39 from vehicular and mechanized training due to the surrounding topography, which  
40 makes these areas unsuitable for this type of training. Due to the avoidance and  
41 minimization efforts the Army currently implements as part of its INRMP and ITAM  
42 procedures, direct effects to wetlands do not occur.

#### 44 **Pinon Canyon Maneuver Training Site**

45

1 Aquatic Habitat on PCMS are very limited and consist of wetlands, riparian corridors,  
2 and open water. Wetlands, in the form of seasonal waters, make up a very small part of  
3 the Maneuver Site (Fort Carson DECAM, 2007).

#### 4 5 **4.5.8.2 Environmental Consequences**

##### 6 7 **Fort Carson and Pinon Canon Maneuver Site**

8  
9 **CS/CSS and Full Sustainment Brigade.** No impact is expected to wetlands as a result  
10 of the growth of a CS/CSS or Full Sustainment Brigade to Fort Carson. Training  
11 activities would be relegated to established training areas and should pose no impact on  
12 wetlands as training would avoid these areas.

13  
14 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** Minimal (low) impacts are expected on the  
15 installation wetlands due to the presence of an additional 3,500 – 7,000 Soldier (and  
16 their Families) presence at Fort Carson due to the limited and confined presence of  
17 wetlands. Necessary measures to site training away from wetlands or construct other  
18 mitigations would be taken to ensure wetlands impacts would be minimized

#### 19 20 **4.5.9 Water Resources**

##### 21 **4.5.9.1 Affected Environment**

##### 22 23 **Fort Carson**

##### 24 25 **Wastewater**

26 The installation operates and maintains a sanitary sewage treatment plant that services  
27 the cantonment area, the family housing area, Butts Army Airfield, and the Range  
28 Control complex. This system also services Cheyenne Mountain Air Station under an  
29 Inter-Service Support Agreement.

30  
31 The installation operates a well-managed central vehicle washrack for effective heavy  
32 equipment cleaning and individual washracks at the various nearby motorpools. Fort  
33 Carson's industrial waste treatment facility (IWTF), uncommon in the Army, allows for  
34 the centralized treatment of washrack wastewater. The IWTF was designed to treat  
35 petroleum-contaminated water from the motor pools in the cantonment area. Treated  
36 IWTF water is added to the sanitary sewage water going into the sewage plant. All  
37 motor pool washrack water and some floor drain effluent are connected to the IWTF.

38  
39 Butts Army Airfield, Colorado Army National Guard Centennial Training Site and 10th  
40 SFG Complex (all south of the cantonment area) are not connected to the IWTF.  
41 Currently, industrial wastewater from these facilities is containerized and treated at the  
42 IWTF when necessary. The industrial line at Butts Army Airfield is combined with the  
43 sanitary line and both are pumped back to the sewage treatment plant. The installation  
44 has determined that all new sources of industrial waste be conveyed to the IWTF in a  
45 separate industrial collection system.

1 **Stormwater**

2 The climate and topography of the Fort Carson area affect stormwater. Fort Carson  
3 watersheds drain to Fountain Creek and eventually to the Arkansas River to the east  
4 and southeast and directly to the Arkansas River to the south. There are many  
5 drainages that traverse Fort Carson, some of which are main tributaries to the Arkansas  
6 River Basin.

7  
8 Once these tributaries enter Fort Carson cantonment area, they flow into one of three  
9 main ditches that drain the northern portion of the installation and the Cantonment: “B”  
10 Ditch, “I” Ditch, and “U” Ditch, which are all tributaries to Fountain Creek. Stormwater  
11 drainage in the downrange area is generally via natural drainages with some  
12 modifications, particularly near roads and downrange area facilities (DECAM, 2002a).  
13 Turkey Creek flows through/adjacent to the installation and enters the Arkansas River to  
14 the south. The southwestern part of the installation is drained by Red Creek and the  
15 south-central portion of Fort Carson is drained by Little Turkey Creek and Turkey Creek.  
16 Fountain and Turkey Creeks are all tributaries of the Arkansas River (USACE, 2005).

17  
18 Fort Carson has facilities that are covered under a Multi-Sector General Permit (MSGP)  
19 for stormwater discharged from industrial activities. Construction activities disturbing  
20 more than one acre require coverage under EPA’s construction general permit. Fort  
21 Carson is a Municipal Separate Storm Sewer System (MS4) permit holder, which  
22 requires additional management for the cantonment area.

23  
24 In December 2005, the Army completed an evaluation of Fort Carson’s storm sewer  
25 capacity (USAEC, 2005). The study indicated that the existing Fort Carson storm sewer  
26 system is at or near capacity, based on growth projections at this time. Increased  
27 development of Fort Carson’s Cantonment would result in increased stormwater runoff.  
28 The increased runoff could contribute to flooding, high peak flows that cause erosion,  
29 and degradation of water quality. The study recommended that Fort Carson implement  
30 additional BMPs for new and existing development to control and properly treat  
31 stormwater flows.

32  
33 **Water Supply**

34 Potable water is purchased by Fort Carson from Colorado Springs Utilities for domestic,  
35 industrial, and irrigation use in the Cantonment. A portion of the water purchased by  
36 Fort Carson is also supplied to the Cheyenne Mountain Air Force Station. The  
37 maximum historical daily water demand on Fort Carson is 5.5 million gallons per day  
38 (mgd), and the total capacity of the two supply lines is 14 mgd (Guthrie, 2005). The  
39 potable water storage system at Fort Carson consists of four water storage tanks that  
40 provide capacity during emergency conditions. Fort Carson’s Teller Reservoir, which  
41 has been dry since 2002, has a potential water capacity of 31.8 million gallons (FEIS,  
42 2007).

43  
44 **Water Rights**

45 Fort Carson retains surface and subsurface water rights as specified by the Colorado  
46 Division of Water Resources. Of the surface water rights, several are surface diversion

1 ditches and others are reservoir storage rights. The subsurface water rights also include  
2 wells that are currently installed and areas with wells that are classified as future wells,  
3 which would not be installed until required. Decreed use categories include irrigation,  
4 recreation, fish maintenance, fire fighting, military, livestock, domestic, and industrial.  
5 Potable water for consumption during training activities in the downrange area is  
6 trucked from the Cantonment, while at the multi-purpose range complex, potable water  
7 is piped from the Cantonment (Benford, 2006).

## 9 **Pinon Canyon Maneuver Training Site**

### 11 **Potable Water**

12 PCMS purchases treated potable water from the City of Trinidad for use in the  
13 Cantonment (DECAM, 2002a; and Fort Carson, 2005). After the water is delivered to  
14 the Maneuver Training Site, it is stored in a 500,000-gallon tank. The potable water  
15 system is adequate to support a maximum of approximately 5,000 personnel based on  
16 a water consumption rate of 35 gallons per person per day and other installation-related  
17 support activities (such as dust control and emergency fire suppression) (Fort Carson,  
18 2005). The water tank and potable water distribution system in the Cantonment is  
19 currently operating within capacity.

### 21 **Wastewater**

22 PCMS discharges wastewater to its evaporative lagoons. The Cantonment primarily  
23 uses evaporative, nondischarging treatment/ oxidation ponds, constructed in 1985 for  
24 sanitary wastewater and stormwater treatment (DECAM, 2005a). The combined  
25 treatment facility is located in the southwestern corner of the Cantonment. The  
26 treatment/ oxidation ponds are currently operating at levels below their capacity (Fort  
27 Carson, 2005).

### 29 **Stormwater**

30 At Maneuver Training Site, a portion of the stormwater runoff generated in the  
31 Cantonment is collected into the wastewater system and directed to the  
32 treatment/oxidation ponds. The majority of runoff is allowed to flow directly offsite.

### 34 **Groundwater**

35 Training activities would not pump or use any groundwater or release any water that  
36 could percolate into aquifers at the Maneuver Training Site. Therefore, there would be  
37 no direct impact to groundwater at Maneuver Training Site.

39 Increased training would increase the use of fuels, solvents, and other hazardous and  
40 toxic substances which could result in an indirect effect to groundwater if released in an  
41 area where infiltration to groundwater could occur.

43 Lead deposition at the small-arms live-fire ranges could increase as a result of  
44 increased use of lead-based ammunition during training activities. The lead could result  
45 in indirect impacts to groundwater quality if it were to leach into groundwater. Because  
46 lead binds tightly to soil particles, the potential for and extent of lead leaching into  
47 groundwater or being transported by groundwater are expected to be minor. In

1 addition, minimal rainfall at PCMS would minimize the leaching of lead into groundwater  
2 (DECAM, 2005b).

### 3 **Floodplains**

4 Floodplains have not been mapped at Maneuver Training Site. However, personnel  
5 and equipment could be affected by floodwaters when training in flood-prone areas,  
6 especially during flash floods. The safety of troops and equipment is a priority during  
7 training, and training procedures direct that troops relocate away from flood-prone areas  
8 when conditions are favorable for sudden storms and flash flooding  
9

## 10 **4.5.9.2 Environmental Consequences**

### 11 **Fort Carson**

12  
13 **CS/CSS.** An addition of a CS/CSS is anticipated to have a minor (low) impact to Fort  
14 Carson. Given the existing population of Fort Carson the addition of a CS/CSS may not  
15 have a significant impact to the watershed, water demand, and associated treatment  
16 systems. Any new construction/land disturbance over one acre would require a  
17 stormwater construction permit.  
18

19  
20 **Full Sustainment Brigade, IBCT, HBCT, and Stryker BCT.** Addition of these units is  
21 anticipated to have a moderate (medium) impact to Fort Carson. Any new  
22 construction/land disturbance would require coordination with the stormwater program  
23 manager for identification and implementation of mitigation strategies to reduce impacts  
24 associated with stormwater runoff during and after construction. Motorpool activities  
25 and washing of field-driven heavy-tracked vehicles would produce an increase on water  
26 demand and associated treatment. The installation has capability to wash heavy  
27 equipment through its centralized wash rack; however the system could require an  
28 upgrade depending on the level of additional heavy equipment training.  
29

30  
31 **Multiple BCTs.** Addition of multiple BCTs may have a significant (high) impact to Fort  
32 Carson. Motorpool activities and washing of field-driven heavy-tracked vehicles would  
33 significantly increase water demand and associated treatment. The installation's  
34 centralized wash rack could require significant upgrades depending on the level of  
35 additional heavy equipment training.  
36

### 37 **Pinon Canyon Maneuver Training Site**

38  
39 **CS/CSS, Full Sustainment Brigade, IBCT, HBCT.** These units are expected to have  
40 a minor (low) impact to Maneuver Training Site if they are stationed at Fort Carson. The  
41 Maneuver Site would need to review the Storm Water Pollution Prevention Plan to  
42 incorporate best management practices for any new training activities at the Maneuver  
43 Training Site.  
44

45 **Stryker BCT, Multiple BCTs.** A moderate (medium) impact to water resources is  
46 expected from the Stryker BCT or multiple BCTs training at the Maneuver Training Site.

1 Vehicle maintenance activities and washing of field-driven heavy-tracked vehicles would  
2 most likely increase water demand and associated treatment. Fort Carson may have to  
3 construct new washing systems at the Maneuver Training Site to manage heavy-  
4 tracked vehicles.

#### 6 **4.5.10 Facilities**

##### 7 **4.5.10.1 Affected Environment**

#### 9 **Fort Carson**

10  
11 Fort Carson is an active military training facility for both weapons qualification and field  
12 training. Principal industrial operations have been the repair and maintenance of  
13 vehicles and aircraft. The cantonment area contains most of the facilities on Fort  
14 Carson such as Soldier and family housing, administrative, maintenance, community  
15 support, recreation, and supply and storage facilities, utilities, and classroom and  
16 simulation training facilities. For the most part, industrial operations take place at the  
17 east side of the cantonment area, the north end of the cantonment area, and at Butts  
18 Army Airfield. Limited facilities are located downrange. Over the past decade facilities  
19 construction has taken place (or planned for the near future) south of the cantonment,  
20 including the 10th Special Forces Group complex, Range Control Complex, the  
21 Colorado Army National Guard Centennial Training Site, mock villages for urban  
22 warfare training and range construction and upgrades. Utilities upgrades are planned to  
23 support the new facilities, including sewer, water, electric and communications (US  
24 Army, 27 June 2005).

#### 26 **Pinon Canyon Maneuver Training Site**

27  
28 The Maneuver Training Site occupies 235,597 acres approximately 150 miles southeast  
29 of Fort Carson within Las Animas County, Colorado. The 1,670-acre cantonment area  
30 is located at the west central edge of PCMS. The cantonment area contains  
31 administrative buildings and support facilities that are used during training exercises.

##### 33 **4.5.10.2 Environmental Consequences**

34  
35 **CS/CSS.** Minor (low) short- and long-term adverse impacts are expected as part of this  
36 stationing scenario for an additional 1,000 CS/CSS Soldiers. Fort Carson would be  
37 able to handle the fielding of a CS/CSS units at this time.

#### 39 ***Full Sustainment Brigade, IBCT, HBCT, Stryker BCT, and Multiple BCTs.***

40 Significant (high) impacts and conflicts are anticipated for facilities availability and  
41 usage. Increased Soldier strength of 3,000 to 7,000 Soldiers and their Families would  
42 be reflected through increased facilities usage within the cantonment and training areas.  
43 BRAC decisions have resulted in considerable construction to provide the necessary  
44 facilities for an additional 8,500 Soldiers. Fort Carson facilities would be heavily utilized  
45 in accomodating several thousand additional Soldiers.

1 **Pinon Canyon Maneuver Training Site**  
2

3 **CS/CSS.** There is expected to be minimal impacts to facilities. It is anticipated that the  
4 activities associated with an increase of 1,000 Soldiers would increase activities within  
5 the cantonment and training and range areas. Additional construction of support  
6 infrastructure may be required. Activities within the training and range areas would be  
7 limited to existing firing ranges and roadways. However, these activities would have to  
8 be scheduled to coordinate with existing training activities.  
9

10 **Full Sustainment Brigade, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** There is  
11 anticipated to be moderate (medium) term impacts to facilities. Increased Soldier  
12 strength from these units would be reflected through increased facilities usage within  
13 the cantonment and increased usage of the training and range areas. Training activities  
14 and construction would be expected to cause long-term impacts due to increased  
15 human presence. If identified by the Maneuver Training Site support staff, additional  
16 coordination and consultation may be necessary for activities associated with an HBCT.  
17

18 **4.5.11 Energy Demand/Generation**  
19 **4.5.11.1 Affected Environment**  
20

21 **Fort Carson**  
22

23 Fort Carson's energy needs are currently met by a combination of electrical power and  
24 natural gas, both of which are provided by private utilities. Fort Carson is constructing a  
25 2 megawatt solar array.  
26

27 **Electricity.** Power is supplied to Fort Carson from two power substations in the  
28 cantonment area. The peak historical electrical demand is 24,000 kilowatts. The total  
29 capacity of transmission lines available to Fort Carson is 48,800 kilowatts, and the total  
30 capacity of transformers is 32,200 kilowatts. Difficulties meeting summer electrical  
31 demand at the installation have been reported. Electrical supply lines to BAAF were  
32 upgraded in 1986. During maneuvers, targets are locally powered by battery or  
33 generator (FEIS, 2007).  
34

35 **Natural Gas.** Fort Carson receives natural gas from Colorado Springs Utilities via two  
36 feeds at the north end of the installation, near Gate 4. The peak historical daily  
37 consumption of natural gas at Fort Carson 8,600 million cubic feet (mcf), and the peak  
38 historical monthly consumption is 186,000 mcf. The estimated daily capacity from the  
39 supplier is 10,650 mcf. This leaves Fort Carson with about 20 percent excess natural  
40 gas capacity. The natural gas is metered and piped through a series of gas mains and  
41 distribution lines to Fort Carson's four central heating plants, BAAF, and the Family  
42 Housing Area. The existing gas line servicing BAAF does not have the capacity to  
43 accommodate additional gas service to the downrange area or Training Support  
44 Complex, located at the far west end of Wilderness Road. Colorado Springs Utilities is  
45 in the planning stages for a gas feed to Gate 1 area, in support of the new Cheyenne  
46 Mountain State Park west of this gate (DECAM, 2005d).



1  
2 **Pinon Canyon Maneuver Training Site**  
3

4 The Maneuver Training Site's energy needs are currently met by electric power  
5 provided by a public utility service. The electricity is delivered via high voltage overhead  
6 power lines.  
7

8 **4.5.11.2 Environmental Consequences**  
9

10 **Fort Carson**  
11

12 **CS/CSS.** Minor (low) impacts are expected. The addition of a CS/CSS unit, with 1,000  
13 Soldiers, represents a small fraction of the overall mission activity at Fort Carson. This  
14 fact, combined with a fair excess of energy resources available, means that this basing  
15 scenario is likely to have a minimal impact to the local community and natural  
16 environment.  
17

18 **Full Sustainment Brigade, IBCT, HBCT, and Stryker BCT.** These units are expected  
19 to have a moderate (medium) impact on energy demand/generation at Fort Carson.  
20 New electrical and natural gas infrastructure plans may need to be considered in order  
21 to accommodate the increase in usage. Similar actions may also need to be taken in  
22 order to accommodate the increase in energy usage.  
23

24 **Multiple BCTs.** The addition of multiple BCTs, with an estimated increase of 7,000  
25 Soldiers, is anticipated to have a significant (high) impact on energy demand/generation  
26 at the installation. New electrical and natural gas infrastructure may need to be  
27 constructed in order to accommodate the increase in usage, including new substations  
28 to transfer the electricity, and new connections and lines to transport natural gas.  
29

30 **Pinon Canyon Maneuver Training Site**  
31

32 **CS/CSS, Full Sustainment Brigade, IBCT.** These scenarios, combined with fair  
33 excess of energy resources available, means that growth is likely to have a minor (low)  
34 impact on energy demand/generation at this range. Although a full Sustainment  
35 Brigade and IBCT, with nearly 3,500 Soldiers maximum would have a larger impact  
36 than the CS/CSS in terms of the number of additional Soldiers and activities associated  
37 with this scenario, it is anticipated that these actions may also have a minimal impact on  
38 energy demand/generation at the Maneuver Training Site.  
39

40 **HBCT, Stryker BCT, Multiple BCTs.** The addition of the HBCT, Stryker BCT, or  
41 multiple BCTs, with an estimated increase of 3,800 to 7,000 Soldiers, is anticipated to  
42 have a moderate (medium) impact on energy demand/generation at the Maneuver  
43 Training Site. New electrical and natural gas infrastructure may need to be constructed  
44 in order to accommodate the increase in usage, including new substations to transfer  
45 the electricity.  
46

1           **4.5.12 Land Use Conflicts/Compatibility**  
2                   **4.5.12.1 Affected Environment**

3  
4           **Fort Carson**

5  
6           Fort Carson occupies approximately 137,403 acres of land. The land uses consist of  
7 three categories: Improved lands, semi-improved lands, and unimproved lands. The  
8 installation is divided into 56 training areas, 3 impact areas, the cantonment area, and  
9 areas from which training is restricted. The main divisions of the installation improved  
10 lands include the cantonment area (5,752 acres), Butts Army Airfield (570 acres), and  
11 Camp Red Devil (1,166 acres). The cantonment is located in the northern portion of the  
12 base. Buildable areas exist in the southern part of this area. Butts AAF lies 6 miles  
13 south of the cantonment area, near the eastern boundary of the installation.  
14 Unimproved or open operations lands at the installation occupy 97,201 acres and are  
15 used for live-fire artillery, small arms practice, maneuver operations, and bivouac  
16 training. Parts of this land are also used as buffer zones for impact areas.  
17 Approximately 90 percent of the installation is unimproved land. The Rod and Gun Club  
18 and Turkey Creek Recreation Area constitute 1,853 acres of semi-improved lands.  
19 (U.S. Department of the Army, 1995).

20  
21           **Pinon Canyon Maneuver Training Site**

22  
23           Land use at PCMS has been divided into two primary categories, the Cantonment and  
24 the training areas. The cantonment area consists of 1,660 acres of developed land; the  
25 training areas consist of open land. The cantonment area provides limited, austere  
26 Soldier and support facilities; military training is restricted in this area. The training  
27 areas consist of approximately 230,000 acres of unimproved or open lands that is used  
28 for military training maneuvers and small-arms live-fire activities. The terrain at the  
29 Maneuver Training Site varies widely from open, rolling prairies to semi-arid, basaltic  
30 hills. To a large degree, the terrain defines the suitability of training activities that occur  
31 within the training areas. The four main training land use types within the training areas  
32 include maneuver training, dismounted training, small-arms live-fire ranges, and  
33 restricted areas. Maneuver training areas comprise the majority of training land  
34 available at the Maneuver Training Site. (PCMS FEIS, 2007)

35  
36           Restricted areas protect lands that support wildlife, ecosystems, soils, facilities, and  
37 cultural resources. Varying degrees of training use are allowed in restricted areas. For  
38 example, in areas with known occurrences of buried cultural resources, digging is not  
39 permitted. (PCMS FEIS, 2007)

40  
41           Some areas within the PCMS are accessible to the public for recreational use when  
42 training activities do not occur. Currently, the recreational uses on the Maneuver  
43 Training Site include hunting and camping (hunters only). Recreational uses are allowed  
44 in the training areas and occur at a dedicated campground near the intersection of  
45 Military Supply Routes (MSRs) 1 and 3 (DECAM, 2002a). (PCMS FEIS, 2007)

## 4.5.12.2 Environmental Consequences

### Fort Carson

**CS/CSS and Full Sustainment Brigade.** There would be an expected minor (low) short and long-term environmental impact on installation land use due to the presence of an additional 1,000 – 3,500 Soldiers and their Families assigned to the installation. The installation has sufficient land available to either build the facilities needed for this unit, or would have sufficient vacant space in buildings that would be suitable for the units' mission. Additionally, the land, or existing facilities, are located such that surrounding facilities are compatible with the additional units.

**IBCT, HBCT, and Stryker BCT.** There may be moderate (medium) short- and long-term environmental impacts on installation land use due to the presence of an additional 3,500 – 4,000 Soldiers and their Families. The installation may not have sufficient land available to either build the facilities needed for this unit, or would not have sufficient vacant space in buildings suitable for the units' mission. Building new facilities may require the installation to re-zone existing land uses, or re-use/remodel facilities in areas not compatible with land uses associated with tactical units. Existing land and/or facilities may not be contiguous and located such that tactical vehicles would need to travel extensively within the cantonment area to reach training ranges.

**Multiple BCTs.** There would significant (high) short- and long-term environmental impacts on installation land use due to the presence of an additional 7,000, or more Soldiers and their families assigned to the installation. The installation may not have enough existing facilities, located in areas with comparable land uses to accommodate multiple BCTs. The installation does not have sufficient land compatible with tactical unit requirements on which to build facilities necessary for multiple BCTs. New or existing facilities would not be contiguous, distant from Soldier support facilities and training and maneuver ranges. Building new facilities for multiple BCTs could require construction on, or adjacent to, existing training facilities, such that those training facilities become unusable. This, in turn, would cause a measurable decrease of the installation's capacity to train Soldiers. Building new facilities for multiple BCTs could also require construction on, or immediately adjacent to, environmentally sensitive areas, requiring extensive, and/or expensive mitigation actions. The installation has limited training space and sustainable ranges. Currently, the installation's training facilities are at maximum capacity with training and maneuver space because of the current three HBCTs and one IBCT.

### Pinon Canyon Maneuver Training Site

**CS/CSS, Full Sustainment Brigade, IBCT.** There is expected to be minor (low) short and long-term environmental impacts on the Maneuver Training Site land use due to the presence of an additional 1,000 – 3,500 Soldiers and their associated missions training at the Maneuver Site. The Maneuver Training Site has sufficient land available to either build the facilities needed for this unit, or would have sufficient vacant space in buildings

1 that would be suitable for the units' mission. Additionally, the land, or existing facilities,  
2 are located such that surrounding facilities are compatible with the additional units.

3  
4 **HBCT, Stryker BCT, Multiple BCTs.** There would moderate (medium) short- and long-  
5 term environmental impacts on installation land use required to conduct training for an  
6 HBCT, SBCT or multiple BCTs and their associated missions training at PCMS.  
7 Building of new facilities may be required at PCMS to support additional unit training.  
8 This limited new construction could require the re-designation of existing land uses, or  
9 re-use/remodel facilities in areas not compatible with land uses associated with tactical  
10 units.

## 11 **4.5.13 Hazardous Materials/Hazardous Waste**

### 12 **4.5.13.1 Affected Environment**

#### 13 **Fort Carson**

14  
15  
16  
17 Fort Carson has a comprehensive program to address management, use, and storage  
18 of hazardous waste and toxic substances, as well as a systematic program to  
19 investigate and remediate, if necessary, known or suspected contaminated sites across  
20 the installation. Hazardous and toxic materials used at Fort Carson include gasoline,  
21 batteries, paint, diesel fuel, oil and lubricants, chemical agents, explosives, JP-8 jet fuel,  
22 pyrotechnic devices used in military training operations, radiological materials at  
23 medical facilities, radioactive materials, pesticides, and toxic or hazardous chemicals  
24 used in industrial operations (USACE, 2006b).

25  
26 Both Fort Carson and PCMS operate under a Hazardous Waste Management Program  
27 that manages hazardous waste to promote the protection of public health and the  
28 environment. Army policy is to substitute nontoxic and nonhazardous materials for toxic  
29 and hazardous ones; ensure compliance with local, state, and federal hazardous waste  
30 requirements; and ensure the use of waste management practices that comply with all  
31 applicable requirements pertaining to generation, treatment, storage, disposal, and  
32 transportation of hazardous wastes. The program reduces the need for corrective  
33 action through controlled management of solid and hazardous waste (US Army Corps of  
34 Engineers, February, 2002).

#### 35 **Pinon Canyon Maneuver Training Site**

36  
37  
38 Hazardous materials used at the Maneuver Training Site include gasoline, diesel fuel,  
39 oil, and lubricants used during routine maintenance; pesticides; chemical agents; and  
40 explosive and pyrotechnic devices used in military training operations. Residual  
41 hazardous materials including diesel fuel, oil, lubricants, solvents and batteries  
42 generated during routine maintenance are recovered for reuse or recycling. Other  
43 hazardous materials such as pesticides; chemical agents; and explosive and  
44 pyrotechnic devices used in military training operations are consumed in the use. Other  
45 hazardous materials brought to the Maneuver Training Site by units are recovered as

1 material and taken to their home station for further use, or classification and turned-in  
2 for reissue or proper disposal (FEIS, 2007).

#### 4 4.5.13.2 Environmental Consequences

##### 6 Fort Carson

8 **CS/CSS, Full Sustainment Brigade.** There may be minor (low) long-term impacts  
9 from hazardous materials and waste. It is anticipated that Fort Carson would not  
10 considerably increase its storage and use of hazardous chemicals during training  
11 exercises and installation maintenance with an increase of 1,000 – 3,500 Soldiers.  
12 Waste collection, storage, and disposal processes would remain mostly unchanged,  
13 and current waste management programs would continue. Direct beneficial and  
14 adverse impacts would be expected. Direct beneficial impacts include activities  
15 associated with land transactions where the Army would continue to operate under its  
16 IRP to return contaminated lands to fully usable status. Direct adverse impacts include  
17 increased facility construction and modification (US Army Corps of Engineers, February,  
18 2002). The increase in these wastes would result in no adverse impacts because the  
19 wastes would be managed in accordance with current standards and regulations.

21 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** There is an anticipated significant (high)  
22 short- and long-term impacts from hazardous materials and waste associated with the  
23 addition of these units. Materials used, stored, and handled would increase; however,  
24 existing procedures, regulations, and facilities would be able to meet storage, use, and  
25 handling requirements. No adverse impacts would be anticipated. Waste management  
26 programs may be updated as needed. With the addition of up to 7,000 additional  
27 Soldiers, substantial urban and semi-urban settings to support training and future  
28 mission requirements would be needed. Many projects involve the use, generation, and  
29 storage of hazardous materials and wastes during facility demolition, renovation, or  
30 construction. The demand for additional storage and disposal capacity would have to  
31 be met at the local level at the installation. Army policies, regulations, and guidelines  
32 that manage the use, storage, and disposal of materials and wastes would need to be  
33 updated to reflect the change in mission at Fort Carson and expanded training activities.

##### 35 Pinon Canyon Maneuver Training Site

37 **CS/CSS, Full Sustainment Brigade, IBCT, HBCT.** There may be minor (low) long-  
38 term environmental impacts from hazardous materials and waste. It is anticipated that  
39 the Maneuver Training Site would minimally increase its storage and use of hazardous  
40 chemicals during training exercises and installation maintenance with an increase of  
41 1,000 – 4,000 Soldiers. Waste collection, storage, and disposal processes would  
42 remain mostly unchanged, and current waste management programs would continue.  
43 Direct beneficial and adverse impacts would be expected. Direct adverse impacts  
44 include increased facility construction and modification (US Army Corps of Engineers,  
45 February, 2002). The increase in these wastes would result in no adverse impacts

1 because the wastes would be managed in accordance with current standards and  
2 regulations.

3  
4 **Stryker BCT, Multiple BCTs.** Training of the Stryker BCT or multiple BCTs at the  
5 Maneuver Training Site would result in moderate (medium) short- and long-term  
6 environmental effects from hazardous materials and waste. Generation and  
7 management of hazardous materials and waste, pesticides, petroleum, oil, and  
8 lubricants would all be higher than with the other actions, and waste management plans  
9 would need to be updated to reflect the change in mission and expanded training  
10 activities.

## 11 **4.5.14 Traffic and Transportation**

### 12 **4.5.14.1 Affected Environment**

#### 13 **Fort Carson**

14  
15  
16  
17 Fort Carson is located in central Colorado, approximately 65 miles south of Denver, and  
18 adjacent to the city of Colorado Springs. The ROI of the affected environment for traffic  
19 and transportation aspects of the proposed action include Fort Carson and the western  
20 portion of El Paso County, to include the communities of Colorado Springs, Stratmoor,  
21 Snowy, Cimarron Hills, Fountain, Widefield, and Security. Major roads that border Fort  
22 Carson are I-25 to the east, SH 115 to the west, and Academy Boulevard to the north.  
23 Other major routes in the area include US 24, SH 85, SH 16, and Powers Boulevard.

24  
25 The Colorado Department of Transportation is currently preparing an Environmental  
26 Assessment to analyze potential transportation improvements for the SH 16 and I-25  
27 interchange. The study is evaluating solutions, including capacity improvements on SH  
28 16 and the reconstruction of the SH 16 and I-25 interchange, to alleviate the substantial  
29 congestion that occurs along SH 16 near Gate 20 during the morning peak period  
30 (DPW, 2005). Although the existing average daily traffic on SH 16 results in an  
31 acceptable daily level of service (LOS), the second highest morning peak hour traffic  
32 demand at Fort Carson's access points occurs at Gate 20, resulting in an unacceptable  
33 peak hour LOS (FEIS, 2007).

#### 34 **Pinon Canyon Maneuver Training Site**

35  
36  
37 The Maneuver Training Site is set in rural Colorado near the state's southern border  
38 with New Mexico, with the nearest town being Trinidad Colorado, located approximately  
39 30 miles west, southwest of the maneuver site. The ROI of the affected environment for  
40 traffic and transportation aspects of the proposed action include Piñon Canyon and the  
41 Maneuver Site, and the surrounding network of rural roads leading to the installation  
42 and the town of Trinidad, Colorado. Major roads in the area include I-25 a north-south  
43 interstate highway that passes through the town of Trinidad, as well as US Route 350  
44 that connects the Maneuver Training Site to Trinidad.

### 45 **4.5.14.2 Environmental Consequences**

1  
2 **Fort Carson**

3  
4 **CS/CSS, Full Sustainment Brigade, IBCT, HBCT, Stryker BCT.** There may be  
5 moderate (medium) short and long-term effects on traffic and transportation systems on  
6 the installation due to the presence of an additional 1,000 – 4,000 Soldiers and their  
7 Families members assigned to Fort Carson. Spread across the ROI, this population is  
8 anticipated to have limited impact on the overall traffic congestion in the neighboring  
9 communities. The increase in off-post traffic would have a moderate impact on traffic in  
10 the community overall and could contribute to a decrease in the Level of Service in the  
11 road network leading to the installation, particularly during peak morning and afternoon  
12 travel periods. This level of increase in population could also have a moderate impact  
13 on the traffic volume on the installation, and could cause a minor decrease in LOS on  
14 some of the installation’s arterial routes. The increased traffic volume in both the  
15 neighboring communities and on the installation could pose a moderate increased level  
16 of risk to the safety of pedestrians and bicyclists.

17  
18 **Multiple BCTs.** There is expected to be significant (high) short- and long-term  
19 environmental impacts on traffic and transportation systems on the installation due to  
20 the presence of an additional 7,000 Soldiers, and their family members. The effect on  
21 the traffic congestion in the local communities from this increased population level  
22 would be noticeable in the community at large and would likely cause a decrease in  
23 LOS in the community’s road network. This would likely cause a major decrease in the  
24 LOS on the road network leading to the installation. The increase in both Soldier and  
25 family-member population would cause a major impact on the LOS of the installation’s  
26 road network and pose a significantly increased risk to the safety of pedestrians and  
27 bicyclists.

28  
29 **Pinon Canyon Maneuver Training Site**

30  
31 **CS/CSS.** Minimal adverse environmental impacts on traffic and transportation systems  
32 are expected on the Maneuver Training Site due to the presence of an additional 1,000  
33 Soldiers training there. This additional training population may contribute nominally to  
34 traffic volume on the PCMS, and is not expected to reduce the level of service (LOS) on  
35 the Maneuver Training Site’s road network.

36  
37 **Full Sustainment BDE, IBCT, HBCT.** Short- and long-term moderate (medium)  
38 adverse environmental impacts on traffic and transportation systems are expected on  
39 the Maneuver Training Site due to the presence of an additional 3,000 to 4,000  
40 Soldiers. This level of increase in training could have a moderate impact on the traffic  
41 volume on the Maneuver Training Site, and could cause a minor decrease in LOS on  
42 some of the Maneuver Training Site’s arterial routes.

43  
44 A single BCT training rotation comprises the greatest number of vehicles and personnel  
45 and is representative of the highest single traffic volume increase that would result from  
46 training deployments. Currently, only one BCT training rotation or two battalion training

1 rotations can occur simultaneously at the Maneuver Training Site. This traffic volume  
2 increase would result in a slight decrease in roadway capacity along the deployment  
3 route.

4  
5 During a full HBCT rotation, as many as 1,500 additional vehicles would use the road  
6 network. The volume of traffic on a given section of road, with the exception of the main  
7 entrance road into the Maneuver Training Site, will be variable because it is contingent  
8 on the nature of the maneuver training and variations of training mission requirements  
9 (PCMS FEIS, 2007).

10  
11 **Stryker BCT, Multiple BCTs.** Short- and long-term significant (high) adverse  
12 environmental impacts on traffic and transportation systems are expected on the  
13 Maneuver Training Site due to the presence of an additional 4,000 - 7,000 Soldiers  
14 training there. The effect on the traffic congestion in the local communities from this  
15 increased population level would be noticeable in the cantonment area and in the roads  
16 on the range areas.

#### 17 18 **4.5.14.3 Cumulative Effects**

##### 19 20 **Fort Carson**

21  
22 Cumulative impacts to air quality are a substantive issue as a result of continuing  
23 growth on Fort Carson and in the surrounding region. An air quality conformity analysis  
24 would need to be conducted on any project with the potential to impact air quality to  
25 ensure that projects are within designated thresholds for air quality attainment  
26 individually and cumulatively. Should the analysis result in a nonconformity finding,  
27 mitigation measures would be developed and implemented to reduce the impacts and  
28 achieve conformity. The conformity analysis and any subsequent required mitigation  
29 would prevent deterioration of air quality related to ozone levels or other pollutants,  
30 resulting from the interaction of multiple projects.

31  
32 Cumulative impacts are a substantive issue as a result of continuing growth on Fort  
33 Carson and in the surrounding region. Some cumulative adverse effects could occur to  
34 fish, wildlife, and plants; air quality; transportation; and land-use resources.

##### 35 36 **Past Actions:**

- 37
- 38 • Constructing Fort Carson facilities and infrastructure, including the Cantonment and  
39 downrange area.
  - 40
  - 41 • Constructing roadways on and surrounding Fort Carson, including I-25, SH 115,  
42 Academy Boulevard, and Powers Boulevard.
  - 43
  - 44 • Constructing utilities, including water, sewer, gas and electric lines, for Colorado  
45 Springs and other municipalities on or adjacent to Fort Carson.
  - 46



- 1 • Continued operation of Fort Carson as a military installation.  
2

3 **Present Actions:**  
4

- 5 • Current operations on post, including training and deployments.  
6  
7 • Various construction, demolition, renovation, and maintenance activities on post,  
8 including expansion and upgrades to the Cantonment and downrange area.  
9

10  
11 **Reasonably Foreseeable Future Actions:**  
12

- 13 • Implementation of Army Transformation & BRAC decisions at Fort Carson.  
14  
15 • Various maintenance and capital improvements projects at and near Fort Carson  
16 pertaining to housing, roadways, utilities, and other infrastructure.  
17  
18 • Constructing the arrival/departure air control group facility at the Colorado Springs  
19 Airport to support deployment of Fort Carson troops.  
20  
21 • Various capital improvements projects to surrounding municipal and county facilities  
22 now being planned or constructed.  
23  
24 • Improving roadway connections directly from I-25 to the Colorado Springs Airport, as  
25 currently being evaluated in the City's South Metro Accessibility Study and the SH 16  
26 EA.  
27

28 **Pinon Canyon Maneuver Training Site**  
29

30 **Past Actions.** The area surrounding the PCMS is currently, and has historically been,  
31 devoted primarily to agricultural uses, particularly ranches, large grazing operations,  
32 and undeveloped lands. U.S. 350, which follows a portion of the historic Santa Fe Trail  
33 and runs along the western edge of the Maneuver Training Site, connects the two  
34 largest cities (La Junta and Trinidad).  
35

36 Cultural and paleontological resources are present throughout the area and at the  
37 Maneuver Training Site. Past agricultural practices might have disturbed these  
38 resources. Some of these resources are present on federal lands, such as the  
39 Comanche National Grassland, and are protected from disturbance. Historical grazing  
40 might also have affected wildlife, vegetation, soils, and water resources. The Maneuver  
41 Training Site was developed by the Army in the mid-1980s. The land, which previously  
42 supported large grazing operations and several residences, was purchased in 1983,  
43 and military training operations began at the site in 1985. Cumulative impacts, therefore,  
44 from the Proposed Action in combination with other past actions would not occur.  
45

1 **Present and Planned Future Actions.** According to Las Animas County (Lucero,  
2 2006) there are no permitted or anticipated projects in the vicinity of the PCMS because  
3 water and sewer infrastructure is not available. The potential exists for future wind-  
4 power projects in Las Animas County but no specific development plans are under  
5 consideration. According to the Otero County Engineering Department (Baker, 2006),  
6 no large-scale projects have been approved within Otero County.  
7

8 Planned development in the area consists of approved projects for 14 individual homes  
9 located throughout the county. The Maneuver Training Site is a military training facility  
10 and has been used for training exercises, on average, approximately 4 months per year.  
11 Use of the Maneuver Training Site in recent years, however, has been less because of  
12 overseas deployments of military personnel in Iraq and Afghanistan. Future use of the  
13 Maneuver Training Site is projected to increase, as noted in this EIS. All planned future  
14 actions at the Maneuver Training Site are considered as part of this EIS. No capital  
15 improvements or changes to training activities have reached a stage at which they may  
16 be properly categorized as reasonably foreseeable, other than those associated with  
17 transformation. Some actions, such as changes in weapons systems or repositioning  
18 of equipment at the Maneuver Training Site, could occur in the future  
19  
20

21 **Potential Future Stationing of Stryker Brigade at Fort Carson and Training at**  
22 **Maneuver Training Site.** Fort Carson is being considered as one of three possible  
23 alternative locations for the future stationing of the Stryker BCT. These various locations  
24 are currently being assessed in the *Environmental Impact Statement for the Permanent*  
25 *Stationing of the 2/25th Stryker Brigade Combat Team (SBCT)*. If the Army makes the  
26 decision to station the Stryker BCT at Fort Carson, the Stryker BCT would train at the  
27 Pinon Canyon Maneuver Site. No decision has been made at this time. Because of the  
28 stationing action of the 2/25<sup>th</sup> SBCT is at a pre-decisional stage, its impacts are not  
29 included in this PEIS. If a decision is made to station the Stryker BCT at Fort Carson, a  
30 site-specific analysis of the impacts of that stationing decision would be conducted at a  
31 future date, including an analysis of the training at the PCMS. This analysis would  
32 include an environmental and socio-economic assessment of impacts of any decisions  
33 made for actions related to this PEIS in addition to decisions made as part of the 2/25<sup>th</sup>  
34 SBCT stationing EIS for both Fort Carson and Pinon Canyon Maneuver Site.  
35

36 **Transformation Action at Fort Carson.** The effects of transformation activities on the  
37 Fort Carson military installation are being addressed in the *Fort Carson Transformation*  
38 *EIS*. The proposed transformation of Fort Carson is an action that is currently being  
39 evaluated in accordance with NEPA regulations and BRAC law.  
40

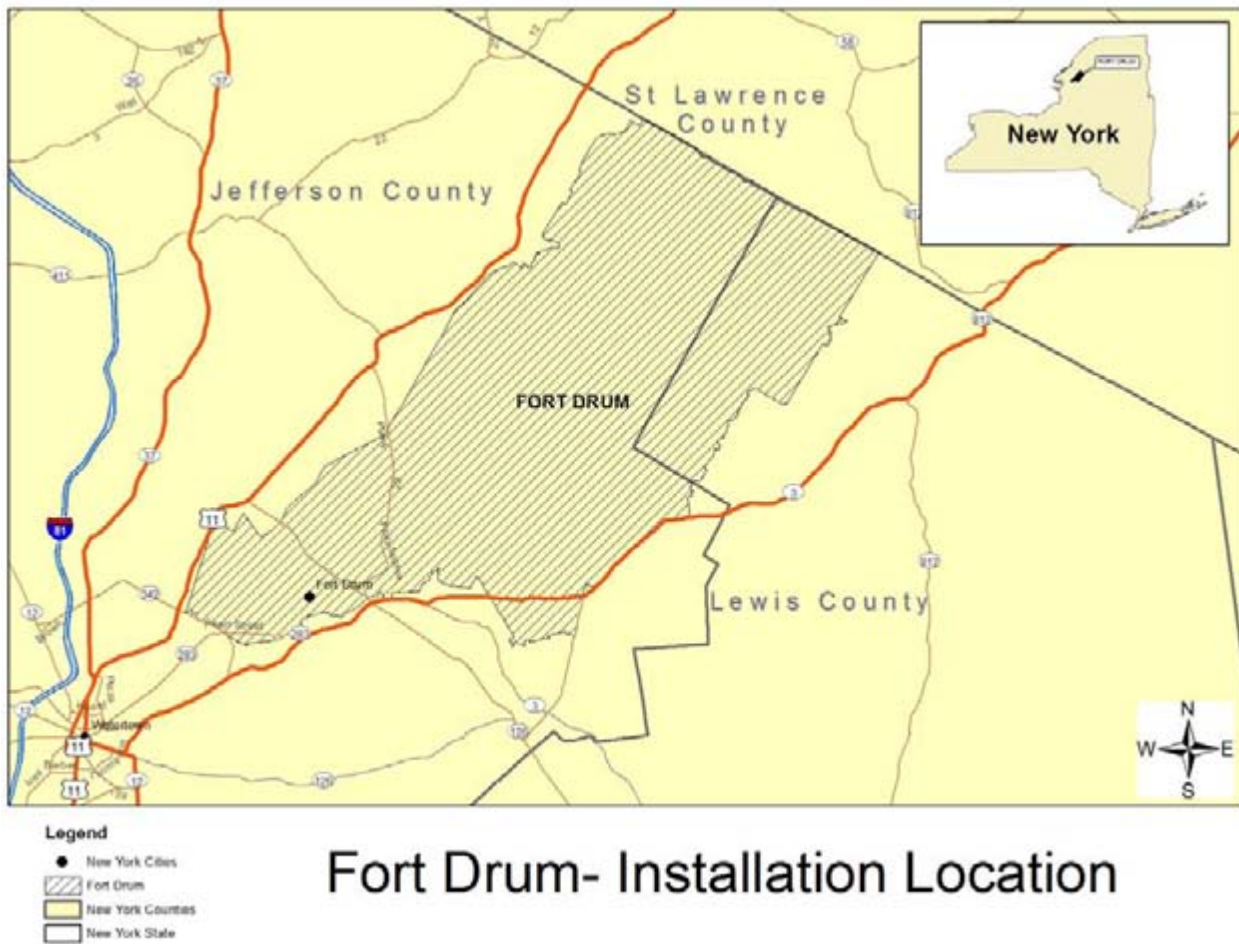
## 42 **4.6 FORT DRUM, NEW YORK**

### 43 **4.6.1 Introduction**

44

45 Fort Drum, located in northern New York, has approximately 107,265 acres, with 77,565  
46 acres of maneuver area suited for vehicle and non-vehicular military training (Figure

1 4.6-1). It has long supported armored/mechanized unit training and dismounted infantry  
2 unit training.  
3



## Fort Drum- Installation Location

4  
5 **Figure 4.6-1 Fort Drum**

6  
7 Fort Drum's major unit is the 10<sup>th</sup> Mountain Division (Light Infantry). The Division  
8 consists of 3 Infantry BCTs, a Combat Aviation Brigade, and a Sustainment Brigade  
9 ([www.drum.army.mil](http://www.drum.army.mil), n.d.).

10  
11 Fort Drum has a robust range infrastructure. Encroachment from urbanization is not yet  
12 a challenge, but there are other concerns that could impact training. ACUBs have been  
13 developed to address encroachment and are pending approval at the Headquarters  
14 level; and the ACUB partnering meetings are concurrently taking place (Fort Drum,  
15 2007b).

16  
17 Table 4.6-1 contains the Fort Drum's VEC ratings for each of the various stationing  
18 action scenarios (Fort Drum, 2007a).

19  
20 **Table 4.6-1. Fort Drum VEC Ratings**

### Fort Drum

VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE (3,000- 3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Low	Low	Low	Low	Low
Air Space	Low	Low	Medium	Medium	Medium
Cultural	Low	Low	Low	Medium	Medium
Noise	Low	Low	Medium	High	High
Soil Erosion Effects	Low	Low	Low	Medium	Medium
T&E/Other Wildlife	Medium	Medium	Medium	Medium	Medium
Wetlands	Low	Low	Low	Medium	Medium
Water Resources	Low	Medium	Medium	Medium	Medium
Facilities	Medium	Medium	Medium	Medium	Medium
Socioeconomics	Medium	High	High	High	High
Energy Demand/ Generation	Low	Medium	Medium	Medium	Medium
Land Use Conflict/ Compatibility	Low	Medium	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Medium	Medium	Medium	Medium
Traffic and Transportation	Low	Medium	Medium	Medium	Medium

1  
2           **4.6.2 Air Quality**  
3                   **4.6.2.1 Affected Environment**  
4

5 The affected environment includes air emissions associated with Fort Drum, Lewis  
6 County, St. Lawrence County and Jefferson County, New York. Northern New York,  
7 including Fort Drum, is designated as a marginal ozone nonattainment area due to its  
8 location within the Northeast Ozone Transport Region. For all other criteria pollutants,  
9 the area is designated as being in attainment.

10  
11 Actual emissions from stationary sources at Fort Drum fall below the thresholds for  
12 major source determination with the exception of VOCs. Potential emissions from  
13 stationary sources at Fort Drum exceed the Major Facility threshold for CO, NO<sub>x</sub>, SO<sub>2</sub>,  
14 and VOCs. Because permitting requirements are determined based on a facility's  
15 "potential to emit," Fort Drum is considered a major facility and has already submitted  
16 their Title V application. Since Fort Drum is a major source, the general conformity rule  
17 applies as a result of being in an ozone nonattainment area. The general conformity  
18 rule requires analysis of total direct and indirect emissions of criteria pollutants,  
19 including precursors, when determining conformity of the proposed action. The rule

1 does not apply to actions where the total direct and indirect emissions of criteria  
2 pollutants are at or below established *de minimis* levels.

### 4 4.6.2.2 Environmental Consequences

5  
6 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term  
7 minor (low) impacts to air quality from the addition of 1,000 to 7,000 Soldiers are  
8 expected. It is assumed that the resulting increases in air emissions are directly  
9 proportional to the increase in population at the facility. In general, combustion and  
10 facility operations will produce localized, short-term elevated air pollutant concentrations  
11 that should not result in any sustained impacts on regional air quality. Any construction  
12 related emissions also have the potential to produce localized, short-term elevated air  
13 pollutant concentrations but these are not anticipated to have a significant effect on  
14 regional air quality, and no long-term impacts are expected. Combustion emissions  
15 resulting from training would be primarily from mobile sources and be widely distributed  
16 both spatially and temporally. Given the wide distribution of emissions, it is not  
17 anticipated that regional air quality would be significantly affected. Emissions resulting  
18 from stationary sources required for facility operations to support the increased number  
19 of Soldiers and their Families will have greater, long-term impacts than those resulting  
20 from training but not significant enough to cause regional air quality issues. The  
21 installation would expect increases in emissions from equipment required to support the  
22 installation such as fuel storage and dispensing, boiler operations, and possible electric  
23 peak-shaving generators. Though the facility can expect increased emissions from  
24 military vehicles and generators used to support training events as well as increase in  
25 fugitive dust, these will tend to remain localized and produce no significant impact to  
26 regional air quality. The increase in POVs from the additional Soldiers and family  
27 members must also be addressed in the conformity analysis but do not appear too  
28 insurmountable. Construction, though not technically an operation subject to the  
29 provisions of the CAA but a short-term contributor to air quality, and changes to facility  
30 operations to support multiple brigades would have short-term impacts to air quality.

### 31 4.6.3 Airspace

#### 32 4.6.3.1 Affected Environment

33  
34  
35 Fort Drum has 147 square miles of FAA-designated Special use airspace, up to 23,000  
36 feet. The installation has access to this airspace continuously, with restrictions, and is  
37 controlled by the FAA of Boston, MA (U.S. Army, 1996). Restricted airspace R-5201 is  
38 found within the installation boundary (Fort Drum, 2007b).

39  
40 The airspace includes the area within an approximate 40 mile-radius of Wheeler-Sacks  
41 Army Airfield (WSAAF) from the ground surface up to an altitude of 10,000 feet mean  
42 sea level (MSL) to the west of the airfield and 6,000 feet MSL to the east. This airspace  
43 generally corresponds to the airspace allocated to the Fort Drum Army Radar Approach  
44 Control (ARAC). The ARAC provides air traffic control services for the Fort Drum  
45 region. The FAA Boston Air Traffic Control Center (ATC) controls airspace adjoining  
46 ARAC airspace (U.S. Army, 2005).

1  
2 **4.6.3.2 Environmental Consequences**  
3

4 **CS/CSS, Full Sustainment BDE.** Long-term minor (low) impacts to airspace are  
5 expected from the addition of 1,000 to 3,500 Soldiers. It is anticipated that the activities  
6 associated with a CS/CSS and Full Sustainment BDE would have almost no impact to  
7 air operations. Use of airspace would continue to be managed through scheduling and  
8 balancing requirements with airspace availability.  
9

10 **IBCT, HBCT, Multiple BCTs.** Long-term moderate (medium) adverse impacts are  
11 expected from the addition of 3,500 to 7,000 Soldiers. The UAV activities associated  
12 with a BCT or multiple BCTs would require increased use of existing airspace. Future  
13 new systems or modifications to existing systems could also affect airspace use,  
14 resulting in greater demand for exclusive military use of the resource (U.S. Army, 2005).  
15

16 **4.6.4 Cultural Resources**

17 **4.6.4.1 Affected Environment**  
18

19 The Fort Drum affected environment for cultural resources is the footprint on the  
20 installation. Fort Drum has 636 historic sites, 215 prehistoric sites, 5 historic visits, and  
21 13 cemeteries. Fort Drum is also the home of the LeRay Mansion Historic District.  
22 Approximately 85% of the installation has been surveyed for cultural resources. This  
23 equates to 90,950 acres that have been surveyed. Some of the previously surveyed  
24 portion of the installation will be resurveyed as some of the earlier field work does not  
25 meet modern standards (U.S. Army, 2002).  
26

27 **4.6.4.2 Environmental Consequences**  
28

29 **CS/CSS, Full Sustainment BDE, IBCT.** Long-term minor (low) adverse impacts are  
30 expected from the addition of 1,000 to 3,500 Soldiers. It is anticipated that as maneuver  
31 activities increase the possibility of impacts to unknown sites increase as well. The  
32 equipment assigned to these units includes general medium to large vehicles, and in  
33 the case of the IBCT, towed artillery. It is anticipated that there will be little off road  
34 training in undisturbed areas. The relatively small number of vehicles and Soldiers will  
35 likely have little impact on undocumented cultural/archaeological resources.  
36 Additionally, due to the large percentage of previously surveyed land, the Cultural  
37 Resource Manager (CRM) would easily be capable of clearing previously surveyed land  
38 for off road training.  
39

40 **HBCT, Multiple BCTs.** Short- and long-term moderate (medium) adverse impacts are  
41 expected from the addition of 3,800 to 7,000 Soldiers. The higher personnel count  
42 equates to higher probability that historic and/or archaeological resources will be  
43 impacted. The heavy tracked vehicles of a HBCT could impact previously undiscovered  
44 cultural/archaeological resources within the training area. Currently, efforts are  
45 employed to avoid, minimize, or reduce impacts to installation cultural resources. All

1 known sites have been reviewed and surveyed prior to training, and thus are avoided  
2 during training exercises.

3  
4 **4.6.5 Noise**  
5 **4.6.5.1 Affected Environment**  
6

7 The noise environment on Fort Drum is characterized as aircraft, artillery, and blast  
8 such as the sound of a weapon firing or the projectile exploding in the impact area.  
9 Artillery weapons tend to generate the highest level of noise heard on and off the  
10 installation; however the highest sound exposure levels are generated from the aircraft  
11 maneuvers (fixed- and rotary-winged). Fort Drum is used by the Army, Army National  
12 Guard, and by the Air Force for aircraft training including air-to-ground weapons training  
13 (U.S. Army, 2006).

14  
15 Residential housing outside the installation is largely composed of Soldiers and their  
16 Families; and civilians associated with the installation. Fort Drum is constructing, via  
17 the Residential Communities Initiative (RCI) program, some of that housing on-post,  
18 and leasing current available housing units.

19  
20 According to the Programmatic Environmental Assessment for Fort Drum, NY (U.S.  
21 Army, 2000), NZ II extends off the installation boundary into the Town of Diana;  
22 however, most development in this area is agricultural with single-family residences and  
23 further development is generally discouraged. NZ II also extends off-post to the Town  
24 of Wilna along State Road 3 from artillery impact areas, and along the installation  
25 boundary into the Town of Rossie and north of the Village of Antwerp. No incompatible  
26 land uses occur in any of these three areas. NZ III created from blast noise or artillery  
27 fire does not extend off the installation boundary.

28  
29 Noise generated from the airfield is heard off-post to the north in the town of  
30 Philadelphia along Great Bend Road. This area contains very few houses and one  
31 school. Aircraft flyover noise is also heard in the Town of Antwerp. Noise generated  
32 from helicopter operations within the training area is contained almost entirely on-post  
33 with the exception of a small area south of the Village of Spragueville. (U.S. Army,  
34 2005)

35  
36 **4.6.5.2 Environmental Consequences**  
37

38 **CS/CSS, Full Sustainment BDE.** Short- and long-term minor (low) adverse impacts  
39 are expected to the natural environment from stationing a CS/CSS or Full Sustainment  
40 BDE to Fort Drum. Construction noise would be minor and short-lived. The installation  
41 is responsible for training more than 80,000 Soldiers annually. The addition of 1,000 to  
42 3,500 Soldiers will have a minor impact to wildlife. Environmental Program Managers  
43 would need to review their INRMPs to ensure best practices are used to mitigate noise  
44 from maneuver and training activities. Small arms training is not likely to be a problem  
45 on- or off-post. While noise from small arms ranges 7, 8, and 9 can be heard off-post,  
46 that noise tends not to significantly impact off-post residences. Several studies indicate

1 that the wildlife on Army land tends to adjust quickly to noise generated from training  
2 (Stalmaster et al., 1997; Telesco and Van Manen, 2002; USACE, November 2002).  
3 Existing noise contours would not likely change.

4  
5 **IBCT.** Short- and long-term moderate (medium) adverse impacts are expected to  
6 wildlife and the residential communities outside the installation border. Construction  
7 impacts would be minor and short-term. Though Fort Drum has three BCTs, all three  
8 have never been on the installation at the same time. An IBCT of 3,500 Soldiers  
9 permanently stationed on the installation may require Fort Drum to review current noise  
10 contours and ensure artillery fire is consistent with the current level of training. An  
11 increase in artillery fire from the IBCT may be heard off-post as part of NZ II, in the  
12 towns of Wilna and Rossie, however, the current peak noise threshold for artillery fire  
13 would not be exceeded.

14  
15 **HBCT, Multiple BCTs.** Long-term significant (high) adverse impacts are expected to  
16 the local community and to other noise sensitive receptors from the addition of 3,800 to  
17 7,000 Soldiers. The noise contours for NZ II from the artillery impact area may be  
18 impacted or extended. Further site-specific analysis would be necessary to determine  
19 any changes to the current noise contours at Fort Drum. Fort Drum is expecting an  
20 extraordinary amount of growth in the reasonably foreseeable future, which could mean  
21 more developments closer to the installation border, and more residents impacted by  
22 noise generated from training. The INRMP will need to be followed and possibly  
23 updated for noise mitigations and extra precaution taken during nighttime training.

## 24 **4.6.6 Soil Erosion**

### 25 **4.6.6.1 Affected Environment**

26  
27  
28 Fort Drum is located in the Lake Erie-Lake Ontario lowlands. Plainfield sands dominate  
29 this location, and they have a high permeability and low water holding capacity –  
30 leading to high water conductance. Wind erosion is likely in lowland unvegetated areas.

### 31 **4.6.6.2 Environmental Consequences**

32  
33  
34 **CS/CSS, Full Sustainment BDE, IBCT.** Long-term minor (low) adverse impacts are  
35 expected from the wheeled vehicles in these units with the addition of 1,000 to 3,500  
36 Soldiers. Off-road movement could have an impact on vegetation and soil surfaces,  
37 leading to the conditions for erosion. It is recommended that the condition of existing  
38 (unimproved) range roads and their ability to support for heavy truck traffic be  
39 evaluated. The IBCT dismounted training will have a low impact on soils and the  
40 vehicles of the IBCT could have a greater effect in areas where dismounted training is  
41 concentrated most.

42  
43 **HBCT, Multiple BCTs.** Long-term moderate (medium) adverse impacts are expected  
44 on roads and off-road areas due to the number, size, and variety of wheeled and  
45 tracked vehicles in an HBCT or multiple BCTs and the weight and mobility  
46 characteristics of the vehicles. The terrain will show the impact from the vehicle



1 maneuvers, turns, and traction. The road network may deteriorate rapidly leading to  
2 trafficability and erosion problems. Off-road traffic and maneuvers will increase, which  
3 will have a moderate negative impact on vegetation and the soils. Conditions for water  
4 and wind erosion could increase.

## 5 6 **4.6.7 Vegetation and Wildlife/Threatened and Endangered Species**

### 7 **4.6.7.1 Affected Environment**

8  
9 There are 27 special status species of flora and fauna that are known to occur within the  
10 Fort Drum area. Fort Drum currently records only one endangered species as  
11 contiguous to the installation, and on-site, the Indiana Bat. A Biological Assessment is  
12 currently being prepared. More information on this species can be found in Appendix T.  
13

### 14 **4.6.7.2 Environmental Consequences**

15  
16 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Under each of these  
17 unit growth scenarios, long-term moderate (medium) adverse impacts are expected on  
18 listed Indiana Bat or other species recorded as occurring on the installation.  
19 Implementation of any of these levels of Soldier strength could have an impact on this  
20 species. As mentioned, a Biological Assessment of the installation's listed species is  
21 currently being prepared. The installation will continue to manage its natural resources  
22 and potential habitat for in accordance with the installation INRMP and any conservation  
23 measures identified in any ESA, Section 7 consultation documents.  
24

## 25 **4.6.8 Wetlands**

### 26 **4.6.8.1 Affected Environment**

27  
28 Fort Drum contains approximately 16,244 acres of wetlands (Army Environmental  
29 Database-Environmental Quality, (n.d.)) which constitutes roughly 20% of the  
30 installation (U.S. Army, 2001). Numerous wetland types (forested wetland, freshwater  
31 marshes, scrub-shrub, etc.) are found throughout the installation. Wetland boundaries  
32 change frequently due to changing hydrology brought on by natural succession and  
33 beaver activity. Several compensatory wetlands were created on Fort Drum as part of  
34 past mitigation (U.S. Army, 2001). These wetlands were developed in perpetuity and  
35 the installation is ensuring sure that these wetlands will not be negatively impacted.  
36

### 37 **4.6.8.2 Environmental Consequences**

38  
39 **CS/CSS, Full Sustainment BDE, IBCT.** Long-term minor (low) adverse impacts are  
40 expected on the installation wetlands as a result of the restationing of 1,000 to 3,500  
41 Soldiers at Fort Drum. Training activities will be relegated to established training areas.  
42 The addition of even up to 3,500 Soldiers will not pose significant impacts to wetlands  
43 as best management practices are observed for training according to Fort Drum's  
44 INRMP. Additionally, the level of training associated with maneuver activities for the  
45 CS/CSS and Full Sustainment BDE is significantly lower than current training levels

1 experienced on the installation for larger units. Efforts are made for dismounted Soldier  
2 training associated with the IBCT to avoid any impacts on wetlands.

3  
4 **HBCT, Multiple BCTs.** Long-term moderate (medium) adverse impacts to the  
5 installation wetlands are expected due to the presence of an additional 3,800 to 7,000  
6 Soldiers at Fort Drum. Training activities will be relegated to established training areas.  
7 Efforts will be made to avoid any impacts on wetlands by using the installation wetlands  
8 planning level surveys or GIS mapping. Hardened crossings can be constructed when  
9 needed to reduce impacts.

## 10

### 11 **4.6.9 Water Resources**

#### 12 **4.6.9.1 Affected Environment**

### 13

#### 14 **Water Supply**

15 Potable water is supplied to Fort Drum from the Development Authority of the North  
16 Country (DANC), which subcontracts water and sewer service to the City of Watertown.  
17 However, Fort Drum is under contract for water and sewer service with DANC. Fort  
18 Drum estimates current water usage from DANC to be approximately 1.5 MGD. DANC  
19 can supply up to 4 MGD through its 20-inch transmission main to the installation. Water  
20 is supplied to the Watertown Water Treatment Plant from the Black River. The on-post  
21 well field is used as a backup water supply that has a total combined well capacity of up  
22 to approximately 3.3 MGD. The chlorination plant at the well field is currently sized for  
23 5.7 MGD. Development with the on-post well field is restricted within 300 to 500 feet of  
24 a water supply well. In addition, Fort Drum operates, as needed, a well field of 11 wells  
25 near the airfield.

26  
27 DANC and the City of Watertown recently (this year) finished a regional study for the  
28 water and sewer systems which determined that there is sufficient capacity in the  
29 transmission and treatment systems to support the total growth in the immediate area  
30 around and including Fort Drum (Fort Drum, 2007c).

#### 31 **Wastewater**

32  
33 The primary non-domestic discharges from Fort Drum included oil/water separators and  
34 treated groundwater from environmental remediation sites. The total domestic  
35 wastewater flow from Fort Drum rarely exceeds 2.5 MGD. The capacity of the existing  
36 collection system and off-post connections is ample. For example, the North Gate pump  
37 station is rated for 8 to 10 MGD, but the average daily wastewater flow from Fort Drum  
38 was only approximately 2.0 MGD for 2007. The installation has three other points of  
39 entry into the DANC sewer system; one from the North Post, one from the South Post  
40 and actually two others from the Pine Woods housing site. All have excess capacity  
41 from the actual flows being supplied at this time (Fort Drum, 2007c). The existing  
42 infrastructure for wastewater conveyance could easily support a 50 percent increase in  
43 demand. There is an on-going upgrade process with the current system.

#### 44 **Stormwater**

45

1 Fort Drum falls within the jurisdiction of the State of New York, an EPA National  
2 Pollutant Discharge Elimination System delegated state. As such, Fort Drum must  
3 comply with New York State laws and regulations governing stormwater discharges  
4 under State Pollutant Discharge Elimination System permits.  
5

6 Fort Drum conveys stormwater runoff via open drainage ditches and swales and  
7 subsurface piping systems, which discharge directly to on-post grounds through  
8 infiltration and surface water bodies such as streams, creeks, ponds and rivers.  
9 Additionally, man-made stormwater treatment ponds have been and are being installed  
10 as required in conjunction with Fort Drum facility growth.  
11

12 Fort Drum has obtained permit coverage for stormwater discharges from their industrial  
13 activities under the New York State Pollutant Discharge Elimination System Multi-Sector  
14 Permit for Stormwater Discharges Associated Industrial Activity. Further, Fort Drum has  
15 obtained storm water permit coverage for their airfield de-icing operations under an  
16 Individual New York State Stormwater General Permit.  
17

18 Coverage for individual construction projects that meet or exceed 1 acre of disturbance  
19 on Fort Drum is obtained through the State Pollutant Discharge Elimination System  
20 Permit for Construction Activity.  
21

22 Currently, Fort Drum is not subject to a State Pollutant Discharge Elimination System  
23 permit for Municipal Separate Storm Sewer Systems (MS4) (Fort Drum, 2007d).  
24

#### 25 **4.6.9.2 Environmental Consequences**

26  
27 **CS/CSS.** Short- and long-term minor (low) adverse impacts are expected with the  
28 addition of 1,000 Soldiers at Fort Drum. Given the population of Fort Drum, the addition  
29 of a CS/CSS will not have significant impact to water demand and associated treatment.  
30 There are adequate facilities at Fort Drum to accommodate this level of growth.  
31

32 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term moderate  
33 (medium) adverse impacts are expected with the addition of 3,000 to 7,000 Soldiers,  
34 Personnel consumption and washing of vehicles would increase water demand and  
35 associated treatment. The installation would also need to revisit their Stormwater  
36 Pollution Prevention Plan to incorporate best management practices for this level of  
37 growth. Additionally, any new construction/land disturbance over 1 acre will require a  
38 stormwater construction permit which would entail identification and implementation of  
39 mitigation strategies to reduce impacts associated with stormwater runoff during and  
40 after construction. Motorpool activities and washing of track-driven heavy-tracked  
41 vehicles would produce a significant increase on water demand and associated  
42 treatment. Fort Drum may need to construct new washing systems to manage heavy-  
43 tracked vehicles.  
44

#### 45 **4.6.10 Facilities**

##### 46 **4.6.10.1 Affected Environment**

1  
2 Fort Drum encompasses approximately 107,265 acres in northern New York State and  
3 is located approximately 10 miles northeast of Watertown, NY and 15 miles east of Lake  
4 Ontario (U.S. Army, 2005).

5  
6 In 2006, approximately 740,000 square feet of new facilities were completed. Most of  
7 these facilities are located at the WSAAF and are comprised of permanent and interim  
8 facilities for the Combat Aviation Brigade. Permanent construction completed in 2006 at  
9 the airfield includes: a 240-person barracks building, a brigade headquarters, three  
10 battalion headquarters, five company headquarters, a consolidated Soldier aid station,  
11 an aircraft hangar, a vehicle maintenance facility and associated infrastructure. Interim  
12 facilities completed include: a brigade headquarters annex, two battalion headquarters,  
13 fourteen company headquarters, two arms storage buildings, a dining facility and 25  
14 barracks buildings to house 600 Soldiers.

15  
16 Other projects completed in 2006 include three barracks buildings on North Post to  
17 house 276 Soldiers, a medical simulation training facility on South Post, a  
18 Departure/Arrival Airfield Control Group expansion, a Tactical Unmanned Aerial Vehicle  
19 facility and a fuel truck storage building at the airfield, and a defensive live-fire range.

20  
21 Permanent facilities scheduled for completion in 2007 include: a 240-person barracks  
22 building, a dining facility, and hangar additions for company headquarters at the airfield,  
23 a force modernization educational facility on South Post, a Pine Plains Physical Fitness  
24 Center addition, an Ammunition Supply Point pallet processing facility, and a Readiness  
25 Center for the New York Army National Guard (U.S. Army, 2006).

26  
27 Military functions can be divided into a number of land use categories displaying, with a  
28 few exceptions, the basic attributes of civilian land use types. Land uses at Fort Drum  
29 include Headquarters and Administration, Soldier Housing, Soldier Maintenance,  
30 Industrial, Community Facilities, Medical Facilities, Operations, Family Housing,  
31 Training Areas, and Buffer and Recreation. All of these uses are located within the  
32 Cantonment Area. Land outside the Cantonment Area and outside the WSAAF  
33 consists of Training and Operations.

#### 34 35 **4.6.10.2 Environmental Consequences**

36  
37 **CS/CSS. Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term  
38 moderate (medium) adverse impacts to facilities are expected under all unit growth  
39 scenarios. It is anticipated an increase of 1,000 to 7,000 Soldiers would increase  
40 activities within the Cantonment Area, including but not limited to, increased usage of  
41 the Post Exchange, commissary, medical, and Family support facilities.

42  
43 One factor to consider in fielding any of these unit growth scenarios is that while Fort  
44 Drum currently has three BCTs assigned, all units have not been on Post at the same  
45 time because of ongoing deployments. The installation is still constructing facilities to  
46 accommodate the third BCT. Other issues with potential stationing include shortages in

1 available facilities. Fort Drum has available land to support a CS/CSS, but required  
2 studies have yet to be conducted. The available land may contain wetlands, requiring  
3 coordination with state and federal agencies and impact studies prior to construction of  
4 new facilities (Fort Drum, 2007c).

5  
6 Activities within the training and range areas would be limited to existing firing ranges  
7 and roadways. However, these activities would have to be scheduled to coordinate with  
8 existing mission activities. The installation should be able to reasonably accommodate  
9 a CS/CSS. A study using SIRRA would also be beneficial.

10  
11 Fort Drum would face similar challenges to fielding a Full Sustainment BDE that a  
12 CS/CSS would demonstrate, albeit at a greater scale. The installation would have to  
13 accommodate a *fourth* BCT while still adjusting to the presence of the third BCT on  
14 post. Increased facilities usage would be expected, as would additional construction to  
15 support a BDE.

16  
17 The establishment of an HBCT at Fort Drum may exceed the capacity of the installation  
18 to accommodate the proposed action despite the availability of buildable space for  
19 expansion. If identified by the installation, additional coordination and consultation may  
20 be necessary for activities associated with an HBCT. An excess collective demand on  
21 facilities and infrastructure required by a HBCT could lead to an overall degradation of  
22 facilities quality within the Cantonment Area, with regards to housing and support  
23 services, unless new facilities were constructed to support this level of growth.

24  
25 There is a high probability that multiple BCTs would increase congestion beyond the  
26 carrying capacity of the cantonment infrastructure and support services. The availability  
27 of buildable space would support multiple BCTs. However, the installation is still  
28 attempting to accommodate a current third BCT on post, and it is highly unlikely that the  
29 installation could support additional BCTs without extensive new construction. The level  
30 of construction required at this level is resource intensive and potentially beyond the  
31 ability of Fort Drum to sustain. The excess aggregate demand on cantonment facilities  
32 and infrastructure required by multiple BCTs may exacerbate system degradation within  
33 the Cantonment Area, or create non-compliant regulatory issues.

#### 34 35 **4.6.11 Energy Demand/Generation** 36 **4.6.11.1 Affected Environment** 37

38 Fort Drum's energy requirements for electrical and natural gas service are provided by  
39 the local utility company National Grid. The internal distribution systems are  
40 government owned and operated.

41  
42 **Electricity:** Transmission power is supplied to the installations two 15 MW substations,  
43 one located at the north end of the cantonment area and one at the south end. The  
44 combination of these stations provide for the capabilities to support a 30+ MW load.  
45 The current average monthly demand load is 15.8MW with a monthly average of 884  
46 MWH. The current system can support an additional 50 % increase without any

1 expansion required. This can easily support an additional BCT and associated  
2 families.

3  
4 **Natural Gas:** Natural gas is supplied to the installation through three active service  
5 points. The two main services are both 8” supplies from the local utilities high pressure  
6 system. The third point is a 6” line supplied from a medium pressure system. The  
7 current usage on the system is a monthly average of 716,666 therms. Without any  
8 changes the system can support up to three times this load. The current supply and  
9 system can easily support an additional BCT and associated families without any  
10 expansion requirements.

#### 11 **4.6.11.2 Environmental Consequences**

12  
13  
14 **CS/CSS.** Long-term minor (low) adverse impacts are expected with the addition of a  
15 CS/CSS unit with 1,000 Soldiers. This represents a small fraction of the overall mission  
16 activity at Fort Drum. This fact, combined with a large excess of energy resources  
17 available, means that this unit growth scenario is likely to have a minimal impact on  
18 energy demand and to the natural environment.

19  
20 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Long-term moderate (medium)  
21 adverse impacts are expected from the addition of 3,000 to 7,000 Soldiers. New  
22 electrical hardware may need to be installed (for training and housing facilities), and  
23 distribution pressure of natural gas could be increased in order to support the increase  
24 in demand. This can be attributed to Fort Drum’s abundance of energy resources  
25 available.

### 26 **4.6.12 Land Use Conflicts/Compatibility**

#### 27 **4.6.12.1 Affected Environment**

28  
29  
30 Military functions can be divided into a number of land use categories displaying, with a  
31 few exceptions, the basic attributes of civilian land use types. Land uses at Fort Drum  
32 include Headquarters and Administration, Soldier Housing, Soldier Maintenance,  
33 Industrial, Community Facilities, Medical Facilities, Operations, Family Housing,  
34 Training Areas, and Buffer and Recreation. All of these uses are located within the  
35 Cantonment Area. Fort Drum also has 'Local Training Areas' wherein Cantonment  
36 lands are used for common task training missions until allocated use is funded (e.g.  
37 housing, facilities/ranges, recreation, etc.). Land outside the Cantonment Area and  
38 outside the WSAAF consists of Range Operations and Training Lands. Locations and  
39 descriptions for each of the land uses at Fort Drum are presented in Figure 2.2 of the  
40 Programmatic EA (U.S. Army, 2000).

41  
42 The military operations land use areas at Fort Drum include facilities that support  
43 mission operations. There are three areas of operations land use at Fort Drum. The  
44 largest area is the WSAAF. Additionally, the Ammunition Supply point is also classified  
45 as operations land use. The operations land use areas comprise less than 2,500 acres,  
46 or less than three percent of Fort Drum’s land area.

1  
2 Within the Cantonment Area, training areas primarily consist of Local Training Areas  
3 that extend outward from Memorial Drive, in the Mountain View portion of the post.  
4 Local Training Areas are outdoor areas used for company-level, individual, and  
5 collective training. Training land use in the Cantonment Area comprises  
6 approximately 1,628 acres. This land is buildable land not yet programmed  
7

8 Buffer land is used to separate incompatible land uses and mitigate the impacts on  
9 more sensitive land uses (such as Family Housing). Buffer land at Fort Drum runs north  
10 along Mount Belvedere Boulevard, from the Belvedere Gate to North Memorial Street  
11 then west along North Memorial Street to the Memorial Gate. The Buffer land use  
12 occupies 780 acres within the Cantonment Area (US Army, 2005). However, lands  
13 referred to as buffer lands may soon be programmed for construction (Fort Drum,  
14 2007c).  
15

#### 16 **4.6.12.2 Environmental Consequences**

17

18 **CS/CSS.** Short and long-term minor (low) adverse environmental impacts on  
19 installation land use are expected due to the presence of an additional 1,000 Soldiers  
20 and their family members assigned to the installation. The installation has vacant space  
21 available in existing buildings, and has land available to build needed facilities, or a  
22 combination thereof to meet the unit's mission requirements. Additionally, the land, or  
23 existing facilities, are located such that surrounding facilities are compatible with the  
24 additional CS/CSS unit. The facilities required for a CS/CSS will be located within a  
25 single contiguous land unit.  
26

27 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short and long-term moderate  
28 (medium) adverse environmental impacts on installation land use are expected due to  
29 the presence of an additional 3,000 to 7,000 Soldiers and their family members.  
30 Building new facilities to accommodate this level of growth may require the installation  
31 to re-zone existing land uses, or re-use/remodel facilities in areas not compatible with  
32 land uses associated with tactical units. Existing land and/or facilities may not be  
33 contiguous and located such that tactical vehicles would need to travel extensively  
34 within the cantonment area to reach training ranges.  
35

#### 36 **4.6.13 Hazardous Materials/Hazardous Waste**

##### 37 **4.6.13.1 Affected Environment**

38

39 The affected environment includes the use, storage, transport, and disposal of  
40 hazardous materials and wastes at Fort Drum. This includes hazardous materials and  
41 wastes from USTs and aboveground storage tanks, deicers, pesticides, LBP, asbestos,  
42 PCBs, radon, and UXO.  
43

44 Maintenance support and specialized flight support operations currently use large  
45 quantities of aviation fuel, ground vehicle fuel, lubricants, hydraulic fluids, antifreeze,  
46 degreasers and solvents, chemical batteries, and paint-related materials. The volume

1 of hazardous waste generated on an annual basis at Fort Drum qualifies the post as a  
2 large quantity generator. To handle this waste, Fort Drum utilizes two hazardous waste  
3 storage facilities. Fort Drum manages its hazardous waste as summarized in its  
4 Hazardous Waste Management Plan updated every two years (U.S. Army, 2005).

#### 5 6 **4.6.13.2 Environmental Consequences**

7  
8 **CS/CSS.** Long-term minor (low) adverse environmental impacts from hazardous  
9 materials and waste are expected with the restationing of a CS/CSS unit. It is  
10 anticipated that Fort Drum would minimally increase its storage and use of hazardous  
11 chemicals during training exercises and installation maintenance with an increase of  
12 1,000 Soldiers. Waste collection, storage, and disposal processes would remain mostly  
13 unchanged, and current waste management programs would continue.

14  
15 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term moderate  
16 (medium) adverse environmental impacts from hazardous materials and waste would  
17 be expected with an increased Soldier strength of 3,000 to 7,000. Impacts to  
18 environmental management could be considered more significant *if* use or removal of  
19 hazardous substances caused an uncontrollable release of the substances to the  
20 environment, which then posed an increased threat to the environment or human well-  
21 being. (Fort Drum, 2005) Currently, Fort Drum has three BCTs that have yet to be  
22 present at the installation at the same time. Additional BCTs could be a challenge to  
23 handle waste generation, storage, and disposal (Fort Drum, 2007a).

24  
25 With the addition of 3,000 to 7,000 Soldiers, substantial urban and semi-urban settings  
26 to support training and future mission requirements would be needed. Many projects  
27 involve the use, generation, and storage of hazardous materials and wastes during  
28 facility demolition, renovation, or construction. The demand for additional storage and  
29 disposal capacity would have to be met at the local level at the installation. Army  
30 policies, regulations, and guidelines that manage the use, storage, and disposal of  
31 materials and wastes would need to be updated to reflect the change in mission at Fort  
32 Drum and expanded training activities.

#### 33 34 **4.6.14 Traffic and Transportation**

##### 35 **4.6.14.1 Affected Environment**

36  
37 The ROI of the affected environment for traffic and transportation aspects include Fort  
38 Drum, and several neighboring counties, to include Jefferson, Lewis, and St. Lawrence  
39 Counties, and the communities therein, to include the City of Watertown. Major road  
40 routes in the region include I-81 and US 11; I-81 is a north-south interstate highway  
41 located approximately 5 miles west of the installation. US Route 11 is a north-south  
42 major arterial that passes through the City of Watertown. New York State Routes 3,  
43 283, and 342 lead to the installation cantonment area. The City of Watertown, located



1 approximately 3 miles southeast of the Fort Drum cantonment area, owns and operates  
2 a bus transit system, but none of its routes include Fort Drum.<sup>5</sup>  
3

#### 4 **4.6.14.2 Environmental Consequences**

5

6 **CS/CSS.** Short and long-term minor (low) adverse environmental impacts on traffic and  
7 transportation systems on the installation are expected due to the presence of an  
8 additional 1,000 Soldiers and their family members assigned to Fort Drum. Spread  
9 across the ROI, this population will have de minimis impact on the overall traffic  
10 congestion in the neighboring communities. This additional population may contribute  
11 nominally to traffic volume on the installation, and is not expected to reduce the level of  
12 service (LOS) on the installation's road network. There may be a slight increase in  
13 traffic volume during peak morning and evening hours, but it would not affect either level  
14 of service or pose an increased risk to the safety of pedestrians and bicyclists.  
15

16 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short and long-term moderate  
17 (medium) adverse environmental impacts on traffic and transportation systems on the  
18 installation are expected due to the presence of an additional 3,000 to 7,000 Soldiers  
19 and their family members assigned to the installation. The increase in off-post traffic  
20 would have a moderate impact on traffic in the community overall and could contribute  
21 to a decrease in the LOS in the road network leading to the installation, particularly  
22 during peak morning and afternoon travel periods. This level of increase in population  
23 could also have a moderate impact on the traffic volume on the installation, and could  
24 cause a minor decrease in LOS on some of the installation's arterial routes. The  
25 increased traffic volume in both the neighboring communities and on the installation  
26 could pose a moderate increased level of risk to the safety of pedestrians and bicyclists.  
27

#### 28 **4.6.15 Cumulative Effects**

29

30 Fort Drum personnel (Fort Drum, 2007a) identified a list of cumulative effects actions,  
31 on- and off-post, that may present further effects to the installation and surrounding  
32 community when the effects of these actions are considered cumulatively. Fort Drum  
33 acknowledged that other construction and modification projects (in addition to what is  
34 listed below) may be likely in the reasonably foreseeable future; but may not contribute  
35 considerably to cumulative effects when combined with the level of growth identified in  
36 this PEIS.  
37

38 Past and recently completed projects off-post:

- 39 • Construction of a Super Wal-Mart occurred in 2006;
- 40 • Over the last two year there has been, in the city of Watertown, construction of a  
41 Target, a strip of stores (with Pet Smart, Old Navy, and Bed Bath & Beyond),  
42 across from another strip of stores (with a Panera Bread, Sally's Beauty, Game  
43 Store, and two empty sections), several restaurants (Texas Road House, Ruby  
44 Tuesdays, TOGA Fridays), two new hotels (a holiday Inn express opened and a

---

<sup>5</sup> Reference: <http://www.citywatertown.org/citibus/citibus.html>, Accessed 23 April 2007.

1 Hampton Inn is still in construction), near there is a stand alone Starbucks and a  
2 new Ponderosa restaurant (moved because of road construction to change the  
3 ramps onto I-81).  
4

5 **Current and Ongoing Activities Off-Post:**

- 6 • I-81 to US 11 Connector Project. This project will provide an improved  
7 connection between Interstate 81 (I-81) and US Route 11 at or near the North  
8 Gate Entrance to Fort Drum. The project study area is located in the central  
9 portion of the Town of Pamela and the southwest quadrant of the Town of  
10 LeRay. The study area is bounded by I-81 as the western limit, US Route 11 as  
11 the eastern and southern limits with Waddingham Road as the northern limit;
- 12 • Construction of a Strip Mall next to the Super Wal-Mart is ongoing;
- 13 • Construction of a hotel adjacent to the Super Wal-Mart is also an ongoing  
14 project;
- 15 • Route 11 roadwork (includes additional turn lanes at Route 11 and Route 342  
16 intersection, widening of Route 11 to accommodate wider shoulders and center  
17 turn lanes to access new businesses that have sprung up along the route 11  
18 between the Route 11 and Route 342 intersections and the installation main gate  
19 (this includes two other strip malls, a dollar store, a car dealer, a Dunkin Donuts,  
20 a car wash);
- 21 • There are major infrastructure upgrade projects going on throughout the city of  
22 Watertown;
- 23 • Major road construction and power line upgrades are being conducted where the  
24 main business road in City of Watertown (Arsenal Street) meets Interstate 81.  
25 The on and off ramps are being changed. This has caused the closure/relocation  
26 of a few businesses and major road work on Arsenal Street. (all of this is in  
27 hopes of relieving the traffic congestion on Arsenal Street); and
- 28 • McDonald's on Arsenal Street was torn down to rebuild a new one, now in  
29 construction. Several box stores, also on Arsenal Street, have changed to car  
30 dealerships.

31  
32 **Reasonably Foreseeable Future Projects off-post:**

- 33 • Proposed Interstate 81 Connector (a new highway from Interstate 81 to the  
34 Installation main gate at Route 11); and
- 35 • New housing developments in Town of Pamela off Route 342, Town of  
36 Champion, Village of Great Bend (off Route 3), proposed housing happening in  
37 Town of Wilna, Village of Carthage, new housing in City of Watertown. The area  
38 has not been experiencing a great amount of growth in housing when the initial  
39 expansion occurred in the 80's and now there is a big spark for new housing due  
40 to the need for improvement of existing housing.

41  
42 **Future projects at Fort Drum:**

- 43 • The Army's Residential Communities Initiatives (RCI). Fort Drum is in the  
44 process of negotiating housing contracts that would result in construction of new  
45 housing on-post, replacing current off-post housing. The net result would be an

1 increase of 1,244 new housing units and other buildings on-post (current  
2 estimate may be as low as 800 units); and  
3 • Construction of temporary facilities, including a vehicle maintenance facility,  
4 motor pool parking, storage areas, an arms vault, and brigade and company  
5 headquarters buildings. This action is part of the aviation brigade restructuring,  
6 and is located at the Wheeler-Sacks Army Airfield (U.S. Army, 2005).  
7

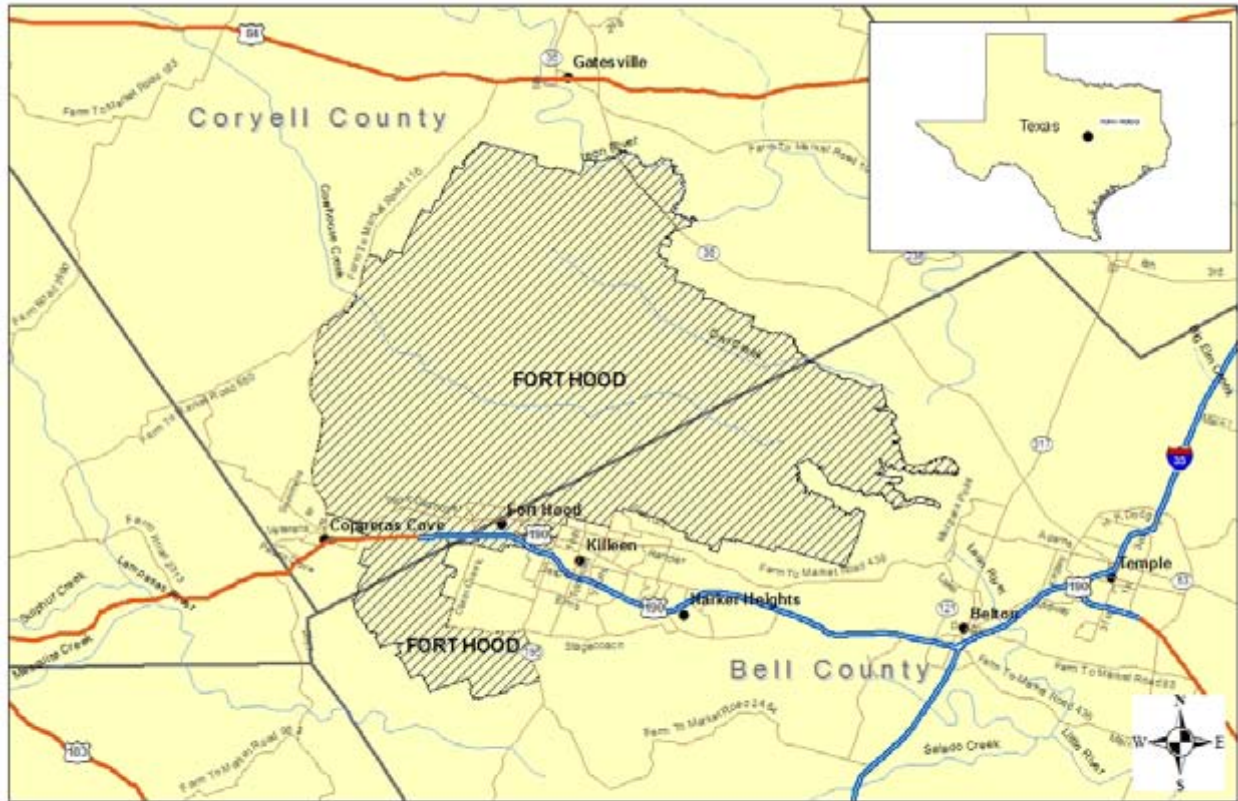
8 Fort Drum expects cumulative effects to traffic and transportation, on- and off-post;  
9 however, with the recent and ongoing road improvements outside the installation  
10 boundary Fort Drum expects only short-term adverse effects, with an end result being  
11 beneficial, relieving traffic congestion in crucial areas. With the growth of a BCT, the  
12 installation expects further overcrowding at local schools. However, the school systems  
13 affected may receive additional aid for the increase in students. On-post, the  
14 installation expects soils to continue to erode in places of high construction, resulting in  
15 the potential for more sedimentation from training and construction in local streams.  
16 Water quality would continue to degrade, though this effect may be temporary until  
17 construction ceases. Air quality may also continue to degrade as new stationary  
18 sources are added to the installation, and mobile sources may significantly increase at  
19 the BCT and multiple BCT level of growth. Noise would temporarily be increased,  
20 primarily due to construction, but would return to normal levels as experienced by  
21 training activities. Finally, the generation of solid waste from construction and  
22 demolition activities would be elevated, but would not present a significant impact.  
23

## 24 **4.7 FORT HOOD, TEXAS**

### 25 **4.7.1 Introduction**

26  
27

28 Fort Hood, located in Central Texas, has approximately 136,000 acres of maneuver  
29 area suited for vehicle and non-vehicular military training (Figure 4.7-1). It has long  
30 been the Army's most densely populated installation and has supported intensive  
31 armored/mechanized unit training for decades.  
32



## Fort Hood- Installation Location

- Legend**  
  - Fort Hood
  - Texas Cities
  - Texas Counties

**Figure 4.7-1 Fort Hood**

Fort Hood's major unit is III Corps and its primary subordinate units: the 1<sup>st</sup> Cavalry Division, 4<sup>th</sup> Infantry Division, 3<sup>rd</sup> Armored Cavalry Regiment and 13<sup>th</sup> Sustainment Command.

Fort Hood has a robust range infrastructure that supports Abrams Tank, Bradley Fighting Vehicle and Apache Helicopter live-fire training. It has the Army's first Digital Multi-Purpose Range Complex (DMPRC). Given the density of maneuver units and restrictions on maneuver land use due to slope, TES and other factors units can face challenges scheduling training areas of required doctrinal size.

Table 4.7-1 contains the Fort Hood's VEC ratings for each of the various stationing action scenarios.

**Table 4.7-1. Fort Hood VEC Ratings**

Fort Hood					
VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)

		(3,000-3,500 Soldiers)			
Air Quality	Low	Low	Medium	Medium	Medium
Airspace	Low	Low	Low	Low	Low
Cultural	Very low	Low	Medium	Medium	Medium
Noise	Very low	Very low	Low	Medium	Medium
Soil Erosion Impacts	Low	Low	Medium	High	High
T&E/Other Wildlife	Very low	Low	Medium	Medium	Medium
Wetlands	Medium	High	Medium	High	High
Water Resources	Medium	High	Medium	High	High
Facilities	Low	Medium	Medium	High	High
Socioeconomics	Very low	Very low	Low	Low	Low
Energy Demand/ Generation	Low	Low	Low	Low	Low
Land Use Compatibility	Very low	Low	Low	Medium	Medium
Scheduling Conflict	Low	Low	High	High	High
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and Transportation	Very low	Low	Low	Medium	Medium

1  
2           **4.7.2 Air Quality**  
3                   **4.7.2.1 Affected Environment**  
4

5 At Fort Hood, the ROI for air quality includes Coryell and Bell Counties in Texas. Bell  
6 and Coryell counties, including all of Fort Hood, are considered to be unclassified or in  
7 attainment with regard to each of the NAAQS criteria pollutants. Therefore, the General  
8 Conformity Rule demonstrating compliance with the State Implementation Plan (SIP)  
9 does not apply to Fort Hood.

10  
11 Fort Hood is classified as a major source of air pollutant emissions. Fort Hood operates  
12 under the provisions of a current Title V Operating Permit and several individual air  
13 permits. It would be

14  
15 Short-term intermittent minor adverse impacts would be expected within the ROI as a  
16 result of construction activities, training exercises, and increased automobile use. Heavy  
17 construction equipment and trucks would emit minor amounts of NOx, PM-10, CO, SOx,  
18 and VOCs. These affects, though possibly significant at the moment, are not  
19 considered to have a long-term impact on regional air quality.

1  
2 **4.7.2.2 Environmental Consequences**  
3

4 **CS/CSS.** The restationing of a CS/CSS unit and its 1,000 Soldiers and family members  
5 would have minor (low) long-term impact to regional air quality. It is assumed that the  
6 resulting increases in air emissions are directly proportional to the increase in  
7 population at the facility. In general, combustion and fugitive dust emissions will  
8 produce localized, short-term elevated air pollutant concentrations that will not result in  
9 any sustained impacts on regional air quality.

10  
11 **Full Sustainment BDE.** There will be an expected minor (low) level impact on the  
12 installation and surrounding communities by the restationing of a Sustainment Brigade  
13 Combat Team and its 3,000 Soldiers. Any construction related emissions also have the  
14 potential to produce localized, short-term elevated air pollutant concentrations but these  
15 are not anticipated to have a significant effect on regional air quality. Combustion  
16 emissions resulting from training would be primarily from mobile sources and be widely  
17 distributed both spatially and temporally. Fugitive dust emissions remain a localized  
18 issue and should be addressed as an opacity issue if activities are close enough to Fort  
19 Hood's boundaries that visible emissions migrate beyond the installation. Given the  
20 wide distribution of emissions, it is not anticipated that regional air quality would be  
21 significantly affected.

22  
23 **IBCT.** There will be an expected moderate-level (medium) impact on the installation  
24 and surrounding communities by the restationing of an Infantry Brigade Combat Team  
25 and its 3,500 Soldiers. It is anticipated the emissions resulting from stationary sources  
26 required for facility operations to support the influx of Soldiers and their Families will  
27 have greater, long-term impacts than those resulting from training. It is anticipated that  
28 the installation would see increases in emissions from equipment required to support  
29 the installation such as fuel storage and dispensing, boiler and incinerator operations  
30 and possible electric peak-shaving generators. Additionally, it is anticipated that more  
31 training/operations will occur away from established roads and tank trails.

32  
33 **HBCT.** There will be an expected moderate (medium) impact on the installation and  
34 surrounding communities by the restationing of a Heavy Brigade Combat Team and its  
35 3800 Soldiers. Though the facility can expect increased emissions from military  
36 vehicles and generators used to support training events as well as increase in fugitive  
37 dust, these will tend to remain localized and produce no significant impact to regional air  
38 quality.

39  
40 **Multiple BCTs.** A moderate-level (medium) impact to air quality is expected on the  
41 installation and surrounding communities by the restationing of multiple HBCTs and  
42 approximately 7,000 Soldiers. Construction and changes to facility operations to  
43 support multiple BCTs would be significant initially but should provide no sustained  
44 negative impact to regional air quality. Long-term minor intermittent adverse impacts  
45 would be expected from emissions of criteria pollutants from aircraft operations, military  
46 equipment maneuvers, artillery exercises, and use of privately owned vehicles.

1  
2 **4.7.3 Airspace**  
3 **4.7.3.1 Affected Environment**  
4

5 Fort Hood has 269 square miles of FAA-designated Special use airspace, up to 45,000  
6 feet. The installation has access to this airspace continuously, with restrictions, and is  
7 controlled by the FAA of Houston, TX. (US Army Corps of Engineers, 2002)  
8

9 Fort Hood had two Army-operated airfields on-site. Robert Gray Army Airfield is located  
10 at West Fort Hood, and Hood Army Airfield is located at the eastern edge of the main  
11 cantonment area. Hood Army Airfield is used primarily for helicopters. (US Army Corps  
12 of Engineers, 1995)  
13

14 **4.7.3.2 Environmental Consequences**  
15

16 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, and Multiple BCTs.** There will be  
17 minor (low) long-term impacts to airspace. It is anticipated that activities associated  
18 with an increase of these units would modestly increase activities within the training and  
19 range areas, and no impacts are expected with the CS/CSS or Full Sustainment BDE.  
20 BCT activities would have to be scheduled to coordinate with existing mission activities,  
21 to include UAV operations, and ordnance and other large caliber munitions firing that  
22 requires the use of airspace over ranges and impact areas. Any increased operations  
23 of UAVs, and use of this airspace would continue to be managed through scheduling  
24 and balancing training requirements with airspace availability. Where existing airspace  
25 is insufficient, or already saturated with military activity, installation commanders would  
26 have to seek additional special use airspace designations from the FAA. Future new  
27 systems or modifications to existing systems could also affect airspace use, resulting in  
28 greater demand for exclusive military use of the resource. (US Army Corps of  
29 Engineers, 2002). Construction or modification of airfields and training and maneuver  
30 areas could result in changes to existing airspace use.  
31

32 **4.7.4 Cultural Resources**  
33 **4.7.4.1 Affected Environment**  
34

35 The Fort Hood affected environment for cultural resources is the footprint on the  
36 installation. Fort Hood has identified over 2,200 archaeology sites.  
37

38 **4.7.4.2 Environmental Consequences**  
39

40 **CS/CSS.** The addition of a CS/CSS unit should have minimal impacts to cultural  
41 resources. The relatively small number of vehicles and Soldiers will likely have little  
42 effect on cultural resources, even in areas that have not previously been surveyed.  
43

44 **Full Sustainment BDE.** There will be no significant short- and long-term impacts from  
45 a Full Sustainment BDE. The additional Soldiers could slightly increase the instances of  
46 inadvertent damage to archaeology sites.

1  
2 **IBCT, HBCT, and Multiple BCTs.** There will be moderate short- and long-term  
3 environmental impacts to cultural resources due to an IBCT. There will be a significant  
4 increase in foot traffic, but impacts will be experienced on mostly hardened or disturbed  
5 areas. The vehicles of a HBCT could impact previously undiscovered archaeological  
6 resources. The Soldiers could adversely affect archaeology sites via foot traffic.  
7

#### 8 **4.7.5 Noise**

##### 9 **4.7.5.1 Affected Environment**

10  
11 The noise generated on Fort Hood, TX is characterized as being from fixed-wing and  
12 rotary-winged aircraft operating out of the Hood Army Field and Robert Grey  
13 Army/Killeen Joint Field; and from heavy armor training. Aircraft overflights, specifically  
14 by helicopter overflights are the cause of some noise concerns off the installation. Fort  
15 Hood is home to two Armored Divisions which contribute heavy maneuver training noise  
16 and large caliber fire. Artillery training close to the borders of the installation generates  
17 noise complaints from nearby residents (for instance, causing windows to rattle) (Fort  
18 Hood, 2004).  
19

20 Fort Hood is expected to lose one Heavy Brigade Combat Team to Fort Carson,  
21 Colorado as recommended by BRAC2005.  
22

##### 23 **4.7.5.2 Environmental Consequences**

24  
25 **CS/CSS.** Minimal (very low) impacts are expected with this action at Fort Hood. Noise  
26 generated from expected small arms range usage is largely insignificant when  
27 compared to the current mission. The installation will need to ensure best practices are  
28 used, as established in the INRMP and installation environmental noise management  
29 program.  
30

31 **Full Sustainment BDE.** The impact associated with this action is expected to be  
32 minimal (very low). An addition of up to 3,500 Soldiers will have an overall general  
33 increase on small arms facilities but will not present a significant enough noise impact  
34 (or change noise contours) to be heard off post or disrupt wildlife breeding cycles.  
35

36 **IBCT.** There will be a minor (low) impact to the natural environment and to some local  
37 residential communities. The quality of noise generated from maneuver will be similar  
38 to that of a Full Sustainment BDE. The INRMP would need to be adhered to, as would  
39 the most recent IENMP. Additional artillery fire associated with the action will not  
40 impact already established noise contours or Noise Zones, to include sound traveling  
41 off-post.  
42

43 **HBCT, Multiple BCTs.** There will be a moderate (medium) impact from noise  
44 generated by an additional HBCT. Noise contours would be similar to existing training.  
45 An increase in armored training would require the installation to review and possibly  
46 update the IENMP. Noise contours would not change, only an increase in range usage



1 to conduct annual training would be anticipated. Noise Zones will also remain  
2 unchanged. By FY11, when one HBCT moves to Fort Carson, the baseline of training  
3 (noise) will be back to current levels.

## 4 5 **4.7.6 Soil Erosion**

### 6 **4.7.6.1 Affected Environment**

7  
8 Fort Hood topographic features include valleys, buttes and mesas and the terrain  
9 consists of partly dissected plains and the remnants of old plateaus. The plateaus are  
10 sparsely wooded hills and ridges, which rise 100-200 feet above the plains with steep  
11 bluffs along creeks.

12  
13 There are four soil associations on Fort Hood and the soil cover is typically shallow to  
14 moderately deep clayey soil underlain by limestone bedrock. The soils have a relatively  
15 low permeability and high shrink-swell potential. Excessive rates of soil erosion occur in  
16 approximately 35 percent of Fort Hood training areas due primarily to maneuver  
17 damage

### 18 19 **4.7.6.2 Environmental Consequences**

20  
21 **CS/CSS, Full Sustainment BDE.** There will be a minor (low) impact from the wheeled  
22 vehicles in these units. Off-road movement could have an impact on vegetation and soil  
23 surfaces, leading to the conditions for erosion. The condition of existing (unimproved)  
24 range roads and their ability to support for heavy truck traffic would have to be  
25 evaluated. These roads could be prone to water erosion, so road construction,  
26 hardening and maintenance practices would have to be reviewed and modified. Off-  
27 road movement would impact soil erodibility based on disturbance to vegetation and soil  
28 surfaces.

29  
30 **IBCT.** The IBCT dismounted training will have a moderate (medium) impact on soils in  
31 plains and rolling areas, and the vehicles of the IBCT could have a moderate effect in  
32 small selected areas where dismounted training and the vehicles associated with the  
33 IBCT could be concentrated.

34  
35 **HBCT.** The HBCT will have a significant (high) impact on roads and off-road areas due  
36 to the number of tracked vehicles in an HBCT and the weight and mobility  
37 characteristics of the tracked vehicles. The terrain will show the impact from the vehicle  
38 maneuvers, turns and traction. These areas could then be prone to water erosion.

39  
40 **Multiple BCTs.** An overall significant (high) impact will result from Multiple BCTs, given  
41 that the number, size, variety and impact of wheeled and tracked vehicles will increase  
42 as well. The road network will deteriorate rapidly leading to trafficability and erosion  
43 problems. Off-road traffic and maneuvers will increase, which will have a significant  
44 negative impact on vegetation and the surface. Conditions for potential water erosion  
45 will increase.

1           **4.7.7 Vegetation and Wildlife/Threatened and Endangered Species**  
2           **4.7.7.1 Affected Environment**

3  
4 There are over 25 Federal endangered, threatened, candidate species and species of  
5 concern that occur or may occur on Fort Hood. However, Fort Hood currently records  
6 only four threatened and endangered species as occurring on the installation. Appendix  
7 T of this document provides a comprehensive list of listed species.

8  
9           **4.7.7.2 Environmental Consequences**

10  
11 **CS/CSS.** Implementation of this level of Soldier strength is anticipated to have a  
12 minimal (very low) impact on the four listed species. Maneuver is expected to take  
13 place on roads, or within the footprint of existing units. No new construction is likely for  
14 this level of Soldier increase at Fort Hood.

15  
16 **Full Sustainment BDE.** It is anticipated that implementation of this level of Soldier  
17 strength will have a minor (low) impact on the four listed species. The threatened and  
18 endangered species recorded on the installation are managed in accordance with the  
19 installation's INRMP and ESMP, terms and conditions identified within biological  
20 opinion(s) issued by the USFWS and any conservation measures identified in ESA,  
21 Section 7 consultation documents.

22  
23 **IBCT, HBCT, and Multiple BCTs.** It is anticipated that implementation of any of these  
24 levels of Soldier strength may have a moderate (medium) impact on the four listed  
25 species. The threatened and endangered species recorded on the installation will  
26 continue to be managed in accordance with the installation's INRMP and ESMP.  
27 However, since implementation of either of these actions may affect any of the recorded  
28 listed species, the installation will be required to consult with the USFWS either  
29 informally or formally, depending on whether take is anticipated to occur. Based on Fort  
30 Hood's effective conservation and management efforts for a number of listed species,  
31 the installation was able to reduce ESA training restrictions so that only 4.3% of the  
32 installation is now restricted. Implementation of these Soldier strength scenarios could  
33 also potentially result in reestablishment of previous training and land restrictions.

34  
35           **4.7.8 Wetlands**  
36           **4.7.8.1 Affected Environment**

37  
38 Waters of the U.S., including wetlands, exist across the installation. These resources  
39 range from small emergent wetlands associated with ephemeral streams to large  
40 forested wetland complexes adjacent to perennial channels. Currently, efforts are  
41 underway to delineate all water features, both jurisdictional and non-jurisdictional, on  
42 the installation as project sites are identified and as funding allows. Training activities  
43 currently avoid wetlands to the degree possible.

44  
45           **4.7.8.2 Environmental Consequences**

1 **CS/CSS.** There will be a moderate (medium) impact on the installation wetlands as a  
2 result of the restationing of a CS/CSS unit to Fort Hood. Training activities will be  
3 relegated to established training areas. Efforts will be made to avoid any impacts on  
4 wetlands by using the installations wetland planning level surveys/GIS mapping.  
5

6 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be a significant (high)  
7 impact on the installation wetlands as a result of the restationing of 3,000 to 7,000  
8 Soldiers to Fort Hood. To the degree possible, training will be relegated to established  
9 training areas. If additional training area is required then through the NEPA process  
10 locations will be selected that will, when possible, avoid wetland impacts. If wetlands are  
11 to be impacted, Clean Water Act Section 404 permits will be required as well as  
12 coordination with the local USACE District. The development of delineations and  
13 mitigation, which may be costly, will be required as part of the Section 404 permit.  
14

## 15 **4.7.9 Water Resources**

### 16 **4.7.9.1 Affected Environment**

#### 17 **Surface Water**

18 Surface water is the primary water supply for Fort Hood. Currently, there is no known  
19 usage of groundwater at the installation. Surface water resources of Fort Hood include  
20 approximately 200 miles of named intermittent and perennial streams and numerous  
21 additional tributaries of those features. The streams on Fort Hood are currently being  
22 delineated to determine jurisdictional status under Section 404 of the Clean Water Act.  
23 Fort Hood contains more than 200 water impoundments constituting approximately 692  
24 surface-acres. Most of these are used for flood control, sediment retention, wildlife and  
25 livestock water, and fish habitat. A few of the impoundments serve as either wash rack  
26 storage facilities or sewage treatment ponds. Fort Hood also shares 43 miles of  
27 shoreline at Belton Lake.  
28

#### 29 **Ground Water**

30 The primary stratigraphic units that occur in the Fort Hood area are, from lowest to  
31 highest, the Glen Rose Formation, the Paluxy Formation, the Walnut Formation, the  
32 Comanche Peak Formation, and the Edwards and associated limestones. The Glen  
33 Rose and Paluxy Formations are part of the Trinity Aquifer, which is the major aquifer in  
34 the Fort Hood area. The predominately limestone Glen Rose Formations yield only  
35 small amounts of water, while the sand and shale consisting Paluxy Formation is  
36 capable of yielding small to moderate amounts of water. The Walnut and Comanche  
37 Peak Formations consist of a limestone and shale mixture, which can yield small  
38 amounts of water. The Edwards and associated limestones are typically porous and  
39 have the potential to yield the greatest amount of quality water of any of the units in the  
40 area (TDWR 1978). However, the Edwards and associated limestones are  
41 stratigraphically thicker, and more contiguous and permeable south and east of Fort  
42 Hood where they are part of the large-scale, highly productive Edwards aquifer. On Fort  
43 Hood, Edwards Group limestone contains localized perched water aquifers and springs  
44 of varying sizes, but not extensive, large-scale confined aquifers.  
45  
46

1 Potentially sensitive groundwater areas of the Fort Hood region are the springs and the  
2 karst recharge systems (caves, rock fractures, rock interstitial spaces) found throughout  
3 the installation. The aquifers recharged by these areas are relatively shallow and could  
4 be affected by hazardous material spills and seepage.

5  
6 No major groundwater resources outside the installation are affected by recharge from  
7 within Fort Hood, and recharge that occurs within the installation affects only the small,  
8 shallow groundwater supplies that remain on the installation.

### 9 10 **Watersheds**

11 Fort Hood can be divided into portions of six large watersheds and several smaller  
12 subwatersheds. Designated uses for each water body are primarily assumed to be high  
13 aquatic life use and contact recreation. Three surface water bodies on or near Fort  
14 Hood were listed in 2004 by the Texas Commission on Environmental Quality (TCEQ)  
15 as impaired water bodies under Section 303(d) of the Clean Water Act. One additional  
16 surface water body on Fort Hood was added to the draft version of the 2006 Texas  
17 303(d) list dated March 19, 2007. For one of the four water bodies, a Total Maximum  
18 Daily Load (TMDL) is underway, scheduled, or will be scheduled. Additional data is  
19 needed by the TCEQ before they can schedule a TMDL for the remaining three water  
20 bodies.

### 21 22 **Water Supply**

23 Fort Hood has water rights to 12,000 acre-feet of water in Belton Lake. However, since  
24 there is no water treatment plant at Fort Hood, the installation purchases treated  
25 drinking water from Bell County Water Control & Improvement District No. 1. Belton  
26 Lake is the primary water supply for Fort Hood and many of the surrounding  
27 communities, while Stillhouse Hollow Lake serves as a water supply for other nearby  
28 areas.

### 29 30 **Wastewater**

31 Fort Hood has two Texas Pollutant Discharge Elimination System (TPDES) wastewater  
32 permits. These cover the sewage treatment plant at North Fort Hood, the sewage  
33 treatment plant at the BeltonLake Outdoor Recreation Center (BLORA), and various  
34 vehicle washing activities throughout the main cantonment.

35  
36 Sanitary sewer overflows have been noted as a potential source of contamination of  
37 water resources on Fort Hood. There are records of occasional sanitary sewer  
38 overflows across the installation, with a significant number occurring in or near Clear  
39 Creek and South Nolan Creek. In any given year, it is possible that tens to hundreds of  
40 thousands of gallons of sewage are discharged to the environment due to overflows, a  
41 significant percentage of which can go directly into surface waters.

### 42 43 **Stormwater**

44 Although precipitation amounts can vary greatly from year to year, Fort Hood averages  
45 almost 34 inches of rainfall per year with most occurring during the months of May,

1 June, and October. Installation-wide flooding is not a major problem and is usually of  
2 short duration.

3  
4 Currently, Fort Hood has a TPDES general permit to discharge stormwater from  
5 covered industrial activities. Fort Hood will also be required to obtain coverage as a  
6 regulated small MS4 (Municipal Separate Storm Sewer System), once TCEQ issues an  
7 MS4 general permit.

#### 8 9 **4.7.9.2 Environmental Consequences**

10  
11 **CS/CSS.** An addition of a CS/CSS is anticipated to have a moderate (medium) impact  
12 on the installation's watershed, water demand, and associated treatment systems. The  
13 addition would increase water demand for consumption and vehicle washing. CS/CSS  
14 activities may cause additional sewage overflows. The installation would need to revisit  
15 their Storm Water Pollution Prevention Plan (SWP3) to incorporate best management  
16 practices for any new training activities. Additionally, any new construction/land  
17 disturbance over 0.75 acres will require a stormwater construction permit.

18  
19 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** The addition of a Full  
20 Sustainment BDE or any level of BCTs will have a significant (high) impact on the  
21 installation's watershed, water demand, and associated treatment systems. The 3,000  
22 to 7,000 additional Soldiers and their Families would significantly increase water  
23 demand for consumption and vehicle washing. The installation may need to construct a  
24 new washing system to manage the heavy vehicles. Without additional system  
25 upgrades or construction this level of growth may cause additional sewage overflows.  
26 The installation would need to revisit their Storm Water Pollution Prevention Plan  
27 (SWP3) to incorporate best management practices for any new training activities.  
28 Additionally, any new construction/land disturbance over 0.75 acres will require a  
29 stormwater construction permit which would entail identification and implementation of  
30 mitigation strategies to reduce impacts associated with stormwater runoff during and  
31 after construction.

#### 32 33 **4.7.10 Facilities**

##### 34 **4.7.10.1 Affected Environment**

35  
36 Fort Hood Military Reservation encompasses over 214,000 acres. The installation is  
37 comprised of three cantonment areas, two instrumented airfields, and many maneuver  
38 and live-fire training areas. The cantonment areas are primarily for urban uses and are  
39 designated the Main Cantonment Area, West Fort Hood, and North Fort Hood. The  
40 Main Cantonment Area and Hood Army Airfield are located at the southern edge of the  
41 training area and adjacent to Killeen, Texas. West Fort Hood is located south of U.S.  
42 Highway 190, near the City of Copperas Cove, Texas, and includes the Robert Gray  
43 Army Airfield/Killeen-Fort Hood Regional Airport. North Fort Hood, located near  
44 Gatesville, Texas, is the primary site for Army Reserve and National Guard training,  
45 equipment service, and storage (US Army, September 2004).

#### 4.7.10.2 Environmental Consequences

The impacts of the Proposed Action and other alternatives on utilities and communications are primarily related to projected increases in population on and off post. These were analyzed by estimating per unit consumption on generation rates using the most recently available data, and then estimating how total consumption or generation rates would change with the changed population. The increased consumption and generation were then compared with the ability of existing infrastructure to handle those changes.

**CS/CSS.** There will be minor (low) impacts to facilities. It is anticipated that the activities associated with an increase of 1,000 Soldiers would increase facilities usage within the cantonment and training and range areas. Activities within the training and range areas would be limited to existing firing ranges and roadways. Currently, Fort Hood has the potential to accommodate a CS/CSS with good planning.

**Full Sustainment BDE.** There will be moderate (medium) short- and long-term impacts to facilities. Increased Soldier strength of 3,000 to 3,500 would be reflected through increased usage and construction throughout the cantonment areas. Fort Hood could support a Full Sustainment BDE. Increased activities within the training and range areas would be expected to cause long-term impacts due to increased human presence, as well as construction and training activities within the range and training areas. The installation Master Plan would require modifications to allow for implementation of the ACP. A study using SIRRA would also be beneficial.

**IBCT.** Fielding an IBCT would also result in moderate (medium) short- and long-term impacts to facilities. The addition of an IBCT would potentially increase usage of cantonment assets beyond what is projected for a BDE; however, a review of the installation Master Plan along with other facilities and infrastructure studies may be able to accommodate the proposed action. The availability of buildable space at Fort Hood supports fielding an IBCT on the installation, however, the possibility that increased construction in previously undisturbed land is likely. The potential for construction in areas that contain wetlands is possible, and would require an increased level of coordination with state and federal regulatory agencies.

**HBCT.** Unlike the IBCT, there will be significant (high) short- and long-term impacts to facilities. The addition of an HBCT would likely result in degradation of facilities within the cantonment. The establishment of an HBCT at Fort Hood may exceed the capacity of the installation Master Plan to accommodate the proposed action due to the lack of available space for expansion. If identified by the installation, additional coordination and consultation may be necessary for activities associated with an HBCT. An excess aggregate demand on facilities and infrastructure required by a HBCT could lead to an overall degradation of facilities quality.

**Multiple BCTs.** The establishment of multiple BCTs would also result in significant (high) short- and long-term impacts to facilities. There is a high probability that multiple

1 BCTs would increase congestion beyond the carrying capacity of the cantonment  
2 infrastructure. The lack of available building space would contribute to this. It is highly  
3 unlikely that the installation Master Plan could accommodate this iteration of proposed  
4 action. The level of construction required at this level is resource intensive and  
5 potentially beyond the ability of Fort Hood to sustain. The excess aggregate demand on  
6 cantonment facilities and infrastructure required by multiple BCTs may lead to system  
7 degradation or non-compliant regulatory issues.

#### 9 4.7.11 Energy Demand/Generation

##### 10 4.7.11.1 Affected Environment

11  
12 Fort Hood's energy needs are currently met by a combination of natural gas and electric  
13 power, both of which are provided by private utilities.

14  
15 **Electricity.** Electric power is supplied to Fort Hood at three existing substations. The  
16 usage of these three substations is presently 60 percent of capacity. Fort Hood used an  
17 average of 1.2 MBTUs of electricity over the past three years. Construction is underway  
18 to provide a new substation on the west side of the cantonment area that would service  
19 West Fort Hood. These four substations would provide an electric capacity of 248 MWA.  
20 The capacity of Fort Hood's electricity is sufficient to handle an infrastructure to support  
21 additional Soldiers for the next 20 years before reaching 80 percent of its total capacity.

22  
23 **Natural Gas.** Natural gas is distributed throughout the post via installation distribution  
24 lines running from three metered stations. Fort Hood has, over the past three years,  
25 consumed an average of 1.0 million MMBtu of fossil fuels per year. There is sufficient  
26 capacity of natural gas on Fort Hood for any future expected growth (Fort Hood, 2000).

##### 27 28 4.7.11.2 Environmental Consequences

29  
30 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Stationing of 1,000 to  
31 7,000 Soldiers is anticipated to have a minimal (low) impact on overall energy demand.  
32 Any level of these growth scenarios would represent only a small fraction of the overall  
33 mission activity at Fort Hood. There is also an abundance of energy resources  
34 available. Apart from the initial expansion of the energy infrastructure to accommodate  
35 a Full Sustainment BDE (barracks, motor pools, miscellaneous facilities, etc.) there is  
36 no limiting factor present to suggest a different potential impact from the CS/CSS  
37 scenario, and while a Full Sustainment BDE and the BCTs would certainly have an  
38 incrementally larger impact than the CS/CSS, all scenarios result in a new energy  
39 demand that is well within current system capacity.

#### 40 41 4.7.12 Land Use Conflicts/Compatibility

##### 42 4.7.12.1 Affected Environment

43  
44 Land use at Fort Hood is allocated to cantonment areas, maneuver/live-fire training  
45 areas, and airfields. The cantonment areas are urban areas that contain administrative,  
46 maintenance, industrial, supply/storage, unaccompanied personnel housing, family

1 housing, community support facilities, medical, outdoor recreation, and open space land  
2 uses. Maneuver/live-fire training areas support the maneuver and live-fire training areas  
3 that provide locations for combat training activities, which fulfill Fort Hood's primary  
4 purpose. Additionally, a limited amount of cattle grazing is permitted (through 5-year  
5 leases) throughout the training areas. The airfields are located adjacent to the  
6 cantonment areas and house the fixed-wing/rotary-wing assets and support facilities.  
7 Various other land uses located on Fort Hood include the Belton Lake Outdoor  
8 Recreation Area, and miscellaneous uses such as roadways, and easements. Most of  
9 Fort Hood's land area is used for training and preparedness. Over 88 percent of the  
10 land (191,157 acres) is used for maneuver/live-fire training involving combat, combat  
11 support, and combat service support elements integrated into formations to conduct  
12 multi-echelon, combined arms training to simulate battlefield conditions. Training  
13 includes infantry, mechanized infantry, armored units, artillery and air support with  
14 helicopters, fixed-wing tactical aircraft, high-speed interceptors, and large bombers. The  
15 post's training land is divided into two main areas, the Western Maneuver Area and the  
16 Eastern Training area. There are 120 individual ranges on Fort Hood (US Department of  
17 the Army, 2004).

#### 18 19 **4.7.12.2 Environmental Consequences**

20  
21 **CS/CSS.** There will be minimal (very low) short and long-term impacts on installation  
22 land use due to the presence of an additional 1,000 Soldiers and their family members  
23 assigned to the installation. The installation has sufficient land available to either build  
24 the facilities needed for this unit, or would have sufficient vacant space in buildings that  
25 would be suitable for the units' mission. Additionally, the land, or existing facilities, are  
26 located such that surrounding facilities are compatible with the additional CS/CSS unit.  
27 The facilities for a CS/CSS will likely be located within a single contiguous land unit.

28  
29 **Full Sustainment BDE.** There will be minor (low) short and long-term impacts on  
30 installation land use due to the presence of an additional 3,000 to 3,500 Soldiers. The  
31 installation has sufficient land available to either build the facilities needed for this unit,  
32 or would have sufficient vacant space in buildings that would be suitable for the units'  
33 mission. Additionally, the land, or existing facilities, are located such that surrounding  
34 facilities are compatible with the additional BDE. The facilities for a BDE will likely be  
35 located within a single contiguous land unit.

36  
37 **IBCT.** There will be minor (low) short- and long-term impacts on installation land use  
38 due to the presence of an additional 3,500 Soldiers. The installation has sufficient land  
39 available to either build the facilities needed for this unit, or would have sufficient vacant  
40 space in buildings that would be suitable for the units' mission. Additionally, the land, or  
41 existing facilities, are located such that surrounding facilities are compatible with the  
42 additional IBCT. The facilities for this unit will likely be located within a single  
43 contiguous land unit. The additional units would likely pose a scheduling conflict for  
44 training activities to occur at the installation.



1 **HBCT.** There will be moderate (medium) short- and long-term impacts on installation  
2 land use due to the presence of an additional 3,800 to 4,000 Soldiers and their family  
3 members. Fort Hood may not have sufficient land available to either build the facilities  
4 needed for this unit, or may not have sufficient vacant space in buildings suitable for the  
5 units' mission. Building new facilities may require the installation to re-zone existing  
6 land uses, or re-use/remodel facilities in areas not compatible with land uses associated  
7 with tactical units. Existing land and/or facilities may not be contiguous and located  
8 such that tactical vehicles would need to travel extensively within the cantonment area  
9 to reach training ranges. The facilities for this unit may not be contiguous, but would be  
10 within a distance of one-half mile. The additional units would likely pose a scheduling  
11 conflict for training activities to occur at the installation.  
12

13 **Multiple BCTs.** There would be moderate (medium) short- and long-term impacts on  
14 installation land use due to the presence of an additional 7,000 Soldiers, or more and  
15 their family members. Fort Hood may not have sufficient land available to either build  
16 the facilities needed for this unit, or would not have sufficient vacant space in buildings  
17 suitable for the units' mission. Building new facilities may require the installation to re-  
18 zone existing land uses, or re-use/remodel facilities in areas not compatible with land  
19 uses associated with tactical units. Existing land and/or facilities may not be contiguous  
20 and located such that tactical vehicles would need to travel extensively within the  
21 cantonment area to reach training ranges. The facilities for this unit may not be  
22 contiguous, but would be within a distance of one-half mile.  
23

#### 24 **4.7.13 Hazardous Materials/Hazardous Waste**

##### 25 **4.7.13.1 Affected Environment**

26  
27 The affected environment for these proposed actions include the use, storage,  
28 transport, and disposal of hazardous materials and wastes at Fort Hood. This includes  
29 hazardous materials and wastes from USTs and aboveground storage tanks;  
30 pesticides; LBP; asbestos; PCBs; radon; and UXO. Each installation operates under a  
31 Hazardous Waste Management Program that manages hazardous waste to promote  
32 the protection of public health and the environment. Army policy is to substitute  
33 nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance  
34 with local, state, and federal hazardous waste requirements; and ensure the use of  
35 waste management practices that comply with all applicable requirements pertaining to  
36 generation, treatment, storage, disposal, and transportation of hazardous wastes. The  
37 program reduces the need for corrective action through controlled management of solid  
38 and hazardous waste. (US Army Corps of Engineers, February, 2002)  
39

##### 40 **4.7.13.2 Environmental Consequences**

41  
42 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There is expected to  
43 be a minor long-term impact from hazardous materials and waste from any level of  
44 growth at Fort Hood. It is anticipated that Fort Hood would minimally increase its  
45 storage and use of hazardous chemicals during training exercises and installation  
46 maintenance with an increase of 1,000 Soldiers. Growth above the 1,000 Soldier level,

1 though a minor impact is still expected, would present impacts incrementally higher than  
2 the CS/CSS from waste collection, storage, and disposal processes. An increase in the  
3 use of hazardous chemicals may be seen in the cantonment and training and range  
4 areas. Demolition, renovation, and construction would mostly likely result in an increase  
5 in the generation of asbestos, lead-contaminated wastes, and other hazardous waste,  
6 as well as increase in the use of herbicides and pesticides due to the addition of family  
7 housing and other facilities. The increase in these wastes would result in no adverse  
8 impacts because the wastes would be managed in accordance with current standards  
9 and regulations. The hazardous waste disposal facilities would be adequate to manage  
10 the increase in hazardous waste. Waste management programs may be updated as  
11 needed. Additionally, the generation of unexploded ordnance and explosives would all  
12 be higher with the BCT scenarios than with the other actions, but would continue to be  
13 managed in accordance with current procedures and regulations.

#### 14 15 **4.7.14 Traffic and Transportation**

##### 16 **4.7.14.1 Affected Environment**

17  
18 Fort Hood is located in Central Texas, about 45 miles south-southwest of Waco, TX,  
19 and approximately 55 miles north of Austin, TX. The regions of influence (ROI) of the  
20 affected environment for traffic and transportation aspects of the proposed action  
21 include Fort Hood, and immediately surrounding area consisting of Bell and Coryell  
22 Counties. Towns included with the ROI include Killeen, Copperas Cove, Harker  
23 Heights, Nolanville and Temple. Major road routes in the area include I-35, and US  
24 Highway 190. I-35 is a north-south interstate highway about 20 miles east of Fort Hood,  
25 accessed by US Route 190.

##### 26 27 **4.7.14.2 Environmental Consequences**

28  
29 **CS/CSS.** There will be significant (high) short and long-term impacts on traffic and  
30 transportation systems on the installation due to the presence of an additional 1,000  
31 Soldiers and their family members assigned to the installation. A large percentage of  
32 the unit's married population, and unmarried soldiers in the grade of E-6 (Staff Sergeant)  
33 and higher, will likely reside in off-post housing. Spread across the ROI, this population  
34 will have de minimis impact on the overall traffic congestion in the neighboring  
35 communities. However, the additional off-post population will contribute to increased  
36 traffic congestion, and a decrease of the LOS, on the road network leading to the  
37 installation's cantonment area, particularly during peak morning and evening hours.  
38 The increased population will have a major effect on traffic congestion on the  
39 installation, contribute to a reduction in the LOS on the installation's road network, and  
40 pose significant increased risk to the safety of pedestrians and bicyclists.

41  
42 **Full Sustainment BDE.** There will be significant (high) short and long-term impacts on  
43 traffic and transportation systems on the installation due to the presence of an additional  
44 3,000 to 3,500 Soldiers and their family members assigned to the installation. The  
45 increase in off-post traffic would have a noticeable impact on traffic in the community  
46 overall and could contribute a notable decrease in the LOS in the road network leading

1 to the installation, particularly during peak morning and afternoon travel periods. This  
2 level of increase in population would also have a major impact on the traffic volume on  
3 the installation, and contribute to a decrease in LOS on a higher percentage of the  
4 installation's road network. The increased traffic volume in both the neighboring  
5 community and on the installation would pose an increased level of risk to the safety of  
6 pedestrians and bicyclists.

7  
8 **IBCT.** There will be significant (high) short- and long-term impacts on traffic and  
9 transportation systems on the installation due to the presence of an additional 3,500  
10 Soldiers and their family members. The increase in traffic congestion, accompanying  
11 decrease in LOS, and increased safety risk to pedestrians and bicyclists would be  
12 slightly higher than that posed by the presence of a Full Sustainment BDE.

13  
14 **HBCT.** There will be significant (high) short- and long-term impacts on traffic and  
15 transportation systems on the installation due to the presence of an additional 3,800 to  
16 4,000 Soldiers and their family members. The increase in traffic congestion,  
17 accompanying decrease in LOS, and increased safety risk to pedestrians and bicyclists  
18 would be slightly higher than that posed by the presence of a Full Sustainment BDE.

19  
20 **Multiple BCTs.** There would be significant (high) short- and long-term impacts on  
21 traffic and transportation systems on the installation due to the presence of an additional  
22 7,000 Soldiers, or more, and their family members. The effect on the traffic congestion  
23 in the local communities from this increased population level would be noticeable in the  
24 community at large and would likely cause a decrease in LOS in the community's road  
25 network, and would likely cause a significant decrease in the LOS on the road network  
26 leading to the installation. This increase in both Soldier and family-member population  
27 would cause a major impact on the LOS of the installation's road network and pose a  
28 significantly increased risk to the safety of pedestrians and bicyclists.

#### 29 30 **4.7.15 Cumulative Effects**

31  
32 The following is a list of major projects that are either recently completed, undergoing  
33 construction, or are planned for the near future. Although all of the projects may not  
34 specifically impact, or be impacted by, the Proposed Action, they are important to note  
35 due to their size or impact on Fort Hood.

##### 36 37 *Residential Communities Initiative Program*

38 In 2001, Fort Hood transferred operational management of its on-post family housing to  
39 a private sector developer. The transaction has led to demolition, renovation, and  
40 construction to provide an end state inventory of more than 6,200 family housing units.  
41 This project, along with the Proposed Action, increases the amount of construction and  
42 demolition debris deposited into the landfill. Further, because most finger drainages in  
43 the area eventually empty into Belton Lake, both projects would likely increase the  
44 amount of sedimentation that enters the lake. Use of BMPs should significantly  
45 decrease sedimentation and prevent any hazardous materials from ending up in Belton  
46 Lake.

1  
2 *Privatization of Army Lodging (PAL)*

3 The PAL program is a new initiative, started in 2006, which will allow a private  
4 developer to lease land on the installation to construct privatized, short-term and long-  
5 term lodging. Several areas have been identified by Fort Hood Master Planning and  
6 PAL developers, and the leasing actions are underway. PAL will increase construction,  
7 which will increase sedimentation, landfill debris, and possibly hazardous materials.  
8 Waters of the U.S. and cultural resources should not be impacted as a result of PAL,  
9 due to the use of delineations and existing installation data prior to finalizations of  
10 construction plans.

11  
12 *Robert Gray Army Airfield - Joint Use*

13 In August 2004, Fort Hood's RGAAF entered into joint use service with the City of  
14 Killeen. RGAAF joint use has increased fixed wing aircraft use and has subsequently  
15 increased Fort Hood's airspace traffic. Although this increase does not affect the fixed  
16 wing airspace use, it is important to note nonetheless. RGAAF is further expanding  
17 parking lots and adding additional runway components and infrastructure. However, the  
18 joint use section of RGAAF does not drain towards Belton Lake.

19  
20 *Tank Trail Maintenance*

21 Fort Hood has over 400 miles of tank trails. Range Control, partnering with the  
22 Maintenance Division, has begun a tank trail maintenance program on Fort Hood. The  
23 purpose of the program is to both repair damaged trails as well as maintain trails in  
24 good condition. The tank trail maintenance program is anticipated to promote Soldier  
25 safety and training ability while reducing the amount of sedimentation and runoff due to  
26 poorly maintained trails.

27  
28 *Gully Plug Program*

29 The gully plug program is an initiative through Range Control to reduce the amount of  
30 sedimentation that ends up in Lake Belton. The gully plugs are rock structures that  
31 cross finger drainages throughout the training areas. During a rain event, disturbed soil  
32 washes into the creeks on Fort Hood through the channel of finger drainages. These  
33 rock structures capture a majority of the sediment that travels through the drainages.  
34 The result is less sedimentation entering the major waterways. The gully plugs also  
35 serve in a bridge-like capacity for tanks and other vehicles in the training area. If  
36 vehicles cross the drainages by driving across the gully plugs, it is both safer for the  
37 Soldier and the environment.

38  
39 *Texas A&M University Campus*

40 Legislation pending in Congress would authorize Fort Hood's transfer of approximately  
41 672 acres to the Texas A&M University System for development of a campus to serve  
42 roughly 20,000 students. The essentially undeveloped land in the southeastern portion  
43 of West Fort Hood, in Training Area 74, is located around State Highway 195, southeast  
44 of RGAAF. The transfer would increase the population around Fort Hood, and likely  
45 add to the overall tax base in both Bell and Coryell counties.

1 *10-Year Range Development Plan Projects*

2 Fort Hood proposes to construct or modify 18 ranges and their associated supporting  
3 facilities within the restricted live-fire area of Fort Hood, Texas. Under the proposed  
4 action, all 18 ranges would be constructed or modified to fit the Army's emerging  
5 doctrinal training standards. Some construction on these ranges has already begun.  
6 The newly upgraded and constructed ranges will provide better training to all Soldiers  
7 on Fort Hood. The construction could cause increased erosion and decreased water  
8 and air quality. Those impacts are anticipated to be short-term and insignificant, due to  
9 the fact that these impacts should conclude with the conclusion of construction on the  
10 ranges.

11  
12 *North Fort Hood Development Plan*

13 Fort Hood is the installation of choice to support annual training and mobilizations for  
14 many of the National Guard and Reserve components. Because most mobilizations  
15 and demobilizations occur at North Fort Hood, plans are underway to improve the ability  
16 to maximize the effectiveness of the deployment process and training requirements.  
17 Current plans include the construction of an Operation Readiness Training Complex  
18 (Forward Operating Base) at North Fort Hood. One set will be completed each year  
19 beginning in fiscal year 2007, for a total of six sets. Each set includes two barracks, one  
20 NCO and officers quarters, one battalion building, one company operations building,  
21 one maintenance facility, one dining facility, and four workshop buildings.

22  
23 Additional facilities to be constructed at North Fort Hood include a fire station, a Troop  
24 Medical Clinic, a physical fitness center, new chapels, an Army Air Force Exchange  
25 Service (AAFES) shoppette, and an automatic rapid fire range.

26  
27 The North Fort Hood Development Plan would change the infrastructure and use of  
28 North Fort Hood, as well as increase training capabilities and joint/combined training.  
29 Using BMPs would minimize the effects of heavy construction activities at both North  
30 Fort Hood and in the live-fire area.

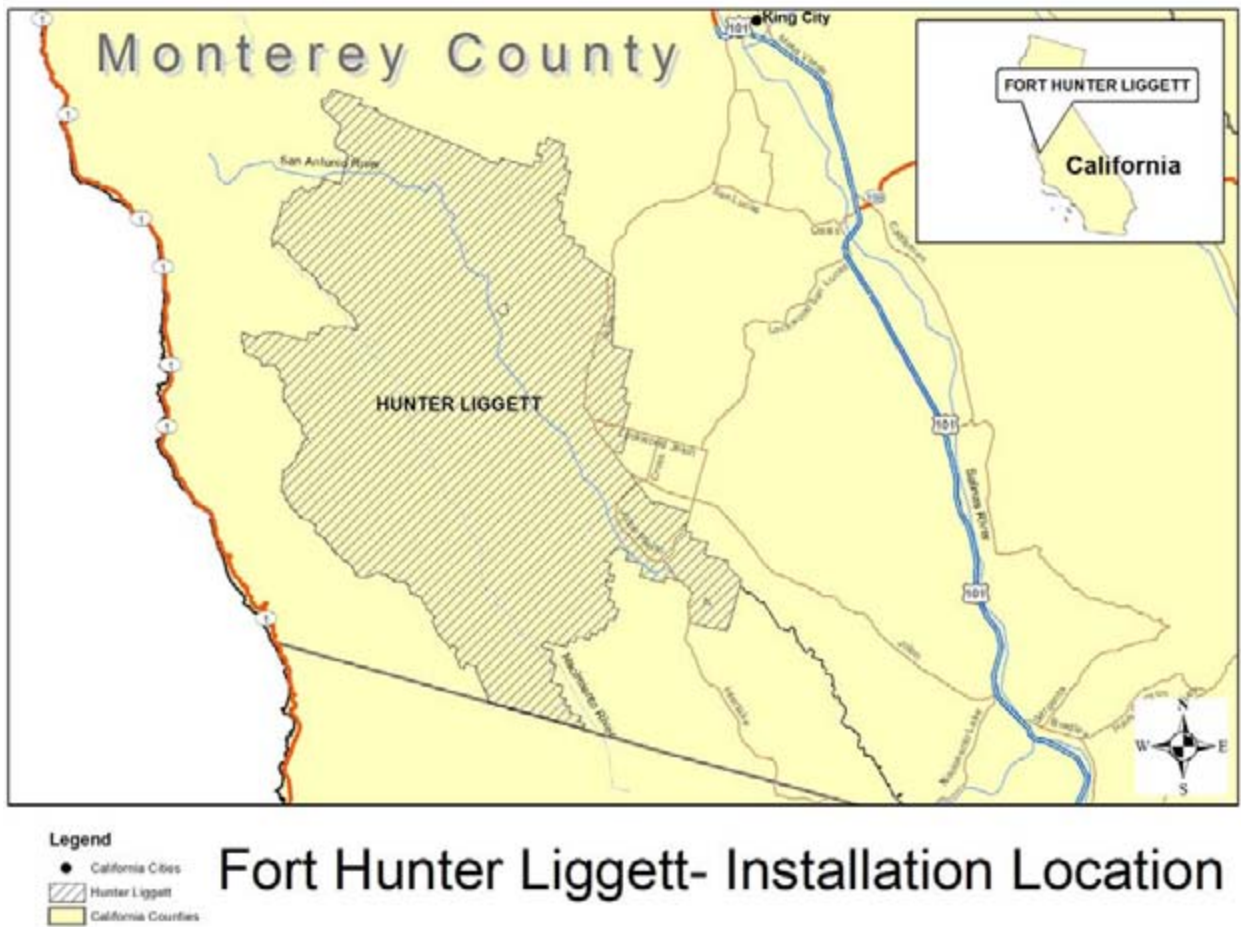
31  
32 In conjunction with the anticipated cumulative environmental effects listed for each  
33 project listed above, each project increases Fort Hood's capacity to perform its mission  
34 by providing for the infrastructure necessary for growth. Although there are plans for  
35 various construction activities, the use of BMPs and promotion of the programs aimed at  
36 reducing sedimentation create a balance to sustaining the environment on Fort Hood.  
37 Therefore, the projects listed above, in conjunction with the Proposed Action, are not  
38 anticipated to have a significant effect on the environment. Additionally, future projects  
39 will be addressed individually for environmental impacts in separate documentation.

40  
41  
42 **4.8 FORT HUNTER LIGGETT, CALIFORNIA**

43 **4.8.1 Introduction**

44  
45 Fort Hunter Liggett is an Army Reserve installation located in central California and has  
46 approximately 111,000 acres of maneuver area suited for vehicle and non-vehicular

1 military training (Figure 4.8-1). It has long supported armored/mechanized unit training  
 2 and dismounted infantry unit training.  
 3



4  
 5 **Figure 4.8-1 Fort Hunter Liggett**

6  
 7 Fort Hunter Liggett hosts training by all types of Army units as well as units from the  
 8 Navy, Marines and Air Force and has been designated as a Combat Support Training  
 9 Center (CSTC).

10  
 11 Fort Hunter Liggett has a wide variety of training land available, and includes  
 12 shrublands, grasslands, and forests in plains and mountainous settings. Fort Hunter  
 13 Liggett has a good range infrastructure, but one that requires significant modernization  
 14 and expansion. Encroachment from urbanization is not yet a challenge, but there are  
 15 other concerns that could impact training.

16  
 17 Table 4.8-1 contains the Fort Hunter Liggett’s VEC ratings for each of the various  
 18 stationing action scenarios.

19  
 20 **Table 4.8-1. Fort Hunter Liggett VEC Ratings**

Hunter Liggett
----------------

VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE (3,000- 3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Low	Low	Medium	Medium	High
Airspace	Very low	Very low	Very low	Very low	Very low
Cultural	Low	Low	Medium	Medium	Medium
Noise	Low	Low	Medium	Medium	Medium
Soil Erosion Impacts	Low	Low	Medium	High	High
T&E/Other Wildlife	Low	Medium	Medium	High	High
Wetlands	Low	Low	Medium	Medium	Medium
Water Resources	Low	Low	Low	Medium	Medium
Facilities	Low	Low	Low	Low	Medium
Socioeconomics	Low	Medium	Medium	Medium	Medium
Energy Demand/ Generation	Low	Low	Low	Low	Low
Land Use Compatibility	Low	Low	Medium	Medium	Medium
Scheduling Conflict	Low	Low	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and Transportation	Low	Low	Medium	Medium	Medium

1  
2           **4.8.2 Air Quality**  
3                   **4.8.2.1 Affected Environment**

4  
5 At Hunter Liggett, the ROI for air quality is Monterey County, which is located within the  
6 North Central Coast Air Basin. The Monterey Bay Unified Air Pollution Control District  
7 has primary responsibility for air quality management programs within this region. The  
8 air pollutants of greatest concern in the basin include ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>.  
9 Monterey County has no federal nonattainment designations but is designated as a  
10 federal maintenance area for the 1-hour ozone standard (Monterey Bay Unified Air  
11 Pollution Control District (MBUAPCD) 2006). Monterey County also has nonattainment  
12 designations for the state ozone and PM<sub>10</sub> standards.  
13

14                   **4.8.2.2 Environmental Consequences**

15  
16 **CS/CSS.** The restationing of a CS/CSS unit and its 1,000 Soldiers and family members  
17 would have minor (low) long-term impact to regional air quality. It is assumed that the  
18 resulting increases in air emissions are directly proportional to the increase in

1 population at the facility. In general, combustion and fugitive dust emissions may  
2 produce localized, short-term elevated air pollutant concentrations that may not result in  
3 any sustained impacts on regional air quality.

4  
5 **Full Sustainment BDE.** There may minor (low) impacts on the installation and  
6 surrounding communities by the restationing of a Sustainment Brigade and its 3,000 to  
7 3,500 Soldiers. Any construction related emissions also have the potential to produce  
8 localized, short-term elevated air pollutant concentrations but these are not anticipated  
9 to have a major effect on regional air quality. Combustion emissions resulting from  
10 training would be primarily from mobile sources and be widely distributed both spatially  
11 and temporally. Fugitive dust emissions remain a localized issue and should be  
12 addressed as an opacity issue if activities are close enough to installation boundaries  
13 that visible emissions leave the installation. Given the wide distribution of emissions, it  
14 is not anticipated that regional air quality would be significantly affected.

15  
16 **IBCT.** Moderate (medium) impacts are expected on the installation and surrounding  
17 communities by the restationing of an Infantry Brigade Combat Team and its 3,500  
18 Soldiers. It is anticipated the emissions resulting from stationary sources required for  
19 facility operations to support the influx of Soldiers and their Families may have greater,  
20 long-term impacts than those resulting from training. It is anticipated that the installation  
21 would see increases in emissions from equipment required to support the installation  
22 such as fuel storage and dispensing, boiler and incinerator operations and possible  
23 electric peak-shaving generators. Additionally, it is anticipated that more  
24 training/operations are likely to occur away from established roads and tank trails.

25  
26 **HBCT.** There may be an expected moderate-level (medium) impact on the installation  
27 and surrounding communities by the restationing of a HBCT and its 4,000 Soldiers.  
28 Though the facility can expect increased emissions from military vehicles and  
29 generators used to support training events as well as increase in fugitive dust, these  
30 tend to remain localized and produce no significant impact to regional air quality.

31  
32 **Multiple BCTs.** The expected impact on the installation and surrounding communities  
33 by the restationing of multiple Brigade Combat Teams and approximately 7,000 Soldiers  
34 is expected to produce significant (high) short and long-term effects on regional air  
35 quality. Construction and changes to facility operations to support multiple brigades  
36 would be significant initially but should provide no sustained negative impact to regional  
37 air quality. Long-term adverse impacts would be expected from emissions of criteria  
38 pollutants from the increase in garrison support operations as well as the increases in  
39 aircraft operations, military equipment maneuvers, artillery exercises, and use of  
40 privately owned vehicles by Soldiers and their Families.

## 42 **4.8.3 Airspace**

### 43 **4.8.3.1 Affected Environment**

44  
45 Fort Hunter Liggett boasts two tactical airfields, Tusi Army Heliport and Schoonover  
46 Tactical Air Strip. Tusi Army Heliport contains 36 prepared parking pads and a lighted



1 runway that is 570 ft in length. Schoonover Tactical Air Strip has a 6,400 ft hardened  
2 dirt/rock runway capable of accommodating the C-17, C-130, and C12. The installation  
3 has 33 Drop Zones capable of battalion level mass attacks and heavy drop missions  
4 (Fort Hunter Liggett, n.d.).  
5

6 Airspace at FHL is restricted to 24,000 mean sea level (MSL). Flight space above  
7 8,000 feet MSL is controlled by the Oakland Center FAA, with military operations above  
8 8,000 MSL controlled as part of a Military Operation Area. Aviation training on FHL  
9 involves flight operations to gain tactical and combat proficiency, live-fire operations,  
10 and provide other unit training support. Helicopters generally train in the installation's  
11 western areas and may involve up to 60 helicopters. Training generally occurs around  
12 the clock. Larger fixed-winged aircraft such as the C-130 use the Schoonover Tactical  
13 Airstrip for practice landing. The airspace over FHL is also used as an over-flight zone  
14 for jet aircraft and in joint land and air training operations (FHL INRMP, 2004).  
15

### 16 **4.8.3.2 Environmental Consequences**

17  
18 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There may be minimal  
19 (very low) long-term impacts to airspace and minimal long-term direct impacts from the  
20 addition of UAV operations, and from the airspace used from ordnance firing and  
21 artillery use. The addition of each BCT would increase operations of UAVs, and use of  
22 this airspace would continue to be managed through scheduling and balancing training  
23 requirements with airspace availability. The installation has adequate enough airspace  
24 to accommodate the additional use by BCTs operations.  
25

## 26 **4.8.4 Cultural Resources**

### 27 **4.8.4.1 Affected Environment**

28  
29 Fort Hunter Liggett contains several historic and archaeological resources that are listed  
30 or eligible for listing on the National Register for Historic Places. The Mission of San  
31 Antonio Padua, a mission founded in the 18<sup>th</sup> century, is located within the viewshed of  
32 the cantonment area at Fort Hunter Liggett.  
33

34 The BRAC program will increase both the Soldier and civilian presence on the  
35 installation. Some historic buildings may be impacted by the additional workspace  
36 required for the increase in personnel. Additional foot traffic of Soldiers and civilians  
37 could adversely impact archaeological sites.  
38

### 39 **4.8.4.2 Environmental Consequences**

40  
41 **CS/CSS, Full Sustainment BDE.** This level of growth may have minor (low) short- and  
42 long-term impacts on Fort Hunter Liggett. Due to the size of the installation and that  
43 these scenarios (units) typically stay to roads and hardened surfaces, which have  
44 already been surveyed for cultural resources, there is a low expected impact to the  
45 installation's cultural resources. The equipment assigned to these unites include  
46 medium to large trucks.

1  
2 **IBCT, HBCT, Multiple BCTs.** There may be moderate (medium) impacts on cultural  
3 resources at Fort Hunter Liggett from the addition of a BCT. It is anticipated that the  
4 impacts will most likely be to archaeological sites. However, it is not anticipated that  
5 this will rise above a medium impact due to the number of Soldiers and vehicles. The  
6 additional Soldiers may strain historic building resources due to the need for both office  
7 and living space. With proper planning, historic buildings should not be adversely  
8 impacted by the additional personnel.  
9

10 **4.8.5 Noise**  
11 **4.8.5.1 Affected Environment**  
12

13 The land surrounding FHL is zoned as agricultural, rural residential, and recreational.  
14 The facility is capable of supporting mechanized (up to Tank Table VII for Bradley and  
15 Tanks) and other maneuver training; and supports a variety of fixed- and rotary-winged  
16 operations (U.S. Army, IMA, May 2006). The city nearest to FHL is Salinas, CA, which  
17 is over 30 miles away. The nearest recreational areas to the installation are Los Padres  
18 National Forest and Silver Peak Wilderness Area. The installation is also located in  
19 close proximity to several mountain ranges. Noise Zones for the Tank Gunnery ranges  
20 extend off the installation into portions of San Antonio Valley, which is located east of  
21 FHL (U.S. Army, IMCOM, October 2006).  
22

23 **4.8.5.2 Environmental Consequences**  
24

25 **CS/CSS, Full Sustainment BDE.** There is an overall minor (low) impact to wildlife  
26 receptors close to maneuver areas and small arms ranges where training occurs. Noise  
27 from this level of activity is not likely to be heard outside the installation boundary. This  
28 level of noise is relatively insignificant compared to other training activities on the  
29 installation. The guidelines of the installation environmental noise management plan  
30 should be reviewed and proper mitigations should be in place. As with the CS/CSS,  
31 use of ranges (from the Full Sustainment BDE) would be similar to existing training  
32 noise generated at the installation, and less significant than noise generated by the  
33 large caliber firing from tanks at the multi-purpose training range. Noise generated  
34 would be intermittent and would not have any impacts to current noise contours.  
35

36 **IBCT, HBCT, Multiple BCTs.** There is a moderate (medium) impact expected from  
37 realigning or growing a BCT at FHL. Though current noise contours may not change,  
38 further analysis may be necessary. Noise generated from artillery (155mm) fire  
39 associated with an IBCT is similar to that generated from the main gun of an M1 Tank  
40 (120mm cannon) in the HBCT. Additional foot and maneuver traffic would create long-  
41 term minor noise impacts to wildlife receptors, including T&E species found throughout  
42 the installation. Guidance for noise mitigation procedures found in FHL's ESMP and/or  
43 INRMP should be followed; especially to ensure the installation's Bald eagle and the  
44 California condor populations would not be significantly impacted.  
45

1           **4.8.6 Soil Erosion**

2                   **4.8.6.1 Affected Environment**

3  
4 Fort Hunter Liggett is characterized by having shallow soils and rocks in the steep  
5 highlands, deeper soils derived from alluvial terraces or underlying parent material in  
6 rolling hills and alluvial deposits in river valleys. The majority of soils are sandy loams,  
7 clay loams and silty clay loams. The soils are classified generally as stable, with the  
8 exception of areas in the maneuver areas. There soils are moderately to highly  
9 erodible, and as the topography becomes steeper the erosion potential increases. The  
10 installation also has scattered areas of grasslands, riparian habitat, wetlands, and areas  
11 of coast live oak forest. (2004 – 2008 FHL INRMP)

12  
13                   **4.8.6.2 Environmental Consequences**

14  
15 **CS/CSS, Full Sustainment BDE.** There is expected short- and long-term minor (low)  
16 impacts from the wheeled vehicles in these units. The CS/CSS and Full Sustainment  
17 BDE are not expected to travel off-road, minimizing the potential for soil erosion  
18 impacts. Any level of Soldier increase would require construction at the installation as  
19 there is currently not enough facilities to accommodate the permanent stationing of  
20 additional Soldiers and their equipment. Construction effects to soils would be short-  
21 lived and mitigable.

22  
23 **IBCT.** Fort Hunter Liggett expects a moderate (medium) long-term impact to soils; and  
24 short-term effects from construction. Impacts from construction would likely be on the  
25 same level of impacts as the Full Sustainment BDE. Construction would be needed in  
26 both the cantonment area and range areas, requiring some degree of mitigation. The  
27 construction area would recover. Increased dismounted training at the installation  
28 would have moderate but mitigable long-term effects to vegetation and soil surfaces in  
29 localized areas, leading to the conditions for erosion.

30  
31 **HBCT, Multiple BCTs.** The installation anticipates a significant (high) long-term  
32 adverse impact to roads and off-road maneuver areas. The Heavy tracked vehicles  
33 associated with the HBCT and the weight and mobility characteristics of the tracked  
34 vehicles would continue to degrade trails in maneuver areas, causing distress to  
35 vegetation and further compacting soils, which increases erodibility. The terrain will  
36 likely show the impact from the vehicle maneuvers, turns and traction. These areas  
37 could be more prone to water erosion. Given the number, size, variety and impact of  
38 wheeled and tracked vehicles presented by the multiple BCT scenarios, road network  
39 could deteriorate leading to trafficability and erosion problems. Off-road traffic and  
40 maneuvers are likely to significantly increase. Construction to accommodate an HBCT  
41 and multiple BCTs would have significant short-term impacts. The installation does not  
42 currently have the infrastructure to support permanent stationing of this level of growth.

43  
44           **4.8.7 Vegetation and Wildlife/Threatened and Endangered Species**

45                   **4.8.7.1 Affected Environment**

1 There are over 75 special status species of flora and fauna that occur or may occur on  
2 Fort Hunter Liggett. However, Fort Hunter Liggett currently records six threatened and  
3 endangered species as occurring on the installation and another four species as  
4 contiguous. More information on these species can be found in Appendix T.  
5

#### 6 **4.8.7.2 Environmental Consequences**

7

8 **CS/CSS.** The installation anticipates a minor (low) impact from implementation of this  
9 level of Soldier increase to the listed species on or contiguous to the installation. The  
10 threatened and endangered species recorded on the installation are managed in  
11 accordance with the installation's INRMP and ESMP, terms and conditions identified  
12 within biological opinion(s) issued by the USFWS and any conservation measures  
13 identified in ESA, Section 7 consultation documents.  
14

15 **Full Sustainment BDE and IBCT.** It is anticipated that implementation of any of these  
16 levels of growth may have a moderate (medium) impact on the listed species onsite and  
17 possibly those contiguous to the installation. Conditions of noise and training would  
18 increase, potentially impacting habitat of the installation's recorded listed species. The  
19 installation may be required to consult with the USFWS either informally or formally,  
20 depending on whether take is anticipated to occur.  
21

22 **HBCT, Multiple BCTs.** It is anticipated that implementation of either of these levels of  
23 Soldier growth may have a significant (high) impact on the listed species recorded on  
24 the installation and possibly the four contiguous species. The noise, increased live-fire,  
25 and increased maneuver required by tracked vehicles, and multiple BCTs would have  
26 adverse direct and indirect impacts to the installation's listed species. Excess noise  
27 from training is expected to have short- and long-term effects. Short-term effects are  
28 expected during training events. Studies on bird species indicate no adverse –long-  
29 term impacts. However, as training intensifies, terrestrial species may choose habitat in  
30 quieter portions of the installation; more analysis would be necessary.  
31

### 32 **4.8.8 Wetlands**

#### 33 **4.8.8.1 Affected Environment**

34

35 Fort Hunter Liggett contains approximately 261 acres of wetlands (Army Environmental  
36 Database-Environmental Quality, (n.d)). Wetlands occur in many areas of the  
37 installation and include vernal pools, wet meadows, seasonal wetlands, and ponds.  
38 Larger wetlands occur in only a few training areas. These areas are not typically used  
39 for intensive training and fall within sensitive resource protection areas. Vernal Pool  
40 Fairy shrimp, a federally listed species, are found within vernal pools in both training  
41 and nontraining areas. Vernal pools are commonly found in areas along roads. (INRMP,  
42 Fort Hunter Liggett, 2004)  
43

#### 44 **4.8.8.2 Environmental Consequences**

45

1 **CS/CSS, Full Sustainment BDE, IBCT.** There is expected to be a minor (low) impact  
2 on the installation wetlands as a result of the restationing 1,000 to 3,500 Soldiers to Fort  
3 Hunter Liggett. Additional training activities would have little impact on wetlands as  
4 training will likely be relegated to established training areas. Additionally, very little off-  
5 road maneuver is expected from the CS/CSS or Full Sustainment BDE. Dismounted  
6 training from the IBCT may have minor to moderate impacts as the installation would  
7 conduct training away from wetland resources.

8  
9 **HBCT.** There is expected to be a moderate (medium) impact on the installation  
10 wetlands due to the presence of an additional 3,800 to 7,000 Soldiers. Training  
11 activities may be relegated to established training areas. Efforts may be made to avoid  
12 any impacts on wetlands by using the installation wetland planning level surveys/GIS  
13 mapping. Erosion issues associated with a more wheeled and tracked vehicles may  
14 have an effect on vernal pools along roads and trails.

## 16 4.8.9 Water Resources

### 17 4.8.9.1 Affected Environment

#### 19 Watersheds

20 The San Antonio and Nacimiento rivers are two main drainages that traverse the  
21 installation from northwest to southeast. The Nacimiento River drains the western  
22 portion of the installation, and the San Antonio River drains the eastern portion. The  
23 Nacimiento Reservoir is located just south of FHL and is a major storage reservoir.

#### 25 Water Supply

26 The FHL water supply is a ground water source. There are currently three active wells  
27 that supply FHL. Capacities of two storage tanks at the installation are 1 MG and  
28 200,000 gallons. FHL's water system is expected to be privatized within the next  
29 several years.

30  
31 Two groundwater basins are tapped by the FHL wells. The Mission-San Antonio Basin  
32 consists of approximately 2422 ha ( $\approx$  6000 ac) completely located within the FHL  
33 Military Reservation boundaries. The Mission-San Antonio Basin is estimated to contain  
34 35,000 acre-feet usable ground water in storage, with a safe yield of 2500 acre-feet per  
35 year. The Jolon-Lockwood Basin is estimated to contain 250,000 acre-feet usable  
36 ground water in storage, with a safe yield of 10,000 acre-feet per year. Several  
37 municipalities located to the east of FHL draw their water from the Jolon-Lockwood  
38 Basin, and numerous farms and vineyards draw irrigation water from the basin. FHL  
39 draws less than 500 acre-feet per year total from all wells.

#### 41 Wastewater

42 According to the 2001 Environmental Program Assessment Report, Fort Hunter  
43 Liggett's wastewater treatment plant consists of an aerated lagoon with a design flow of  
44 1.0 million gallons per day and an average daily flow of less than 100,000 gallons per  
45 day. The effluent is disposed of through spray irrigation and biosolids are removed and

1 disposed in a landfill approximately once every 10 years. FHL's wastewater system is  
2 expected to be privatized within the next several years.

### 4 Stormwater

5 FHL has implemented the FHL storm-water pollution prevention plan, which primarily  
6 addresses industrial activities. It also requires separate permits and individual storm-  
7 water pollution prevention plans for construction projects that disturb more than 0.75  
8 acres of land.

#### 10 4.8.9.2 Environmental Consequences

11  
12 **CS/CSS, Full Sustainment BDE, IBCT.** An addition of a CS/CSS is anticipated to  
13 have minor (low) impact to FHL. Given the existing population of FHL, the addition of a  
14 CS/CSS is not likely to have a significant impact to the watershed, water demand, and  
15 associated treatment systems. Any new construction/land disturbance over 0.75 acres  
16 would require a stormwater construction permit.

17  
18 **HBCT, Multiple BCTs.** An addition of the HBCT or Multiple BCTs (3,800 to 7,000  
19 Soldiers) is anticipated to have a moderate (medium) impact to FHL. The addition  
20 would increase water demand for consumption and vehicle washing. The installation  
21 may need to construct a new washing system to manage the heavy and light vehicles.  
22 The installation currently has some issues with surface water quality. The installation  
23 would need to revisit their Storm Water Pollution Prevention Plan to incorporate best  
24 management practices for any new training activities. Additionally, any new  
25 construction/land disturbance over 0.75 acres would require a stormwater construction  
26 permit which would entail identification and implementation of mitigation strategies to  
27 reduce impacts associated with stormwater runoff during and after construction.

#### 29 4.8.10 Facilities

##### 30 4.8.10.1 Affected Environment

31  
32 Fort Hunter Liggett is the largest US Army Reserve Command training installation and  
33 the eighth largest Army installation in the continental United States. The installation's  
34 mission is to support total force training and readiness and to provide base operations  
35 and area support. Fort Hunter Liggett is a training area for all services of the military,  
36 offering a range of realistic training opportunities to fit various training scenarios.

##### 38 4.8.10.2 Environmental Consequences

39  
40 **CS/CSS, Full Sustainment BDE, IBCT, HBCT.** There is expected to be minor (low)  
41 impacts to facilities. It is anticipated that the activities associated with an increase of  
42 1,000 to 4,000 Soldiers would increase facilities usage within the cantonment and  
43 training and range areas. Activities within the training and range areas would be limited  
44 to existing ranges and roadways. Currently, FHL has buildable space and can  
45 accommodate any of these scenarios of Soldier growth with good planning; however,  
46 additional coordination and consultation may be necessary to support this growth. The

1 installation has a minimal amount of facilities to accommodate this level of growth; a  
2 great amount of construction would be likely.

3  
4 **Multiple BCTs.** Fielding multiple BCTs would result in moderate (medium) short-term  
5 impacts to facilities resources. Multiple BCTs may increase usage within the  
6 cantonment and training areas. The installation does not have the facilities to  
7 accommodate this level of growth, however, there is an abundant amount of buildable  
8 space, and a significant amount of construction would be anticipated. Additional  
9 coordination and a review of the FHL real property management plan may be necessary  
10 for activities associated with fielding multiple BCTs.

## 11 **4.8.11 Energy Demand/Generation**

### 12 **4.8.11.1 Affected Environment**

13  
14  
15 Utilities are generally connected across the cantonment area and therefore contribute  
16 collectively to the overall capacity, use, and storage as a unit. As such, the ROI for this  
17 resource is the cantonment area of Fort Hunter Liggett.

18  
19 Electricity at the installation is provided by the Pacific Gas and Electric Company and is  
20 distributed via overhead lines, those of which that are located on the installation are  
21 owned and operated by the Army. Liquid propane gas (LPG) is trucked into the  
22 installation to refill the 68 LPG aboveground storage tanks that are installed across the  
23 developed portion of the installation. The LPG tanks range in size from 250 gallons to  
24 9,200 gallons and are connected to buildings throughout the cantonment via buried  
25 pipeline.

### 26 **4.8.11.2 Environmental Consequences**

27  
28  
29 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** The addition of 1,000  
30 to 7,000 Soldiers is anticipated to have a minor (low) impact on energy demand and  
31 resources. The existing energy infrastructure has sufficient capacity and scalability to  
32 readily absorb this level of growth. As with any expansion, a capital investment may be  
33 required to extend the current electrical distribution infrastructure and LPG deployment  
34 model in order to accommodate the new mission activity. The current energy system  
35 has sufficient capacity; however, no critical thresholds would be crossed. While multiple  
36 BCTs would certainly require significant construction and expansion of the existing  
37 energy infrastructure, the capacity and scalability of the energy systems are not likely to  
38 be challenged. Like the other stationing options, this scenario results in a new energy  
39 demand posture that is well within the capacity of the existing energy providers to meet.

## 40 **4.8.12 Land Use Conflicts/Compatibility**

### 41 **4.8.12.1 Affected Environment**

42  
43  
44 Fort Hunter Liggett is in Monterey County in west-central California, approximately 70  
45 miles southeast of the city of Monterey, 23 miles southwest of King City, and 12 miles  
46 west of Lockwood (Figure 2-1). The installation encompasses approximately 160,000

1 acres in the San Antonio Valley and the Santa Lucia Mountains. The installation  
2 cantonment area consists of approximately 500 to 700 acres in the eastern-central  
3 portion of the installation (US Army Fort Hunter Liggett, 2006).

#### 4 5 **4.8.12.2 Environmental Consequences**

6  
7 **CS/CSS, Full Sustainment BDE.** There may be minor (low) short and long-term  
8 impacts on installation land use due to this level of unit growth and their associated  
9 activities and missions. The installation has sufficient land available to either build the  
10 facilities, sufficient vacant space in existing buildings, or a combination thereof to meet  
11 the unit's mission requirements. Additionally, the land, or existing facilities, are located  
12 such that surrounding facilities are compatible with these unit scenarios. The facilities  
13 required for a CS/CSS or Full Sustainment BDE will likely be located within a single  
14 contiguous land unit.

15  
16 **IBCT, HBCT, Multiple BCTs.** There may be moderate (medium) short and long-term  
17 impacts on installation land use due to the presence of an additional 3,500 Soldiers and  
18 their family members. The installation may not have sufficient land available to either  
19 build the facilities needed for this unit, or may not have sufficient vacant space in  
20 existing buildings suitable for the unit's mission. Building new facilities may require the  
21 installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
22 compatible with land uses associated with tactical units. Existing land and/or facilities  
23 may not be contiguous and located such that tactical vehicles would need to travel  
24 extensively within the cantonment area to reach training ranges.

### 25 26 **4.8.13 Hazardous Materials/Hazardous Waste**

#### 27 **4.8.13.1 Affected Environment**

28  
29 The affected environment for the proposed action includes the use, storage, transport,  
30 and disposal of hazardous materials and wastes at Hunter Liggett. This includes  
31 hazardous materials and wastes from USTs and aboveground storage tanks;  
32 pesticides; LBP; asbestos; PCBs; radon; and UXO. Each installation operates under a  
33 Hazardous Waste Management Program that manages hazardous waste to promote  
34 the protection of public health and the environment. Army policy is to substitute  
35 nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance  
36 with local, state, and federal hazardous waste requirements; and ensure the use of  
37 waste management practices that comply with all applicable requirements pertaining to  
38 generation, treatment, storage, disposal, and transportation of hazardous wastes. The  
39 program reduces the need for corrective action through controlled management of solid  
40 and hazardous waste. (US Army Corps of Engineers, February, 2002)

#### 41 42 **4.8.13.2 Environmental Consequences**

43  
44 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There may be minor  
45 (low) long-term impacts from hazardous materials and waste. It is anticipated that  
46 Hunter Liggett would need to minimally increase its storage and use of hazardous



1 chemicals during training exercises and installation maintenance with an increase of  
2 1,000 Soldiers, and waste collection, storage, and disposal processes would remain  
3 mostly unchanged, and current waste management programs would continue. The  
4 Soldier increase above the CS/CSS scenario (Full Sustainment BDE to Multiple BCTs  
5 equating to 3,000 to 7,000 Soldiers) would have impacts do a greater degree than the  
6 CS/CSS, but is still expected to have minor impacts to the installation's overall  
7 Hazardous waste program. An increase in the use of hazardous chemicals may be  
8 experienced in the cantonment and training and range areas. Demolition, renovation,  
9 and construction would most likely result in an increase in the generation of asbestos,  
10 lead-contaminated wastes, and other hazardous waste, as well as an increase in the  
11 use of pesticides and herbicides due to the addition of family housing and other  
12 facilities. BCTs would also have minor adverse long-term impacts as the generation of  
13 ordnance and explosives would all be higher than with the other actions, but would  
14 continue to be managed in accordance with current procedures and regulations. Waste  
15 management plans would be updated as needed to incorporate mission activities  
16 associated with the new units stationed at Hunter Liggett and expanded training  
17 activities.

#### 18 **4.8.14 Traffic and Transportation**

##### 19 **4.8.14.1 Affected Environment**

20  
21  
22 Fort Hunter Liggett is located in a rural area of the California Central coast,  
23 approximately half-way between San Francisco and Los Angeles. The installation is  
24 approximately 70 miles southeast of Monterey and borders Los Padres National Forest  
25 to the north and west, private agricultural lands to the east, and county recreational and  
26 private lands to the south. The region of influence (ROI) of the affected environment for  
27 traffic and transportation aspects of the proposed action include Fort Hunter Liggett, and  
28 the central portions of Monterey County, to include the municipalities of King City, San  
29 Lucas, and Bradley, California. US 101 is the only major public route that connects FHL  
30 with the surrounding community (ROI). US 101 is a north-south highway, located  
31 approximately 15 miles east of the installation. The next north-south exit is  
32 approximately 50 miles in either direction. Also, there is only one road that links the  
33 interior valley near FHL with the coast.

##### 34 **4.8.14.2 Environmental Consequences**

35  
36  
37 **CS/CSS.** There is expected to be minor (low) short and long-term impacts on traffic and  
38 transportation systems on the installation due to the presence of an additional 1,000  
39 Soldiers and their family members assigned to the installation. Concentrated to the two  
40 main roads accessing the installation, this level of proposed growth will likely have de  
41 minimis impact on the overall traffic congestion in the neighboring communities. This  
42 additional population may contribute nominally to traffic volume on the installation, and  
43 is not expected to reduce the level of service (LOS) on the installation's road network.  
44 There may be a slight increase in traffic volume during peak morning and evening  
45 hours, but it would not affect level of service or pose an increased risk to the safety of  
46 pedestrians and bicyclists.

1  
2 **Full Sustainment BDE.** There may be minor (low) impacts on traffic and transportation  
3 systems on the installation due to the presence of an additional 3,000 to 3,500 Soldiers  
4 and their family members assigned to the installation. The increase in off-post traffic  
5 would have a minimal impact on traffic in the community overall and it is unlikely it  
6 would contribute to a decrease in the LOS in the road network leading to the installation.  
7 This level of increase in population would have a minimal impact on the traffic volume  
8 on the installation, and would not likely cause a decrease in LOS on installation's  
9 arterial road network. The increased traffic volume in both the neighboring community  
10 and on the installation would likely pose minimal to moderate increased level of risk to  
11 the safety of pedestrians and bicyclists.

12  
13 **IBCT, HBCT, Multiple BCTs.** There is likely to be moderate (medium) short- and long-  
14 term impacts on traffic and transportation systems on the installation due to the  
15 presence of an additional 3,500 to 7,000 Soldiers and their family members. Both on  
16 the installation and in the local communities, the increase in traffic congestion and  
17 accompanying decrease in LOS would have a moderate impact on LOS. The two main  
18 roads accessing the installation would likely experience traffic congestions during  
19 morning and evening hours as a result of support staff commuting to-from the  
20 installation.

#### 21 22 **4.8.15 Cumulative Effects**

23  
24 Fort Hunter Liggett expects their most significant cumulative effects to stem from air  
25 quality and soil erosion. Monterey County is a Maintenance area for ozone. Additional  
26 growth at Fort Hunter Liggett, especially for HBCTs or Multiple BCTs, is expected to  
27 have moderate to significant impacts to air quality at the installation-level, and  
28 cumulative impacts possible to the region from the excess emissions from traffic  
29 (tactical, non-tactical and personal vehicles), and including stationary sources.

30  
31 The soil at FHL is shallow and composed of sandy, silty, and clayey loam. Increased  
32 traffic with the HBCT and multiple BCT scenarios may lead to water quality issues as  
33 continued and heavy use of ranges would compact the soil, reducing vegetation and  
34 making the top layers prone to wind and water erosion. Sedimentation will likely  
35 increase in the waterbodies at or near ranges.

### 36 37 38 **4.9 FORT IRWIN, CALIFORNIA**

#### 39 **4.9.1 Introduction**

40 Fort Irwin, located in south-central California, has approximately 600,000 acres of  
41 maneuver area suited for vehicle and non-vehicular military training (Figure 4.9-1). It  
42 has long supported armored/mechanized unit training and dismounted infantry unit  
43 training, and is the Army's National Training Center (NTC).  
44



**Fort Irwin- Installation Location**

**Figure 4.9-1 Fort Irwin**

Fort Irwin’s main unit is the 11<sup>th</sup> Armored Cavalry Regiment (ACR) which until recently supported the NTC’s primary mission of training Army units on a rotational basis. However, the 11<sup>th</sup> ACR deployed to OIF as an operational unit and will convert to a Heavy Brigade Combat Team.

Fort Irwin is a rugged training environment; the terrain includes desert and mountains. Fort Irwin has a small traditional range infrastructure. As a Training Center, its primary capabilities include a large force-on-force maneuver area and an instrumented live-fire maneuver area. Encroachment from urbanization is not yet a challenge, but there are restrictions from specific TES (ex. the Desert Tortoise).

Table 4.9-1 contains the Fort Irwin’s VEC ratings for each of the various stationing action scenarios.

**Table 4.9-1. Fort Irwin VEC Ratings**

Fort Irwin					
VEC	CS/CSS Units (1,000	Full Sustainment	IBCT (3,500	HBCT (3,800 – 4,000	Multiple BCTs (7,000

	Soldiers)	BDE (3,000-3,500 Soldiers)	Soldiers)	Soldiers)	Soldiers)
Air Quality	Low	Medium	High	High	High
Airspace	Very low	Very low	Very low	Very low	Very low
Cultural	Very low	Very low	Low	Low	Low
Noise	Very low	Very low	Very low	Very low	Very low
Soil Erosion Impacts	Very low	Very low	Low	Low	Low
T&E/Other Wildlife	Very low	Very low	Very low	Very low	Very low
Wetlands	Low	Low	Low	Low	Low
Water Resources	Very low	Very low	Medium	Medium	High
Facilities Landfill	Low High	Low High	Low High	Low High	Medium High
Socioeconomics	Low	Low	Low	Low	Low
Energy Demand/ Generation	Low	Low	Low	Low	Low
Land Use Compatibility	Low	Low	Low	Low	Low
Scheduling Conflict	Low	Low	Medium	Medium	High
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and Transportation	Low	Low	Medium	Medium	High

1  
2       **4.9.2 Air Quality**  
3               **4.9.2.1 Affected Environment**  
4

5 The ROI is in the high desert, which includes Fort Irwin and the Los Angeles Air Basin.  
6 The ROI is in nonattainment for ozone, according to the state standards, as well as for  
7 the federal 1-hour standard below the UTM 90 gridline. The ROI is in attainment for both  
8 the state and federal carbon monoxide standards, as well as for sulfates, and  
9 unclassified for hydrogen sulfide at the state and federal levels. The ROI is in  
10 nonattainment for both the state and federal PM<sub>10</sub> standards.  
11

12               **4.9.2.2 Environmental Consequences**  
13

14 Short-term intermittent minor adverse impacts would be expected within the ROI as a  
15 result of construction activities, training exercises, and increased automobile use.  
16 Emissions from heavy construction equipment and trucks would include NO<sub>x</sub>, PM<sub>10</sub>, CO,  
17 SO<sub>x</sub>, and VOCs, however, the amounts would be dependent on factors such as hours of  
18 operation and miles traveled. Although the immediate affects could be significant in the

1 near term, the cumulative effect is not considered to have a long-term impact on  
2 regional air quality.

3  
4 **CS/CSS.** A long-term low (minor) adverse impact is expected to air quality from the  
5 restationing of approximately 1,000 Soldiers and family members. It is assumed that  
6 the resulting increases in air emissions are directly proportional to the increase in  
7 population at the facility. In general, combustion and fugitive dust emissions will likely  
8 produce localized, short-term elevated air pollutant concentrations that will likely not  
9 result in any sustained impacts on regional air quality.

10  
11 **Full Sustainment BDE.** A long-term medium (moderate) adverse impact is expected  
12 on the installation and surrounding communities by the restationing of a Full  
13 Sustainment BDE and its 3,000 Soldiers. Any construction related emissions also have  
14 the potential to produce localized, short-term elevated air pollutant concentrations but  
15 these are not anticipated to have a major effect on regional air quality. Combustion  
16 emissions resulting from training would be primarily from mobile sources and be widely  
17 distributed both spatially and temporally. Fugitive dust emissions remain a localized  
18 issue and should be addressed as an opacity issue if activities are close enough to  
19 installation boundaries that visible emissions leave the installation. Given the wide  
20 distribution of emissions, it is not anticipated that regional air quality would be  
21 significantly affected.

22  
23 **IBCT, HBCT, Multiple BCTs.** Short and long-term significant (high) adverse impacts  
24 on the installation and surrounding communities are expected from the addition of 3,500  
25 to 7,000 Soldiers. Combustion emissions from stationary sources would significantly  
26 increase due to the plus up in infrastructure required to support the influx of new  
27 Soldiers and their Families. Fugitive dust emissions are already an issue for the facility  
28 and any increases would add to the very large mitigation burden already facing the  
29 installation. Opacity regulations must also be considered if activities are close enough to  
30 installation boundaries that visible emissions leave the installation. There is an  
31 interstate highway which virtually borders the eastern edge of the installation.

### 32 33 **4.9.3 Airspace**

#### 34 **4.9.3.1 Affected Environment**

35  
36 Fort Irwin has 955 square miles of FAA-designated Special use airspace, with no limit in  
37 altitude. The installation has access to this airspace continuously, and is controlled by  
38 the FAA of Edwards, CA. (US Army Corps of Engineers, 2002)

#### 39 40 **4.9.3.2 Environmental Consequences**

41  
42 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term  
43 minimal (very low) impacts are expected to airspace from artillery and UAV operations  
44 from the addition of 1,000 to 7,000 Soldiers. It is anticipated that the activities  
45 associated with an increase of 1,000 to 7,000 Soldiers would increase activities within  
46 the cantonment and training and range areas, while the addition of each BCT would

1 increase operations of unmanned aerial vehicles, and from the airspace required for  
2 live-fire artillery and ordnance into impact areas. Use of this airspace would continue to  
3 be managed through scheduling and balancing training requirements with airspace  
4 availability. Construction or modification of airfields and training and maneuver areas  
5 could result in changes to existing airspace use. Airspace is not a concern with the  
6 CS/CSS or Full Sustainment BDE as these units have only minor to no airspace  
7 requirements.

#### 9 **4.9.4 Cultural Resources**

##### 10 **4.9.4.1 Affected Environment**

11  
12 The affected environment for Fort Irwin, relating to cultural resources, is the installation  
13 footprint. Fort Irwin contains enough historic and archaeological resources to employ a  
14 full time cultural resources group. Fort Irwin also has a curation facility located on the  
15 installation.

##### 17 **4.9.4.2 Environmental Consequences**

18  
19 **CS/CSS, Full Sustainment BDE.** Long-term minimal (minimal) adverse impacts are  
20 expected on Fort Irwin with an increase of approximately 1,000 to 3,500 Soldiers. Due  
21 to the size of the installation, the low number of Soldiers and type of equipment that a  
22 CS/CSS or Full Sustainment BDE entails, a deployment of either size would not impact  
23 cultural resources at Fort Irwin.

24  
25 **IBCT, HBCT, Multiple BCTs.** Under these BCT levels of growth, long-term minor (low)  
26 adverse impacts are expected on cultural resources. Due to the size of the installation,  
27 the vehicles deployed with an IBCT are more likely to cause low level damage to  
28 cultural resources at Fort Irwin. The damage from vehicles may be mitigated as they  
29 are expected to be used on road more than off road. The higher personnel count  
30 increases the opportunity for archaeological resources to be disturbed. The heavy  
31 tracked vehicles of a HBCT or Multiple BCTs could impact previously undiscovered  
32 archaeological resources. The additional Soldiers, via foot traffic, could lead to  
33 inadvertently disturbing surface archaeological sites.

#### 35 **4.9.5 Noise**

##### 36 **4.9.5.1 Affected Environment**

37  
38 Fort Irwin is home to the National Training Center, where brigade-size units are able to  
39 train in simulated rigorous combat conditions using weapons simulators and live-fire.  
40 The range areas support air-to-ground gunnery and firing, artillery, air maneuver, and  
41 ground maneuver, including armored vehicle training. The noise generated from  
42 armored training is not a significant noise concern off the installation. Some air  
43 maneuver does take place in Noise Zones that extend off the installation boundary, but  
44 these operations so close to the border are generally minimal. Artillery and other large  
45 caliber fire take place in noise zones that are either incompatible or normally  
46 incompatible; but the noise zones for artillery does not extend beyond the installation

1 border. The largest noise impacts from the installation are generated by sonic booms  
2 from aircraft and low-altitude flights.

3  
4 The area surrounding Fort Irwin is generally characterized as desert and rocky hills.  
5 The nearest noise-sensitive receptors within 10 miles of the installation include a 1,103  
6 family housing unit, a school, a religious facility, and a hospital. There are also 150  
7 residents within 1-7 miles of the Fort Irwin. Sensitive wildlife that are most susceptible  
8 to noise at or near installation ranges consist of the ground squirrel, bats, raptors, the  
9 Desert Tortoise, and the Bighorn Sheep (Fort Irwin, August 2005).

#### 10 11 **4.9.5.2 Environmental Consequences**

12  
13 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Under all levels of unit  
14 growth scenarios, long-term minimal (very low) adverse noise impacts to wildlife  
15 receptors on the installation and nearby residential areas are expected. The noise  
16 associated from a CS/CSS is significantly lower than what is generated by the current  
17 training environment. There is expected to be a slight overall increase in usage of small  
18 arms ranges and maneuver areas in all levels of growth. Any impacts to wildlife may be  
19 short-term and insignificant. The noise generated by small arms fire or artillery live-fire  
20 is not heard off the installation so there are no impacts to nearby residential areas.  
21 Noise levels would not exceed current peak noise levels and may have only low long-  
22 term impacts to off-post residents. Noise contours may not change, but guidelines for  
23 noise mitigation procedures protecting biological receptors as defined in the  
24 installation's INRMP or ESMP should be followed, and the IENMP should be reviewed  
25 or updated to ensure current management procedures are followed. There are no  
26 significant impacts from noise currently at Fort Irwin.

#### 27 28 **4.9.6 Soil Erosion**

##### 29 **4.9.6.1 Affected Environment**

30  
31 Fort Irwin is located in the Central Mojave Desert and is characterized by high mountain  
32 peaks and ridges separated by broad alluvial fans and wide valleys. Large basins  
33 without external drainage develop playas (very flat, dry lake beds). The average  
34 elevation is 2,500 feet, with peaks up to 6,150 feet.

35  
36 Desert soils are extremely fragile and vulnerable to disruption, which can result in wind  
37 and water erosion. These soils are also highly vulnerable to compaction. Hardened  
38 crusts can form on clay or silty loam soils as a result of biological activity. This  
39 stabilizes the soil surface integrity and resists erosion. "Desert pavement" surfaces  
40 consist of pebbles and rocks that protect the desert soils. Vehicle traffic can disrupt  
41 both the crusts and pavement.

##### 42 43 **4.9.6.2 Environmental Consequences**

44  
45 **CS/CSS, Full Sustainment BDE.** Long-term minimal (very low) adverse impacts from  
46 the wheeled vehicles in these maneuver activities are expected. Off-road movement

1 could have an impact on vegetation and soil surfaces, leading to the conditions for  
2 erosion. It is recommended that the condition of existing (unimproved) range roads and  
3 their ability to support heavy truck traffic from a Full Sustainment BDE be evaluated.  
4

5 **IBCT, HBCT, Multiple BCTs.** Under these BCT scenarios, long-term minor (low)  
6 adverse impacts are expected from training activities associated with the addition of  
7 3,500 to 7,000 Soldiers. The IBCT dismounted training will have a minor impact on  
8 soils and the vehicles of the IBCT could have some effect in small selected areas. The  
9 terrain will show the impact from the vehicle maneuvers, turns, and traction. These  
10 areas could then be highly prone to erosion. The road network could deteriorate rapidly  
11 leading to trafficability and erosion problems. Off-road traffic and maneuvers will  
12 increase, which could have a negative impact on vegetation and the soils. Conditions  
13 for erosion will increase with the addition of each BCT.  
14

## 15 **4.9.7 Vegetation and Wildlife/Threatened and Endangered Species**

### 16 **4.9.7.1 Affected Environment**

17  
18 There are approximately 45 special status species of flora and fauna that occur or may  
19 occur on Fort Irwin. However, Fort Irwin currently records only two ESA listed species  
20 as occurring on the installation. The installation also records two high priority Army  
21 species at risk. Appendix T of this document provides a comprehensive list of federally  
22 listed species.  
23

### 24 **4.9.7.2 Environmental Consequences**

25  
26 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Under each of these  
27 unit growth scenarios, long-term minimal (very low) adverse impacts are expected on  
28 listed or other species recorded on the installation. Listed species and species at risk  
29 recorded on the installation will continue to be managed in accordance with the  
30 installation's INRMP and ESMP, terms and conditions identified within biological  
31 opinion(s) issued by the USFWS and any conservation measures identified in ESA,  
32 Section 7 consultation documents. The ESA conservation and management measures  
33 required for the expansion of the maneuver training area at Fort Irwin may be sufficient  
34 to accommodate any additional increases in Soldier strength and utilization of the  
35 training area.  
36

## 37 **4.9.8 Wetlands**

### 38 **4.9.8.1 Affected Environment**

39  
40 Fort Irwin contains very few acres of wetlands. Wetlands at the National Training  
41 Center (NTC) and Fort Irwin are confined to 10 springs and are essential to the survival  
42 and well being of a number of wildlife species. These areas are marked and fenced as  
43 off-limits. NTC regulation 350-3 states that "No vehicle or foot traffic is authorized  
44 around springs or vegetation within the spring's area." (INRMP, Fort Irwin, 2006)  
45

### 46 **4.9.8.2 Environmental Consequences**



1  
2 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Long-term minor (low)  
3 adverse impacts to installation wetlands are expected from the influx of 1,000 to 7,000  
4 Soldiers to Fort Irwin. Training activities will be relegated to established training areas.  
5 Efforts should be made to avoid any impacts on wetlands by using the installations  
6 wetland planning level surveys or GIS mapping. Wetland management as addressed in  
7 the installation INRMP will provide best training practices.  
8

## 9 **4.9.9 Water Resources**

### 10 **4.9.9.1 Affected Environment**

#### 11 **Surface Water**

12 Surface water resources within the NTC and Fort Irwin and its vicinity are scarce.  
13 Surface water in shallow ephemeral lakes is usually lost through groundwater  
14 percolation or evaporation. The only naturally occurring permanent surface water  
15 resources on the NTC and Fort Irwin are six springs and one watershed that produce  
16 meager to small quantities of water.  
17

#### 18 **Groundwater**

19 Bicycle, Irwin, and Langford groundwater basins are used to supply current water needs  
20 of the NTC and Fort Irwin.  
21

22  
23 Total dissolved solids (TDS) are a growing concern of the NTC. The TDS in the soil are  
24 being leached through the soil to the water table, where the NTC and Fort Irwin draws  
25 its water.  
26

#### 27 **Water Rights**

28 Fort Irwin has water rights to water on property owned by Fort Irwin; any potential use of  
29 percolating groundwater in the expansion area would be limited to use by the Army. In  
30 the case of insufficient water supply, the available supply is equally appropriated among  
31 owners of overlying lands. Surplus water, which may be withdrawn without creating an  
32 overdraft on groundwater supply, may be appropriated for use on overlying lands. The  
33 Army has purchased two sections of land for water rights in Coyote Basin. This land  
34 could be developed as a groundwater resource for the NTC, if required.  
35

#### 36 **Water Supply and Demand**

37 The NTC and Fort Irwin consumes an average of 2.5 MGD. About 60,000 gallons  
38 (227,400 liters) per day of this demand are used outside the cantonment area for field  
39 activities involving Soldier maneuvers. Based on the Water Basin Development Plan  
40 (Wilson F. So & Associates, 1989), projections of daily demand will increase to 3.75,  
41 4.11, and 4.36 MGD by the years 2000, 2020, and 2040, respectively.  
42

43 An approved water supply project involves development of three new production wells  
44 in Langford Basin to meet anticipated future water demands. The NTC has recently  
45 completed two wells downrange to provide water for non-potable use. Coyote Basin is  
46 believed to contain substantial groundwater resources. Although the NTC and Fort

1 Irwin has withdrawn two public land sections overlying Coyote Basin groundwater  
2 resources for water production purposes, it currently does not draw from Coyote Basin  
3 and is not likely to initiate immediate use of this basin. The need for future water  
4 development may be delayed by water conservation measures that reduce demand  
5 within the cantonment area and extend the production life of Bicycle, Langford, and  
6 Irwin aquifers. The installation's water system has recently been privatized.

#### 7 8 **Wastewater**

9 The NTC and Fort Irwin wastewater treatment facility has recently been privatized. The  
10 facility has a 2.0 MGD design capacity and was designed to support a daily population  
11 of 10,000 people. It is permitted as a zero discharge system; therefore, no discharge to  
12 surface watercourses occurs.

#### 13 14 **Stormwater**

15 Stormwater is an important facet of environmental management at the NTC and Fort  
16 Irwin as significant rainfall events can generate enough stormwater to inundate the  
17 wastewater treatment plant. The installation has developed a stormwater management  
18 plan (Radian Corporation, 1995).

### 19 20 **4.9.9.2 Environmental Consequences**

21  
22 **CS/CSS, Full Sustainment BDE.** Short- and long-term minimal (very low) adverse  
23 impacts are anticipated with the addition of 1,000 to 3,500 Soldiers to Fort Irwin. Given  
24 the population of Fort Irwin, the addition of a CS/CSS or Full Sustainment BDE would  
25 not have a significant impact on water demand. Any new construction/land disturbance  
26 over 0.75 acres will require a stormwater construction permit. Upgrades to the private  
27 water and wastewater treatment systems to handle the additional capacity are not  
28 anticipated.

29  
30 **IBCT, HBCT.** Short- and long-term moderate (medium) adverse impacts on water  
31 demand are expected with the addition of 3,500 to 4,000 Soldiers at Fort Irwin.  
32 Personnel consumption and washing of vehicles would increase water demand and  
33 associated treatment. Motorpool activities and washing of track-driven heavy-tracked  
34 vehicles would produce a major increase on water demand and associated treatment.

35  
36 **Multiple BCTs.** Short- and long-term significant (high) adverse impacts on water  
37 resources are expected with the addition of up to 7,000 Soldiers at Fort Irwin.  
38 Personnel consumption, motorpool activities may create a significant increase on water  
39 demand and associated treatment. Fort Irwin may need to construct new washing  
40 systems to manage heavy-tracked vehicles. The installation would also need to revisit  
41 their Stormwater Pollution Prevention Plan to incorporate best management practices  
42 for any new training activities. Additionally, any new construction/land disturbance over  
43 0.75 acres will require a stormwater construction permit which would entail identification  
44 and implementation of mitigation strategies to reduce impacts associated with  
45 stormwater runoff during and after construction. Fort Irwin may need to construct new  
46 washing systems to manage heavy-tracked vehicles.

1  
2 **4.9.10 Facilities**

3 **4.9.10.1 Affected Environment**

4  
5 The Main Cantonment Area is the urbanized portion of Fort Irwin, and has been  
6 developed into a wide variety of land uses that comprise the elements necessary for a  
7 complete community. This includes the installation Post Exchange, commissary,  
8 housing and family support services, medical, and mission-support facilities. The VECs  
9 for utilities, energy, and traffic/transportation are addressed in separate sections of this  
10 PEIS.

11  
12 **4.9.10.2 Environmental Consequences**

13  
14 **CS/CSS, Full Sustainment BDE, IBCT, HBCT.** Short- and long-term minor (low)  
15 adverse impacts to facilities resources are expected with the addition of up to 4,000  
16 Soldiers at Fort Irwin. Activities within the training and range areas would be limited to  
17 existing firing ranges and roadways. Currently, Fort Irwin has buildable space to  
18 support an expansion of the cantonment, and can accommodate these maneuver  
19 activities with good planning. Additional coordination and consultation may be  
20 necessary to support an HBCT. However, because the installation landfill is running at  
21 near capacity; long-term high (major) adverse impacts to the landfill are expected. It is  
22 likely that a program to transport solid waste to facilities in Barstow would need to be  
23 developed. A review of the installation's landfill capacity would be recommended to  
24 determine if it could support an IBCT or HBCT.

25  
26 **Multiple BCTs.** Short- and long-term moderate (medium) adverse impacts to facilities  
27 resources are expected with the addition of up to 7,000 Soldiers. Multiple BCTs may  
28 increase usage within the cantonment and training areas. Additional coordination and a  
29 review of the installation Real Property Master Plan may be necessary for activities  
30 associated with fielding multiple BCTs. Although Fort Irwin has buildable space for the  
31 cantonment, the installation landfill is near capacity and would be unlikely to support  
32 multiple BCTs. Long-term high (major) adverse impacts to the landfill are expected, as  
33 the extra solid waste would require transport offsite to Barstow.

34  
35 **4.9.11 Energy Demand/Generation**

36 **4.9.11.1 Affected Environment**

37  
38 Utilities are generally connected across the cantonment area and along defined utility  
39 corridors and therefore contribute collectively to the overall capacity, use, and storage  
40 as a unit. As such, the ROI for this resource is the cantonment area of Fort Irwin and the  
41 various utility rights of way that connect Fort Irwin with the regional systems.

42  
43 Electric power is provided by Southern California Edison and is distributed via overhead  
44 lines to Fort Irwin and the surrounding communities. While there is a transcontinental  
45 natural gas transmission pipeline that runs along its boundary, Fort Irwin itself does not  
46 utilize natural gas as a source of energy.

1  
2 **4.9.11.2 Environmental Consequences**  
3

4 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Long-term minor (low)  
5 adverse impacts on energy resources are expected from the addition of 1,000 to 7,000  
6 Soldiers at Fort Irwin. The existing electric utility infrastructure has sufficient excess  
7 capacity and scalability to readily absorb the addition of a CS/CSS unit. As with any  
8 expansion, an initial capital investment will be required to extend the existing electrical  
9 distribution infrastructure in order to accommodate the addition of a Full Sustainment  
10 BDE, IBCT, or HBCT. The current electrical system has sufficient capacity that will not  
11 necessitate expansion beyond any critical threshold. Although Multiple BCTs will  
12 certainly require major construction and expansion of the existing energy infrastructure,  
13 the capacity and scalability of the electrical distribution system are not likely to be  
14 challenged. Like the others, this scenario results in a new energy demand posture that  
15 is comfortably within the capacity of the existing energy utility.  
16

17 **4.9.12 Land Use Conflicts/Compatibility**

18 **4.9.12.1 Affected Environment**  
19

20 Fort Irwin is located approximately 37 miles northeast of Barstow, California in the High  
21 Mojave Desert midway between Las Vegas, Nevada and Los Angeles, California. The  
22 installation is surrounded by desert hills and mountains. Natural vegetation is sparse  
23 and consists of mesquite, creosote, yuccas, and other low growing plants.  
24 The entire reservation encompasses more than 761,000 acres (over 1,100 square  
25 miles) comprised mostly of arid basins, dry lakebeds, ridges, and mountain ranges. The  
26 northern boundary of the training area is less than 1.7 NM (3 km) from Death Valley  
27 National Monument. The San Bernardino and San Gabriel Mountains extend in an east-  
28 west path 73 NM (135 km) southwest of Bicycle Lake. The Sierra Nevada Mountains,  
29 oriented north to south, are to the west. Elevations in excess of 10,000 feet (3,050  
30 meters) are common in these ranges.<sup>6</sup>  
31

32 **4.9.12.2 Environmental Consequences**  
33

34 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Under each of these  
35 unit growth scenarios, short- and long-term minor (low) environmental impacts to  
36 installation land use from an additional 1,000 to 7,000 Soldiers and their family  
37 members are expected. The installation has sufficient land available to either build the  
38 facilities, sufficient vacant space in existing buildings, or a combination thereof to meet  
39 each unit's mission requirements. Additionally, the land, or existing facilities, are  
40 located such that surrounding facilities are compatible with all additional maneuver  
41 activities. The facilities required for each unit growth scenario will likely be located within  
42 a single contiguous land unit.  
43

---

<sup>6</sup> <http://www.globalsecurity.org/military/facility/fort-irwin.htm>, Accessed, April 27, 2007.

1                   **4.9.13 Hazardous Materials/Hazardous Waste**

2                                   **4.9.13.1 Affected Environment**

3  
4 The affected environment includes the use, storage, transport, and disposal of  
5 hazardous materials and wastes at Fort Irwin. This includes hazardous materials and  
6 wastes from USTs and aboveground storage tanks; pesticides; LBP; asbestos; PCBs;  
7 radon; and UXO. Each installation operates under a Hazardous Waste Management  
8 Program that manages hazardous waste to promote the protection of public health and  
9 the environment. Army policy is to substitute nontoxic and nonhazardous materials for  
10 toxic and hazardous ones; ensure compliance with local, state, and federal hazardous  
11 waste requirements; and ensure the use of waste management practices that comply  
12 with all applicable requirements pertaining to generation, treatment, storage, disposal,  
13 and transportation of hazardous wastes. The program reduces the need for corrective  
14 action through controlled management of solid and hazardous waste. (US Army Corps  
15 of Engineers, February, 2002)

16  
17                                   **4.9.13.2 Environmental Consequences**

18  
19 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Short- and long-term  
20 minor (low) adverse impacts from hazardous materials and waste are expected with the  
21 addition of 1,000 to 7,000 Soldiers. An increase in the storage and use of hazardous  
22 chemicals may be seen in the cantonment and training and range areas. Demolition,  
23 renovation, and construction would mostly likely result in an increase in the generation  
24 of asbestos, lead-contaminated wastes, and other hazardous waste, as well as an  
25 increase in the use of pesticides due to the addition of family housing and other  
26 facilities. The increase in these wastes would result in no adverse impacts because the  
27 wastes would be managed in accordance with current standards and regulations. The  
28 hazardous waste disposal facilities would be adequate to manage the increase in  
29 hazardous waste. Waste management programs may be updated as needed to  
30 incorporate mission activities associated with the new units stationed at Fort Irwin and  
31 expanded training activities.

32  
33                   **4.9.14 Traffic and Transportation**

34                                   **4.9.14.1 Affected Environment**

35  
36 Fort Irwin is located approximately 37 miles northeast of Barstow, California. The ROI  
37 of the affected environment for traffic and transportation aspects includes Fort Irwin, and  
38 the neighboring communities of Yermo and Barstow, California. The major road route in  
39 the region is I-15, a north-south interstate highway located about 20 miles from the  
40 cantonment area. I-15 links the installation to Barstow and Los Angeles California to  
41 the southwest, and Las Vegas, Nevada, to the northeast.

42  
43                                   **4.9.14.2 Environmental Consequences**

44  
45 **CS/CSS, Full Sustainment BDE.** Short and long-term minor (low) adverse impacts on  
46 traffic and transportation systems on the installation due to the presence of an additional

1 1,000 to 3,500 Soldiers and their family members assigned to the installation are  
2 expected. Spread across the ROI, this population will have de minimis impact on the  
3 overall traffic congestion in the neighboring communities. This additional population  
4 may contribute nominally to traffic volume on the installation, and is not expected to  
5 reduce the level of service (LOS) on the installation's road network. There may be a  
6 slight increase in traffic volume during peak morning and evening hours, but it would not  
7 affect level of service and would likely pose a minor increased level of risk to the safety  
8 of pedestrians and bicyclists.

9  
10 **IBCT, HBCT.** Short- and long-term medium (moderate) adverse impacts on traffic and  
11 transportation systems on the installation due to the presence of an additional 3,500 to  
12 4,000 Soldiers and their family members are expected. Both on the installation and in  
13 the local communities, the increase in traffic congestion and accompanying decrease in  
14 LOS would have a moderate impact on LOS. Similarly, the increased traffic volume  
15 could pose a slightly higher safety risk to pedestrians and bicyclists than that posed by  
16 the presence of a Full Sustainment BDE.

17  
18 **Multiple BCTs.** Short- and long-term significant (high) impacts on traffic and  
19 transportation systems on the installation are expected due to the presence of an  
20 additional 7,000 Soldiers and their family members. The effect on the traffic congestion  
21 in the local communities from this increased population level would be noticeable in the  
22 community at large and would likely cause a decrease in LOS in the community's road  
23 network, and would likely cause a major decrease in the LOS on the road network  
24 leading to the installation. This increase in both Soldier and family-member population  
25 would cause a major impact on the LOS of the installation's road network and pose a  
26 significantly increased risk to the safety of pedestrians and bicyclists.

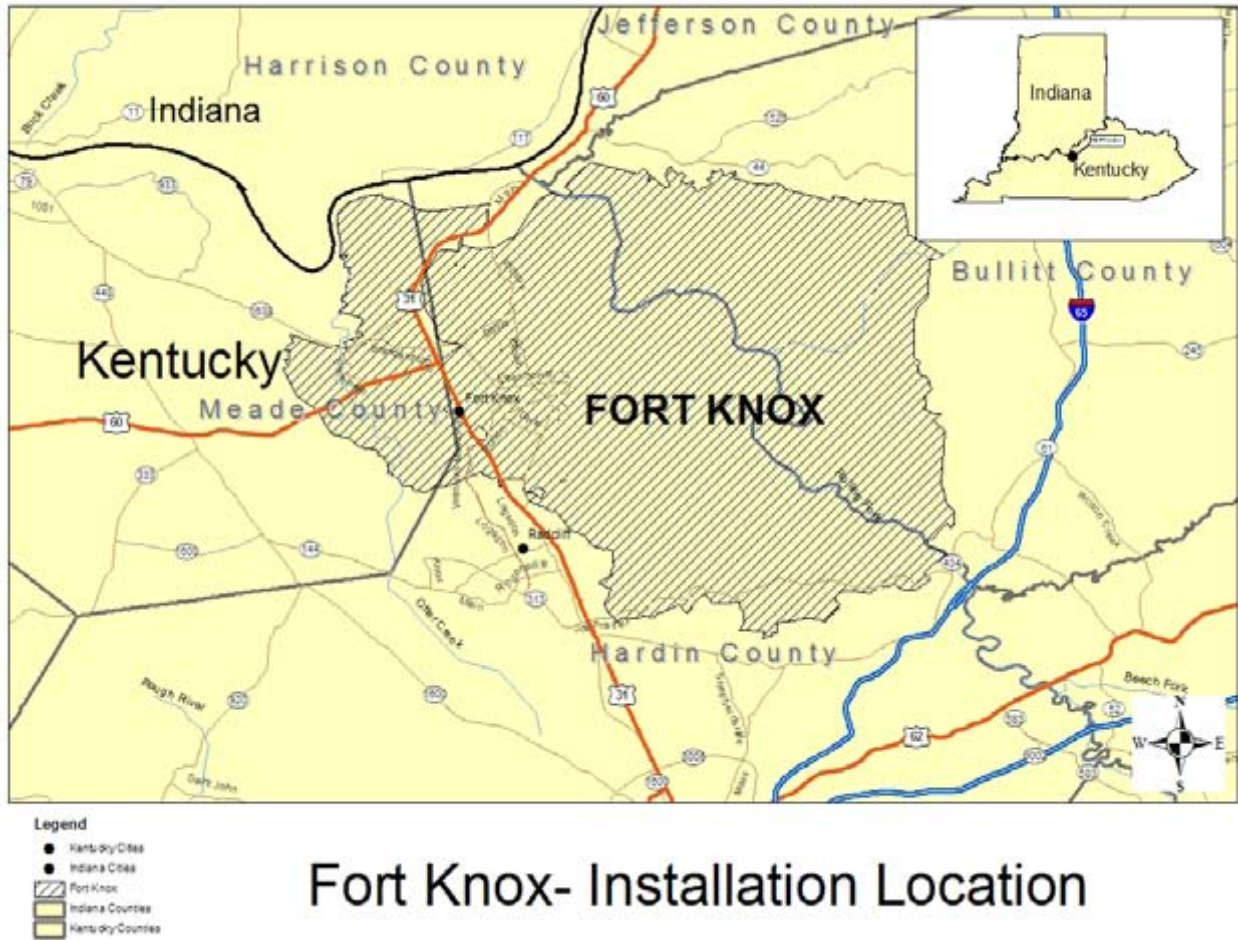
## 27 28 **4.9.15 Cumulative Effects**

29  
30 Fort Irwin has identified no foreseeable off-post projects, or significant on-post military  
31 operations or activities that would, in conjunction with Army growth, result in significant  
32 cumulative effects to the affected environment. The impacts on utilities and  
33 communications are primarily related to minor projected increases in population inside  
34 and outside Fort Irwin's boundary. These were analyzed by estimating per unit  
35 consumption on generation rates using the most recently available data, and then  
36 estimating how total consumption or generation rates would change with the changed  
37 population. To determine significant, the increased consumption and generation were  
38 then compared with the ability of existing infrastructure to handle those changes.

## 39 40 41 **4.10 FORT KNOX, KENTUCKY**

### 42 **4.10.1 Introduction**

43  
44 Fort Knox, located in northeastern Kentucky has approximately 46,000 acres of  
45 maneuver area suited for vehicle and non-vehicular military training (Figure 4.10-1). It  
46 has been home to the Armor School and armor/mechanized training for decades.



## Fort Knox- Installation Location

**Figure 4.10-1 Fort Knox**

Fort Knox's major organizations are the Armor Center and Armor School. The Armor School conducts armor and cavalry officer and non-commissioned officer training, and armor and cavalry Soldier Basic Combat and Advanced Individual Training. The Armor School will move to Fort Benning as part of the Maneuver Center of Excellence, as a result of BRAC 2005.

Fort Knox has a robust range infrastructure and a small but varied maneuver area. Fort Knox is facing challenges of growing adjacent urbanization

Table 4.10-1 contains the Fort Knox's VEC ratings for each of the various stationing action scenarios.

**Table 4.10-1. Fort Knox VEC Ratings**

Fort Knox					
VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE (3,000- 3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)

Air Quality	Low	Low	Low	Low	Low
Airspace	Low	Low	Low	Low	Low
Cultural	Low	Medium	Medium	Medium	Medium
Noise	Low	Low	Low	Low	Low
Soil Erosion Impacts	Low	Low	Low	Medium	Medium
T&E/Other Wildlife	Low	Low	Low	Low	Low
Wetlands	Low	Low	Low	Low	Low
Water Resources	Low	Low	Low	Low	Low
Facilities <i>Based on Armor School Move</i>	Low	Medium	Medium	Medium	Medium
Socioeconomics	Low	Medium	Medium	Medium	High
Energy Demand/ Generation	Low	Medium	Medium	Medium	Medium
Land Use Conflict/ Compatibility	Low	Low	Low	Low	Medium
Haz Mat/ Haz Waste	Low	Low	Medium	Medium	High
Traffic and Transportation	Medium	High	High	High	High

1  
2           **4.10.2 Air Quality**  
3                   **4.10.2.1 Affected Environment**

4  
5 Fort Knox is located in the North Central Quality Control Region for Air Quality and in  
6 the Kentucky portion of the southeast air quality transport zone. All construction  
7 associated with the cantonment area would be within Hardin County Attainment Zone.  
8 Ambient air quality at Fort Knox is in attainment for all criteria pollutants and within  
9 USEPA's NAAQS guidelines for acceptable air quality.

10  
11 Fort Knox holds a Title V operating permit. The permit covers all known point sources  
12 located at Fort Knox. Emission sources include storage and use of gasoline, distillate  
13 fuel, jet fuel (JP-8), paint booth operations, oil and gas fired boilers, and degreaser  
14 tanks. The permit requirements include an annual inventory update on each of these  
15 sources. No problems are anticipated in continuing to obtain air quality permits.

16  
17 The Fort Knox cantonment area is not located in a nonattainment or maintenance area  
18 and is therefore not subject to a conformity analysis. The "major source" designation  
19 does, however, trigger the provisions of 40 CFR 52.21, *Prevention of Significant*  
20 *Deterioration (PSD)*. The PSD provisions require Fort Knox to assess all new emission  
21 units to determine if their operation constitutes a major modification.  
22



#### 4.10.2.2 Environmental Consequences

**CS/CSS.** There will be an expected minor (low) impact on the installation and surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It is assumed that the resulting increases in air emissions are directly proportional to the increase in population at the facility. In general, combustion and facility operations will produce localized, short-term elevated air pollutant concentrations that should not result in any sustained impacts on regional air quality. Given the existing air quality and the small anticipated increase in vehicle emissions, this option would have a negligible adverse impact on air quality.

**Full Sustainment BDE.** There will be an expected minor (low) impact on the installation and surrounding communities by the restationing of a Sustainment Brigade Combat Team and its 3,000 Soldiers. Any construction related emissions also have the potential to produce localized, short-term elevated air pollutant concentrations but these are not anticipated to have a major effect on regional air quality. Combustion emissions resulting from training would be primarily from mobile sources and be widely distributed both spatially and temporally. Some training activities generate vehicle emissions and smoke. Fugitive dust may also be generated during training maneuvers and routine operational functions when equipment crosses exposed soils. Given the wide distribution of emissions, it is not anticipated that regional air quality would be significantly affected. Options to demonstrate conformity have been identified.

**IBCT.** There is not expected to be any long-term impact to the installation and surrounding communities by the restationing of an Infantry Brigade Combat Team and its 3,500 Soldiers; therefore impacts are expected to be minor (low). It is anticipated the emissions resulting from stationary sources required for facility operations to support the influx of Soldiers and their Families will have greater, long-term impacts than those resulting from training but not significant enough to cause regional air quality issues. It is anticipated that the installation would see increases in emissions from equipment required to support the installation such as fuel storage and dispensing, boiler and incinerator operations and possible electric peak-shaving generators. Additionally, it is anticipated that more training/operations will occur away from established roads and tank trails.

**HBCT.** There is an anticipated minor (low) impact to the installation and surrounding communities by the restationing of a Heavy Brigade Combat Team and its 3,800 to 4,000 Soldiers. Though the facility can expect increased emissions from military vehicles and generators used to support training events as well as increase in fugitive dust, these will tend to remain localized and produce no major impact to regional air quality. The increase in POVs from the additional Soldiers and family members must also be addressed in the conformity analysis but do not appear too insurmountable.

**Multiple BCTs.** Multiple BCTs are expected to produce minor (low) long-term impacts on air quality of the installation and surrounding communities. Construction, though not technically an operation subject to the provisions of the CAA but a short-term contributor

1 to air quality, and changes to facility operations to support multiple brigades would be  
2 significant initially. Combustion emissions resulting from training would be primarily  
3 from mobile sources and be widely distributed both spatially and temporally. Given the  
4 wide distribution of emissions, it is not anticipated that regional air quality would be  
5 significantly affected.

### 6 7 **4.10.3 Airspace**

#### 8 **4.10.3.1 Affected Environment**

9  
10 Fort Knox has 151 square miles of FAA-designated Special use airspace, up to 20,000  
11 feet. The installation has access to this airspace continuously, and is controlled by the  
12 FAA of Edwards, CA. (US Army Corps of Engineers, 2002)

13  
14 Godman Army Airfield is located adjacent to the cantonment area. Airspace is used for  
15 military tactics and transportation. There are several commercial airports in the vicinity  
16 of Fort Knox. (US Army Corps of Engineers, 1995)

#### 17 18 **4.10.3.2 Environmental Consequences**

19  
20 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be minor  
21 (low) adverse long-term environmental impacts to the airspace and minor short- and  
22 long-term direct adverse impacts to UAV operations. It is anticipated that the activities  
23 associated with an increase of 1,000 Soldiers would not have any impacts to airspace.  
24 Activities within the training and range areas would be limited to existing firing ranges  
25 and roadways. As with the Full Sustainment BDE, the CS/CSS mission activities would  
26 have to be scheduled to coordinate with existing mission activities, and conflicts with  
27 airspace are not identified. BCTs are also expected to have a minor effect to airspace.  
28 The use of UAVs is anticipated to modestly affect SUA. If there is existing airspace  
29 which is insufficient, the installation would have to seek additional special use airspace  
30 designations from the FAA. Future new systems or modifications to existing systems  
31 could also affect airspace use, resulting in greater demand for exclusive military use of  
32 the resource (US Army Corps of Engineers, 2002). Construction or modification of  
33 airfields and training and maneuver areas could result in changes to existing airspace  
34 use. Additionally, large caliber munitions or ordnance would be consistent with current  
35 training operations and would not require additional airspace.

### 36 37 **4.10.4 Cultural Resources**

#### 38 **4.10.4.1 Affected Environment**

39  
40 In relation to cultural resources, the footprint of Fort Knox is the affected environment, or  
41 Area of Potential Effect (APE). Fort Knox is an installation with both historic buildings  
42 and archaeological sites. The footprint includes all land within the fence line.

43  
44 The BRAC program will result in major increases in both personnel and foot traffic on  
45 the installation. It is anticipated that existing buildings will be leveraged to maximize  
46 occupancy in order to address the needs of both civilian and military personnel. The

1 impacts of adding personnel to historic buildings can include inadequate Heating  
2 Ventilation and Air Conditioning (HVAC) and constraints on customizing internal build-  
3 outs due to lack of infrastructure (such as sufficient electrical outlets, pipes, etc.). The  
4 additional foot traffic of civilians and Soldiers can lead to the both inadvertent stripping  
5 of surface archaeological sites and intentional resource hunting.

#### 6 7 **4.10.4.2 Environmental Consequences** 8

9 **CS/CSS.** There will be a minor (low) impact to cultural resources within the APE for the  
10 addition of a CS/CSS unit. CS/CSS units have 1,000 Soldiers, general and attack  
11 helicopters and medium to large cargo trucks. While the trucks are designed for both  
12 off road and on road maneuvering, it is anticipated that the trucks will generally be used  
13 on road. Depending on the off road areas, the tire tread and the heaviness of the truck,  
14 cultural resources could be negatively impacted. However, it is a low risk to cultural  
15 resources, even in unsurveyed areas as the number of vehicles and Soldiers is minimal.  
16

17 **Full Sustainment BDE.** The 3,000 to 3,500 Soldiers, and heavy equipment, of a Full  
18 Sustainment BDE will have moderate (medium) impacts to cultural resources. The  
19 additional Soldiers and their training activities, in previously unsurveyed areas, could  
20 disturb both historic and archaeological resources. Additionally, the added foot traffic to  
21 the training areas could adversely impact surface sites through accidental disturbance  
22 of sites. The number of Soldiers is not anticipated to strain the historic building  
23 resources on post.  
24

25 **IBCT.** There will be moderate (medium) impacts on cultural resources due to an IBCT.  
26 It is anticipated that the impacts will mirror the BDE. The number of Soldiers and the  
27 type of equipment will not produce long term difficulties for the installation in relation to  
28 cultural resources roadways. The number of Soldiers is not expected to create issues  
29 with historic buildings.  
30

31 **HBCT.** The 3,800 to 4,000 additional Soldiers should have moderate (medium) long  
32 term impacts on the installation. The higher the personnel count, the more likely that  
33 either a historic or archaeological resource will be adversely impacted. However, the  
34 greater danger to cultural resources lies in the heavy tracked vehicles, Abrams tanks  
35 and Bradley vehicles that will be maneuvering in previously undisturbed areas. The  
36 heavy tracked vehicles and tanks could crush both historic resources and archaeology  
37 sites.  
38

39 **Multiple BCTs.** The impacts to cultural resources of multiple BCTs will be moderate  
40 (medium) to significant. The influx of Soldiers and equipment will add a strain to historic  
41 and archaeological resources. The actual impacts will depend on the number of  
42 Soldiers training at one time. It may be possible for the existing infrastructure to absorb  
43 the increase in Soldiers and support personnel. However, it is likely that the number of  
44 Soldiers and the type of equipment used for training will adversely affect historic  
45 buildings and archaeology sites. Additionally, archaeological resources could be  
46 impacted by inadvertent and intentional disturbances.

1  
2 **4.10.5 Noise**  
3 **4.10.5.1 Affected Environment**  
4

5 Noise, on and adjacent to Fort Knox is dominated by large caliber fire (from tanks) and  
6 by aircraft noise. Aircraft noise (from fixed- and rotary-winged aircraft) stems mainly  
7 from the Northern Training Area, of which weapons firing and maneuver on Wilcox  
8 Range also occurs. The Yano Multi-Purpose Tank Range has a Noise Zone II,  
9 classified as normally incompatible, that extends beyond the installation boundary into  
10 an area that has some residential development (USACE, August 2006).

11  
12 The Armor Center and School is the largest organization on Fort Knox and has the  
13 mission of training all armor Soldiers and Marines (Fort Knox, 2007). The Armor Center  
14 and School will be moved to Fort Benning (BRAC2005) so that Fort Knox can  
15 accommodate an IBCT (DoD, May 2005).

16  
17 **4.10.5.2 Environmental Consequences**  
18

19 **CS/CSS.** There is expected to be a minimal (low) to minor impact to the local  
20 community and natural environment. Given the mission of Fort Knox, the addition of a  
21 CS/CSS will not create any new noise contours, will not have any impacts to Noise  
22 Zones, and will not have any significant impacts to wildlife, with the exception of  
23 possible short-term impacts associated with additional maneuver. Small arms fire is  
24 very small in comparison to current installation activities. Any additional activity would  
25 require the installation to review procedures and mitigations set in its INRMP, ESMP (for  
26 noise), and IENMP.  
27

28 **Full Sustainment BDE.** There is an overall minor (low) noise impact from fielding a  
29 Full Sustainment BDE to Fort Knox. Maneuver areas and small arms ranges will have  
30 similar impacts as the CS/CSS. An additional 2,500 Soldiers (above a CS/CSS) will  
31 have only minor impacts and installation INRMPs and the IENMP should be used as  
32 guidance during training.  
33

34 **IBCT.** This action may result in minor (low) short-term and long-term impacts to the  
35 natural environment. Noise generated from IBCT artillery activities are small in  
36 comparison to the armor training currently conducted on the installation. Maneuver  
37 impacts will be similar in scale to those generated by a Full Sustainment BDE.  
38

39 **HBCT.** An addition of a heavy brigade combat team is expected to have an overall  
40 minor (low) impact to surrounding communities and the natural environment. This  
41 action will be similar to the current training baseline. Noise contours will not change and  
42 noise will not exceed peak noise thresholds established by current training  
43 requirements. Fort Knox may have to update the installation environmental noise  
44 management program to account for the extra BCT; the expansion of Noise Zones is  
45 not expected.  
46

1 **Multiple BCTs.** Fort Knox expects that the addition of Multiple BCTs will have minor  
2 (low) short- and long-term impacts to the natural environment and to the public. The  
3 baseline of training will not change significantly, and impacts will be similar to those of  
4 adding a HBCT. The IENMP will need to be updated and further noise mitigation  
5 techniques or best practices will be necessary.  
6

## 7 **4.10.6 Soil Erosion**

### 8 **4.10.6.1 Affected Environment**

9

10 The major portion of Fort Knox is located on the eastern Pennyroyal Plateau, which has  
11 rolling to steep topography underlain by limestone and shale. There are three separate  
12 flats originating from the Ohio, Salt and Rolling Rock Rivers. The latter two rivers run  
13 through Fort Knox and their floodplains are generally located in the range impact area.  
14 There are also numerous caverns and sinkholes on Fort Knox.  
15

16 Most of the soils at Fort Knox are rated as having slight to moderate erosion limitations  
17 (U.S. Department of the Army, 1990). Heavy use of tracked vehicles in long term  
18 training areas can result in extensive sheet erosion and severe gully erosion.  
19

### 20 **4.10.6.2 Environmental Consequences**

21

22 **CS/CSS, Full Sustainment BDE, IBCT.** There will be minor (low) impacts to soil  
23 conditions at Fort Knox from the vehicles in these units. They could have a slight to  
24 moderate effect in selected off-road areas. The condition of existing (unimproved)  
25 range roads and their ability to support for heavy truck traffic may have to be evaluated.  
26 These roads could be prone to water erosion, so road construction, hardening and  
27 maintenance practices would have to be reviewed and modified. Off-road movement  
28 would have slight to moderate impact on soil erodibility based on disturbance to  
29 vegetation and soil surfaces, and moisture content and temperatures (U.S. Department  
30 of the Army, 1990).  
31

32 **HBCT, Multiple BCTs.** The vehicles of a HBCT, or the doubling impact from an even  
33 higher amount of vehicles as from the multiple BCT scenario is expected to have a  
34 moderate (medium) impact on roads and off-road areas due to the number of tracked  
35 vehicles in an HBCT and the weight and mobility characteristics' of the tracked vehicles.  
36 Areas with a slope of greater than 30% will not be affected by the tracked vehicles. Flat  
37 to relatively flat areas will show the impact from the vehicle maneuvers, turns and  
38 traction. These areas could then be prone to water erosion. The road network could  
39 deteriorate rapidly leading to trafficability and erosion problems. Off-road traffic and  
40 maneuvers will increase, which will have a major negative impact on soils. Conditions  
41 for potential water erosion will increase.  
42

## 43 **4.10.7 Vegetation and Wildlife/Threatened and Endangered Species**

### 44 **4.10.7.1 Affected Environment**

45

1 There are 20 special status species of flora and fauna known to occur on Fort Knox.  
2 However, Fort Knox currently records only three endangered or threatened species as  
3 occurring on the installation. Appendix T of this document provides a comprehensive  
4 inventory of federally listed species.

#### 5 6 **4.10.7.2 Environmental Consequences**

7  
8 **CS/CSS.** It is anticipated that implementation of this level of Soldier strength will have a  
9 minor (low) impact on the three listed species at Fort Knox. The threatened and  
10 endangered species recorded on the installation are managed in accordance with the  
11 installation's INRMP and ESMP, terms and conditions identified within biological  
12 opinion(s) issued by the USFWS and any conservation measures identified in ESA,  
13 Section 7 consultation documents.

14  
15 **Full Sustainment BDE, IBCT, HBCT, and Multiple BCTs.** It is anticipated that  
16 implementation of any of these levels of Soldier growth may have a minor (low) impact  
17 on the three listed species. The threatened and endangered species recorded on the  
18 installation will continue to be managed in accordance with the installation's INRMP and  
19 ESMP, terms and conditions identified within biological opinion(s) issued by the USFWS  
20 and any conservation measures identified in ESA, Section 7 consultation documents.  
21 However, since implementation of either of these actions may affect any of the recorded  
22 listed species, the installation will be required to consult with the USFWS either  
23 informally or formally, depending on whether take is anticipated to occur.

#### 24 25 **4.10.8 Wetlands**

##### 26 **4.10.8.1 Affected Environment**

27  
28 Fort Knox contains approximately 2,310 acres of wetlands making up 2% of the  
29 installation (INRMP, Fort Knox, 2006). Wetlands are primarily composed of Riverine,  
30 Lacustrine and Palustrine.

##### 31 32 **4.10.8.2 Environmental Consequences**

33  
34 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be an  
35 expected minor impact on the installation wetlands as a result of the restationing of a  
36 CS/CSS unit to Fort Knox. Training activities will be relegated to established training  
37 areas There should be very little impact to wetlands based on the small number that are  
38 found on the installation. Efforts will be made to avoid any impacts to wetlands by using  
39 the installations wetland planning level survey's/ GIS mapping and best management  
40 practices.

#### 41 42 **4.10.9 Water Resources**

##### 43 **4.10.9.1 Affected Environment**

##### 44 45 **Surface Water**

1 Surface waters on Fort Knox include both streams and lakes. There are more than 25  
2 water bodies that serve multiple purposes. In the vicinity of the cantonment area, there  
3 are several creeks and two ponds. Mill Creek, the nearest major body of water, is  
4 classified as “water quality limited” by Kentucky, due to metals, ammonia, and low  
5 dissolved oxygen concentrations.  
6

### 7 **Water Supply**

8 Potable water at Fort Knox is provided by two different sources: West Point Well Field  
9 in the Ohio River alluvial aquifer and surface water from McCracken Springs near Otter  
10 Creek. Groundwater used for the Fort Knox drinking water supply is from 15 deep  
11 wells.  
12

13 Fort Knox owns and operates two drinking water plants. Ownership and operation of  
14 the drinking water treatment and supply system is planned for privatization. The Fort  
15 Knox Central Water Plant treats both groundwater and surface water while the  
16 Muldraugh Water Plant treats only groundwater. The two plants serve a daytime, on-  
17 installation population of approximately 26,000. Together, the plants treat an average of  
18 3.065 MGD and are designed for a maximum capacity of 13 MGD. Treated water is  
19 supplied to the installation and sold to the City of Muldraugh and Hardin County Water  
20 District #1.  
21

### 22 **Wastewater**

23 The Fort Knox Wastewater Treatment Plant (WWTP) was designed for an average  
24 wastewater flow of 6 MGD, a maximum hydraulic capacity of 14 MGD, and a peak  
25 wastewater flow of 18 MG. The facility handles flow from the installation and the City of  
26 Muldraugh and treats an average domestic flow of about 2.5 MGD.  
27

28 Ownership and operation of the Fort Knox wastewater system was transferred to Hardin  
29 County Water District No. 1 (District) in partnership with Veolia Water North America –  
30 South, LLC (Veolia Water). The wastewater system at Fort Knox is generally adequate  
31 to convey and treat wastewater from all existing and future development.  
32

### 33 **Stormwater**

34 The District also owns and operates the stormwater collection system at Fort Knox. The  
35 stormwater drainage system at Fort Knox is generally able to meet the demands of  
36 normal rainfall conditions.  
37

38 Fort Knox has a permit which allows the installation to discharge stormwater from  
39 industrial areas and from construction activities disturbing more than 0.75 acres.  
40

#### 41 **4.10.9.2 Environmental Consequences**

42  
43 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** An addition of 1,000  
44 to 7,000 Soldiers is anticipated to have minor (low) impacts to Fort Knox. Given the  
45 existing population of Fort Knox this level of growth will not have significant impacts to  
46 the watershed, water demand, and associated treatment systems. Although water

1 consumption and vehicle washing would increase, there is more than ample capacity at  
2 the water and wastewater systems to handle HBCT and multiple BCT activities. The  
3 installation would likely need to revisit their Storm Water Pollution Prevention Plan to  
4 incorporate best management practices for any new training activities. Additionally, any  
5 new construction/land disturbance over 0.75 acres will require a stormwater  
6 construction permit, which would entail identification and implementation of mitigation  
7 strategies to reduce impacts associated with stormwater runoff during and after  
8 construction.  
9

## 10 **4.10.10 Facilities**

### 11 **4.10.10.1 Affected Environment**

12  
13 Fort Knox is divided into two general areas: the cantonment (or built-up area of the  
14 installation) and the portions of the installation used as maneuver training facilities,  
15 ranges, and range impact areas. The cantonment occupies approximately 6,902 acres  
16 (approximately 6.3 percent) of the installation. Fort Knox's cantonment is the portion of  
17 the installation that has been developed into a variety of urban land uses that together  
18 comprise the elements necessary for a complete community. It includes but is not  
19 limited to, commercial and service support facilities similar to those associated with a  
20 civilian community. The commercial facilities include a commissary and Post Exchange  
21 that would make up the commercial aspects of a community center. The service  
22 support facilities include educational, post office, library, childcare center, youth center,  
23 and chapel and religious education functions. The U.S. Bullion Depository is located at  
24 Fort Knox on a 30-acre tract of land completely surrounded by the installation. The  
25 Depository is a restricted area.  
26

27 Building land is a consideration for any expansion of current activities at Fort Knox. The  
28 Army Armor School is scheduled to be transferred from Fort Knox to Fort Benning in  
29 FY11 as part of BRAC 2005.  
30

### 31 **4.10.10.2 Environmental Consequences**

32  
33 The impacts of the Proposed Action and other alternatives on utilities and  
34 communications are primarily related to projected increases in population on and off  
35 post. These were analyzed by estimating per unit consumption on generation rates  
36 using the most recently available data, and then estimating how total consumption or  
37 generation rates would change with the changed population. The increased  
38 consumption and generation were then compared with the ability of existing  
39 infrastructure to handle those changes.  
40

41 **CS/CSS.** There will be minor (low) environmental impacts to facilities. It is anticipated  
42 that the activities associated with an increase of 1,000 Soldiers would increase facilities  
43 usage within the cantonment and training and range areas. Activities within the training  
44 and range areas would be limited to existing firing ranges and roadways. Although  
45 buildable space at Fort Knox is an issue, the relocation of the Armor School should  
46 allow the installation to accommodate a CS/CSS with good planning.



1  
2 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be moderate  
3 (medium) short- and long-term impacts to facilities resources. Increased Soldier  
4 strength of 3,000 to 7,000 would be reflected within increased activity within the  
5 cantonment and training and range areas. The availability of buildable space that can  
6 support expansion of the cantonment is a factor to consider, although the building space  
7 freed up by the BRAC 2005 transfer of the Armor School (potentially to Fort Benning)  
8 should allow Fort Knox to accommodate this level of Soldier growth and their associated  
9 missions. To accommodate multiple BCTs, however, the installation may require  
10 additional buildable space within the cantonment area.

#### 11 **4.10.11 Energy Demand/Generation**

##### 12 **4.10.11.1 Affected Environment**

13  
14  
15 Fort Knox's energy needs are currently met by electricity provided by a public utility.  
16 The power supply capacity from this utility is adequate and able to meet current and  
17 future energy demands.

##### 18 **4.10.11.2 Environmental Consequences**

19  
20  
21 **CS/CSS.** This basing scenario is likely to have a minor (low) impact to energy demand.  
22 The addition of a CS/CSS unit with 1,000 Soldiers represents a small fraction of the  
23 overall mission activity at Fort Knox. The installation also possesses a fair excess of  
24 available energy resources.

25  
26 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** The installation anticipates a  
27 moderate impact to energy demand from the addition of 3,000 to 7,000 Soldiers, their  
28 Families, and potential civilian support. New electrical and natural gas infrastructure  
29 plans may need to be considered in order to accommodate the increase in usage. New  
30 infrastructure could easily be constructed to accommodate the electrical and natural gas  
31 demands resulting from an increase in personnel.

#### 32 **4.10.12 Land Use Conflicts/Compatibility**

##### 33 **4.10.12.1 Affected Environment**

34  
35  
36 Fort Knox occupies 109,054 acres, of which approximately 6,902 acres are the  
37 cantonment area. Land in the areas outside the cantonment area is used mainly for  
38 training, small arms and artillery impact, and vehicle uses. About 52,000 acres of land  
39 are under forest management. These lands are used as training grounds and buffer  
40 areas and for timber supply and recreation. Overall, the main land use at Fort Knox,  
41 occupying approximately two-thirds of the total acreage, consists of live-fire ranges and  
42 impact areas (Department of the Army, 1995).

##### 43 **4.10.12.2 Environmental Consequences**

1 **CS/CSS, Full Sustainment BDE, IBCT, HBCT.** There will be minor (low) short and  
2 long-term impacts on installation land use due to the additional mission requirements at  
3 Fort Knox. The installation has sufficient land available to either build the facilities  
4 needed for this unit, or would have sufficient vacant space in buildings that would be  
5 suitable for the units' mission. Additionally, the land, or existing facilities, is located  
6 such that surrounding facilities are compatible with all growth scenarios. The facilities  
7 required to support this level of growth will likely be located within a single contiguous  
8 land unit.  
9

10 **Multiple BCTs.** There would be moderate (medium) short- and long-term impacts on  
11 installation land use due to the presence of an additional 7,000, or more Soldiers and  
12 their Families assigned to the installation. The installation may not have sufficient land  
13 available to either build the facilities needed for this unit, or may not have sufficient  
14 vacant space in buildings suitable for the units' mission. Building new facilities may  
15 require the installation to re-zone existing land uses, or re-use/remodel facilities in areas  
16 not compatible with land uses associated with tactical units. Existing land and/or  
17 facilities may not be contiguous and located such that tactical vehicles would need to  
18 travel extensively within the cantonment area to reach training ranges.  
19

#### 20 **4.10.13 Hazardous Materials/Hazardous Waste**

##### 21 **4.10.13.1 Affected Environment**

22  
23 The affected environment for these proposed actions include the use, storage,  
24 transport, and disposal of hazardous materials and wastes at Fort Knox. This includes  
25 hazardous materials and wastes from USTs and aboveground storage tanks;  
26 pesticides; LBP; asbestos; PCBs; radon; and UXO.  
27

28 Fort Knox is a large quantity hazardous waste generator and has a RCRA Part B permit  
29 for a treatment, storage, and disposal (TSD) facility. The types of wastes generated and  
30 stored at the installation include those found in maintenance activities, printing and  
31 painting operations, as well as electrical and mechanical shops. Approximately 90% of  
32 the waste solvents at Fort Knox are generated from vehicle and aircraft maintenance  
33 facilities. Many of the wastes received for disposal are expired commercial chemical  
34 products. All hazardous waste generated at Fort Knox is manifested under Fort Knox's  
35 USEPA identification number (KY6210020479). (US Army Corps of Engineers, August,  
36 2006)  
37

##### 38 **4.10.13.2 Environmental Consequences**

39  
40 **CS/CSS.** There will be minor (low) long-term environmental impacts from hazardous  
41 materials and waste. It is anticipated that Fort Knox would minimally increase its  
42 storage and use of hazardous chemicals during training exercises and installation  
43 maintenance with an increase of 1,000 Soldiers. Waste collection, storage, and  
44 disposal processes would remain mostly unchanged, and current waste management  
45 programs would continue.  
46

1 **Full Sustainment BDE.** Minor (low) short- and long-term environmental impacts from  
2 hazardous materials and waste would be expected with an increased Soldier strength of  
3 3,000 to 3,500. An increase in the use of hazardous chemicals may be seen in the  
4 cantonment and training and range areas. Demolition, renovation, and construction  
5 would mostly likely result in an increase in the generation of asbestos, lead-  
6 contaminated wastes, and other hazardous waste, as well as an increase in the use of  
7 pesticides due to the addition of family housing and other facilities. The increase in  
8 these wastes would result in no adverse impacts because the wastes would be  
9 managed in accordance with current standards and regulations. The hazardous waste  
10 disposal facilities would be adequate to manage the increase in hazardous waste.  
11 Waste management programs may be updated as needed.

12  
13 **IBCT.** There will be moderate (medium) short- and long-term impacts from hazardous  
14 materials and waste associated with the addition of an IBCT. Materials used, stored,  
15 and handled would increase; however, existing procedures, regulations, and facilities  
16 would be able to meet storage, use, and handling requirements. No adverse impacts  
17 anticipated.

18  
19 **HBCT.** There will be moderate (medium) short- and long-term impacts from hazardous  
20 materials and wastes. The volume of hazardous waste would be slightly higher than the  
21 IBCT, and existing management plans would need to be updated to reflect the change  
22 in mission at Fort Knox and expanded training activities. Construction of new facilities  
23 under this alternative would entail the use of various paints, lacquers, adhesives,  
24 sealants, fuel, and other hazardous substances. Generation of small quantities of toxic  
25 and hazardous wastes during construction is likely. An increase in personnel would  
26 result in an increase in the amounts of hazardous wastes created and used (e.g. oil,  
27 solvents, paints, POL products, and pesticides.) (US Army Corps of Engineers, August,  
28 2006)

29  
30 **Multiple BCTs.** The establishment of multiple BCTs at Fort Knox would result in  
31 significant (high) short- and long-term impacts from hazardous materials and waste.  
32 Generation and management of hazardous materials and waste, pesticides, petroleum  
33 storage tanks, ordnance and explosives would all be higher than with the other actions,  
34 and waste management plans would need to be updated to reflect the change in  
35 mission and expanded training activities. The addition of multiple BCTs may require an  
36 additional on-site investigation.

#### 37 38 **4.10.14 Traffic and Transportation** 39 **4.10.14.1 Affected Environment**

40  
41 **Affected Environment.** The affected environment or region of influence (ROI) for this  
42 proposed action includes Fort Knox and Hardin County, Kentucky. Within Hardin  
43 County, the areas most influenced by the proposed restationing of units to Fort Knox  
44 would be the town of Radcliff and City of Elizabethtown. There are no commercial air  
45 carriers, waterway or maritime shipping at this installation. The installation has a  
46 railhead for rail movement of tactical vehicles.

1  
2 Table 4.10-2, below, shows the expected population of Fort Knox at the completion of  
3 all restationing actions associated with the 2005 Base Realignment and Closure  
4 (BRAC) decision.  
5

6 **Table 4.10-2. Projected population at Fort Knox**

Year	Officers	Warrant Officers	Enlisted	Total, Military	Civilians	Contractors	Students	TOTAL
2011	1,834	302	9,877	12,013	5,575	4,799	767	23,168

7  
8 The BRAC program will result in major increases in vehicle traffic volume both on the  
9 installation and in the local community leading to it. This is largely due to the changing  
10 demographics on Fort Knox. The large contingent of enlisted Soldiers attending basic  
11 training and/or the Armor School Advanced Individual Training will conduct that training  
12 at Fort Benning. While the population changes little, the student population of Soldiers  
13 will be replaced by permanent party senior non-commissioned officers, commissioned  
14 officers, Department of the Army civilians, and contractors. A significant portion of the  
15 military and all of the civilians and contractors will commute to Fort Knox by private  
16 auto.  
17

18 During July 2005 Fort Knox conducted a survey of installation personnel to inquire  
19 about the level of interest in a transit system in the region, to include commuting to Fort  
20 Knox. The results indicate that single occupant vehicles will be the preferred means of  
21 transportation of Fort Knox employees. A majority (69%) of those responding to the  
22 survey indicated they would use a bus or transit system for commuting to work; 65% of  
23 respondents indicated they would use such a system several days a week or more, and  
24 70% stated they would prefer a park and ride type arrangement (Springer, 2005).  
25

#### 26 **4.10.14.2 Environmental Consequences**

27  
28 **CS/CSS.** There will be a moderate (medium) impact on the installation and surrounding  
29 communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. The additional  
30 population that would routinely commute to work would have a moderate negative effect  
31 on traffic congestion on the installation. A portion of these Soldiers would be authorized  
32 to live in off-post housing, and would add a minor to medium level of congestion to off-  
33 post traffic. The increase in off-post traffic would have a de minimis impact on traffic in  
34 the community overall, but could contribute to a minor decrease in the level of service  
35 (LOS) in the road network leading to the installation, particularly during peak morning  
36 and afternoon travel periods.  
37

38 **Full Sustainment BDE.** There will be significant (high) short and long-term impacts on  
39 traffic and transportation systems on the installation due to the presence of an additional  
40 3,000 to 3,500 Soldiers. As more Soldiers are assigned to the installation, an  
41 increasing percentage of married Soldiers, and unmarried Soldiers with a grade of E-6  
42 (Staff Sergeant) and higher will reside in off-post housing. The increase in off-post  
43 traffic would have a noticeable impact on traffic in the community overall and could  
44 contribute a notable decrease in the LOS in the road network leading to the installation,

1 particularly during peak morning and afternoon travel periods. This level of increase in  
2 population would also have a major impact on the traffic volume on the installation, and  
3 contribute to a decrease in LOS on the installation's road network. The increased traffic  
4 volume in both the neighboring community and on the installation would pose an  
5 increased level of risk to the safety of pedestrians and bicyclists.

6  
7 **IBCT.** There will be significant (high) short- and long-term impacts on traffic and  
8 transportation systems on the installation due to the presence of an additional 3,500  
9 Soldiers. The increase in traffic congestion, accompanying decrease in LOS, and  
10 increased safety risk to pedestrians and bicyclists would be slightly higher than that  
11 posed by the presence of a Full Sustainment BDE.

12  
13 **HBCT.** There will be significant (high) short- and long-term impacts on traffic and  
14 transportation systems on the installation due to the presence of an additional 3,800 to  
15 4,000 Soldiers. The increase in traffic congestion, accompanying decrease in LOS, and  
16 increased safety risk to pedestrians and bicyclists would be slightly higher than that  
17 posed by the presence of a Full Sustainment BDE.

18  
19 **Multiple BCTs.** There would be significant (high) short- and long-term impacts on  
20 traffic and transportation systems on the installation due to the presence of an additional  
21 7,000 Soldiers, or more. The effect on the traffic congestion in the local community  
22 from this increased population level would be noticeable in the community at large and  
23 would likely cause a decrease in LOS in the community's road network, and would likely  
24 cause a major decrease in the LOS on the road network leading to the installation. This  
25 increase in both Soldier and family-member population would cause a major impact on  
26 the LOS of the installation's road network and pose a significantly increased risk to the  
27 safety of pedestrians and bicyclists.

#### 28 29 **4.10.15 Cumulative Effects**

30  
31 Cumulative Effects at Fort Knox include Army mission-related activities and potential  
32 land transfer activities. Past, present, and reasonably foreseeable future actions  
33 include:

##### 34 35 Ongoing Projects:

- 36 • Construction of new dining facilities which occurred in April 2007; and
- 37 • An Annex to the Headquarters building at Fort Knox beginning in July 2007

##### 38 39 Future Projects:

- 40 • Construction of a Human Resources Resource Center in March 2008; and
- 41 • The potential land transfer of approximately 194 acres to the State of Virginia  
42 for a Virginia Nursing Home and Medical Center, beginning in FY08-09

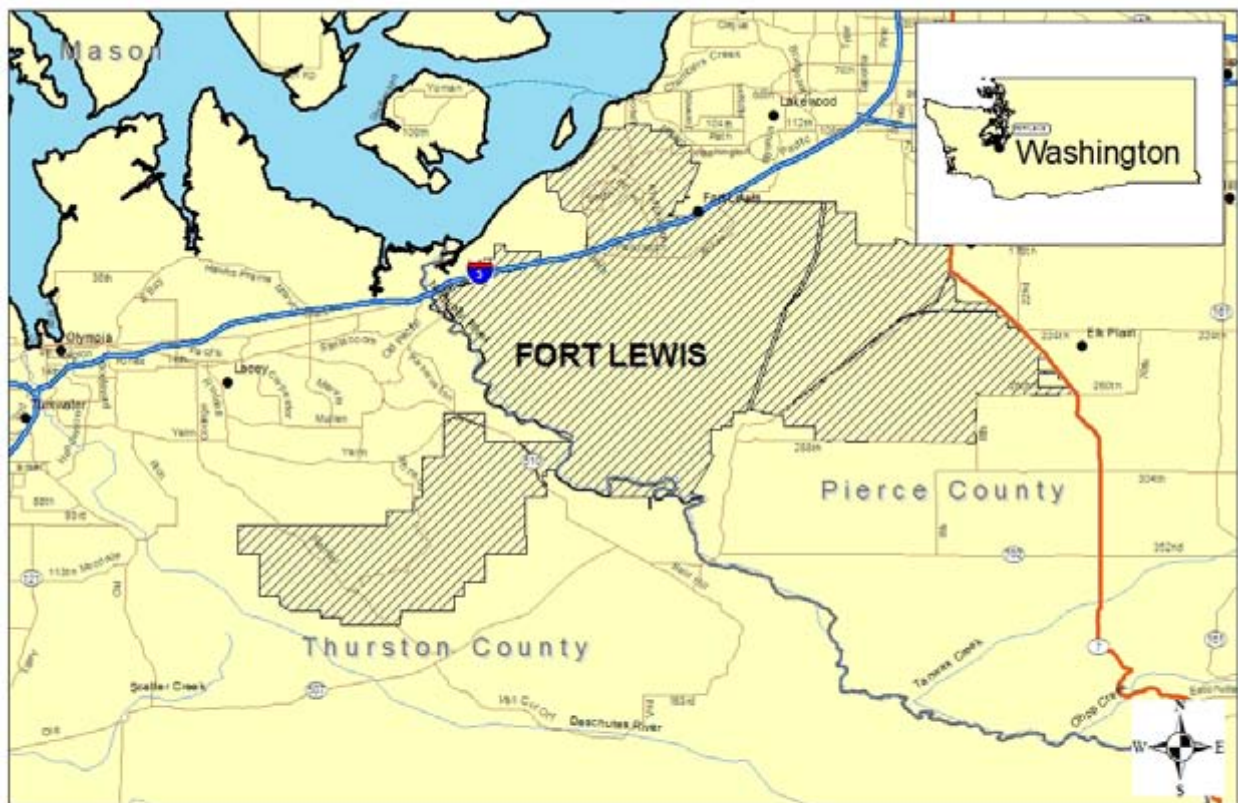
43  
44 Cumulative effects include impacts to air quality, soils, water quality, and biological  
45 resources. Adverse effects include increases in mobile and stationary point sources;  
46 removal of vegetation and the temporary increase in siltation or sedimentation from

1 transportation of pollutants through stormwater and sediments; soil loss and erosion,  
2 and the potential degradation of habitats and ecosystem integrity. (Phone conversation  
3 with Fort Knox Personnel, July 2007)  
4  
5  
6

## 7 **4.11 FORT LEWIS, WASHINGTON**

### 8 **4.11.1 Introduction**

9  
10 Fort Lewis, located in Western Washington, has approximately 65,000 acres of  
11 maneuver area suited for vehicle and non-vehicular military training (Figure 4.11-1). In  
12 the past it has been the home of light infantry, armored, Special Forces and Stryker and  
13 Motorized units. It is adjacent to McChord Air Force Base, a major DoD deployment  
14 facility.  
15



## Fort Lewis- Installation Location

16  
17 **Figure 4.11-1 Fort Lewis**

18  
19 Fort Lewis' major unit is I Corps and its subordinate units to include three Stryker  
20 Brigades.  
21

1 Fort Lewis has a robust range infrastructure that supports individual and crew-served  
 2 weapons live-fire training. Larger weapons systems training (e.g. Abrams tanks) and  
 3 large-scale maneuver training occur at the Yakima Training Center in Eastern  
 4 Washington. Fort Lewis is pressured by intense urbanization along the Seattle-  
 5 Tacoma-Olympia corridor, as well as land use and TES challenges.

6  
 7 Table 4.11-1 contains the Fort Lewis’s VEC ratings for each of the various stationing  
 8 action scenarios.

9  
 10 **Table 4.11-1. Fort Lewis VEC Ratings**

<b>Fort Lewis</b>						
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sust. BCT (3,000-3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 Soldiers)</b>	<b>Stryker BCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Low	Low-Medium	Low	High	High	High
Airspace	Low	Low	Low	Low	Low	Medium
Cultural	Low	Medium	Medium	High	High	High
Noise	Medium	Medium	High	High	High	High
Soil Erosion Impacts	Low	Low	Low	Medium	High	High
T&E/Other Wildlife	Low	Low	Medium	Medium	Medium	Medium
Wetlands	Low	Low	Medium	Medium	Medium	Medium
Water Resources	Low	Low	Very Low	Low	Low	Low
Facilities	High	High	High	High	High	High
Socioeconomics	Medium	High	High	High	High	High
Energy Demand/ Generation	Medium	Medium	Medium	Medium	Medium	Medium
Land Use Conflict/ Compatibility	Medium	Medium	Medium	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low	Low
Traffic and Transportation	Low	Medium	Medium	Medium	Medium	Medium

11  
 12  
 13  
 14  
 15

**4.11.2 Air Quality**  
**4.11.2.1 Affected Environment**

1 The affected environment for this proposed action includes air emissions associated  
2 within the Puget Sound Region, Washington. Air quality regulation is carried out by the  
3 Puget Sound Clean Air Agency (PSCAA) in Pierce County, and by the Olympic Region  
4 Clean Air Agency in Thurston County. The existing air quality in the Fort Lewis area is  
5 good. The major sources of air pollution are particulate matter and vehicular emissions,  
6 which contribute to the formation of ozone. The Washington State Department of  
7 Ecology (WS DOE) has designated the entire state of Washington as in attainment with  
8 the NAAQS for ozone. In addition, the entire western Washington region is either in  
9 attainment for CO or is unclassified/attainment. These areas are treated as attainment  
10 areas by WS DOE. Fort Lewis is located in an unclassifiable area for PM<sub>10</sub>, and in an  
11 area that was previously designated as a nonattainment area for both ozone and CO.  
12 As part of the redesignation process, the state submitted a maintenance plan under  
13 which Fort Lewis can continue to maintain attainment standards for a 10-year period.  
14

15 Opacity is regulated at Fort Lewis under the jurisdiction of the local air pollution control  
16 agencies. The closest Prevention of Significant Deterioration (PSD) Class I area to Fort  
17 Lewis is Mount Rainier National Park, which is located approximately 50 miles to the  
18 east.  
19

20 The primary emission sources at Fort Lewis are motor vehicles and industrial sources.  
21 Industrial sources include aerospace maintenance and rework operations, fuel burning,  
22 fuel storage and dispensing, degreasing, woodworking, and painting operations.  
23

24 Currently, Fort Lewis maintains a "Synthetic Minor" operating permit which means that  
25 any increase in stationary source emission could require the transition back to major  
26 source status. Additional thresholds are pollutant-specific for nonattainment and  
27 maintenance areas. Portions of Fort Lewis (northern half) are partially within an ozone  
28 (a product of VOCs and NO<sub>x</sub> reacting in the atmosphere) and CO maintenance area.  
29 Actions at Fort Lewis resulting in an increase of 100 tons per year (tpy) of ozone or CO  
30 would trigger a conformity analysis.  
31

#### 32 **4.11.2.2 Environmental Consequences**

33

34 **CS/CSS.** There will be a minor (low) impact on Fort Lewis and surrounding  
35 communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. The increase  
36 in Soldiers living and working on the installation would result in an increased usage of  
37 automotive stations and wastewater treatment on the installation. Thus, there would be  
38 an associated increase in VOC emissions on Fort Lewis. It is assumed that the  
39 resulting increases in air emissions are directly proportional to the increase in  
40 population. In general, combustion and fugitive dust emissions will produce localized,  
41 short-term elevated air pollutant concentrations that will not result in any sustained  
42 impacts on regional air quality, including opacity.  
43

44 **Full Sustainment BCT.** There will be an expected minor (low) to moderate (medium)  
45 range impact by the restationing of a Sustainment Brigade Combat Team. Any  
46 construction related emissions also have the potential to produce localized, short-term



1 elevated air pollutant concentrations but these are not anticipated to have a significant  
2 effect on regional air quality. In general, training, fuel storage and transfer, automotive  
3 travel, construction, and generator usage would all contribute to emission increases of  
4 criteria pollutants at both installations. Increased VOC emissions would result from  
5 increased fuel storage and transfer to provide fuel to additional training vehicles.  
6 Combustion emissions resulting from training would be primarily from mobile sources  
7 and be widely distributed both spatially and temporally. Fugitive dust emissions remain  
8 a localized issue and should be addressed as an opacity issue if activities are close  
9 enough to installation boundaries that visible emissions leave the installation. Given the  
10 wide distribution of emissions, it is not anticipated that regional air quality would be  
11 significantly affected.

12  
13 **IBCT.** There will be an expected moderate-level (low) environmental impact at Fort  
14 Lewis and surrounding communities by the restationing of an Infantry Brigade Combat  
15 Team and its 3,500 Soldiers. It is anticipated the emissions resulting from stationary  
16 sources required for facility operations to support the influx of Soldiers and their  
17 Families will have greater, long-term impacts than those resulting from training. It is  
18 anticipated that Fort Lewis would see increases in emissions from equipment required  
19 to support each installation such as fuel storage and dispensing, boiler and incinerator  
20 operations and possible electric peak-saving generators. Additionally, it is anticipated  
21 that more training/operations will occur away from established roads and tank trails.

22  
23 **Stryker BCT, HBCT, Multiple BCTs.** In terms of long-term environmental impacts,  
24 there will be a significant (high) impact at Fort Lewis and its surrounding communities,  
25 by the restationing of any these types of BCTs. Combustion emissions from stationary  
26 sources would significantly increase due to the plus up in infrastructure required to  
27 support the influx of new Soldiers and their Families. Fugitive dust emissions remain a  
28 localized issue and should be addressed if activities are close enough to installation  
29 boundaries that visible emissions leave the installation.

### 30 31 **4.11.3 Airspace**

#### 32 **4.11.3.1 Affected Environment**

33  
34 Fort Lewis has 55 square miles of FAA-designated Special use airspace, up to 14,000  
35 feet. The installation has access to this airspace in area R6703, Sub-Areas A, B, and D  
36 from 0700 to 2300 daily Mondays through Fridays. Sub-Area C is scheduled by  
37 NOTOM (Notice to Airmen) (Fort Lewis, 2007).

38  
39 The primary purpose for R6703 is live-fire training with artillery, mortars, small arms,  
40 helicopters, USAF aircraft, and demolitions (Fort Lewis, 2007). FAA has designated  
41 portions of Fort Lewis airspace as special use airspace. Restricted areas within the  
42 special use airspace may be activated, in which case nonmilitary and unauthorized  
43 military aircraft are prohibited from entering the airspace. Areas of airspace over  
44 artillery practice ranges and other spaces are restricted from general use. (U.S. Army  
45 Corps of Engineers, 1995)

### 4.11.3.2 Environmental Consequences

**CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT.** Fort Lewis is expecting a minor (low) impact to airspace. The addition of a CS/CSS is not expected to have any adverse impacts to airspace required at the installation. Any increase from BCTs is likely to have only a minor impact from increased operations of UAVs and in the training areas where live-fire occurs (artillery and air-delivered ordnance). Use of this airspace would continue to be managed through scheduling and balancing training requirements with airspace availability.

**Multiple BCTs.** Fort Lewis anticipates a moderate (medium) level of impact from re-stationing or growing multiple BCTs at the installation. Construction or modification of airfields and training and maneuver areas could result in changes to existing airspace use. Scheduling conflicts from multiple BCTs using UAVs would need addressing and future systems or modifications may require further analysis or study by the installation.

### 4.11.4 Cultural Resources

#### 4.11.4.1 Affected Environment

The footprint of Fort Lewis, the 87,000 acres within the legal boundaries, is the affected environment relating to cultural resources. Planning level surveys have been completed for all but approximately 20% of the installation. Fort Lewis has almost 350 recorded archaeological sites, including: American Indian villages, camps, and households dating from 8,500 years ago to the Nisqually Reservation period (1854-1917); British farms operated by the Hudson's Bay Company, 1832-1869; American pioneer homesteads, 1846-1942; and WWI, WWII, Korean War, and Vietnam-era military training features. Planning-level surveys to characterize the types of archaeological resources that might be present have been completed for most areas of Fort Lewis. More detailed sub-surface archaeological inventories are needed on a case-by-case basis to determine whether new construction or military training activities will affect presently unidentified archaeological resources. Most recorded archaeological sites have not been evaluated for National Register eligibility.

Fort Lewis has three National Register eligible historic districts including more than 400 contributing historic buildings, structures and objects built between 1917 and 1948. The Fort Lewis Museum, built in 1919 as the Salvation Army Red Shield Inn, has been listed on the National Register since 1979.

Fort Lewis lies within the traditional homelands of the Nisqually Indian Tribe, and the Tribe exercises treaty-reserved rights to hunt, fish and gather at all their usual and accustomed places. More than two-thirds of the Nisqually Indian Reservation was condemned by Pierce County and donated to the U.S. Government for the purpose of establishing Camp Lewis in 1918. The remaining Nisqually Indian Reservation lands lie immediately adjacent to the Fort Lewis boundary. The Squaxin Island Tribe and the Puyallup Tribe of Indians also exercise treaty-reserved rights to hunt, fish and gather at all their usual and accustomed places on Fort Lewis. All three tribes recognize sacred

1 sites and traditional cultural properties on Fort Lewis lands. The ‘Department of  
2 Defense American Indian and Alaska Native Policy’ establishes principles for interacting  
3 and working with federally-recognized tribes on matters that may affect these or other  
4 protected tribal resources.

#### 5 6 **4.11.4.2 Environmental Consequences**

7  
8 **CS/CSS.** A CS/CSS unit is anticipated to have minor (low) short and long term impacts  
9 to cultural resources. Training these 1,000 Soldiers will result in additional foot and off-  
10 road vehicle maneuver and excavation that could have adverse effects on  
11 archaeological sites and protected tribal resources (as defined in the DoD American  
12 Indian and Alaska Native Policy). New construction and rehabilitation of existing  
13 facilities could have adverse effects on historic districts, buildings and structures.

14  
15 **Full Sustainment BCT and IBCT.** A Full Sustainment BCT is expected to have  
16 moderate (medium) short and long term impacts to cultural resources on Fort Lewis.  
17 Training these 3,000-3,500 Soldiers will likely result in increased off-road vehicle  
18 maneuver impacts on a significantly greater scale than the CS/CSS. Construction to  
19 accommodate the proposed actions would also likely have greater impacts than the  
20 CS/CSS as well.

21  
22 **HBCT, Stryker BCT, Multiple BCTs.** An HBCT may have significant (high) short and  
23 long term impacts to cultural resources on Fort Lewis. Training these 3,800 – 7,000  
24 Soldiers and potential off-road heavy and light vehicle maneuver could have adverse  
25 effects on archaeological sites and protected tribal resources. The numbers of Soldiers,  
26 vehicles, and types of required training associated with heavy tracked vehicles and  
27 Stryker vehicles (when traveling off-road) will likely be ‘high’.

#### 28 29 **4.11.5 Noise**

##### 30 **4.11.5.1 Affected Environment**

31  
32 The chief sources of noise from Fort Lewis include aircraft (rotary- and fixed-winged)  
33 flyovers from Gray Army Airfield and McChord Air Force Base; munitions detonations;  
34 and live-fire (artillery and mortar) (Fort Lewis, 2004). Construction of an aerial gunnery  
35 range with combined use for mounted maneuver and dismounted Soldier training is  
36 planned at Fort Lewis’ sub-installation, Yakima Training Center, to accommodate  
37 increasing training requirements at Fort Lewis (USAEC, 2006). It should be noted that  
38 the impacts of the aerial gunnery range are being analyzed separately from this  
39 document. According to a 1994 Stationing EIS, range limitations are imposed on  
40 nighttime firing to reduce noise impacts to nearby residential communities. Small towns  
41 near the installation sometimes experience short-term noise level increases from  
42 training activities (USACE, February 1994).

##### 43 44 **4.11.5.2 Environmental Consequences**

1 **CS/CSS and Full Sustainment BCT.** Fort Lewis expects a moderate (medium) impact  
2 to wildlife and sensitive noise receptors nearby the installation boundary. This action  
3 will have only short-term maneuver and small arms related impacts (flushing) to bird  
4 species (including T&E species), but biological receptors would recover quickly. The  
5 need for analysis into the impacts on migratory birds should be taken into consideration  
6 and Best Management Practices to reduce potential noise impacts should be identified.  
7 Small arms weapons fire is not heard off the installation boundary. Noise mitigation  
8 recommendations for the protection of biological resources are found within the  
9 installation's ESMP. New noise contours will not be developed for this action, though  
10 the IONMP will need to be reviewed.

11  
12 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** Fort Lewis expects a significant (high)  
13 impact with the stationing of 3,500 to 7,000 Soldiers and their respective equipment  
14 (tactical and non-tactical) due to an increase in gunnery and demolition noise. Any  
15 additional Soldiers and equipment will likely elevate peak noise thresholds to above  
16 existing levels. Increased weapons firing, demolition, and aviation activities may subject  
17 nearby sensitive receptors to disproportionate noise impacts. The installation would  
18 need to conduct further noise evaluations and update their IONMP to reflect recent  
19 changes. Installation noise contours will be revised for site specific impact analysis,  
20 should it be needed. The installation would need to conduct further noise evaluations  
21 and update their IONMP to reflect recent changes. Installation noise contours will be  
22 revised for site specific impact analysis, should it be needed.

#### 23 24 **4.11.6 Soil Erosion**

##### 25 **4.11.6.1 Affected Environment**

26  
27 The topography of Fort Lewis is typically flat to gently rolling, with localized areas of  
28 moderately sloping lands. The slopes are generally less than 15 percent, except along  
29 the steep escarpments along the Nisqually River and Puget Sound. The geological  
30 units underlying Fort Lewis are primarily the result of glacial and alluvial processes.

31  
32 Over 90 percent of the Fort Lewis surface area is composed of somewhat excessively  
33 drained, gravelly sandy loams up to 2 feet thick. Most Fort Lewis prairies are found on  
34 the Spanaway association and these soils are coarse-textured, loose and highly  
35 permeable.

##### 36 37 **4.11.6.2 Environmental Consequences**

38  
39 **CS/CSS, Full Sustainment BCT, IBCT.** There is expected to be a minor (low) impact  
40 from the vehicles in these units. A low to medium effect in selected off-road areas may  
41 be realized depending on the frequency and intensity of vehicular and foot traffic. The  
42 condition of existing (unimproved) range roads and their ability to support for heavy  
43 truck traffic would have to be evaluated. These roads could be prone to soil erosion, so  
44 road construction, hardening and maintenance practices would have to be reviewed and  
45 modified. Although soil erosion is not of great concern at Fort Lewis, off-road  
46 movement may impact soil erodibility based on disturbance to vegetation and soil

1 surfaces. IBCT Dismounted training and the vehicles of the IBCT will have a low  
2 training impact to soil erosion.

3  
4 **HBCT.** The HBCT is anticipated to have a significant (high) impact on road and off-  
5 road areas at Fort Lewis. This is due to the number of tracked and wheeled vehicles in  
6 an HBCT and the weight and mobility characteristics of the vehicles. Flat and rolling  
7 areas will show the impact from the vehicle maneuvers, turns and traction. These areas  
8 could then be prone to soil erosion.

9  
10 **Stryker BCT.** The Stryker BCT will likely have a significant (high) impact on road and  
11 off-road areas at Fort Lewis. The wheeled vehicles of the Stryker BCT are expected to  
12 stay primarily to hardened surfaces or roads; however, there are areas on the  
13 installation where Strykers maneuver off-road. These areas may be prone to soil  
14 erosion.

15  
16 **Multiple BCTs.** An overall significant (high) impact will result from Multiple BCTs, given  
17 that the number, size, variety and impact of wheeled and tracked vehicles will increase  
18 as well. Off-road traffic and maneuvers will increase, which will have a potentially  
19 adverse impact on soils. Conditions for potential soil erosion will increase.

## 20 21 **4.11.7 Vegetation and Wildlife/Threatened and Endangered Species** 22 **4.11.7.1 Affected Environment**

23  
24 There are 10 threatened and endangered species at Fort Lewis. The installations  
25 recently completed a programmatic consultation with the USFWS and National Marine  
26 Fisheries Service (NMFS) covering these species for the combined installations (14  
27 total combined). In addition, current records identify four candidate species occurring  
28 onsite at Fort Lewis. One additional species will be officially listed in the upcoming  
29 months. Another species is identified as a high priority species at risk (SAR) (See  
30 Appendix T for a detailed listing).

31  
32 While the elements of Army growth are covered under the current programmatic  
33 agreement with both USFWS and NMFS. Additional consultation with the USFWS and  
34 NMFS will be required if conditions change from what is currently proposed and what is  
35 observed on the ground at the installation level when the units actually start training.

## 36 37 **4.11.7.2 Environmental Consequences**

38  
39 **CS/CSS, Full Sustainment BCT.** The overall effect to vegetation at Fort Lewis from  
40 the addition of a CS/CSS or Full Sustainment BDE alternative is expected to have a  
41 minor (low) impact on the listed species on or contiguous to the installation, or within  
42 critical habitat designated onsite, that will increase as the intensity of ground disturbing  
43 and human activity increases. Ground disturbances that violate the 50-meter buffer  
44 areas on Fort Lewis may result in indirect effects to fish as a result of riparian corridors  
45 and stream banks being impacted. In addition, habitat alteration from ground  
46 disturbance may convert habitat from suitable to unsuitable for some species, especially

1 species associated with open prairie habitat. An increase in the mortality rate of wildlife  
2 species, including avian species, is expected as the potential for vehicle or aircraft  
3 strikes increase.

4  
5 **IBCT, HBCT, Stryker BCT, and Multiple BCTs.** The expected impact from an  
6 additional 3,500 to 7,000 Soldiers and their equipment is expected to be moderate  
7 (medium). Impacts to vegetation in prairies would likely be high if maneuver occurred in  
8 off-trail or off-road surfaces. Any damage to prairie vegetation would take years to be  
9 re-established and recover. As the number of vehicles increase, impacts are expected  
10 to increase to candidate species on the installation as well. Also, increased human  
11 presence and vehicular traffic could potentially cause reproductive failure for ground  
12 nesting birds. Increased disturbance to vegetation at the installation may result in bare  
13 ground and expansion of non-native species with an overall decrease in the native  
14 component.

#### 15 16 **4.11.8 Wetlands**

##### 17 **4.11.8.1 Affected Environment**

18  
19 Fort Lewis contains approximately 4,500 acres of wetlands (Army Environmental  
20 Database-Environmental Quality, (n.d)) spread over 86,000 installation acres. The  
21 installation has six lakes or marshes that are over 100 acres in size. Wetland types  
22 include emergent, scrub-shrub, and forested. Fort Lewis limits the types of activities  
23 that can occur within 50 meters of all wetlands on the installation. (Draft INRMP, Fort  
24 Lewis, 2006) Off-road vehicle traffic, bivouacking, digging, and assembly areas are  
25 prohibited within the 50 meter buffer.

##### 26 27 **4.11.8.2 Environmental Consequences**

28  
29 **CS/CSS, Full Sustainment BCT.** There is anticipated to be a minor (low) impact on  
30 installation wetlands as a result of the restationing of additional Soldiers (1,000 to 3,500)  
31 at Fort Lewis. Training activities will be relegated to established training areas.  
32 Trainers are provided an Environmental Coordination Map that delineates all sensitive  
33 resources on the installation and their associated restrictions/prohibitions.

34  
35 **IBCT, HBCT, Stryker BCT, and Multiple BCTs.** Impacts to wetland areas are  
36 expected to be moderate (medium) under current field conditions. Failure of hardened  
37 low water crossing approaches may occur unless these areas are restored or fortified.  
38 The potential exists for additional Soldiers (3,500 to 7,000) to increase groundwater  
39 withdrawal that may impact Murray Creek; and hardscaping of nearby surfaces may  
40 result in decreased recharge rates within the watershed.

#### 41 42 **4.11.9 Water Resources**

##### 43 **4.11.9.1 Affected Environment**

#### 44 45 **Surface Water**

1 Four major source water drainage basins occur on Fort Lewis: the Nisqually River  
2 basin, the Sequelitchew Creek basin (including American Lake), the Deschutes River  
3 basin, and the Chambers Creek basin. The Nisqually River crosses through the  
4 installation and empties into Puget Sound. There are 29 lakes on the installation.  
5

### 6 **Stormwater**

7 Surface runoff from portions of the cantonment area is conveyed via drainage facilities  
8 to Puget Sound and other surface waters on Fort Lewis. Most stormwater flow on Fort  
9 Lewis passes under Sequelitchew Creek in culverts and then continues as a  
10 constructed storm drainage channel that discharges to the Puget Sound. The  
11 stormwater collection and conveyance system is currently at capacity for most of the  
12 cantonment area. Any additional construction in this area requires that stormwater be  
13 infiltrated on site.  
14

### 15 **Water Supply and Demand**

16 Fort Lewis operates four public water systems that are served entirely by groundwater  
17 sources. The primary water system provides potable water to over 30,000 people in the  
18 cantonment area. The three other potable water systems serve areas on the Fort Lewis  
19 Military Reservation. These include the Golf Course, Ammunition Supply Point (ASP),  
20 and Range 17 potable water systems.  
21

22 Fort Lewis has adequate source capacity and storage capacity to serve an effective  
23 population of over 40,000. There are eleven wells and a protected spring source,  
24 Sequelitchew Springs. The total supply capacity of Sequelitchew Springs and the nine  
25 active wells is 19,650 gpm. Recent demand for water in the cantonment area has  
26 ranged from approximately 2.8 to 13.3 MGD (1,944 to 9,236 gpm), with an average  
27 demand of approximately 4.9 MGD, or 3,402 gpm.  
28

29 There are twelve water storage reservoirs that serve the system and have a total  
30 storage capacity of 6.9 MGD (4,792 gpm). There is also an emergency tie-in with the  
31 city of DuPont to allow either party to provide water to the other during critical periods.  
32 The Army plans to privatize the potable water distribution system at Fort Lewis.  
33

### 34 **Water Rights**

35 Fort Lewis asserts a Federally reserved water right for all its consumptive uses, present  
36 and future. Fort Lewis currently holds water rights claims for several of its sources.  
37

### 38 **Wastewater**

39 The wastewater treatment system on Fort Lewis collects industrial and domestic  
40 wastewater from the Main Post, North Fort, McChord AFB, Veterans Administration  
41 Medical Center, and Camp Murray. All wastewater collection lines on the installation are  
42 separate from the stormwater runoff and drainage system.  
43

44 The installation's wastewater treatment system has a permitted capacity of 7.6 MGD  
45 (5,278 gpm) and design capacity of 15 MGD (10,417 gpm). In 2003, the wastewater

1 treatment plant treated a total of 1,049 MG of wastewater, with an average of 3.6 MGD  
2 (2,500 gpm).

3  
4 The Army plans to privatize the wastewater treatment system at Fort Lewis.

#### 5 6 **4.11.9.2 Environmental Consequences**

##### 7 8 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**

9 The addition of 1,000 to 7,000 Soldiers is anticipated to have minor (low) impacts to Fort  
10 Lewis; with very low impacts expected from the addition of an IBCT. Given the existing  
11 population of Fort Lewis, impacts to the watershed, water demand, and associated  
12 treatment systems. Although water consumption and vehicle washing would increase,  
13 there is more than ample capacity at the water and wastewater systems to handle the  
14 increase in activities. The installation would need to revisit their Storm Water Pollution  
15 Prevention Plan (SWP3) to incorporate best management practices for any new training  
16 activities. Additionally, any new construction/land disturbance over 0.75 acres will  
17 require a stormwater construction permit which would entail identification and  
18 implementation of mitigation strategies to reduce impacts associated with stormwater  
19 runoff during and after construction.

20  
21 Erosion from the use of field-driven heavy tracked vehicles may increase sediment  
22 loading in receiving waters and degrade water quality. Motorpool activities and washing  
23 of field-driven heavy-tracked vehicles would produce an increase on water demand and  
24 associated treatment. Such an increase may require upgrades to the installation's  
25 existing water and wastewater treatment system or new water/wastewater infrastructure  
26 if the footprint is in remote areas.

#### 27 28 **4.11.10 Facilities**

##### 29 **4.11.10.1 Affected Environment**

30  
31 Major land uses within the Fort Lewis boundary include the cantonment area (10,603  
32 acres) and training areas (75,573 acres). The cantonment area serves as the center for  
33 most activities on Fort Lewis, other than field training. It supports residential,  
34 administrative, commercial, and industrial activities, as well as Gray Army Airfield.  
35 There are approximately 4,400 buildings on Fort Lewis, about half of which are used for  
36 housing (US Army, November 2004).

37  
38 The addition of any additional units with 1,000 Soldiers or more will place a major  
39 burden on the existing facilities at this installation. There is not sufficient family housing  
40 to accommodate additional married Soldiers, forcing virtually all newly assigned  
41 Soldiers and their Families to reside off post. The additional housing and travel costs  
42 place an economic burden on married Soldiers in the lower enlisted grades.

43  
44 The installation has significant land use constraints, and will be extremely challenged to  
45 find sufficient land on which to build facilities for newly arriving units. These challenges



1 are significant with as few as 1,000 additional Soldiers and would be magnified with the  
2 addition of HBCTs.

#### 3 4 **4.11.10.2 Environmental Consequences**

##### 5 6 ***CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.***

7 There will be significant (high) impacts to the facilities at Fort Lewis with any increase of  
8 Soldiers to the installation. Units would be placed in temporary buildings until  
9 permanent facilities could be built. Greater growth plans would accompany the  
10 stationing of larger BCTs (over and above the CS/CSS and likely the Full Sustainment  
11 BCT). There is presently not enough family housing to sustain this level of growth at the  
12 installation.

13  
14 The proposed action will require the construction of new buildings, and land use  
15 constraints place significant challenges to building new facilities within the cantonment  
16 area. Existing barracks and family housing units would be used to accommodate many  
17 of the new Soldiers. The remainder would reside off-post. Additional socioeconomic,  
18 utilities, and housing studies will likely be required to evaluate this scenario as well.

19  
20 Activities within the training and range areas would be limited to existing firing ranges  
21 and roadways. These activities would have to be scheduled to coordinate with existing  
22 mission facilities. The addition of a HBCT, Stryker BCT, or Multiple BCTs would likely  
23 result in a major increase in facilities use. These BCTs may exceed the capacity of the  
24 installation to accommodate the proposed action due to the lack of available land on  
25 which to build facilities and the lack of training land and ranges. Fort Lewis has neither  
26 sufficient land on which build new facilities, nor does it have sufficient training ranges  
27 and maneuver areas to support multiple BCTs.

#### 28 29 **4.11.11 Energy Demand/Generation**

##### 30 **4.11.11.1 Affected Environment**

31  
32 ***Electricity.*** Fort Lewis purchases wholesale electrical power from Tacoma Power (a  
33 division of Tacoma Public Utilities) at four separate primary delivery points  
34 (substations): Army Central, Madigan, South, and Sequelitchew. These substations are  
35 located within the main cantonment area and are supplied by Tacoma City Utility's 110-  
36 kilovolt (kV) Boise Cascade-Fort Lewis Loop transmission system (C.H. Gurnsey and  
37 Company 1997). Fort Lewis used approximately 211,472 megawatt hours of electricity  
38 in 2003 (Howell 2004). The Army plans to privatize the electric utility system at Fort  
39 Lewis, which will entail transferring all ownership, maintenance, repair, and replacement  
40 responsibilities for this system over to a private contractor.

41  
42 ***Natural Gas and Fuel Oil.*** Natural gas and fuel oil are the primary sources of heating  
43 energy. Both firm and interruptible natural gas are supplied to the installation by Puget  
44 Sound Energy, with fuel oil used as a backup to interruptible gas supplies when they are  
45 turned off (CH2M HILL 1994a). The total quantity of natural gas consumed on Fort

1 Lewis in 2003 was 12,719 million British thermal units (Howell 2004). The total amount  
2 of fuel oil consumed in 2003 was 1,068,915 gallons.  
3

#### 4 **4.11.11.2 Environmental Consequences**

5

##### 6 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**

7 The expected impact of any of the proposed actions to Fort Lewis is moderate (medium)  
8 in terms of energy usage and generation. The existing energy infrastructure at both  
9 installations has sufficient excess capacity to readily absorb the addition of 1,000 to  
10 7,000 Soldiers, including their Families and mission support. In order to accommodate  
11 any new mission activity over and above the CS/CSS, an initial capital investment may  
12 be required to extend the existing energy infrastructure to meet the new demand. It is  
13 unlikely that the capacity of the electrical and natural gas distribution systems will be  
14 exceeded.  
15

#### 16 **4.11.12 Land Use Conflicts/Compatibility**

##### 17 **4.11.12.1 Affected Environment**

18

19 Fort Lewis occupies 86,176 acres of land. There are three categories of land use at Fort  
20 Lewis: the cantonment area, including administrative, residential, and open spaces  
21 (10,603 acres); training areas, such as maneuver and special uses (75,573 acres); and  
22 Gray Army Airfield. Recreational uses and commercial timber harvests occur on the  
23 installation. Two impact areas are located in the central portion of the installation and  
24 are surrounded by training areas. Gray Army Airfield is located in the southern portion of  
25 the cantonment area.  
26

27 Land use at Fort Lewis is primarily governed by the *Fort Lewis Real Property Master*  
28 *Plan – Volume I* (RPMP). This plan, based on military needs, allocates sufficient space  
29 to accommodate activities in compatible use zones, and serves as a screening  
30 mechanism to ensure new activities are provided space in the appropriate areas (US  
31 Army, November 2004). This zoning was based on a previous high population of  
32 26,000 troops. This RPMP did not anticipate a population increase of up to 32,000  
33 troops for the project FY 2011 end state or the additional troop growth above the FY  
34 2011 end state suggested with any of the alternatives in this EIS.  
35

##### 36 **4.11.12.2 Environmental Consequences**

37

##### 38 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**

39 There will be moderate (medium) short and long-term environmental impacts on  
40 installation land use due to the presence of an additional 1,000 to 7,000 Soldiers and  
41 their family members assigned to the installation.  
42

43 The installation will not have enough existing facilities, located in areas with comparable  
44 land uses to accommodate an additional CS/CSS unit. New or existing facilities would  
45 not be contiguous, distant from Soldier support facilities and training and maneuver  
46 ranges. Building new facilities would require construction on, or adjacent to, existing

1 training facilities, such that those training facilities become unusable. This, in turn,  
2 would cause a measurable decrease of the installation's capacity to train Soldiers.  
3 Building new facilities could also require construction on, or immediately adjacent to,  
4 environmentally sensitive areas, requiring extensive, and/or expensive mitigation  
5 actions.

#### 6 7 **4.11.13 Hazardous Materials/Hazardous Waste**

##### 8 **4.11.13.1 Affected Environment**

9  
10 The affected environment for these proposed actions include the use, storage,  
11 transport, and disposal of hazardous materials and wastes at Fort Lewis. This includes  
12 hazardous materials and wastes from USTs and aboveground storage tanks;  
13 pesticides; LBP; asbestos; PCBs; radon; and UXO.

14  
15 Units and activities on Fort Lewis typically use hazardous materials such as fuels,  
16 paints, solvents, lubricants, coolants, and sanitation chemicals. Hazardous waste is  
17 generated as a result of facility and equipment maintenance, medical care activities,  
18 and Soldier training. Fort Lewis operates as a permitted large quantity hazardous waste  
19 generator (RCRA ID# WA9214053465). (Fort Lewis Directorate of Public Works, 2005)  
20 Fort Lewis has several plans in place to help manage hazardous materials and waste  
21 including a Pollution Prevention Plan; Installation Spill Contingency Plan; Spill  
22 Prevention, Control, and Countermeasures Plan; and Pest Management Plan.

##### 23 24 **4.11.13.2 Environmental Consequences**

25  
26 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** It is  
27 anticipated that Fort Lewis will experience minor (low) long-term impacts from  
28 hazardous materials and waste generation. Fort Lewis may be required to minimally  
29 increase its storage and use of hazardous chemicals during training exercises and  
30 installation maintenance; and waste collection, storage, and disposal processes would  
31 remain mostly unchanged, and current waste management programs would continue.

32  
33 An increase in the use of hazardous chemicals may be seen in the cantonment and  
34 training and range areas. Demolition, renovation, and construction would mostly likely  
35 result in an increase in the generation of asbestos, lead-contaminated wastes, and  
36 other hazardous waste, as well as an increase in the use of pesticides due to the  
37 addition of family housing and other facilities. The increase in these wastes would  
38 result in no adverse impacts because the wastes would be managed in accordance with  
39 current standards and regulations. Waste management programs may be updated or  
40 expanded as needed. Generation and management of petroleum storage tanks,  
41 ordnance and explosives would increase, but would continue to be managed in  
42 accordance with current procedures and regulations.

#### 43 44 **4.11.14 Traffic and Transportation**

##### 45 **4.11.14.1 Affected Environment**

1 The ROI for the affected environment for traffic and transportation aspects include Fort  
2 Lewis and the western portion of Pierce County, including the communities of DuPont,  
3 Lacy and Lakewood. Major road routes in the region include I-5, a north-south  
4 interstate highway that separates North Post from the main cantonment area. Other  
5 major routes in the area include US Route 101 (approximately 20 miles away) and  
6 Washington State Routes 7, 507 and 510.

#### 7 8 **4.11.14.2 Environmental Consequences** 9

10 **CS/CSS.** There is expected to be a minor (low) impact on traffic and transportation  
11 systems to Fort Lewis due to the presence of an additional 1,000 Soldiers and their  
12 family members assigned to the installations. Spread across their respective ROIs, the  
13 populations will have a minor impact on the overall traffic congestion in the neighboring  
14 communities. The additional population may contribute nominally to traffic volume on  
15 each of the installations, and is expected to slightly reduce the LOS on the installations'  
16 road network. There may be a slight increase in traffic volume during peak morning and  
17 evening hours.

18  
19 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** There is  
20 expected to be moderate (medium) will be moderate short and long-term impacts on  
21 traffic and transportation systems to the installation due to the presence of an additional  
22 3,000 to 7,000 Soldiers and their family members assigned to the installation. The  
23 increase in off-post traffic would have a medium impact on traffic in the community  
24 overall and could contribute to a decrease in the LOS in the road network leading to  
25 both installations, particularly during peak morning and afternoon travel periods where  
26 traffic is expected to be more congested. This level of increase in population could also  
27 have a moderate impact on the traffic volume on both installations, and could cause a  
28 minor decrease in LOS on some of Fort Lewis' arterial routes.

#### 29 30 **4.11.15 Cumulative Effects** 31

32 The most important cumulative effects are expected from noise impacts to the  
33 surrounding communities and local tribes. Direct and indirect impacts from (short-term)  
34 construction noise, simultaneously with increased training activities; and combined with  
35 any off-post development expected to accompany growth would continue to amplify  
36 noise issues off-post, especially with the potential for changes in noise contours on the  
37 installation. The need for further (detailed) analysis may be possible.

38  
39 Changes in land use may also impact the number of candidate species on the  
40 installation, which could potentially influence the need to list species under the  
41 Endangered Species Act. Such listing could have significant impacts on training due to  
42 the time and cost associated with compliance.

1 **4.12 FORT POLK, LOUISIANA**

2 **4.12.1 Introduction**

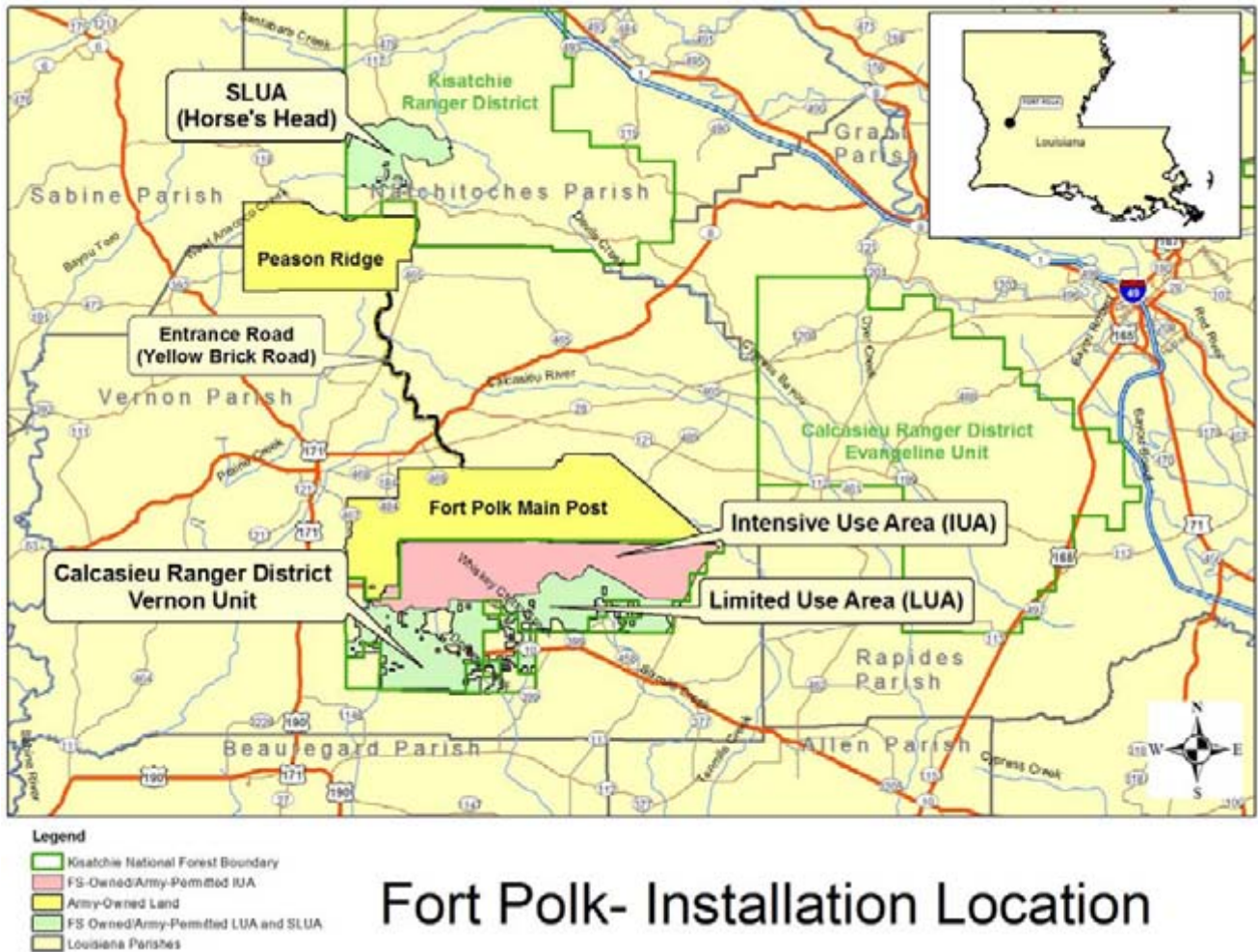
3  
4 Fort Polk is located in south-central Louisiana and consists of Army-owned lands plus  
5 U.S. Forest Service-owned lands used by the Army under a special use permit. The  
6 Main Post of Fort Polk is located in Vernon Parish and consists of Army-owned land in  
7 the northern portion and Forest Service-owned land in the southern portion [also known  
8 as the Intensive Use Area (IUA)]. Land within the IUA is used primarily by the military  
9 under the special use permit, which also allows the Army to use the Forest Service fee-  
10 owned land to the south of the IUA in an area referred to as the Limited Use Area  
11 (LUA). The IUA and the LUA constitute the Vernon Unit of the Calcasieu Ranger  
12 District of the Kisatchie National Forest. The Peason Ridge training area consists of  
13 Army-owned land situated in portions of Sabine, Natchitoches and Vernon Parishes.  
14 Peason Ridge is located approximately 15 miles northwest of Fort Polk’s Main Post  
15 area. The Army also has a permit to use the Special Limited Use Area (SLUA), or  
16 “Horse’s Head” area, approximately one mile north of Peason Ridge in the Kistachie  
17 Ranger District of the Kisatchie National Forest (Figure 4.12-1) (USACE, 2002). Table  
18 4.12-1 lists the real property acreage designations for each area.  
19

**Table 4.12-1. Army and Forest Service Real Property Acreage on Fort Polk**

Real Property Parcel	Administering Agency	Size (acres)
Main Post	Army	66,418
Peason Ridge	Army	33,491
Intensive Use Area	Forest Service	40,506
Limited Use Area	Forest Service	44,799
Special Limited Use Area (Horse’s Head)	Forest Service	12,820
<b>Total</b>		198,134

20  
21  
22 Fort Polk has approximately 136,000 acres of maneuver area suited for vehicle and  
23 non-vehicular military training. It has long supported armored/mechanized unit training  
24 and dismounted infantry unit training, and is the Army’s Joint Readiness Training Center  
25 (JRTC). The Joint Readiness Training Center is the Army’s premier combat training  
26 center. JRTC is one of the three Combat Training Centers (CTC) that conduct  
27 thorough, realistic, multi-echelon, joint and combined arms training. The purpose is to  
28 train leaders to deal with complex situations; to create flexible, skilled Soldiers; and  
29 develop highly proficient, cohesive units capable of conducting operations across the  
30 full spectrum of conflict. JRTC is the busiest of the three CTCs. In FY 2006, JRTC  
31 executed seven Mission Rehearsal Exercises (MREs) and is scheduled to conduct nine

1 in FY 2007. In the last 24 months, the majority of brigades training at JRTC deployed  
2 shortly after their rotation to OIF/OEF (Polk, 2007).  
3



## Fort Polk- Installation Location

4  
5 **Figure 4.12-1 Fort Polk**  
6

7 Fort Polk is home to the 1st Combat Support Brigade (CSB) Maneuver Enhancement  
8 (ME) Provisional (P) and the 4th Brigade 10th Mountain Division (4/10th) Combat Team  
9 Unit of Action (BCT/UA), which can quickly deploy anywhere, in the world to protect our  
10 nation's interest. The 1st CSB (ME) (P) is the most deployed unit of its size in the Army.  
11 Since 2001, the 1st CSB (ME) (P) has provided combat ready engineer, military police,  
12 medical, dental, chemical, transportation and other specialties to commanders operating  
13 in 19 different countries. 1st CSB (ME) (P) units continue to be in high demand in  
14 support of the Global War on Terrorism and its span of control is continually expanding.  
15

16 This year the 1st CSB (ME) (P), the 88th QM CO consisting of 711 personnel will join  
17 the organization. In FY 2008 and FY 2009 for units, with 304 Soldiers, will activate  
18 under the 1st CSB (ME) (P) (Polk, 2007).  
19

1 The 4/10th BCT is on the of the Army's new modular Brigade Combat Teams and  
 2 activated at Fort Polk in January 2005. The 4/10<sup>th</sup> BCT's intensive training effort  
 3 culminated in November 2005, with a Mission Rehearsal Exercise at JRTC. Elements  
 4 of the 4/10<sup>th</sup> BCT and specialized Task Forces represent 30% of all brigade personnel  
 5 deployed over to Afghanistan in support of Operation Enduring Freedom in February  
 6 and March of 2006 (Polk, 2007).

7  
 8 Fort Polk range infrastructure is in good condition. As a Training Center its primary  
 9 capabilities include a large force-on-force maneuver area and an instrumented live-fire  
 10 maneuver area. Encroachment from urbanization is not yet a challenge, but there are  
 11 other concerns that could impact training.

12  
 13 Table 4.12-2 contains the Fort Polk's VEC ratings for each of the various stationing  
 14 action scenarios.

15  
 16 **Table 4.12-2. Fort Polk VEC Ratings**

<b>Fort Polk</b>					
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BDE (3,000-3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Very low	Low	Low	Medium	Medium
Airspace	Very low	Low	Low	Low	Low
Cultural	Very low	Low	Low	Medium	Medium
Noise	Very low	Low	Medium	Medium	Medium
Soil Erosion Impacts	Very low	Low	Medium	High	High
T&E/Other Wildlife	Very low	Low	Low	Medium	High
Wetlands	Very low	Low	Low	Medium	Medium
Water Resources	Very low	Low	Medium	Medium	High
Facilities	Low	Medium	Medium	High	High
Socioeconomics	Medium	Medium	Medium	Medium	High
Energy Demand/ Generation	Very low	Low	Low	Medium	Medium
Land Use Compatibility	Very low	Low	Low	High	High
Scheduling Conflict	Very low	Low	Low	High	High
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and	Low	Low	Low	Low	Low

Transportation					
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**4.12.2 Air Quality**  
**4.12.2.1 Affected Environment**

The JRTC and Fort Polk is located in Air Quality Control Regions (AQCR) 106 and 022. The ROI for air quality affected is defined as AQCRs 106 and 022. The JRTC and Fort Polk is primarily in Vernon Parish, with small portions of the post (Peason Ridge Training Area) extending into Sabine and Natchitoches Parishes. England Industrial Airpark, Fort Polk’s primary departure and return point for deploying units, is located in Rapides Parish (AQCR 106). Air quality in all four parishes meets or exceeds the NAAQS as established by USEPA; therefore, these areas are considered attainment areas.

Fort Polk is designated as a major stationary source of air pollutants and operates under a CAA Title V Operating Permit. Under the Title V Operating Permit, permitted stationary sources include gasoline and JP8 (jet fuel) storage, fueling and dispensing facilities, paint booths, generators, boilers, wastewater treatment facilities, degreasing operations, solvent reclamation, munitions detonation, and engine testing.

In addition to stationary sources, air pollutants are generated at the JRTC and Fort Polk by activities such as fugitive dust from training vehicles, exhaust emissions from training vehicles, aircraft engine emissions, decomposition products of propellants, obscurants, pyrotechnics, explosives, and emissions from prescribed burning and wildfires. In 1989 Fort Polk received an exemption for air emissions resulting from fugitive dust from vehicles, smoke from obscurant burning fog oil and decomposition, and in-place detonation of small explosives associated with training exercises conducted within the boundaries of the military reservation and Peason Ridge training. This exemption is still in effect for Fort Polk Although air quality standards may be exceeded locally at source points within the installation boundary during training events, the events do not cause exceedances or visual obstructions outside JRTC and Fort Polk Military Reservation.

Construction of new support facilities and training targets would also result in short-term increased criteria pollutant emissions. These proposed increases would not violate the PSD or any other environmental rule or regulation.

**4.12.2.2 Environmental Consequences**

**CS/CSS.** Short- and long-term very low (minimal) adverse impacts to air quality are expected. The restationing of a CS/CSS unit and its 1,000 Soldiers and family members would have virtually no long-term impact to regional air quality. It is assumed that the resulting increases in air emissions are directly proportional to the increase in population at the facility. In general, combustion emissions will produce localized, short-term elevated air pollutant concentrations that will not result in any sustained impacts on regional air quality. Short-term intermittent minor adverse impacts would be expected within the ROI as a result of construction activities, training exercises, and increased



1 automobile use. Heavy construction equipment and trucks would emit minor amounts of  
2 NOx, PM-10, CO, SOx, and VOCs and are not considered to have a long-term impact  
3 on regional air quality.

4  
5 **Full Sustainment Brigade.** Short- and long-term low (minor) adverse impacts to air  
6 quality are expected. Under the Full Sustainment Brigade scenario, the increase of  
7 3,000 Soldiers and their Families, and the additional emissions from training  
8 requirements are expected to result in minor increases in emissions. Construction-  
9 related emissions would result in localized, short-term elevated air pollutant  
10 concentrations; however, they are not anticipated to have an overall significant affect on  
11 regional air quality. Combustion emissions resulting from training would be primarily  
12 from mobile sources and be widely distributed both spatially and temporally. Given the  
13 wide distribution of emissions, it is not anticipated that regional air quality would be  
14 significantly affected.

15  
16 **IBCT.** Short- and long-term low (minor) adverse impacts to air quality are expected.  
17 Under the IBCT scenario, it is anticipated the emissions resulting from stationary  
18 sources required for facility operations to support the influx of 3,500 Soldiers and their  
19 Families will be greater, long-term impacts than those resulting from training. Emission  
20 sources include equipment required to support the installation (i.e., fuel storage and  
21 dispensing, boiler and incinerator operations). Additionally, under this scenario, it is  
22 anticipated that more training/operations will occur away from established roads and  
23 tank trails.

24  
25 **HBCT.** Short- and long-term medium (moderate) adverse impacts to air quality are  
26 expected. As with the IBCT unit scenario, the influx of Soldiers and their Families to the  
27 project area is expected to be the primary source of stationary and mobile source  
28 emissions. The influx of an additional 500 Soldiers and their Families (total of 4,000),  
29 above that described under the IBCT scenario, is expected to result in emission  
30 increases. Although air quality within Fort Polk and the surrounding community is  
31 expected to experience and increase in mobile and stationary source emissions  
32 associated with this unit scenario, increased emissions are expected to remain localized  
33 and produce no substantial change to regional air quality.

34  
35 **Multiple BCTs.** Short- and long-term medium (moderate) adverse impacts to air quality  
36 are expected. The addition of 7,000 Soldiers and their Families would result in  
37 additional emissions from sources described in the unit scenarios above. Increases in  
38 emissions from mobile and stationary sources would occur due to direct increases in  
39 installation population and training activities. While increases in emission are expected  
40 under this scenario, they will tend to remain localized a produce no significant impact to  
41 regional air quality.

42  
43 **4.12.3 Airspace**  
44 **4.12.3.1 Affected Environment**  
45

1 Fort Polk has 255 square miles of FAA-designated Special use airspace (with  
2 restrictions), up to 35,000 feet. The installation has access to this airspace  
3 continuously, and is controlled by the FAA of Houston, TX. (US Army Corps of  
4 Engineers, 2002)

#### 5 6 **4.12.3.2 Environmental Consequences**

7  
8 **CS/CSS.** Long-term very low (minimal) adverse impacts are expected. It is anticipated  
9 that the activities associated with an increase of 1,000 Soldiers would result in a  
10 minimal increase activities within the cantonment and training and range areas.  
11 Activities within the training and range areas would be limited to existing firing ranges  
12 and roadways. These activities would have to be scheduled to coordinate with existing  
13 mission activities.

14  
15 **Full Sustainment Brigade, IBCT, HBCT, and Multiple BCTs.** Long-term low (minor)  
16 adverse impacts to airspace operations is expected from these unit scenarios at Fort  
17 Polk. Air space use is not expected to change on Fort Polk; however the intensity of  
18 that use is expected to increase. Use of the installation air space will be scheduled to  
19 coordinate with existing mission activities. The addition of these units to Fort Polk  
20 would increase operations of UAVs, and use of this airspace would continue to be  
21 managed through scheduling and balancing training requirements with airspace  
22 availability. Where existing airspace is insufficient, or already saturated with military  
23 activity, it is expected that the installation would request additional special use airspace  
24 designations from the FAA. Future new systems or modifications to existing systems  
25 could also affect airspace use, resulting in greater demand for exclusive military use of  
26 the resource (US Army Corps of Engineers, 2002). Construction or modification of  
27 airfields and training and maneuver areas could result in changes to existing airspace  
28 use.

#### 29 30 **4.12.4 Cultural Resources**

##### 31 **4.12.4.1 Affected Environment**

32  
33 There are no historic buildings or structures at Fort Polk. All of the installation has been  
34 surveyed for archeological sites and all eligible sites are marked as off-limit areas.

35  
36 The BRAC program in not expected to adversely impact Fort Polk.

##### 37 38 **4.12.4.2 Environmental Consequences**

39  
40 **CS/CSS.** Short- and long-term very low (minimal) adverse impacts to cultural resources  
41 are expected. Under a CS/CSS unit scenario, it is anticipated that there will be minimal  
42 off-road training. The relatively small number of vehicles and Soldiers will likely have  
43 very little impact on cultural resources, particularly because areas with archeological  
44 resources are designated off limits. Because the installation does not contain historic  
45 structures, there are no impacts to historic resources.

1 **Full Sustainment Brigade and IBCT.** Short- and long-term low (minor) adverse  
2 impacts to cultural resources are expected. There is a low probability of impact to  
3 archeological resources within the training and range areas under these two unit  
4 scenarios because areas with archeological resources are designated off limits.  
5 Training activities are expected to avoid sensitive areas. The increased number of  
6 Soldiers present within training areas could lead to greater instances of inadvertent and  
7 unintentional impacts to archeological resources. The IBCT vehicles are intended to  
8 be driven on road more than off road.

9  
10 **HBCT and Multiple BCTs.** Short- and long-term medium (moderate) impacts to  
11 cultural resources are expected due to the increase of additional Soldiers and  
12 equipment under these unit scenarios. Even with designated off-limits areas, the higher  
13 number of personnel presents an increase in the probability for archeological  
14 resources to be disturbed due to increased presence and foot traffic. In addition, the  
15 heavy tracked vehicles of a HBCT could impact previously undiscovered archeological  
16 resources.

#### 17 18 **4.12.5 Noise**

##### 19 **4.12.5.1 Affected Environment**

20  
21 Fort Polk's noise environment consists of private and public activities such as hunting,  
22 commercial air traffic, and logging operations nearby the post. On-post military  
23 operations include three aircraft corridors that support fixed-wing and helicopter training;  
24 small and large caliber weapons firing; and armored training.

25  
26 The small arms ranges at Zion Hill and Peason Ridge did not need noise contours as  
27 even .50 caliber rifle noise did not extend beyond the installation border. On a "busy"  
28 training day, noise from large caliber weapons fire and artillery extends 1,000 to 5,000  
29 meters from the installation boundary and is categorized in a normally incompatible  
30 noise zone (Noise Zone II). Noise Zone III, classified as incompatible, does not extend  
31 beyond the installation. Noise measurements taken by CHPPM show that the noise  
32 environment around Fort Polk is slightly higher than the predicted level, but is overall  
33 indicative of ambient noise levels throughout the entire on- and off-post environments.

##### 34 35 **4.12.5.2 Environmental Consequences**

36  
37 **CS/CSS.** Short- and long-term very low (minimal) adverse impacts are expected. The  
38 most significant sources will be from small arms weapons fire and some maneuver;  
39 which, when compared to the current training environment is largely insignificant. No  
40 noise contours would be needed. Noise from small arms ranges will not be heard in off-  
41 post locations. Wildlife in the area is noise tolerant of the current training environment.

42  
43 **Full Sustainment BDE.** There is expected to be low (minor) short- and long-term  
44 adverse impacts from noise associated with an addition of 3,500 Soldiers (plus  
45 maneuver equipment). General impacts related to small arms weapons fire and  
46 maneuver will have similar impacts as the CS/CSS. Noise contours would not be

1 needed. Noise management practices should be reviewed within the installation's  
2 INRMP, ESMP, and IENMP.

3  
4 **IBCT.** Short- and long-term medium (moderate) adverse impacts are expected from  
5 noise generated under this scenario. Noise may be elevated at off-post residential  
6 areas during periods of heavy training; however, the level of noise associated with this  
7 action will have an overall lower impact than what is heard during normal training  
8 operations. Noise from simulated Artillery rounds and .50 caliber blank weapons fire  
9 and small arms fire does not impact RCW nesting or reproductive success, even for  
10 those inhabiting direct fire ranges and impact areas (Delaney et al., 2000).

11  
12 **HBCT.** Short- and long-term medium (moderate) adverse impacts are expected. Noise  
13 management practices and mitigations within the INRMP and IENMP should be  
14 reviewed. Short- and long-term impacts may be experienced by wildlife receptors  
15 including threatened and endangered species, though these impacts are not expected  
16 to be significant. Noise contours would not change, however it is possible the  
17 installation's IENMP would need updating by CHPPM.

18  
19 **Multiple BCTs.** An overall short- and long-term medium (moderate) adverse impact  
20 from noise is expected. Noise zones would likely stay the same as they currently,  
21 however, CHPPM will need to updated the installation's IENMP and ensure proper  
22 mitigations recommendations are being implemented. Noise levels outside of the  
23 installation boundary will be elevated during periods of heavy training. New noise  
24 contours may be needed, to include the addition of contours for small arms firing, as this  
25 activity will likely increase usage of ranges significantly.

## 26 27 **4.12.6 Soil Erosion**

### 28 **4.12.6.1 Affected Environment**

29  
30 Fort Polk is located in the Coastal Plain province and is characterized by a rolling  
31 topography moderately to heavily covered with second-growth timber. Local relief is  
32 generally less than 100 feet while the terrain at Peason Ridge (northwest portion of  
33 installation) is low well-rounded hills of less than 500 feet.

34  
35 Soils on Fort Polk have been grouped into 6 units based on similarity of engineering  
36 characteristics. The majority of Fort Polk is mantled with a fine-grained silty sand  
37 topsoil. The Soil Conservation Service classifies the Fort Polk soils such as the thick  
38 layer of sand, clay and alluvium as highly erodible. (U.S. Department of the Army,  
39 1992).

### 40 41 **4.12.6.2 Environmental Consequences**

42  
43 **CS/CSS.** Short- and long-term very low (minimal) adverse impacts to soils are  
44 expected. Activities off of existing roadways or outside of existing training areas are not  
45 anticipated under this unit scenario.

1 **Full Sustainment Brigade.** Short- and long-term low (minor) adverse impacts to soils  
2 are expected. Increases in foot and vehicular traffic are expected to result in minor  
3 impacts to areas along roadways and trails on the installation.  
4

5 **IBCT.** Short- and long-term medium (moderate) adverse impacts to soils are expected.  
6 Increases in foot and vehicular traffic are expected to result in minor impacts to areas  
7 along roadways and trails on the installation. Under the IBCT unit scenario, off-road  
8 movement would impact soil erodibility based on disturbance to vegetation and soil  
9 surfaces, and rainfall intensity.  
10

11 **HBCT.** Short- and long-term high (major) adverse impacts to soils are expected. The  
12 HBCT will have a substantial impact on roads and off-road areas due to the increase in  
13 the number of tracked vehicles in an HBCT, the weight and mobility characteristics of  
14 the tracked vehicles, and the intensity of use of the training areas on the installation.  
15 Vehicular maneuvers, turns and traction result in direct impacts to soil, particularly those  
16 areas prone to erosion.  
17

18 **Multiple BCTs.** Short- and long-term high (major) adverse impacts to soils are  
19 expected. Multiple BCTs, given that the number, size, variety and impact of wheeled  
20 and tracked vehicles, will increase the probability of soil compaction and impact due to  
21 increases in intensity of use of training and range areas. Off-road traffic and maneuvers  
22 will increase, which will have a significant negative impact on vegetation and surface  
23 soils. Conditions for potential erosion will also increase.  
24

## 25 **4.12.7 Vegetation and Wildlife/Threatened and Endangered Species**

### 26 **4.12.7.1 Affected Environment**

27  
28 Fort Polk has 59 documented amphibian and reptile species, more than 20 species of  
29 mammals, and 221 avian species. However, Fort Pork currently records only one ESA  
30 listed animal species and one candidate species as occurring on the installation. The  
31 candidate species is a priority Army species at risk. More information on this species  
32 can be found in Appendix T.  
33

### 34 **4.12.7.2 Environmental Consequences**

35  
36 **CS/CSS.** Very low (minimal) short- and long-term adverse impacts are expected. It is  
37 not anticipated that implementation of this level of Soldier strength will have any impact  
38 on the listed or candidate species found on the installation. Current management and  
39 conservation efforts of these species will be sufficient to ensure no impacts on the  
40 species.  
41

42 **Full Sustainment BDE and IBCT.** Short- and long-term low (minor) adverse impacts  
43 are expected. It is anticipated that the implementation of either of these actions will  
44 have minor to no impact on the priority species found on the installation. Listed species  
45 and other special status species recorded on the installation will continue to be  
46 managed in accordance with the installation's INRMP and ESMP, terms and conditions

1 identified within biological opinion(s) issued by the USFWS and any conservation  
2 measures identified in ESA, Section 7 consultation documents.

3  
4 **HBCT.** Short- and long-term medium (moderate) adverse impacts are expected. It is  
5 anticipated that implementation of this level of Soldier strength may have an impact on  
6 the listed and candidate species found on the installation. The threatened and  
7 endangered species recorded on the installation will continue to be managed in  
8 accordance with the installation's INRMP and ESMP, terms and conditions identified  
9 within biological opinion(s) issued by the USFWS and any conservation measures  
10 identified in ESA, Section 7 consultation documents. However, since implementation of  
11 this action may affect the listed species, the installation will be required to consult with  
12 the USFWS either informally or formally, depending on whether take is anticipated to  
13 occur. Part of the Vernon/Fort Polk Primary Core population of Red-cockaded  
14 Woodpecker (RCW) is located on Fort Polk. It is possible that implementation of the  
15 HBCT could affect the installations management and conservation of the RCW and  
16 impact recovery efforts onsite. This level of Soldier strength may also impact the  
17 installation's ability to implement the conservation measures identified in the candidate  
18 conservation agreement (CCA) that they are party to.

19  
20 **Multiple BCTs.** Short- and long-term high (major) adverse impacts are expected. It is  
21 anticipated that implementation of either of these levels of Soldier strength will have a  
22 substantial impact on the listed, candidate and other sensitive species recorded on the  
23 installation. The threatened and endangered species recorded on the installation will  
24 continue to be managed in accordance with the installation's INRMP and ESMP, terms  
25 and conditions identified within biological opinion(s) issued by the USFWS and any  
26 conservation measures identified in ESA, Section 7 consultation documents. However,  
27 since implementation of this action will most likely adversely affect the listed species,  
28 the installation will be required to consult with the USFWS informally and formally to  
29 address and assess the impacts of the action. This level of Soldier strength could also  
30 impact the landscape to the point that the installation could not achieve the installation  
31 recovery goals for the RCW as identified in the RCW recovery plan. This action could  
32 also jeopardize the species if minimization and/or conservation efforts are not sufficient  
33 enough to prevent a significant amount of take. In addition, this action may prevent the  
34 installation from implementing their current CCA, which could potentially lead to the U.S.  
35 Fish and Wildlife Service proposing to list the species. Listing of the species would  
36 have a significant impact on the installation's ability to train.

## 37 38 **4.12.8 Wetlands**

### 39 **4.12.8.1 Affected Environment**

40  
41 Fort Polk contains approximately 9,000 acres of wetlands making up 4.6% of the total  
42 land coverage. (INRMP, Fort Polk, 2004). Almost all of the wetlands are riparian.

### 43 44 **4.12.8.2 Environmental Consequences**

1 **CS/CSS.** Short- and long-term very low (minimal) adverse impacts on wetlands are  
2 expected as a result of the restationing of a CS/CSS unit to Fort Polk. Additional training  
3 activities will have little to no impacts on wetland areas.

4  
5 **Full Sustainment Brigade and IBCT.** Short- and long-term low (minor) adverse  
6 impacts to wetlands are expected. Training activities will be relegated to established  
7 training areas. Efforts will be made to avoid any impacts on wetlands by using the  
8 installations wetland planning level survey's/ GIS mapping and the installation INRMP.  
9 Using best management practices outlined in the INRMP, training will be conducted  
10 away from any possible wetland impacts.

11  
12 **HBCT.** Short- and long-term medium (moderate) adverse impacts to wetlands are  
13 expected due to the presence of an additional 4,000 Soldier presence at Fort Polk.  
14 Training activities will be relegated to established training areas. Efforts will be made to  
15 avoid any impacts on wetlands by using the installations wetland planning level  
16 survey's/ GIS mapping. Hardened stream crossing can be constructed to accommodate  
17 additional wheeled/tracked vehicles.

18  
19 **Multiple BCTs.** Short- and long-term medium (moderate) adverse impacts to wetlands  
20 are expected as a result of the addition of 7,000 Soldiers to Fort Polk. Training activities  
21 will be relegated to established training areas. Efforts will be made to avoid any impacts  
22 on wetlands in accordance with the installation INRMP. Additional training may require  
23 hardened crossings be established at stream crossings. Siltation from soil erosion may  
24 result in secondary impacts to wetlands.

## 25 26 **4.12.9 Water Resources**

### 27 **4.12.9.1 Affected Environment**

#### 28 29 **Watersheds**

30 The Main Post lies within three major watersheds: the Lower Sabine River basin,  
31 Whiskey-Chitto River basin, and Upper Calcasieu River basin. Three watersheds, the  
32 Lower Sabine, the Upper Calcasieu, and the Lower Red-Lake latt, contain water bodies  
33 listed as impaired in 2002. TMDLs will be established for the pollutants of concern  
34 within these impaired water bodies.

35  
36 The headwaters of many streams lie within the installation's boundaries. Five streams  
37 are either headwaters or tributaries to streams or rivers designated under the Natural  
38 and Scenic River System and are located within the watersheds of the JRTC and Fort  
39 Polk Military installation.

#### 40 41 **Groundwater**

42 Groundwater is the principal source of drinking water for the JRTC and Fort Polk and  
43 Vernon Parish. The Williamson Creek, Carnahan, and Evangeline aquifers support  
44 water supply wells in the area of the JRTC and Fort Polk. The Evangeline aquifer is  
45 also the source of groundwater to the public-supply wells for the town of Pitkin, 5 miles  
46 south of the installation, and to domestic wells in the southern part of Vernon Parish.

1 The Williamson Creek aquifer is the source of groundwater for public supply wells in the  
2 town of Pickering. The Carnahan Bayou aquifer is also a source of groundwater for  
3 public supply wells in the towns of Leesville and Simpson.

#### 4 5 **Water Supply**

6 Water for South Fort Polk is supplied entirely by wells situated throughout the South  
7 Fort Polk area. These wells have a combined maximum capacity of approximately 7.8  
8 million gallons per day (MGD). A sustainable daily yield for these water wells is  
9 approximately 5.2 MGD. Annual water use in 2000 was approximately 2.15 MGD. The  
10 South Fort Polk distribution system is generally in good condition and can be expected  
11 to provide sufficient quantities and pressures for domestic and fire flow requirements  
12 under baseline and projected populations.

13  
14 Water for North Fort Polk is supplied entirely by wells situated throughout the North Fort  
15 Polk area. These well have a combined maximum capacity of approximately 4.2 MGD.  
16 A sustainable daily yield for these water wells is approximately 3.5 MGD. Annual water  
17 use in the North Fort and North Fort Housing was approximately 950,000 gallons per  
18 day in 2000. The North Fort Polk distribution system is also in good condition and can  
19 be expected to provide sufficient quantities and pressures for domestic and fire flow  
20 requirements under baseline and projected populations.

#### 21 22 **Wastewater**

23 The JRTC and Fort Polk operates two wastewater treatment plants: the North Fort  
24 Wastewater Treatment Plant (NFWWTP), with a design flow of 1.4 MGD, and the South  
25 Fort Wastewater Treatment Plant (SFWWTP), with a design flow of 3.8 MGD. The  
26 JRTC and Fort Polk also operates three other wastewater treatment systems (Peason  
27 Ridge, Toledo Bend, and the Landfarm Pond). Each of these systems is relatively small  
28 and has design flows of less than 25,000 gallons per day.

29  
30 The average daily combined wastewater discharge from both the NFWWTP and the  
31 SFWWTP has ranged from just below 2 MGD in 1995 to 3.5 MGD in 1992. Since 1992,  
32 the amount of wastewater discharged from the installation has declined significantly,  
33 primarily because of a decrease in population of more than 17,000 people and a  
34 decrease of approximately 1 million square feet in real property resulting from the  
35 transfer of the 5<sup>th</sup> Infantry Division from Fort Polk to Fort Hood. Average daily  
36 discharges in 2000 at the NFWWTP and the SFWWTP were 0.344 MGD and 1.74  
37 MGD, respectively.

38  
39 The Peason Ridge Sanitary Sewage Treatment Facility supports the sanitary sewage  
40 treatment requirements of the Peason Ridge Cantonment Area and the JRTC at the  
41 Peason Ridge Training Area. The treatment facility is a lagoon system capable of  
42 processing 2,400 gallons of sewage per day and a peak flow of 3.0 gallons per minute.

#### 43 44 **Stormwater**

45 Industrial activities, including such transportation-related activities as vehicle  
46 maintenance, fueling, and washing, are currently permitted under the NPDES Industrial



1 Activities permit program. The installation also obtains permits for construction activities  
2 disturbing more than one acre. Fort Polk also has permit coverage for its MS4.

#### 4 **4.12.9.2 Environmental Consequences**

6 **CS/CSS.** An addition of a CS/CSS is anticipated to have a very low (minimal) adverse  
7 impact on water resources. Given the existing population of Fort Polk, the addition of a  
8 CS/CSS will not have significant impact on the watershed, water demand, and  
9 associated treatment systems. Any new construction/land disturbance over one acre  
10 will require a stormwater construction permit.

12 **Full Sustainment Brigade.** Short- and long-term low (minor) adverse impacts on water  
13 resources are expected. Given the existing population of Fort Polk, the addition of a  
14 Full Sustainment BDE will not have significant impact on the watershed, water demand,  
15 and associated treatment systems. Any new construction/land disturbance over one  
16 acre will require a stormwater construction permit which would entail identification and  
17 implementation of mitigation strategies to reduce impacts associated with stormwater  
18 runoff during and after construction.

20 **IBCT.** Such an addition is anticipated to have a moderate impact on Fort Polk water  
21 resources. The addition of an IBCT will most likely add to the sediment and erosion  
22 issues that the installation is already experiencing. Water demands and wastewater  
23 treatment will increase, but Fort Polk's water supply and water/wastewater infrastructure  
24 capacities are adequate. The installation would need to revisit their Storm Water  
25 Pollution Prevention Plan (SWP3) to incorporate best management practices for any  
26 new training activities. Additionally, any new construction/land disturbance over one  
27 acre will require a stormwater construction permit.

29 **HBCT.** Addition of a HBCT would have a moderate impact on Fort Polk. The addition  
30 of an HBCT will add to the sediment and erosion issues that the installation is already  
31 experiencing. Motorpool activities and washing of field-driven heavy-tracked vehicles  
32 would increase water demand and associated treatment. The water supply and  
33 infrastructure capacities appear adequate for the increased demand. Fort Polk may  
34 need to construct new washing systems to manage heavy-tracked vehicles. The  
35 installation would need to revisit their Storm Water Pollution Prevention Plan (SWP3) to  
36 incorporate best management practices for any new training activities. Additionally, any  
37 new construction/land disturbance over one acre will require a stormwater construction  
38 permit.

40 **Multiple BCTs.** Addition of multiple BCTs will have a significant impact on Fort Polk  
41 water resources. The addition of multiple BCTs will increase the sediment and erosion  
42 issues that the installation is already experiencing. Motorpool activities and washing of  
43 field-driven heavy-tracked vehicles would significantly increase water demand and  
44 associated treatment. Fort Polk may need to construct new washing systems to  
45 manage heavy-tracked vehicles. The installation would need to revisit their Storm  
46 Water Pollution Prevention Plan (SWP3) to incorporate best management practices for

1 any new training activities. Additionally, any new construction/land disturbance over  
2 one acre will require a stormwater construction permit which would entail identification  
3 and implementation of mitigation strategies to reduce impacts associated with  
4 stormwater runoff during and after construction.  
5

## 6 **4.12.10 Facilities**

### 7 **4.12.10.1 Affected Environment**

8  
9 The Joint Readiness Training Center (JTRC) and Fort Polk consists of three general  
10 land use categories: the cantonment area, training areas, and impact areas. The  
11 cantonment area of Fort Polk, divided into North Fort Polk and South Fort Polk, contains  
12 about 8,050 acres in the western portion of the installation and consists of  
13 administration, billeting, and family housing areas. It has been developed into a wide  
14 variety of land uses that comprise the elements necessary for a complete community.  
15 This includes the installation Post Exchange, commissary, housing and family support  
16 services, medical, and mission-support facilities.  
17

### 18 **4.12.10.2 Environmental Consequences**

19  
20 The impacts of the Proposed Action and other alternatives on utilities and  
21 communications are primarily related to projected increases in population on and off  
22 post. These were analyzed by estimating per unit consumption on generation rates  
23 using the most recently available data, and then estimating how total consumption or  
24 generation rates would change with the changed population. The increased  
25 consumption and generation were then compared with the ability of existing  
26 infrastructure to handle those changes.  
27

28 **CS/CSS.** There will be minor impacts to facilities. It is anticipated that the activities  
29 associated with an increase of 1,000 Soldiers would increase facilities usage within the  
30 cantonment and training and range areas. Activities within the training and range areas  
31 would be limited to existing firing ranges and roadways.  
32

33 **Full Sustainment BDE.** There will be medium short- and long-term environmental  
34 impacts to facilities. Increased Soldier strength of 3,000 to 3,500 would be reflected  
35 through increased usage and construction throughout the cantonment areas. Fort Polk  
36 and JTRC could support a Full Sustainment BDE. Increased activities within the  
37 training and range areas would be expected to cause long-term impacts due to  
38 increased human presence, as well as construction and training activities within the  
39 range and training areas. The installation real property management plan (RPMP)  
40 would require a review to allow for implementation of the ACP. A study using SIRRA  
41 would also be beneficial.  
42

43 **IBCT.** Fielding an IBCT would also result in moderate short- and long-term impacts to  
44 facilities. The addition of an IBCT would potentially increase usage of cantonment  
45 assets beyond what is projected for a Full Sustainment BDE; however, a review of the  
46 installation RPMP along with other facilities and infrastructure studies may be able to

1 accommodate the proposed action. Since Fort Polk and JTRC are scheduled to receive  
2 a BCT and other additional units in FY08, the possibility that increased construction  
3 could occur in previously undisturbed land is likely. This could require an increased  
4 level of coordination with state and federal regulatory agencies.

5  
6 **HBCT.** Unlike the IBCT, there will be significant short- and long-term environmental  
7 impacts to facilities. The addition of an HBCT would likely result in degradation of  
8 facilities within the cantonment. The establishment of an HBCT at Fort Polk and JTRC  
9 may exceed the capacity of the installation RPMP to accommodate the proposed action  
10 due to the lack of available space for expansion. If identified by the installation,  
11 additional coordination and consultation may be necessary for activities associated with  
12 an HBCT. An excess aggregate demand on facilities and infrastructure required by  
13 both scheduled incoming units and a HBCT could lead to an overall degradation of  
14 facilities quality.

15  
16 **Multiple BCTs.** The establishment of multiple BCTs would also result in significant  
17 short- and long-term impacts to facilities. There is a high probability that multiple BCTs  
18 would increase congestion beyond the carrying capacity of the cantonment  
19 infrastructure. The lack of available building space would contribute to this. It is highly  
20 unlikely that the installation RPMP could accommodate this iteration of proposed action.  
21 The level of construction required to support scheduled incoming units and multiple  
22 BCTs is resource intensive and potentially beyond the ability of Fort Polk and JTRC to  
23 sustain. The excess aggregate demand on cantonment facilities and infrastructure  
24 required by multiple BCTs may lead to system degradation or non-compliant regulatory  
25 issues.

#### 26 27 **4.12.11 Energy Demand/Generation** 28 **4.12.11.1 Affected Environment**

29  
30 **Electrical:** The existing electrical system on the JRTC and Fort Polk is divided into two  
31 distribution systems that serve the two distinct cantonment areas of the installation.  
32 Each system is supplied by its own substation, through a commercial electric utility.  
33 Overall electricity use was 189,245 megavolt-hours in 2000.

34  
35 **Natural Gas:** The natural gas system at the JRTC and Fort Polk was installed in 1942  
36 and has served the majority of the installation's heating, domestic hot water, and  
37 institutional services (cooking, laundry, and the like) and some cooling requirements  
38 since its installation. Two commercial gas companies using separate transmission lines  
39 provide natural gas to South and North Fort Polk. In 2000, natural gas consumption at  
40 the JRTC and Fort Polk was 266,178 thousand cubic feet (KCF). Current supplies of  
41 natural gas are considered adequate based on the fact that the current 8-inch  
42 transmission line, which feeds the JRTC and Fort Polk, could deliver in excess of  
43 400,000 KCF, which far exceeds historic demand levels.

#### 44 45 **4.12.11.2 Environmental Consequences**

1 **CS/CSS.** A minimal impact In terms of energy usage and generation is expected. The  
2 existing energy infrastructure has sufficient excess capacity and scalability to readily  
3 absorb the addition of a CS/CSS unit.

4  
5 **Full Sustainment BDE.** The likely impact of a Full Sustainment BDE is minimal. In  
6 order to accommodate any new mission activity, an initial capital investment will be  
7 required to extend the existing energy infrastructure to meet the new demand. That  
8 said, assuming other VEC needs are accommodated, the current electrical and natural  
9 gas distribution systems have sufficient capacity such that the addition of a Full  
10 Sustainment BDE will not necessitate expansion beyond any critical threshold.

11  
12 **IBCT.** In terms of energy usage, this scenario is very close to the Full Sustainment  
13 BDE scenario, resulting in a similarly minimal impact.

14  
15 **HBCT.** The HBCT scenario is likely to have a moderate impact on energy. The size  
16 and scope of the HBCT differs somewhat from the Full Sustainment BDE in terms of  
17 increased number of Soldiers and attendant facilities, resulting in a potentially higher  
18 energy use profile. While it is unlikely that the capacity of the electrical and natural gas  
19 distribution systems will be exceeded, they may be stretched to a relatively high  
20 percentage of maximum capacity at times of peak use.

21  
22 **Multiple BCTs.** The addition of Multiple BCTs would have a moderate impact on the  
23 energy infrastructure as well as on the local community and the natural environment.  
24 While the addition of multiple BCTs will certainly require significant construction and  
25 expansion of the existing energy infrastructure, this scenario is not likely to result in a  
26 new energy demand posture that exceeds the capacity of the existing energy  
27 infrastructure to meet that demand.

## 28 29 **4.12.12 Land Use Conflicts/Compatibility**

### 30 **4.12.12.1 Affected Environment**

31  
32 Fort Polk consists of two land areas, the Main Post and Peason Ridge that are owned,  
33 operated, and managed by the Army. The IUA (Main Post south), LUA, and SLUA land  
34 areas are owned and managed by the Forest Service and used by the military for  
35 training (USACE, 2002). Fort Polk's Main Post is divided into two cantonment areas,  
36 and into several large training areas, including the IUA and the LUA. One cantonment  
37 area, South Fort Polk, is located along the western boundary of the fort and is the larger  
38 and more extensively developed of the two cantonment areas on the Main Post. The  
39 other cantonment area, North Fort Polk, lies in the northwest portion of the main post.  
40 Each cantonment area is divided into zones. An artillery range impact area covers most  
41 of the eastern to central portion of Fort Polk. Zion Hills Small Arms Impact Area is  
42 located in the southeastern part of the main post. Peason Ridge training area lies  
43 northwest of the main post. This area is divided into six sections. A third cantonment  
44 area lies on the east side of Peason Ridge, and the north-central region of Peason  
45 Ridge is an impact area (U.S. Department of the Army, 1995). The SLUA, or "Horse's

1 Head", area is located north of Peason Ridge. A case-by-case supplemental special  
2 use permit is required for the Army to train on the SLUA (USACE, 2002).

3

4 Table 4.12-3 presents the overall inventory of training activities occurring within the IUA,  
5 LUA, and SLUA on Fort Polk. Training activities are specific for each area of  
6 occurrence based on limitations identified in the special use permit.

**Table 4.12-3 Inventory of Training Activities**

Title of Activity	Description	Typical Vehicle and Equipment Types	Area of Occurrence <sup>1</sup>		
			IUA	LUA	SLUA
Cross-Country Dismounted Maneuvers	Movement of troops on foot off-road or on unimproved trails. May include crossing of streams and wetland areas. May also include occasional, brief road guards to allow safe passage of troops.	Wheeled and tracked vehicles (when mounted and dismounted maneuvers occur simultaneously)	X	X	X
Cross-Country Vehicle Maneuvers	Movement of wheeled and tracked vehicles off-road and on unimproved trails.	Wheeled and tracked vehicles with trailers	X	X <sup>2</sup>	
Stream and Wetland Crossings	Fording of intermittent and perennial streams and wetlands by wheeled and tracked military vehicles at established crossing points.	Wheeled and tracked vehicles with trailers	X	X <sup>2, 3</sup>	
Road Maneuvers (Mounted/Dismounted)	Troop marches, driver training, and other road-bound operations. May include occasional, brief road guards for safety.	Wheeled and tracked vehicles	X	X	X
Blackout Driving	Nighttime driving without headlights (no vehicle lights or "cat eye" lighting only).	Wheeled and tracked vehicles	X	X <sup>2, 4</sup>	
Vehicle Convoy Operations	Movement of wheeled and tracked vehicles along designated routes. May include occasional, brief road guards for safety.	Wheeled and tracked vehicles	X	X	X
Firing of Blank Ammunition	Engagements between small units during force-on-force maneuver training exercises.	M2 (.50 caliber) and below <sup>5</sup>	X	X	X
Use of Pyrotechnic/Artillery Simulation Devices	Simulation of direct/indirect artillery fires, use of smoke for screening/obscuring maneuver forces, and use of flares by designated personnel.	Various pyrotechnic/artillery simulation devices; all-terrain vehicles	X	X <sup>2</sup>	
Obscuration Activities (Use of	Production of visual smoke screen using	Wheeled and tracked vehicles, smoke	X		

**Table 4.12-3 Inventory of Training Activities**

Title of Activity	Description	Typical Vehicle and Equipment Types	Area of Occurrence <sup>1</sup>		
			IUA	LUA	SLUA
Fog Oil)	vehicle-mounted generator.	generator			
Airborne Operations	Insertion of troops into designated drop zones using parachutes.	Individual combat equipment, vehicles	X	X	
Low-Level Helicopter Flights/ Aeroscout Reconnaissance	Flying of helicopter near treetop level and above.	Helicopters	X	X	X
Simulated Chemical Defense Training	Movement along routes to perform simulated chemical detection tasks, including simulated decontamination of vehicles and equipment.	"FOX" chemical detection vehicles, chemical suits, decontamination equipment, and simulated chemical/biological training aids (pepper sauce)	X	X	X
Simulated Biological Defense Training	Use of Biological Integrated Detection System (BIDS), vehicles, and equipment to simulate detection of biological agents along routes and at fixed locations.	BIDS wheeled vehicles and towed generators (dissemination of biological simulants and use of Micronaire backpack sprayer are not allowed on Forest Service lands	X	X	X
Breaching of Obstacles/Mine Clearance	Breaching and removal of obstacles and simulated mines.	Wheeled and tracked vehicles, anti-mine equipment, road plows (road plows permitted in IUA only)	X	X	
Construction of Hasty Defensive Positions	Excavation of individual fighting positions (foxholes) dug using hand tools. All positions to be filled in upon completion of training exercise.	Hand tools	X	X <sup>2</sup>	
Construction of Limited Defensive Positions	Excavation of individual and two person crew served fighting positions dug using mechanized equipment. All positions to be filled in upon completion of training exercise.	Small emplacement excavator	X	X <sup>2</sup>	
Construction of	Excavation/construction	Small emplacement	X		

**Table 4.12-3 Inventory of Training Activities**

Title of Activity	Description	Typical Vehicle and Equipment Types	Area of Occurrence <sup>1</sup>		
			IUA	LUA	SLUA
Deliberate Defenses	of vehicle positions, ditches, berms, and bunkers.	excavator, dozers, other engineering/excavation equipment			
Emplacement of Obstacles	Placement of concertina wire and burial of simulated mines along unpaved roads. All wire and simulated mines to be recovered at completion of training exercise.	Concertina wire, barbed wire, simulated mines	X	X <sup>2</sup>	
Bivouacking/ Establishment of Troop Assembly Areas	Establishment of an area where troops eat, rest overnight, and perform minor equipment and vehicle maintenance. May involve day and night movement of vehicles to and from site.	Tents, supplies, equipment, wheeled and tracked vehicles	X	X	X <sup>6</sup>
Communications and Surveillance Operations	Establishment of sites to coordinate communications and/or conduct surveillance of enemy forces.	Communications equipment, radio antennas, tents, radar equipment, camouflage nets, wheeled vehicles	X	X	X
Establishment of Combat Support Areas and/or Field Hospitals	Stockpiling, loading/unloading of supplies, logistics and maintenance operations, and medical treatment of simulated casualties. Includes hasty defensive positions.	Tents, equipment, supplies, kitchen/laundry/shower units, reverse osmosis (ROWPUs), wheeled and tracked vehicles, forklifts, engineering equipment (stationary), helicopters	X	X <sup>2</sup>	
Vehicle Maintenance Operations	Performance of basic repairs to wheeled and tracked vehicles under field conditions.	Tracked, wheeled, and recovery vehicles	X	X	X
Vehicle/ Helicopter Fueling	Transferring of fuel from bulk containers/fuel tanks to tactical vehicles.	Fuel containers, wheeled and tracked vehicles, and helicopters	X	X	X
Vehicle Staging/ Assembly	Positioning of wheeled and tracked vehicles at fixed sites in preparation of other operations.	Wheeled and tracked vehicles, and trailers	X	X	X
Establishment of	Tactical landing/securing	Helicopters, fuel	X	X	X <sup>6</sup>



**Table 4.12-3 Inventory of Training Activities**

Title of Activity	Description	Typical Vehicle and Equipment Types	Area of Occurrence <sup>1</sup>		
			IUA	LUA	SLUA
Aviation Assembly Areas	of helicopters at a fixed location.	trucks, wheeled vehicles			
Helicopter Sling Loading Operations	Loading/unloading of equipment, vehicles, and/or personnel in training areas by helicopter.	Helicopters, vehicles, various supplies and equipment	X	X	X <sup>6</sup>
Helicopter Landings	Insertions/extractions of personnel in training areas by helicopter.	Helicopters, individual combat equipment	X	X	X <sup>6</sup>
Small Arms Firing	Firing of individual and crew-served weapons for marksmanship qualification, up to and including .50 caliber and below (i.e., rifles, pistols, machine guns, grenade launchers, and rockets).	Small arms, tracked and wheeled vehicles	X		
Tank/Infantry Fighting Vehicle Gunnery	Firing and rehearsals for firing of family of tanks (i.e., M60, M1, M2, M3) from crew drills through qualification, subcaliber through live munitions, 120mm and below.	Tanks, support vehicles, tents, forklifts	X		
Artillery Firing	Firing of artillery (155mm and below) and mortars (120mm and below).	Wheeled and tracked vehicles and trailers, artillery and mortars	X		
Aerial Gunnery	Qualification tables I – XII firing 7.26mm machine guns, 2.75-inch rockets, 40mm grenade launcher, 20 – 30mm guns, and Hellfire missiles.	All rotary-wing aircraft, subcaliber through Hellfire missiles	X		
Artillery Impact and Detonation	Impact of 40mm grenades, anti-tank rocket launchers, and hand grenades, and detonation of grenades and other explosive devices.	Small arms	X		
Demolition	Training/test demolition of various objects using high explosive charges.	Trucks and other wheeled vehicles	X		

1 Source: Fort Polk, 2007

2 NOTES:

- (1) Vernon and Kisatchie Districts of Kisatchie National Forest: IUA = Intensive Use Area; LUA = Limited Use Area; SLUA = Special Limited Use Area ("Horse's Head). Under the Army's existing SUP with the Forest Service, all military activities at SLUA/Horse's Head require a separate, case-by-case SUP specifying the nature, location, and date/duration of the proposed activity.
- (2) Permitted in Limited Use Level 1 Training Areas (Johnsonville, Flatwoods, Rustville, Pitkin) but prohibited in Level 2 Training Areas (Providence, Marlow, Cravens)
- (3) Limited Use Area stream and wetland crossing points to be jointly approved by the Forest Service and Army, and hardened or bridged prior to crossing by military vehicles.
- (4) Permitted on selected roads in LUA; road guards required. Public notification required in some circumstances.
- (5) Firing of 7.62mm (M60) blank ammunition and below is permitted with RCW cluster boundaries. Firing of larger-caliber weapons within RCW clusters is prohibited.
- (6) Activities allowed only at designated sites.

Land use at Fort Polk is divided into two separate land ownership categories, Army-owned lands and Forest Service-owned lands. Table 4.13-4 contains the land use types, total acreages of land areas, and the corresponding land use requirements on Fort Polk.

**Table 4.12-4- Land use at Fort Polk**

Land Ownership	Total Training Land Acreage	Total Range and Impact Area	Total Maneuver Area	Total Unusable Acreage	Available Maneuver Acreage with SDZ	Available Maneuver Acreage without SDZ
Army-owned	91,049*	62,269	28,780	6,938	21,842	78,646
Forest Service-owned	98,125***	33,572	64,553	49,835	14,718	24,664**
<b>TOTALS</b>	<b>189,174</b>	<b>95,841</b>	<b>93,333</b>	<b>56,773</b>	<b>36,560</b>	<b>103,310</b>

Source: [LURS; Fort Polk and USACE Huntsville Center (by *John Gallup & Associates and The Chosen Group*), 2005]

\* Does not include 8,050 acres in the cantonment area, 442 acres of leased lands, 387 acres in easements, 24.31 acres at Toledo Bend Recreation site, or 56.79 acres in railroad right-of-ways; total Army fee-owned land is 100,009.1 acres.

\*\* 42,901 acres of Limited and Special Limited Use Lands are considered unusable for training.

\*\*\* Includes 40,026 acres of Intensive Use, 44,799 acres of Limited Use, and 12,820 acres of Special Limited Use Land.

#### **4.12.12.2 Environmental Consequences**

**CS/CSS.** There will be minimal short and long-term impacts on installation land use due to the presence of an additional 1,000 Soldiers and their family members assigned to the installation. The installation has sufficient land available to either build the facilities needed for this unit, or would have sufficient vacant space in buildings that would be suitable for the units' mission. Additionally, the land, or existing facilities, are located such that surrounding facilities are compatible with the additional CS/CSS unit.

1 The facilities required for a CS/CSS will likely be located within a single contiguous land  
2 unit. The installation has developed a plan that would place these facilities within the  
3 existing cantonment area with less than five areas of new disturbance.  
4

5 **Full Sustainment BDE.** There will be minimal short and long-term impacts on  
6 installation land use due to the presence of an additional 3,000 to 3,500 Soldiers. The  
7 installation has sufficient land available to either build the facilities needed for this unit,  
8 or would have sufficient vacant space in buildings that would be suitable for the units'  
9 mission. Additionally, the land, or existing facilities, are located such that surrounding  
10 facilities are compatible with the additional Full Sustainment BDE. It is unlikely these  
11 facilities will entirely fit within the existing cantonment areas at Fort Polk, therefore a site  
12 specific environmental analysis (e.g., Environmental Assessment) on the proposed  
13 construction footprint will likely be required.  
14

15 **IBCT.** There will be minimal short and long-term impacts on installation land use due to  
16 the presence of an additional 3,500 Soldiers. The installation has sufficient land  
17 available to either build the facilities needed for this unit, or would have sufficient vacant  
18 space in buildings that would be suitable for the units' mission. Additionally, the land, or  
19 existing facilities, are located such that surrounding facilities are compatible with the  
20 additional IBCT. It is unlikely these facilities will entirely fit within the existing  
21 cantonment areas at Fort Polk, therefore a site specific environmental analysis (e.g.,  
22 Environmental Assessment) on the proposed construction footprint will likely be  
23 required.  
24

25 **HBCT.** There will be moderate short- and long-term impacts on installation land use  
26 due to the presence of an additional 3,800 to 4,000 Soldiers and their Families assigned  
27 to the installation. The installation may not have sufficient land available to either build  
28 the facilities needed for this unit, or would not have sufficient vacant space in buildings  
29 suitable for the units' mission. Building new facilities may require the installation to re-  
30 zone existing land uses, or re-use/remodel facilities in areas not compatible with land  
31 uses associated with tactical units. Existing land and/or facilities would not be  
32 contiguous and located such that tactical vehicles would need to travel extensively  
33 within the cantonment area to reach training ranges. It is unlikely these facilities will  
34 entirely fit within the existing cantonment areas at Fort Polk, therefore a site specific  
35 environmental analysis (e.g., Environmental Assessment) on the proposed construction  
36 footprint will likely be required.  
37

38 **Multiple BCTs.** There will be moderate short- and long-term impacts on installation  
39 land use due to the presence of an additional 7,000, or more Soldiers and their Families  
40 assigned to the installation. The installation may not have sufficient land available to  
41 either build the facilities needed for these units, or would not have sufficient vacant  
42 space in buildings suitable for the units' mission. Building new facilities may require the  
43 installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
44 compatible with land uses associated with tactical units. Existing land and/or facilities  
45 would not be contiguous and located such that tactical vehicles would need to travel  
46 extensively within the cantonment area to reach training ranges.

1  
2 **4.12.13 Hazardous Materials/Hazardous Waste**  
3 **4.12.13.1 Affected Environment**  
4

5 The affected environment for these proposed actions include the use, storage,  
6 transport, and disposal of hazardous materials and wastes at Fort Polk. This includes  
7 hazardous materials and wastes from USTs and aboveground storage tanks;  
8 pesticides; LBP; asbestos; PCBs; radon; and UXO.  
9

10 Common hazardous materials present at the installation include POLs; paint and paint-  
11 related material from paint shops and motorpools; flammable stains/coatings; cleaning  
12 products; photographic wastes; batteries; pesticides, insecticides, rodenticides, and  
13 herbicides; bomb propellants; smoke pots; flammable adhesives; solvents; calcium  
14 hypochlorite; and nonexpended ammunition. Hazardous waste streams generated at  
15 the installation include the above-mentioned items in addition to lead-contaminated  
16 paint chips/debris and gasoline-contaminated rags, soil, or used Drysweep.  
17 Nonregulated wastes include oil-, fuel-, and grease-contaminated rags and debris; all  
18 petroleum-contaminated soil and used Drysweep; grease; used oil; oil and fuel filters;  
19 used antifreeze; brake/transmission fluid; asbestos; and nonflammable adhesives.  
20 (JRTC, 2004)  
21

22 The installation is a large-quantity generator. Hazardous materials and waste are  
23 primarily managed by the Environmental and Natural Resources Management Division  
24 (ENRMD). The ENRMD publishes a Hazardous Waste Management Plan and an Oil  
25 and Hazardous Substances Contingency Plan. These documents provide standard  
26 operating procedures for the collection, storage, transport, and disposal of hazardous  
27 materials and waste. (JRTC, 2004)  
28

29 **4.12.13.2 Environmental Consequences**  
30

31 **CS/CSS.** There will be minor long-term impacts from hazardous materials and waste.  
32 It is anticipated that Fort Polk would minimally increase its storage and use of  
33 hazardous chemicals during training exercises and installation maintenance with an  
34 increase of 1,000 Soldiers. Waste collection, storage, and disposal processes would  
35 remain mostly unchanged, and current waste management programs would continue.  
36

37 **Full Sustainment BDE.** Minor short- and long-term impacts from hazardous materials  
38 and waste would be expected with an increased Soldier strength of 3,000 to 3,500. An  
39 increase in the use of hazardous chemicals may be seen in the cantonment and training  
40 and range areas. Demolition, renovation, and construction would mostly likely result in  
41 an increase in the generation of asbestos, lead-contaminated wastes, and other  
42 hazardous waste, as well as an increase in the use of pesticides due to the addition of  
43 family housing and other facilities. The increase in these wastes would result in no  
44 adverse impacts because the wastes would be managed in accordance with current  
45 standards and regulations. The hazardous waste disposal facilities would be adequate

1 to manage the increase in hazardous waste. Waste management programs may be  
2 updated as needed.

3  
4 **IBCT.** There will be minor short- and long-term impacts from hazardous materials and  
5 waste associated with the addition of an IBCT. The volume and type of hazardous  
6 waste would be the same as described under the Full Sustainment BDE, with similar  
7 environmental impacts as well.

8  
9 **HBCT.** As with the IBCT, there will be minor short- and long-term impacts from  
10 hazardous materials and wastes. The volume of hazardous waste would be slightly  
11 higher than the IBCT, but existing procedures would be adequate to ensure that the  
12 increases do not adversely affect the environment. Waste management plans would be  
13 updated as needed to incorporate mission activities associated with the new units  
14 stationed at Fort Polk and expanded training activities.

15  
16 **Multiple BCTs.** The establishment of multiple BCTs at Fort Polk would also result in  
17 minor short- and long-term impacts from hazardous materials and waste. Generation  
18 and management of hazardous materials and waste, pesticides, petroleum storage  
19 tanks, ordnance and explosives would all be higher than with the other actions, but  
20 would continue to be managed in accordance with current procedures and regulations.  
21 Waste management plans would be updated as needed to incorporate mission activities  
22 associated with the new units stationed at Fort Polk and expanded training activities.

#### 23 24 **4.12.14 Traffic and Transportation**

##### 25 **4.12.14.1 Affected Environment**

26  
27 Fort Polk is located in west central Louisiana, approximately 125 miles west, north west  
28 of Baton Rouge, LA and 90 miles north of the Gulf of Mexico. The regions of influence  
29 (ROI) of the affected environment for traffic and transportation aspects of the proposed  
30 action include Fort Stewart, and several neighboring counties, to include Fort Polk,  
31 Vernon Parish, and the town of Leesville. Major road routes in the region include US  
32 Route 171, and State Routes 10 and 467.

##### 33 34 **4.12.14.2 Environmental Consequences**

35  
36 **CS/CSS.** There will be minimal short and long-term impacts on traffic and  
37 transportation systems on the installation due to the presence of an additional 1,000  
38 Soldiers and their family members assigned to the installation. Spread across the ROI,  
39 this population will have de minimis impact on the overall traffic congestion in the  
40 neighboring communities. This additional population may contribute nominally to traffic  
41 volume on the installation, and is not expected to reduce the level of service (LOS) on  
42 the installation's road network. There may be a slight increase in traffic volume during  
43 peak morning and evening hours, but it would not affect level of service or pose an  
44 increased risk to the safety of pedestrians and bicyclists.

1 **Full Sustainment BDE.** There will be minimal short and long-term impacts on traffic  
2 and transportation systems on the installation due to the presence of an additional  
3 3,000 to 3,500 Soldiers and their family members assigned to the installation. The  
4 increase in off-post traffic would have a minimal impact on traffic in the community  
5 overall and it is unlikely it would contribute to a decrease in the LOS in the road network  
6 leading to the installation. This level of increase in population would have a minimal  
7 impact on the traffic volume on the installation, and would not likely cause a decrease in  
8 LOS on installation's arterial road network. The increased traffic volume in both the  
9 neighboring community and on the installation would likely pose minimal to moderate  
10 increased level of risk to the safety of pedestrians and bicyclists.

11  
12 **IBCT.** There will be minimal short- and long-term environmental impacts on traffic and  
13 transportation systems on the installation due to the presence of an additional 3,500  
14 Soldiers and their family members. Both on the installation and in the local  
15 communities, the increase in traffic congestion and accompanying decrease in LOS  
16 would be slightly greater than that caused by the presence of the Full Sustainment BDE.  
17 Similarly, the safety risk to pedestrians and bicyclists would be slightly higher than that  
18 posed by the presence of a Full Sustainment BDE.

19  
20 **HBCT.** There will be minimal short- and long-term impacts on traffic and transportation  
21 systems on the installation due to the presence of an additional 3,800 to 4,000 Soldiers  
22 and their family members. Both on the installation and in the local communities, the  
23 increase in traffic congestion and accompanying decrease in LOS would be slightly  
24 greater than that caused by the presence of an IBCT. Similarly, the safety risk to  
25 pedestrians and bicyclists would be slightly higher than that posed by the presence of  
26 an IBCT.

27  
28 **Multiple BCTs.** There would be minimal short- and long-term impacts on traffic and  
29 transportation systems on the installation due to the presence of an additional 7,000  
30 Soldiers, or more, and their family members. The effect on the traffic congestion in the  
31 local communities from this increased population level would be noticeable in the  
32 community at large and could cause a noticeable, but not significant decrease in LOS in  
33 the community's road network, and could cause a decrease in the LOS on the road  
34 network leading to the installation. This increase in both Soldier and family-member  
35 population would cause a minor to moderate impact on the LOS of the installation's  
36 road network and pose a minor to moderate risk to the safety of pedestrians and  
37 bicyclists.

#### 38 39 **4.12.15 Cumulative Effects**

40  
41 Cumulative Effects at Fort Polk include Army mission-related activities and Forest  
42 Service activities associated with management of the Kisatchie National Forest. Past,  
43 present, and reasonably foreseeable future actions include:

- 44 • Army/Forest Service restoration of long-leaf pine habitat;
- 45 • Construction of the 40 Series Range;
- 46

- 1 • 5<sup>th</sup> Infantry Division (Mechanized) unit training;
- 2 • Construction of the Multi-Purpose Range Complex;
- 3 • JRTC moves to Fort Polk;
- 4 • Construction of Geronimo and Avellino drop zones;
- 5 • Construction of Peason Ridge Live-Fire Complex;
- 6 • Most Efficient Support Organization (MESO) action;
- 7 • Construction of cantonment area security fence;
- 8 • Construction and operation of Digital Multipurpose Battle Area Complex at
- 9 Peason;
- 10 • Army/Forest land interchange;
- 11 • Final Disposition of Trespass Horses at JRTC and Fort Polk;
- 12 • Construction and operation of Live-Fire Villages/Urban Assault Course/Shoot
- 13 House;
- 14 • Construction and operation of a Combined Arms Training Facility;
- 15 • Construction and operation of a Multipurpose Machine Gun Range;
- 16 • Construction and operation of a Heavy Sniper Range
- 17 • Off-road and other training in the LUA;
- 18 • State highway construction (LA 28); and
- 19 • Commercial forestry operations.

20

21 Cumulative effects include impacts to air quality, soils, water quality, wetlands, cultural  
22 resources, biological resources, socioeconomics, transportation, and hazardous and  
23 toxic materials. Adverse effects include increases in mobile and stationary point  
24 sources; removal of vegetation and the increase in impervious surface; transportation of  
25 pollutants through stormwater and sediments; soil loss, erosion and sedimentation; loss  
26 of wetlands; degradation of habitats and ecosystem integrity; and effects from use of  
27 hazardous and toxic materials and generations of wastes.

28

29

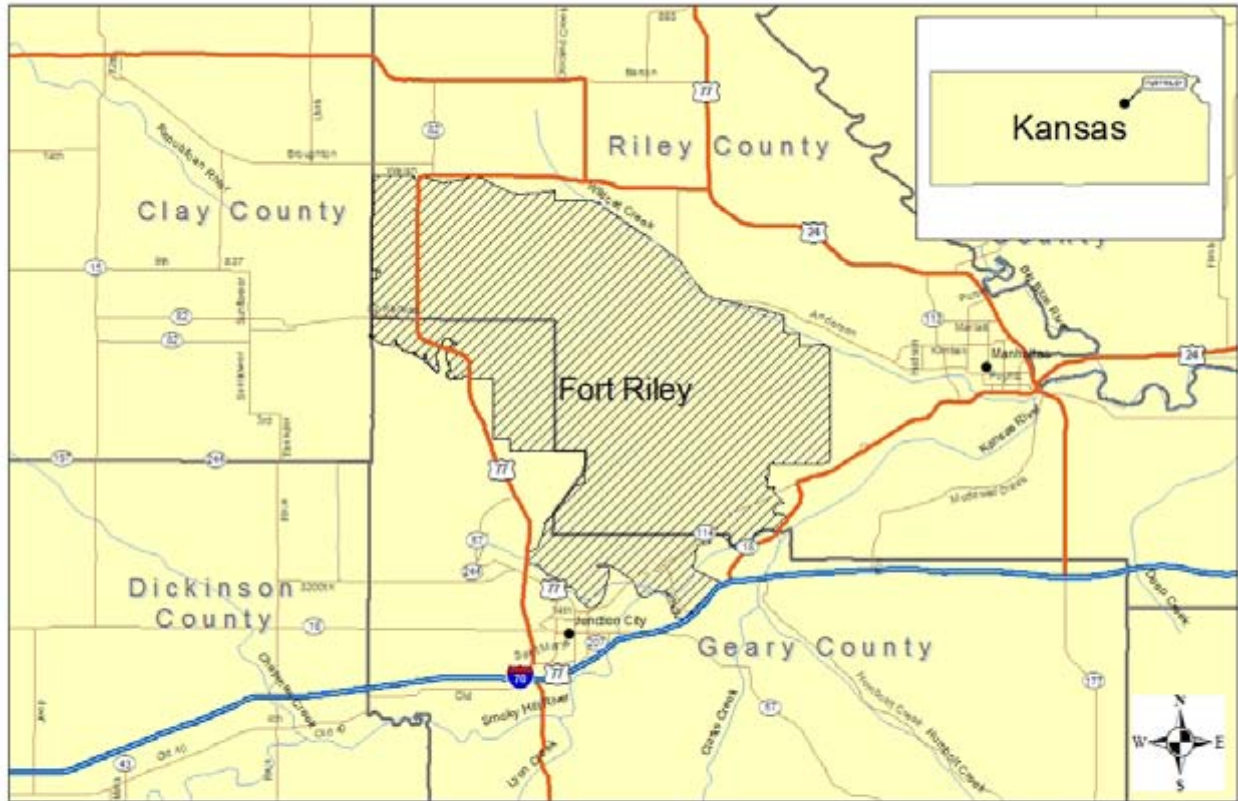
## 30 **4.13 FORT RILEY, KANSAS**

### 31 **4.13.1 Introduction**

32

33 Fort Riley, located in Central Kansas, has approximately 70,000 acres of maneuver  
34 area suited for vehicular and non-vehicular military training (Figure 4.13-1). It has long  
35 supported armored/mechanized unit training.

36



## Fort Riley- Installation Location

**Figure 4.13-1 Fort Riley**

Fort Riley's major unit is the 1<sup>st</sup> Infantry Division, with an additional brigade of the 1<sup>st</sup> Armored Division.

Fort Riley has good range infrastructure, but one that requires significant modernization and expansion. Encroachment from urbanization is not yet a challenge, but there are other concerns that could impact training.

Table 4.13-1 contains the Fort Riley's VEC ratings for each of the various stationing action scenarios.

**Table 4.13-1. Fort Riley VEC Ratings**

Fort Riley					
VEC	CS/CSS Units (1,000 Soldiers)	Full Sustainment BDE (3,000- 3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Low	Low	Low	Low	Low
Airspace	Low	Low	Low	Low	Low



Cultural	Low	Low	Low	Medium	Medium
Noise	Low	Low	Low	Medium	Medium
Soil Erosion Impacts	Low	Low	Low	Medium	Medium
T&E/Other Wildlife	Low	Low	Low	Low	Medium
Wetlands	Low	Low	Low	Low	Low
Water Resources	Low	Low	Low	Low	Low
Facilities	Medium	High	High	High	High
Socioeconomics	Low	High	High	High	High
Energy Demand/ Generation	Low	Low	Low	Low	Low
Land Use Conflict/ Compatibility	Low	Low	Medium	Medium	High
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and Transportation	Low	Medium	Medium	Medium	High

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**4.13.2 Air Quality**  
**4.13.2.1 Affected Environment**

Fort Riley is located in portions of Geary, Riley, and Clay Counties, in northeastern Kansas, which is controlled by the North Central Kansas Intrastate AQCR. All three counties are in attainment for the six criteria pollutants(i.e., meet all NAAQS).

Fort Riley is a major source of air pollutants and regulates air emissions through a Class I Air Emission Source Operating (Title V). Primary stationary sources include boilers, generators, fuel storage and dispensing areas, and surface coating operations (Fort Riley, 2005).

Since Fort Riley is located in attainment areas there is no requirement to conduct a conformity analysis. The CAA's Prevention of Significant Deterioration requirements are not expected to be triggered by the installation's activities.

**4.13.2.2 Environmental Consequences**

**CS/CSS.** There will be an expected minor (low) impact on the installation and surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It is assumed that the resulting increases in air emissions are directly proportional to the increase in population at the facility.

1 In general, combustion and facility operations will produce localized, short-term elevated  
2 air pollutant concentrations that should not result in any sustained impacts on regional  
3 air quality.

4  
5 **Full Sustainment BDE.** There will be an expected minor (low) impact on the  
6 installation and surrounding communities by the restationing of a Sustainment Brigade  
7 Combat Team and its 3,000 Soldiers. Any construction related emissions also have the  
8 potential to produce localized, short-term elevated air pollutant concentrations but these  
9 are not anticipated to have a major effect on regional air quality. Combustion emissions  
10 resulting from training would be primarily from mobile sources and be widely distributed  
11 both spatially and temporally. Given the wide distribution of emissions, it is not  
12 anticipated that regional air quality would be significantly affected. Options to  
13 demonstrate conformity have been identified.

14  
15 **IBCT.** There is an expected minor (low) long-term environmental impact to the  
16 installation and surrounding communities by the restationing of an Infantry Brigade  
17 Combat Team and its 3,500 Soldiers. It is anticipated the emissions resulting from  
18 stationary sources required for facility operations to support the influx of Soldiers and  
19 their Families will have greater, long-term impacts than those resulting from training but  
20 not significant enough to cause regional air quality issues. It is anticipated that the  
21 installation would see increases in emissions from equipment required to support the  
22 installation such as fuel storage and dispensing, boiler and incinerator operations and  
23 possible electric peak-shaving generators. Additionally, it is anticipated that more  
24 training/operations will occur away from established roads and tank trails.

25  
26 **HBCT.** There is an expected minor (low) long-term environmental impact on the  
27 installation and surrounding communities by the restationing of a Heavy Brigade  
28 Combat Team and its 4,000 Soldiers. Though the facility can expect increased  
29 emissions from military vehicles and generators used to support training events as well  
30 as increase in fugitive dust, these will tend to remain localized and produce no significant  
31 impact to regional air quality. The increase in POVs from the additional Soldiers and  
32 family members must also be addressed in the conformity analysis but do not appear  
33 too insurmountable.

34  
35 **Multiple BCTs.** Minor (low) impacts on the installation and surrounding communities by  
36 the restationing of multiple Brigade Combat Teams and approximately 7,000 Soldiers  
37 are expected. Construction, though not technically an operation subject to the  
38 provisions of the CAA but a short-term contributor to air quality, and changes to facility  
39 operations to support multiple brigades would be significant initially. Combustion  
40 emissions resulting from training would be primarily from mobile sources and be widely  
41 distributed both spatially and temporally. Given the wide distribution of emissions, it is  
42 not anticipated that regional air quality would be significantly affected.

43  
44 **4.13.3 Airspace**  
45 **4.13.3.1 Affected Environment**  
46

1 Fort Riley has 158 square miles of FAA-designated Restricted, Special use airspace, up  
2 to 29,000 feet. The installation has access to this airspace continuously, and is  
3 controlled by the FAA of Kansas City, MO. (US Army Corps of Engineers, 2002)

4  
5 Military uses of airspace at Fort Riley include air corridors over and in the vicinity of the  
6 installation for training of rotary-wing and fixed-wing aircraft. Airspace surrounding Fort  
7 Riley consists of 1,120 acres of Installation Compatible Use Zone (ICUZ) Zone II  
8 airspace. No ICUZ Zone II airspace extends off post. (US Army Corps of Engineers,  
9 1995)

#### 10 11 **4.13.3.2 Environmental Consequences**

12  
13 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be minor  
14 (low) long-term impacts to the airspace from the addition of a BCT, and an expected  
15 even less degree of impact from the CS/CSS or Full Sustainment BDE as these  
16 activities are not associate with the UAV. Future new systems potentially associated  
17 with BCTs or modifications to existing systems could also affect airspace use, resulting  
18 in greater demand for exclusive military use of the resource (US Army Corps of  
19 Engineers, 2002). Construction or modification of airfields and training and maneuver  
20 areas could result in changes to existing airspace use.

#### 21 22 **4.13.4 Cultural Resources**

##### 23 **4.13.4.1 Affected Environment**

24  
25 The affected environment for cultural resources is the footprint of Fort Riley. Fort Riley  
26 possesses both historic and archaeological resources.

##### 27 28 **4.13.4.2 Environmental Consequences**

29  
30 **CS/CSS, Full Sustainment BDE, IBCT.** Growth of approximately 1,000 to 3,500  
31 Soldiers and their associated mission is anticipated to have a minor (low) short and long  
32 term impact on Fort Riley. Due to the size of the installation and the low vehicle mobility  
33 requirements of the CS/CSS and Sustainment BDE, and the dismounted training  
34 associated with the IBCT, surface archaeological sites are not expected to be  
35 significantly disturbed. The number of Soldiers should not affect historic buildings.

36  
37 **HBCT, Multiple BCTs.** There is an expected moderate (medium) long term effect to  
38 cultural resources relating to the 3,800 to 7,000 additional Soldiers. The higher  
39 personnel count increases the opportunity for archaeological resources to be disturbed  
40 by inadvertent means. The heavy tracked vehicles of a HBCT could impact previously  
41 undiscovered archaeological resources. Historic buildings could be modified to  
42 accommodate personnel. The increased foot traffic could lead to slightly higher impacts  
43 to historic and archaeological resources.

#### 44 45 **4.13.5 Noise**

##### 46 **4.13.5.1 Affected Environment**

1  
2 The noise environment at Fort Riley results from operations common to many active  
3 Army installations. Those operations include small arms and heavy weapons firing,  
4 demolitions, and aircraft operations. Excepting small arms firing, those operations  
5 present the most challenging noise concerns because noise from those sources is often  
6 not limited to within the installation boundaries and has the potential to annoy  
7 individuals in the surrounding communities. Other sources of noise from installation  
8 operations and activities include maintenance and shop operations, ground traffic,  
9 construction, and similar sources. However, this noise is generally confined to the  
10 installation and is comparable to sounds that occur in communities adjacent to the  
11 installation.

12  
13 The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)  
14 conducted a study (Operational Noise Consultation 52-ON-046Q-06, Aircraft, Small and  
15 Large Caliber Weapons Noise Contours for Fort Riley, KS, January 2006), “to provide  
16 Fort Riley with aviation, small and large caliber weapons noise contours in relation to  
17 realignment” under the then proposed BRAC actions. That study used two noise  
18 simulations programs to assess noise resulting from large caliber (20mm and larger)  
19 and small caliber (50 caliber and smaller) weapons firing. A third program was used to  
20 determine adequate noise buffer zones to reduce potential annoyance from aircraft  
21 operations.

#### 22 23 **4.13.5.2 Environmental Consequences**

24  
25 When evaluating the actions proposed in this PEIS, the primary concern is the potential  
26 to change the frequency and duration of noise that is experienced in the local  
27 communities. The alternatives identified below would not necessarily introduce new  
28 weapons systems or aircraft, rather the frequency of training would increase because  
29 more personnel would use training ranges more often. Community annoyance could  
30 increase and Fort Riley could receive more noise complaints.

31  
32 The anticipated environmental noise impacts for each of the proposed alternatives at  
33 Fort Riley follow:

34  
35 **CS/CSS.** Implementation of the CS/CSS alternative would generate minor (low) short-  
36 term and long-term impacts to the noise environment. Troop strength would increase  
37 by approximately 1,000 Soldiers, and the number of vehicles and equipment to support  
38 the additional Soldiers would increase. The CS/CSS vehicles are relatively light and  
39 although they have off-road capability, they would often maneuver on hardened  
40 surfaces or trails. The installation anticipates minimal off-post noise impacts from  
41 tactical vehicle operations. Weapons of the CS/CSS are small caliber and the number  
42 of personnel that would need to train on those weapons would be relatively small, and  
43 thus, would cause minimal off-post noise impacts.

44  
45 The noise associated with an increase of 1,000 Soldiers and their accompanying  
46 equipment would be relatively minor compared to existing operations and training at

1 Fort Riley. Weapons and vehicle noise would most likely be contained within the  
2 installation boundary and would have no additional perceived impact to the local  
3 community.

4  
5 **Full Sustainment BDE.** Implementation of the Full Sustainment BDE alternative would  
6 generate minor (low) short-term and long-term impacts to the noise environment. Under  
7 the Full Sustainment BDE alternative, troop strength would increase by approximately  
8 3,000 to 3,500 Soldiers, and would include rotary-winged aircraft and live-fire training  
9 with M1 Tanks (120mm, 7.62mm sub-machine gun, .50 caliber machine gun) and  
10 Bradley Fighting Vehicles (BFVs) (25mm cannon, TOW II missiles, and the 7.62mm  
11 sub-machine gun). Noise levels associated with aircraft and armored live-fire training  
12 would not exceed noise levels projected in the USACHPPM, 2006 report and would also  
13 be represented by the noise contours found in the Environmental Assessment for the  
14 Construction of a New Automated Multi-Purpose Training Range and Upgrade of an  
15 Existing Multi-Purpose Range Complex, Fort Riley, KS, 2003. The artillery noise  
16 environment under this alternative would be similar to the noise environment found on  
17 Fort Riley in 2005 because the heavy artillery of the proposed Full Sustainment BDE  
18 would be similar to that found on the installation during that time. However, the  
19 frequency and duration of events required to train the additional military personnel could  
20 result in more complaints from the surrounding communities. Aircraft operations in  
21 2005 were few in number, but present day aircraft operations are representative of  
22 training to support a Full Sustainment BDE.

23  
24 **IBCT.** Implementation of the IBCT alternative would generate minor (low) short-term  
25 and long-term impacts to the noise environment. Under the IBCT alternative, troop  
26 strength would increase by approximately 3,500 Soldiers, and would field fewer vehicles  
27 than a HBCT. An IBCT fields mostly wheeled vehicles and howitzers. The artillery  
28 required to support a single IBCT would impact the noise environment less than the  
29 artillery required to support a Full Sustainment BDE or HBCT.

30  
31 **HBCT.** Implementation of the HBCT alternative would generate moderate (medium)  
32 short-term and long-term impacts to the noise environment. Under the HBCT  
33 alternative, troop strength would increase by approximately 3,800 to 4,000 Soldiers  
34 training with wheeled and track vehicles including M1 Tanks, BVFs, and howitzers. This  
35 alternative would represent a noise impact similar to that analyzed in the Environmental  
36 Assessment for the Construction of a New Automated Multi-Purpose Training Range  
37 and Upgrade of an Existing Multi-Purpose Range Complex, Fort Riley, KS, 2003. The  
38 proposed HBCT would field heavy artillery and would use the Multi-Purpose Range  
39 Complex (MPRC) for live-fire training. The proposed increase in troop strength would  
40 increase the potential for noise complaints because more personnel would use the  
41 MPRC more often. As a result, citizens in the surrounding communities would  
42 experience higher frequencies of blast noise and could perceive the noise environment  
43 to be louder.

44  
45 **Multiple BCTs.** Implementation of the multiple BCT alternatives would generate  
46 moderate (medium) short-term and long-term impacts to the noise environment. Under

1 the multiple BCT alternatives, troop strength would increase by approximately 7,000  
2 Soldiers. The proposed multiple BCTs would field vehicles and equipment similar to  
3 those previously used at Fort Riley, and thus, the noise environment would be reflective  
4 of past military training at the installation. However, training requirements for the  
5 proposed multiple BCTs that would increase the number of troops and equipment at  
6 Fort Riley would result in greater throughput at installation ranges. As the frequency of  
7 blast noise heard by citizens in the surrounding communities would increase, some  
8 citizens would likely find the noise more annoying and could file noise complaints more  
9 often. Fort Riley would benefit from a noise study for the multiple BCT alternatives to  
10 evaluate the potential noise environment and its affect the surrounding communities.  
11 Fort Riley currently has rotary-winged aircraft using flight corridors and routes along the  
12 installation boundary. An increase in the number of flights, which would likely occur  
13 under this alternative, could annoy citizens in the surrounding communities when  
14 aircraft would enter or exit Fort Riley airspace.

15  
16 Noise related to the proposed actions listed above has the potential to affect livestock  
17 and wildlife. The land use for a large portion of the area surrounding Fort Riley is rural  
18 with agricultural and livestock production. The installation provides habitat for migratory  
19 birds and a broad range of other wildlife, including threatened and endangered species.  
20 Fort Riley would anticipate short-term impact to livestock and wildlife as training under  
21 implementation of any one of the proposed actions would increase the frequency of  
22 noise events. However, animals often habituate to noise.

23  
24 Aircraft flyover is known to startle livestock and wildlife. The Combat Aviation Brigade  
25 arrived on Fort Riley in 2006 and began training exercises with several types of rotary-  
26 winged aircraft. Implementation of any one of the proposed actions would involve the  
27 same type and number of aircraft currently stationed at Fort Riley.

28  
29 Fort Riley does not anticipate that blast or aircraft noise associated with any of the  
30 proposed actions would result in a major impact to livestock or wildlife in the area.

### 31 **4.13.6 Soil Erosion**

#### 32 **4.13.6.1 Affected Environment**

33  
34  
35 Fort Riley is located in the Central Lowlands province with elevations at approximately  
36 1,000 feet. There are 3 types of topographical areas: high upland tall grass prairies,  
37 alluvial bottomland floodplains, and broken and hilly transition zones.

38  
39 Fort Riley is part of the Great Plains Winter Wheat and rangeland Soil Resource  
40 Region. Most soils are friable, silt loam up to 12 inches thick, overlying nearly  
41 impervious clays .

#### 42 **4.13.6.2 Environmental Consequences**

43  
44  
45 **CS/CSS, Full Sustainment BDE, IBCT.** There is an expected minor (low) impact from  
46 the wheeled vehicles in these units. Though off-road maneuver is not expected from

1 the CS/CSS or Sustainment BDE, the dismounted training associated with the IBCT  
2 may have only minor impacts to soil in localized areas or already disturbed ranges.

3  
4 **HBCT, Multiple BCTs.** This level of growth is anticipated to have a moderate  
5 (medium) impact on roads and off-road areas due to the number, weight, and mobility  
6 characteristics of tracked vehicles or other heavy vehicles. The training areas will likely  
7 show the impact from the vehicle maneuvers, turns and traction. These areas could  
8 then be prone to erosion.

## 9 10 **4.13.7 Vegetation and Wildlife/Threatened and Endangered Species**

### 11 **4.13.7.1 Affected Environment**

12  
13 Inventories have documented the presence of four Federally-listed and seven State-  
14 listed species, and 21 rare species on Fort Riley. Eighteen other listed or rare species  
15 have never been observed but could possibly occur on Fort Riley. (Appendix T of this  
16 document provides a comprehensive list of listed species.)

### 17 18 **4.13.7.2 Environmental Consequences**

19  
20 **CS/CSS, Full Sustainment BDE, IBCT, and HBCT.** Fort Riley expects a minor (low)  
21 impact to vegetation and to the listed species found onsite. Listed species and other  
22 special status species recorded on the installation will continue to be managed in  
23 accordance with the installation's INRMP and ESMP, terms and conditions identified  
24 within biological opinion(s) issued by the USFWS and any conservation measures  
25 identified in ESA, Section 7 consultation documents.

26  
27 **Multiple BCTs.** It is anticipated that implementation of this level of Soldier strength may  
28 have a moderate (medium) impact on the four listed species. The threatened and  
29 endangered species recorded on the installation will continue to be managed in  
30 accordance with the installation's INRMP and ESMP, terms and conditions identified  
31 within biological opinion(s) issued by the USFWS and any conservation measures  
32 identified in ESA, Section 7 consultation documents. However, since implementation of  
33 this action may affect any of the recorded listed species, the installation will be required  
34 to consult with the USFWS either informally or formally, depending on whether take is  
35 anticipated to occur. Fort Riley was exempted from critical habitat for the Topeka shiner  
36 because their INRMP provides a benefit to the species (ESA Section 4(a)(3)(B)).  
37 Activities associated with this action may also affect the installation's ability to  
38 implement the management and conservation measures identified in the installation's  
39 INRMP that were/are essential for their exclusion from Topeka shiner critical habitat.  
40 This could affect the installation's ability to be excluded from critical habitat for this  
41 species if the USFWS proposes to redesignate critical habitat for this species in the  
42 future.

## 43 44 **4.13.8 Wetlands**

### 45 **4.13.8.1 Affected Environment**

1 Fort Riley contains approximately 1,532 acres of wetlands (Army Environmental  
2 Database-Environmental Quality, (n.d)). The wetlands on the installation are considered  
3 a rarity across the Great Plains. A wetland complex of well over 100 acres has been  
4 created by the installation in partnership with Ducks Unlimited. These wetlands are  
5 seasonally flooded. Impacts on wetlands by the installation seldom occur. (INRMP, Fort  
6 Riley, 2001)

#### 7 8 **4.13.8.2 Environmental Consequences**

9  
10 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be a minor  
11 (low) impact on the installation wetlands as a result of the restationing of 1,000 to 7,000  
12 Soldiers to Fort Riley. Training activities will be relegated to established training areas.  
13 Efforts will be made to avoid any impacts on wetlands by using the installations wetland  
14 planning level survey's/ GIS mapping. The potential exists for military training to impact  
15 wetlands, but those impacts would not be considered deleterious or permanent.  
16 Training would occur only rarely in wetlands as those on Fort Riley are not conducive to  
17 training.

#### 18 19 **4.13.9 Water Resources**

##### 20 **4.13.9.1 Affected Environment**

#### 21 22 **Surface Water**

23 Nearly 145 miles of rivers and streams, consisting of 14 miles of rivers and 131 miles of  
24 streams, are present on Fort Riley. Streams drain to Wildcat Creek, Republican River or  
25 Kansas River. Surface water bodies on Fort Riley are designated for non-contact  
26 recreation, expected aquatic life, consumptive recreation, domestic water supply,,  
27 industrial water supply, and groundwater discharge.

#### 28 29 **Water Supply**

30 Groundwater is the primary raw water source at Fort Riley. Fort Riley has two well  
31 fields containing eight wells ranging in depth from about 60 to 80 feet. Individual well  
32 capacities range from 500 to 1,250 gpm. The total pumping capacity from these wells is  
33 7,500 gpm or 10.8 MGD. Groundwater is withdrawn from aquifers that are recharged  
34 by the Republican and Kansas rivers. The existing water supply could support an  
35 effective population of more than 63,000 persons, significantly greater than the  
36 installation's current population of about 25,000.

37  
38 Fort Riley has a water treatment facility with a design capacity of up to 10 MGD. The  
39 existing water treatment facilities could support a population of nearly 59,000 persons.  
40 The total treated water storage capacity is 7.25 million gallons. Fort Riley currently  
41 stores about 5.5 million gallons of potable water.

#### 42 43 **Wastewater**

44 Fort Riley is currently served by an innovative wastewater treatment plant (WWTP)  
45 based on oxidation ditch technology. The WWTP, brought on line in 2005, replaced  
46 three separate trickling filter wastewater treatments plants that formerly served the three



1 major camps within the Installation. The WWTP consists of oxidation ditches, ultraviolet  
2 (UV) disinfection, solids stabilization using aerobic digesters and post aeration. The  
3 plant utilizes gravity belt thickening of waste activated sludge and belt filter press  
4 dewatering. The design flow is about 2.35 million gallons per day (MGD), a maximum  
5 monthly flow of 2.8 MGD, a maximum daily flow of 3.2 MGD, and a peak instantaneous  
6 flow of 7.4 MGD.  
7

8 Domestic wastewater is collected from sources around the post and conveyed through  
9 the gravity collection system to a series of pump stations that pump the wastewater to  
10 the WWTP located at the site of the former Custer Hill Wastewater Treatment Plant.  
11 The WWTP influent consists of domestic wastewater, vehicle maintenance area  
12 wastewater, silver recovery effluent from spent photo fixer, medical facility wastewater,  
13 floor-scrubbers wash water, cooling towers heat exchanger coil cleaning wastewater,  
14 oily aircraft washwater, purge water from monitoring wells and laundry wastewater.  
15

16 To accommodate the BRAC build-up at Fort Riley, the installation plans to construct an  
17 additional WWTP adjacent to Camp Funston. That proposed WWTP would have a 3  
18 MGD capacity.  
19

## 20 **Stormwater**

21 Stormwater normally goes through the storm drain and is released directly into the  
22 environment. However, a few storm drains in the industrial area on Custer Hill do enter  
23 the industrial wastewater treatment system where the water is treated before being  
24 released into the environment. Fort Riley has a Stormwater Pollution Prevention Plan  
25 (SWP3) and SSSWP2. Fort Riley obtains stormwater permits for construction projects  
26 covering one or more acres.  
27

### 28 **4.13.9.2 Environmental Consequences**

29  
30 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** An addition of a 1,000  
31 to 7,000 Soldiers is anticipated to have a minor (low) impact on Fort Riley water  
32 resources. Any new construction/land disturbance over 0.75 acres will require a  
33 stormwater construction permit. Domestic and industrial wastewaters generated from  
34 HBCT and multiple BCT activities may have a short-term minor impact on Fort Riley's  
35 wastewater system. Although water demand would increase, Fort Riley has sufficient  
36 potable water supply, treatment, and storage capacity to support the increase in  
37 demand.  
38

## 39 **4.13.10 Facilities**

### 40 **4.13.10.1 Affected Environment**

41  
42 The Fort Riley Cantonment Area includes land uses such housing, community services,  
43 recreation, administrative support, industrial, and transition areas. Community services  
44 include commercial services such as the Post Exchanges, eating establishments, and  
45 theaters, and community facilities such as schools and churches. Community services  
46 are scattered around the cantonment area. Recreation and buffer areas generally

1 separate the family housing areas and community services from the remainder of the  
2 cantonment area. The recreation and buffer areas include ball fields and other  
3 recreational facilities and open space.

4  
5 On-post land uses at Fort Riley are functional in nature, have a common purpose, and  
6 denote major land uses not minor adjuncts to the primary use. For example, although  
7 an industrial land use area may also contain administration, medical, community  
8 facilities, and supply and storage areas, the main use is industrial. Cantonment-type  
9 Training/Ranges land use functions include all types of academic facilities, indoor firing  
10 ranges, Army Reserve and Army National Guard centers, range control towers,  
11 ammunition breakdown and distribution sheds, target storage and maintenance  
12 buildings, range control buildings, simulator buildings, training courses, and outdoor  
13 facilities (US Army, April 2004).

14  
15 The changes to Fort Riley resulting from BRAC and Integrated Global Presence and  
16 Basing Strategies (IGPBS) have affected the installation and surrounding community.  
17 Although the installation could support an additional 1,000 Soldiers, it is unknown how  
18 larger increases would affect Fort Riley. A large challenge to implementing the  
19 proposed action is scheduling of required events prior to fielding. For example, the  
20 available labor pool and local contractors are being used to their capacity to support  
21 existing construction activities on Fort Riley.

#### 22 23 **4.13.10.2 Environmental Consequences**

24  
25 The impacts of the Proposed Action and other alternatives on utilities and  
26 communications are primarily related to projected increases in population on and off  
27 post. These were analyzed by estimating per unit consumption on generation rates  
28 using the most recently available data, and then estimating how total consumption or  
29 generation rates would change with the changed population. The increased  
30 consumption and generation were then compared with the ability of existing  
31 infrastructure to handle those changes (Abel, 2007).

32  
33 **CS/CSS.** There will be moderate (medium) impacts to facilities. It is anticipated that  
34 the activities associated with an increase of 1,000 Soldiers would increase facilities  
35 usage within the cantonment and training and range areas. Activities within the training  
36 and range areas would be limited to existing firing ranges and roadways. Fort Riley is  
37 expected to be able to accommodate a CS/CSS with good planning.

38  
39 **Full Sustainment BDE.** There will be significant (high) short- and long-term impacts to  
40 facilities. Increased Soldier strength of 3,000 to 3,500 would be reflected through  
41 increased usage and construction throughout the cantonment areas. Increased  
42 activities within the training and range areas would be expected to cause long-term  
43 impacts due to increased human presence, as well as construction and training  
44 activities within the range and training areas. BRAC and IGPBS actions make  
45 supporting a Full Sustainment BDE a challenge to Fort Riley. The installation real

1 property management plan (RPMP) would require a review to allow for implementation  
2 of the ACP. A study using SIRRA would also be beneficial.

3  
4 **IBCT.** Fielding an IBCT would also result in significant (high) short- and long-term  
5 impacts to facilities. The addition of an IBCT would potentially increase usage of  
6 cantonment assets beyond what is projected for a Sustainment BDE; however, a review  
7 of the installation RPMP along with other facilities and infrastructure studies may be  
8 able to accommodate the proposed action. Since Fort Riley is already undergoing both  
9 BRAC and IGPBS actions, this could require an increased level of coordination with  
10 state and federal regulatory agencies.

11  
12 **HBCT.** Similar to the IBCT, there will be significant (high) short- and long-term impacts  
13 to facilities. The addition of an HBCT would likely result in degradation of facilities  
14 within the cantonment. The establishment of an HBCT at Fort Riley may exceed the  
15 capacity of the installation RPMP to accommodate the proposed action since the  
16 installation is undergoing BRAC and IGPBS actions already. Constraints on the local  
17 labor pool may delay new construction. If identified by the installation, additional  
18 coordination and consultation may be necessary for activities associated with an HBCT.  
19 An excess aggregate demand on facilities and infrastructure required by both scheduled  
20 incoming units and a HBCT could lead to an overall degradation of facilities quality.

21  
22 **Multiple BCTs.** The establishment of multiple BCTs would also result in significant  
23 (high) short- and long-term environmental impacts to facilities. There is a high  
24 probability that multiple BCTs would increase congestion beyond the carrying capacity  
25 of the cantonment infrastructure. The lack of available building space would contribute  
26 to this. It is highly unlikely that the installation could accommodate this iteration of  
27 proposed action as well as current BRAC and IGPBS actions. The level of construction  
28 required to support scheduled incoming units and multiple BCTs is resource intensive  
29 and potentially beyond the ability of Fort Riley to sustain. The excess aggregate  
30 demand on cantonment facilities and infrastructure required by multiple BCTs may lead  
31 to system degradation or non-compliant regulatory issues.

### 32 33 **4.13.11 Energy Demand/Generation** 34 **4.13.11.1 Affected Environment** 35

36 **Electrical System.** A private electric utility company provides primary electrical power  
37 to Fort Riley. All other power distribution lines, transformers, and associated equipment  
38 are owned, operated, and maintained by the installation. The electrical transmission and  
39 distribution system consists of both overhead and underground lines providing adequate  
40 coverage to areas on the installation. Some remote training areas on the installation  
41 are supplied electric power through independent rural electrical companies.

42  
43 **Natural Gas and Propane.** Natural gas is supplied to Fort Riley via two parallel  
44 pipelines measuring 8 inches and 10 inches in diameter. The Fort Riley distribution  
45 system for natural gas consists of pipe sizes ranging from 2 to 12 inches in diameter  
46 and extends from the gas service main to all required locations within the cantonment

1 areas. The overall condition of the distribution system is good and is adequate for  
2 existing demands. Propane is used to heat remote locations such as training areas at  
3 Fort Riley, where very small amounts of liquid propane gas are used.

#### 4 5 **4.13.11.2 Environmental Consequences**

6  
7 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Growth at Fort Riley  
8 (of any of these scenarios) is likely to have a minor (low) impact to energy demand and  
9 generation. The existing energy infrastructure has sufficient excess capacity and  
10 scalability to readily absorb this level of growth. In order to accommodate any new  
11 mission activity, an initial capital investment will be required to extend the existing  
12 energy distribution infrastructure to meet the new demand. While multiple BCTs may  
13 require significant construction and expansion of the existing energy infrastructure, the  
14 capacity and scalability of the electrical and natural gas distribution systems are not  
15 likely to be challenged.

#### 16 17 **4.13.12 Land Use Conflicts/Compatibility**

##### 18 **4.13.12.1 Affected Environment**

19  
20 **Installation-Wide Land Use.** Land use on the installation has been categorized into  
21 twelve general types—training ranges, open space, family housing, outdoor recreation,  
22 maintenance, airfield, supply storage, community facility, industrial, unaccompanied  
23 personnel housing, administration, and medical. Training ranges are the predominant  
24 land use at Fort Riley, with almost 90,000 acres, or approximately 90 percent of the  
25 installation reserved for training and range activities. Training areas encompass much of  
26 the cantonment area, and extend throughout the entire north portion of the installation.  
27 Training areas within the cantonment area are used for instruction and academics as  
28 well as indoor firing ranges, and necessary ancillary facilities associated with training.  
29 Training areas outside the cantonment area are typically firing ranges and impact areas.  
30 Open space is unoccupied land that provides transition areas between land uses, as  
31 well as a buffer between the installation and areas off-post. These areas are found  
32 throughout the installation. Family housing areas are areas with residential units  
33 occupied by enlisted and officer Families. Outdoor recreation areas provide outdoor  
34 athletic and recreation facilities for a variety of interests, including natural resources and  
35 cultural values. Maintenance areas include facilities and shops that are for the  
36 maintenance and repair of Army equipment, and are located throughout the cantonment  
37 area. Airfield includes the areas necessary for the operation and maintenance of  
38 Marshall Army Airfield (MAAF), and is located only in the southeastern portion of the  
39 installation. Supply/storage areas are designed for bulk-type storage of all classes of  
40 Army supplies, and are located throughout the cantonment area. Community facilities  
41 include commercial services such as the Post Exchanges (PXs), eating establishments,  
42 and theaters, and community facilities such as schools and churches. Community  
43 facilities are located in the cantonment area, and are typically near to housing areas.  
44 Industrial areas include facilities for manufacturing Army equipment and materials, utility  
45 plants and waste disposal facilities. These areas are located within the cantonment  
46 area, and are not compatible with housing areas. Unaccompanied Personnel Housing is

1 located in several areas within the cantonment area and provides enlisted and officer  
2 barracks as well as associated administrative and community facilities for these  
3 personnel. Administration areas are typically headquarters or office buildings to  
4 accommodate offices and technical activities. These areas are located in cantonment  
5 area, and some areas are included within the RCI footprint. Medical areas include areas  
6 for inpatient and outpatient medical services, including the Irwin Army Community  
7 Hospital located northeast of the Main Post Housing Area.

8  
9 The cantonment area includes land uses such housing, community services, recreation,  
10 administrative support, industrial, and transition areas. Community services include  
11 commercial services such as the Post Exchanges (PXs), eating establishments, and  
12 theaters, and community facilities such as schools and churches. Community services  
13 are scattered around the cantonment area. Recreation and buffer areas generally  
14 separate the family housing areas and community services from the remainder of the  
15 cantonment area. The recreation and buffer areas include ball fields and other  
16 recreational facilities and open space. (Fort Riley, 2005)

#### 17 18 **4.13.12.2 Environmental Consequences**

19  
20 **CS/CSS, Full Sustainment BDE.** There is an anticipated minor (low) short- and long-  
21 term environmental impact on installation land use due to the presence of an additional  
22 CS/CSS or Sustainment BDE. The installation has sufficient land available to either  
23 build the facilities, sufficient vacant space in existing buildings, or a combination thereof  
24 to meet the unit's mission requirements. Additionally, the land, or existing facilities, are  
25 located such that surrounding facilities are compatible with the additional CS/CSS unit.  
26 The facilities required for a CS/CSS will be located within a single contiguous land unit.

27  
28 **IBCT, HBCT.** There will be moderate short and long-term environmental impacts on  
29 installation land use due to the presence of an additional 3,500 to 3,800 Soldiers and  
30 the associated training missions. The installation may not have sufficient land available  
31 to either build the facilities needed for this unit, or may not have sufficient vacant space  
32 in existing buildings suitable for the unit's mission. Building new facilities may require  
33 the installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
34 compatible with land uses associated with tactical units. Existing land and/or facilities  
35 may not be contiguous and located such that tactical vehicles would need to travel  
36 extensively within the cantonment area to reach training ranges.

37  
38 **Multiple BCTs.** There is an expected significant (high) short- and long-term  
39 environmental impact on installation land use due to the presence of an additional BCT  
40 or multiple BCTs assigned to the installation. The installation will not have enough  
41 existing facilities, located in areas with comparable land uses to accommodate multiple  
42 BCTs. New or existing facilities would not be contiguous, and distant from Soldier  
43 support facilities and training and maneuver ranges. Building new facilities for multiple  
44 BCTs could require construction on, or adjacent to, existing training facilities, such that  
45 those training facilities become unusable. This, in turn, would cause a measurable  
46 decrease of the installation's capacity to train Soldiers. Building new facilities could also

1 require construction on, or immediately adjacent to, environmentally sensitive areas  
2 such as wetlands, requiring extensive, and/or expensive mitigation actions.

### 4 **4.13.13 Hazardous Materials/Hazardous Waste**

#### 5 **4.13.13.1 Affected Environment**

6  
7 The affected environment for these proposed actions include the use, storage,  
8 transport, and disposal of hazardous materials and wastes at Fort Riley. This includes  
9 hazardous materials and wastes from USTs and aboveground storage tanks;  
10 pesticides; LBP; asbestos; PCBs; radon; and UXO. Each installation operates under a  
11 Hazardous Waste Management Program that manages hazardous waste to promote  
12 the protection of public health and the environment. Army policy is to substitute  
13 nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance  
14 with local, state, and federal hazardous waste requirements; and ensure the use of  
15 waste management practices that comply with all applicable requirements pertaining to  
16 generation, treatment, storage, disposal, and transportation of hazardous wastes. The  
17 program reduces the need for corrective action through controlled management of solid  
18 and hazardous waste. (US Army Corps of Engineers, February, 2002)

#### 19 20 **4.13.13.2 Environmental Consequences**

21  
22 **CS/CSS.** There will be minor (low) long-term impacts from hazardous materials and  
23 waste. It is anticipated that Fort Riley would minimally increase its storage and use of  
24 hazardous chemicals during training exercises and installation maintenance with an  
25 increase of 1,000 Soldiers. Waste collection, storage, and disposal processes would  
26 remain mostly unchanged, and current waste management programs would continue.

27  
28 **Full Sustainment BDE.** Minor (low) short- and long-term impacts from hazardous  
29 materials and waste would be expected with an increased Soldier strength of 3,000 to  
30 3,500. An increase in the use of hazardous chemicals may be seen in the cantonment  
31 and training and range areas. Demolition, renovation, and construction would most  
32 likely result in an increase in the generation of asbestos, lead-contaminated wastes, and  
33 other hazardous waste, as well as an increase in the use of pesticides due to the  
34 addition of family housing and other facilities. The increase in these wastes would  
35 result in no adverse impacts because the wastes would be managed in accordance with  
36 current standards and regulations. The hazardous waste disposal facilities would be  
37 adequate to manage the increase in hazardous waste. Waste management programs  
38 may be updated as needed.

39  
40 **IBCT.** There will be minor (low) short- and long-term impacts from hazardous materials  
41 and waste associated with the addition of an IBCT. The volume and type of hazardous  
42 waste would be the same as described under the Full Sustainment BDE, with similar  
43 environmental impacts as well.

44  
45 **HBCT.** As with the IBCT, there will be minor (low) short- and long-term impacts from  
46 hazardous materials and wastes. The volume of hazardous waste would be slightly

1 higher than the IBCT, but existing procedures would be adequate to ensure that the  
2 increases do not adversely affect the environment. Waste management plans would be  
3 updated as needed to incorporate mission activities associated with the new units  
4 stationed at Fort Riley and expanded training activities.

5  
6 **Multiple BCTs.** The establishment of multiple BCTs at Fort Riley would also result in  
7 minor (low) short- and long-term impacts from hazardous materials and waste.  
8 Generation and management of hazardous materials and waste, pesticides, petroleum  
9 storage tanks, ordnance and explosives would all be higher than with the other actions,  
10 but would continue to be managed in accordance with current procedures and  
11 regulations. Waste management plans would be updated as needed to incorporate  
12 mission activities associated with the new units stationed at Fort Riley and expanded  
13 training activities.

#### 14 15 **4.13.14 Traffic and Transportation** 16 **4.13.14.1 Affected Environment**

17  
18 Fort Riley is located in northeastern Kansas, approximately 55 miles west of Topeka,  
19 and 115 miles west of Kansas City. The region of influence (ROI) of the affected  
20 environment for traffic and transportation aspects of the proposed action include Fort  
21 Riley, and several neighboring counties, to include Riley Geary and Clay Counties, and  
22 the communities therein, to include the City of Manhattan, and the towns of Junction city  
23 and Ogden. Major road routes in the region include I-70, an east-west interstate  
24 highway that passes less than 5 miles to the south of the cantonment area. Other major  
25 routes in the area include US Route 77, and Kansas State Routes 18 and 57.

#### 26 27 **4.13.14.2 Environmental Consequences**

28  
29 **CS/CSS.** There will be minor (low) short and long-term impacts on traffic and  
30 transportation systems on the installation due to the presence of an additional 1,000  
31 Soldiers and their family members assigned to the installation. Spread across the ROI,  
32 this population will have de minimis impact on the overall traffic congestion in the  
33 neighboring communities. This additional population may contribute nominally to traffic  
34 volume on the installation, and is not expected to reduce the level of service (LOS) on  
35 the installation's road network. There may be a slight increase in traffic volume during  
36 peak morning and evening hours, but it would not affect either level of service or pose  
37 an increased risk to the safety of pedestrians and bicyclists.

38  
39 **Full Sustainment BDE.** There will be moderate (medium) short- and long-term impacts  
40 on traffic and transportation systems on the installation due to the presence of an  
41 additional 3,000 to 3,500 Soldiers and their family members assigned to the installation.  
42 The increase in off-post traffic would have a minimal impact on traffic in the community  
43 overall and could contribute to a decrease in the LOS in the road network leading to the  
44 installation, particularly during peak morning and afternoon travel periods. This level of  
45 increase in population could also have a moderate impact on the traffic volume on the  
46 installation, and could cause a minor decrease in LOS on some of the installation's

1 arterial routes. The increased traffic volume in both the neighboring communities and  
2 on the installation could pose a moderate increased level of risk to the safety of  
3 pedestrians and bicyclists.

4  
5 **IBCT.** There will be moderate (medium) short- and long-term impacts on traffic and  
6 transportation systems on the installation due to the presence of an additional 3,500  
7 Soldiers and their family members. Both on the installation and in the local  
8 communities, the increase in traffic congestion and accompanying decrease in LOS  
9 would be slightly greater than that caused by the presence of the Full Sustainment BDE.  
10 Similarly, the safety risk to pedestrians and bicyclists would be slightly higher than that  
11 posed by the presence of a Full Sustainment BDE.

12  
13 **HBCT.** There will be moderate (medium) short- and long-term impacts on traffic and  
14 transportation systems on the installation due to the presence of an additional 3,800 to  
15 4,000 Soldiers and their family members. Both on the installation and in the local  
16 communities, the increase in traffic congestion and accompanying decrease in LOS  
17 would be slightly greater than that caused by the presence of an IBCT. Similarly, the  
18 safety risk to pedestrians and bicyclists would be slightly higher than that posed by the  
19 presence of an IBCT.

20  
21 **Multiple BCTs.** There would be significant (high) short- and long-term impacts on  
22 traffic and transportation systems on the installation due to the presence of an additional  
23 7,000 Soldiers, or more, and their family members. The effect on the traffic congestion  
24 in the local communities from this increased population level would be noticeable in the  
25 community at large and would likely cause a decrease in LOS in the community's road  
26 network, and would likely cause a significant decrease in the LOS on the road network  
27 leading to the installation. This increase in both Soldier and family-member population  
28 would cause a major impact on the LOS of the installation's road network and pose a  
29 significantly increased risk to the safety of pedestrians and bicyclists.

#### 30 31 **4.13.15 Cumulative Effects**

32  
33 Fort Riley does not anticipate cumulative effects from ongoing or future projects at the  
34 installation. Fort Riley is remotely located, and has identified no minor or major projects  
35 outside the installation boundary. The impacts from construction and training have  
36 been programmatically analyzed herein. If Fort Riley were to be significantly affected by  
37 Army growth, gaining at least one BCT, site-specific analysis would be required to  
38 determine more precise local impacts.

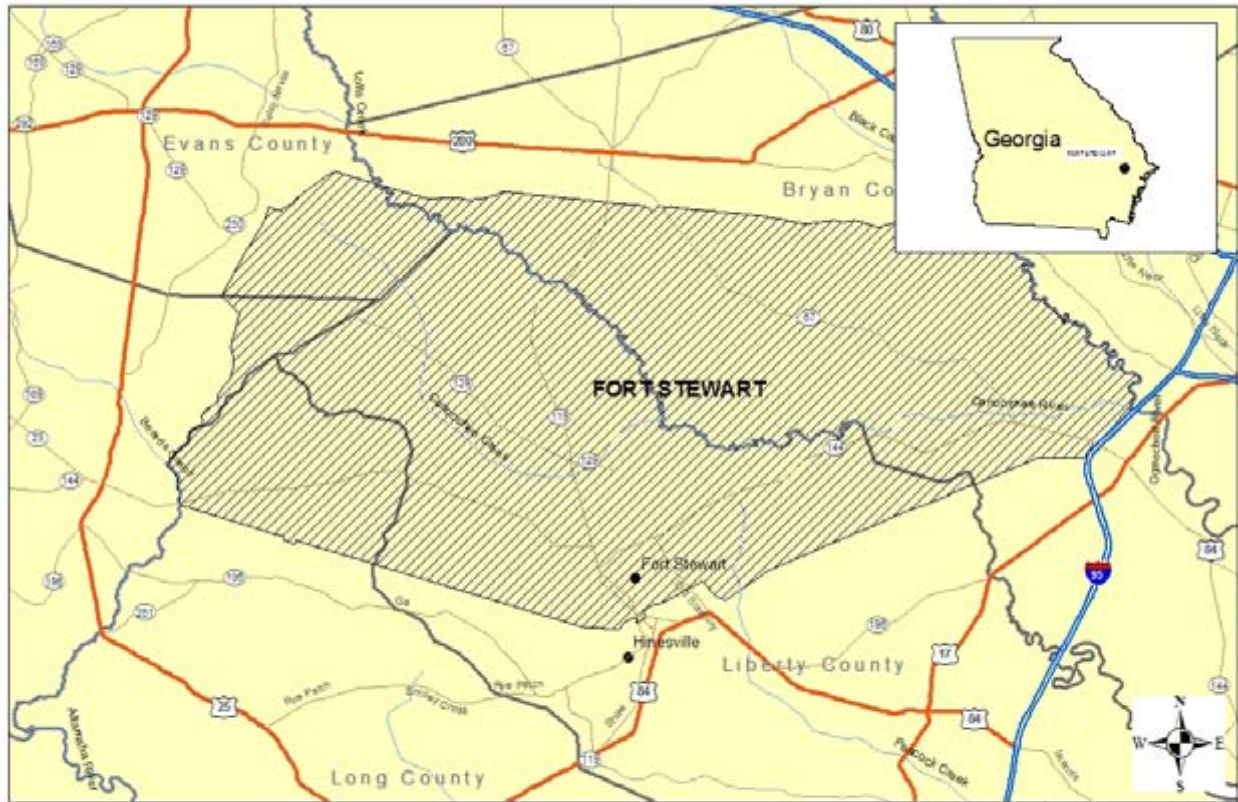
### 39 40 41 **4.14 FORT STEWART, GEORGIA**

#### 42 **4.14.1 Introduction**

43  
44 Fort Stewart, located in southeastern Georgia, contains approximately 280,000 acres  
45 and has long supported armored/mechanized unit training and dismounted infantry unit  
46 training (Figure 4.14-1). Hunter Army Airfield (AAF) is a sub-installation of Fort Stewart



1 located 15 miles to the northeast of the installation boundary. However, any BCT  
2 stationing actions described would take place within Fort Stewart proper; therefore,  
3 potential impacts to Hunter AAF are not discussed.  
4



## Fort Stewart- Installation Location

- Legend**
- Fort Stewart
  - Georgia Cities
  - Georgia Counties

5  
6 **Figure 4.14-1 Fort Stewart**  
7

8 Major units of the 3<sup>rd</sup> ID, which is stationed at Fort Stewart include three HBCTs and a  
9 Full Sustainment BDE, and supporting CS/CSS units. A fourth HBCT is stationed at  
10 Fort Benning and conducts major training missions at Fort Stewart. In addition, the 48<sup>th</sup>  
11 BCT of the Georgia Army National Guard is a HBCT in transition to an IBCT and  
12 conducts annual training and assorted unit training at Fort Stewart. Current METL tasks  
13 trained at Fort Stewart are expected to remain the same with the addition of similar type  
14 of units. Also of note is that the METL tasks of an IBCT are included within the METL  
15 tasks of a HBCT. Summarily, it is anticipated that there will be no changes to training  
16 tasks currently being conducted on Fort Stewart with the addition of a CS/CSS,  
17 Sustainment Brigade, IBCT, HBCT or Multiple BCTs due to these types of units  
18 currently train at Fort Stewart. What will change with the addition of units is the  
19 frequency at which these tasks occur over a given time. However, METL tasks are  
20 subject to change with doctrinal change, or with guidance from higher headquarters; or  
21 if unit configuration changes, METL task will change accordingly.

1  
 2 Fort Stewart has a robust range and training land infrastructure that supports Abrams  
 3 Tank, Bradley Fighting Vehicle, Aerial Gunnery, Artillery Live-Fire Training, other  
 4 assorted live-fire training, maneuver training, individual, and team and collective tasks.  
 5 Training land configuration allows for concurrent live-fire and maneuver training in  
 6 separate sections of the installation, each not interfering with the other. Encroachment  
 7 from urbanization is a challenge that is being effectively addressed by active Army  
 8 Compatible Use Buffer (ACUB) and Joint Land Use Study (JLUS) programs. Coastal  
 9 Georgia growth projections indicate that the current population will double in this region  
 10 over the next 10 years. Fort Stewart works closely with multiple local communities to  
 11 minimize potential conflicts with the military mission and reduce encroachment risks.  
 12

13 Table 4.14-1 contains the Fort Stewart's VEC ratings for each of the various stationing  
 14 action scenarios.  
 15

16 **Table 4.14-1. Fort Stewart VEC Ratings**

<b>Fort Stewart</b>					
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BCT (3,000- 3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Low	Low	Low	Low	Medium
Airspace	Low	Low	Low	Low	Low
Cultural	Low	Low	Low	Medium	High
Noise	Low	Low	Low	High	High
Soil Erosion Impacts	Low	Medium	Medium	High	High
T&E/Other Wildlife	Medium	Medium	Medium	High	High
Wetlands	Medium	Medium	Medium	High	High
Water Resources	Low	Low	Low	Low	Low
Facilities	Medium	Medium	Medium	Medium	Medium
Socioeconomics	Low	Medium	Medium	Medium	High
Energy Demand/ Generation	Low	Low	Low	Low	Low
Land Use Conflict/ Compatibility	Low	Medium	Medium	Medium	High
Haz Mat/ Haz Waste	Low	Low	Medium	Medium	High
Traffic and Transportation	Medium	Medium	Medium	Medium	High

17

1           **4.14.2 Air Quality**

2                   **4.14.2.1 Affected Environment**

3  
4 The region of influence for the Fort Stewart/Hunter Army Airfield Military Complex  
5 includes portions of six counties—Bryan, Chatham, Evans, Liberty, Long, and Tattnall.  
6 The City of Hinesville and Liberty County are adjacent to the cantonment area along the  
7 southern boundary of the post. The City of Pembroke and Bryan County surround Fort  
8 Stewart to the north. The Cities of Glennville and Richmond Hill lie to the west and east  
9 of post boundaries, respectively. The surrounding counties are in attainment for EPA’s  
10 NAAQS.

11  
12 Fort Stewart is a major source of air pollutants and maintains a Title V Operating permit.  
13 Primary stationary sources include boilers, generators, fuel storage and dispensing  
14 areas, and surface coating operations.

15  
16 Since Fort Stewart is located in attainment areas there is no requirement to conduct a  
17 conformity analysis. The CAA’s Prevention of Significant Deterioration requirements  
18 are not expected to be triggered by the installation’s activities.

19  
20                   **4.14.2.2 Environmental Consequences**

21  
22 **CS/CSS.** There will be an expected minor (low) impact on the installation and  
23 surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It  
24 is assumed that the resulting increases in air emissions are directly proportional to the  
25 increase in population at the facility. In general, combustion and facility operations will  
26 produce localized, short-term elevated air pollutant concentrations that should not result  
27 in any sustained impacts on regional air quality.

28  
29 **Full Sustainment BDE.** There will be an expected minor (low) impact on the  
30 installation and surrounding communities by the restationing of a Sustainment Brigade  
31 Combat Team and its 3,000 to 3,500 Soldiers. Any construction related emissions also  
32 have the potential to produce localized, short-term elevated air pollutant concentrations  
33 but these are not anticipated to have a significant effect on regional air quality.  
34 Combustion emissions resulting from training would be primarily from mobile sources  
35 and be widely distributed both spatially and temporally. Given the wide distribution of  
36 emissions, it is not anticipated that regional air quality would be significantly affected.

37  
38 **IBCT.** There is an expected minor (low) long-term environmental impact to the  
39 installation and surrounding communities by the restationing of an Infantry Brigade  
40 Combat Team and its 3,500 Soldiers. It is anticipated the emissions resulting from  
41 stationary sources required for facility operations to support the influx of Soldiers and  
42 their Families will have greater, long-term impacts than those resulting from training but  
43 not significant enough to cause regional air quality issues. It is anticipated that the  
44 installation would see increases in emissions from equipment required to support the  
45 installation such as fuel storage and dispensing, boiler and incinerator operations and

1 possible electric peak-shaving generators. Additionally, it is anticipated that more  
2 training/operations will occur away from established roads and tank trails.

3  
4 **HBCT.** There is an expected minor (low) long-term environmental impact on the  
5 installation and surrounding communities by the restationing of a Heavy Brigade  
6 Combat Team and its 3,800 – 4,000 Soldiers. Though the facility can expect increased  
7 emissions from military vehicles and generators used to support training events as well  
8 as increase in fugitive dust, these will tend to remain localized and produce no  
9 significant impact to regional air quality.

10  
11 **Multiple Brigade Combat Teams.** The restationing of multiple Brigade Combat Teams  
12 and approximately 7,000 Soldiers is expected to produce minor (low) long-term impacts  
13 on air quality. Construction, though not technically an operation subject to the  
14 provisions of the CAA but a short-term contributor to air quality, and changes to facility  
15 operations to support multiple brigades would be significant initially. Combustion  
16 emissions resulting from training would be primarily from mobile sources and be widely  
17 distributed both spatially and temporally. Given the wide distribution of emissions, it is  
18 not anticipated that regional air quality would be significantly affected.

### 19 20 **4.14.3 Airspace**

#### 21 **4.14.3.1 Affected Environment**

22  
23 Fort Stewart has 386 square miles of FAA-designated Special use airspace, up to  
24 29,000 feet. The installation has access to this restricted airspace from 0600 to 2400  
25 local daily for area R3005 A, B, D, E; and 0600 to 0300 local daily for area R3005 C  
26 with other times available by Notice to Airmen (NOTAM) 24 hours in advance.(Fort  
27 Stewart, 2007). In addition, for 14 days per year, Special Use Airspace can be  
28 increased to 45,000 feet.

#### 29 30 **4.14.3.2 Environmental Consequences**

31  
32 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be minor  
33 (low) long-term environmental impacts to airspace and minor short- and long-term direct  
34 adverse impacts from UAV operations. It is anticipated that the activities associated  
35 with the CS/CSS or Full Sustainment BDE would not affect airspace as no UAVs or  
36 artillery is associated with these scenarios. Increased or new activities from BCTs  
37 would have to be scheduled to coordinate with existing mission activities. Future new  
38 systems or modifications to existing systems from the stationing of an additional BCT  
39 could also affect airspace use, resulting in greater demand for exclusive military use of  
40 the resource (US Army Corps of Engineers, 2002). Construction or modification of  
41 airfields and training and maneuver areas could result in changes to existing airspace  
42 use. The IBCT, HBCT, and Multiple BCTs would be required to seek additional special  
43 use airspace designations or Certificates of Authorization from the FAA for use of the  
44 National Airspace System outside of restricted airspace.

1                   **4.14.4 Cultural Resources**  
2                               **4.14.4.1 Affected Environment**  
3

4 The affected environment for Fort Stewart encompasses the legal boundaries of the  
5 installation. Counties potentially affected are the counties in the standard region of  
6 influence for Fort Stewart is Bryan, Chatham, Evans, Liberty, Long and Tattnall. Fort  
7 Stewart is located in an area outside Savannah, Georgia. The Installation is  
8 approximately 280,000 acres and contains a variety of prehistoric and historic period  
9 cultural resources. The ICRMP (Grover & McKivergan, 2001) describes in detail the  
10 human history of Fort Stewart and the following history is based upon that information.  
11 The Fort Stewart region has been occupied for at least 12,000 years by Native  
12 Americans, Europeans, and the military. Most prehistoric sites at Fort Stewart consist  
13 of habitation sites, base camps, small villages, seasonal use camps, hunting stations,  
14 and isolated artifact scatters. Most historic period sites at Fort Stewart consist of  
15 homesites, agri-industrial related activities, naval stores production/collection sites, and  
16 isolated artifact scatters.  
17

18 Approximately 164,000 of the 280,000 acres of Fort Stewart have been surveyed for  
19 cultural resources. As a result of these archaeological surveys, 2,883 archaeological  
20 sites have been recorded at Fort Stewart of which 32 have been recommend eligible  
21 and 175 potentially eligible for the National Register of Historic Places. In addition to  
22 these archaeological sites, 64 historic period cemeteries, one sacred site (Lewis  
23 Mound) and 2 Traditional Cultural Properties (Taylors Creek and Pleasant Grove  
24 Cemeteries) have been identified. Regarding historic buildings and structures, Fort  
25 Stewart has conducted an entire survey and evaluation of all buildings and structures  
26 built before 1990 (to include Cold War Era buildings eligible under Criteria G of the  
27 NRHP). As a result of this building survey, 6 historic buildings have been identified at  
28 Fort Stewart (Glisson's Mill Pond Store and 4 Fire Towers). Each year, as buildings  
29 approach the 45 year mark, they are reassessed for eligibility.  
30

31 The 2001 Programmatic Agreement (renewed in 2006) between the 3<sup>rd</sup> Infantry Division  
32 (Mechanized), Fort Stewart, and the Georgia State Historic Preservation Office (GA  
33 SHPO) provides a streamlined process for Section 106 of the NHPA compliance by the  
34 Army at Fort Stewart. The Programmatic Agreement states that Fort Stewart will  
35 conduct archaeological surveys (if not previously conducted) to identify any historic  
36 properties that could be affected by a project, activity, or undertaking. It also provides a  
37 listing of undertakings excluded from evaluation under Section 106 (e.g. undertakings in  
38 severely disturbed special use and bivouac areas, most areas within the cantonment,  
39 and impact areas that are highly likely to be contaminated with unexploded ordnance).  
40 For all undertakings that are determined by cultural resource staff to have no adverse  
41 effects upon historic properties, individual consultations with the GA SHPO is not  
42 required. If the undertaking has the potential to adversely affect historic properties,  
43 consultation per 36 CFR 800 is required. At this time, a revised Programmatic  
44 Agreement is in draft. This new Programmatic Agreement, upon successful  
45 implementation, proposes to eliminate the requirements for archaeological surveys  
46 within areas determined to have a low likelihood of cultural resources. Furthermore,

1 areas that contain a significant risk of unexploded ordnance are also proposed to be  
2 eliminated from future surveys.

#### 4 4.14.4.2 Environmental Consequences

6 **CS/CSS, Full Sustainment BDE, IBCT.** This level of growth (1,000 to 3,500 Soldiers  
7 on Fort Stewart is expected to have minor (low) short and long term impacts on cultural  
8 resources. Measures are in place in place to accommodate this type of training to  
9 *prevent* adverse impacts to cultural resources; future improvements to the  
10 Programmatic Agreement will address impacts more effectively; and the nature of the  
11 military activity by itself is of a lesser impact activity (e.g. foot traffic, vehicle traverse via  
12 established tank trails, reoccurring/habitual use of training areas, etc...). Large portions  
13 of Fort Stewart are forested and require the use of tank trails and low water crossings.  
14 Therefore, it is unlikely that there will be adverse impacts to cultural resources from off  
15 road or foot traffic. The number of Soldiers should be easily absorbed by the existing  
16 buildings without requiring that historic buildings be reconfigured.

18 **HBCT.** There will be moderate (medium) short and long term impacts to cultural  
19 resources relating to the 3,800 – 4,000 additional Soldiers of a HBCT. Although a  
20 higher personnel count of the HBCT technically increases the odds that archaeological  
21 resources will be impacted from both accidental and intentional means, the combination  
22 of increased Soldiers and vehicular traffic would not cross the threshold of significance.  
23 The additional Soldiers, via foot traffic, are not expected to result in inadvertent  
24 disturbance of surface archaeological sites or buried archaeological resources. The  
25 heavy tracked vehicles of a HBCT could impact previously undiscovered archaeological  
26 resources. Currently about 60% of the installation has been surveyed for cultural  
27 resources. Future improvements to the Programmatic Agreement should reduce further  
28 requirements for future surveys, however, at a minimum, 10,000 acres of high  
29 probability for cultural resources remain to be surveyed. Regarding historic buildings,  
30 only a slightly higher potential for impact would occur due to the higher number of  
31 individuals requiring admin/housing/support. Furthermore, the low number of historic  
32 buildings currently identified at Fort Stewart, the impact would still remain low.

34 **Multiple BCTs.** There could be significant (high) impacts to cultural resources at Fort  
35 Stewart. The consequences to cultural resources should be in line with a HBCT, except  
36 for increased volume of Soldiers (approximately 7,000).

### 38 4.14.5 Noise

#### 39 4.14.5.1 Affected Environment

41 According to a 2005 Joint Land Use Study (Coastal Georgia Redevelopment Center,  
42 2005) all noise generated from small arms weapons fire is effectively contained on  
43 installation lands and maneuver areas and thus, do not pose compatibility issues with  
44 off-post residential communities. Noise associated with LUPZ is experienced at off-post  
45 locations (and sometimes can cause annoyances in these areas) affecting the City of  
46 Pembroke, and Bryan County to the north; and the City of Hinesville, and Liberty County

1 to the south. NZ II, which on Fort Stewart is caused by large caliber weapons firing,  
2 extends beyond the installation boundary north into Bryan County. NZ III is fully  
3 contained within the installation. Maneuver noise is not currently an issue with respect  
4 to local communities. Fort Stewart will need to estimate increases in throughput on new  
5 and existing ranges to determine how noise contours will be affected by each growth  
6 scenario.

#### 7 8 **4.14.5.2 Environmental Consequences**

9  
10 **CS/CSS.** There will be minor (low) short- and long-term impacts expected from the  
11 proposed action. Maneuver noise is expected to be very low and insignificant when  
12 compared to the current training environment. Wildlife receptors such as the RCW will  
13 experience short-term impacts (flushing for instance) but will recover very quickly  
14 (Delaney et al; 2002). Noise management practices should be considered from the  
15 installation's INRMP and IENMP. Noise contours for the small arms weapons ranges  
16 will not be affected. Noise from these areas will remain contained within the installation  
17 boundary.

18  
19 **Full Sustainment BDE.** Minor (low) long-term impacts are expected. Maneuver  
20 training will have only slightly higher impacts than a CS/CSS. Small arms ranges will  
21 experience an increase in usage, but noise contours will remain unchanged.

22  
23 **IBCT.** Fort Stewart expects an overall minor (low) impact from fielding an IBCT to the  
24 installation. Noise generated from maneuver and small arms ranges will have similar  
25 impacts as the Full Sustainment BDE, and only slightly higher noise impacts than the  
26 CS/CSS. The largest caliber weapon an IBCT has is a .50 caliber machine gun. It also  
27 has TOWs and the 105mm Howitzer. Current noise zones would not be affected but  
28 BMPs for noise reduction should be considered. These BMPs are to be determined by  
29 the installation on a situational basis.

30  
31 **HBCT and Multiple BCTs.** Significant (high) noise impacts are expected to influence  
32 sensitive noise receptors such as residential communities within NZ II and sensitive  
33 wildlife species. Noise contours may change; Fort Stewart will likely need to conduct a  
34 new noise study and update their IENMP.

#### 35 36 **4.14.6 Soil Erosion**

##### 37 **4.14.6.1 Affected Environment**

38  
39 Fort Stewart is a relatively flat, coastal landscape predominantly made up of poorly  
40 drained loamy sand/sandy soil, riparian, and other wetland areas (Coastal Georgia  
41 Redevelopment Center, 2005; USAEC, 2006). The most significant cause of soil  
42 erosion is from maneuver of tracked and wheeled vehicles on already disturbed range  
43 areas. However, over the past five years Fort Stewart has constructed several LWCs to  
44 reduce impacts on ranges where vehicles have historically traversed streams and  
45 wetland areas on traditional dirt tank trails. Fort Stewart has recently mapped wetland  
46 areas crucial for training, for potential LWCs. Due to anticipated Army Transformation

1 actions, Fort Stewart is expecting to accommodate more training which, prior to Army  
2 Growth, would further degrade the soils at the installation (Fort Stewart Personnel, July  
3 2007).

#### 4 5 **4.14.6.2 Environmental Consequences**

6  
7 **CS/CSS.** Minor (low) adverse impacts are expected. Foot traffic and other maneuvers  
8 associated with this level of Soldier increase is expected to have only minor short- and  
9 long-term consequences to already disturbed range areas. Any impacts from an  
10 increase in use of the installation's small arms firing ranges in training areas are minor  
11 in comparison to other training activities at Fort Stewart. These impacts would likely be  
12 easily mitigated within the installation's ITAM program, and in accordance with the  
13 INRMP.

14  
15 **Full Sustainment BDE and IBCT.** There is expected to be moderate (medium)  
16 impacts from maneuver training, from this level of increase at Fort Stewart. Most  
17 vehicle transit is expected to remain on hardened surfaces or range course trails for the  
18 Full Sustainment BDE, maneuver in ranges, even in the current training footprint would  
19 continue to further degrade the trails and soils in these areas. Increased dismounted  
20 Soldier and vehicle maneuver expected from the IBCT on unimproved surfaces and  
21 range areas may reduce vegetative cover, increasing the erodibility of soils. Fort  
22 Stewart should continue to employ various erosion control techniques that may include  
23 hardening of existing and heavily utilized stream/wetland crossings, redirection and  
24 recontour of roads, slopes and ditches, and range area revegetation.

25  
26 **HBCT and Multiple BCTs.** Significant (high) impacts to roads and off-road areas is  
27 expected due to the number of heavy tracked and wheeled vehicles associated with this  
28 level of increase. The maneuver box needed for a HBCT is also much larger than what  
29 is needed for the IBCT; and the heavy tracked vehicles would continue to degrade  
30 rapidly from the expected increase in training throughput, leading to potential extensive  
31 erosion problems. The weight and mobility characteristics of the heavy tracked vehicles  
32 could disrupt already stressed soils on trails and range courses that currently  
33 accommodate a high amount of training, making those areas more prone to wind and  
34 water erosion. Range course trails and range roadways may need to be improved or  
35 hardened to help control an increase in soil transport. Multiple BCTs may have an  
36 impact to soils to an even greater degree than the HBCT. The installation's training  
37 areas would need continuous monitoring and improvements from the ITAM program.

#### 38 39 **4.14.7 Vegetation and Wildlife/Threatened and Endangered Species**

##### 40 **4.14.7.1 Affected Environment**

41  
42 Fort Stewart is home to nine special status plant species and 17 special status fauna  
43 species. Among these species, six Endangered Species Act (ESA) listed fauna species  
44 are currently recorded as occurring on the installation. One high priority species at risk  
45 (SAR) is also found onsite. The following table lists threatened or endangered species



1 found on Fort Stewart. More information on federally listed species can be found in  
 2 Appendix T of this document.

3  
 4  
 5  
 6

**Table 4.14-2- Threatened or Endangered Species Found On Fort Stewart**

**Federally Listed or Listed by the State of Georgia**

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	GEORGIA STATE STATUS
<b>PLANTS</b>			
<i>Baldunia atropurpurea</i>	Purple honeycomb head	-	Rare
<i>Elliottia racemosa</i>	Georgia plume	-	Threatened
<i>Epidendrum conopseum</i>	Green-fly orchid	-	Unusual
<i>Fothergilla gardenii</i>	Dwarf witch-alder	-	Threatened
<i>Habenaria quinqueseta</i>	Michaux's spider orchid	-	Threatened
<i>Litsea aestivalis</i>	Pond spice	-	Rare
<i>Pteroglossaspis ecristata</i>	Crestless plume orchid	-	Threatened
<i>Sarracenia minor</i>	Hooded pitcher plant	-	Unusual
<i>Sideroxylon thornei</i>	Swamp buckthorn	-	Rare
<i>Stewartia malacodendron</i>	Silky camellia	-	Rare
<b>MAMMALS</b>			
<i>Corynorhinus rafinesquii</i>	Rafinesque's big-eared bat	-	Rare
<i>Trichechus manatus</i>	West Indian manatee	Endangered	Endangered
<b>BIRDS</b>			
<i>Aimophila aestivalis</i>	Bachman's sparrow	-	Rare
* <i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened	Threatened
<i>Mycteria americana</i>	Wood stork	Endangered	Endangered
<i>Picoides borealis</i>	Red-cockaded woodpecker	Endangered	Endangered
<i>Elanoides forficatus</i>	Swallow-tailed kite	-	Rare
<i>Falco peregrinus</i>	Peregrine falcon	-	Rare
<i>Falco sparverius paulus</i>	Southeastern kestrel	-	Rare
<i>Sterna antillarum</i>	Least tern	-	Rare
<b>REPTILES and AMPHIBIANS</b>			
<i>Ambystoma cingulatum</i>	Flatwoods salamander	Threatened	Threatened
<i>Clemmys guttata</i>	Spotted turtle	-	Unusual
<i>Drymarchon couperi</i>	Eastern indigo snake	Threatened	Threatened
<i>Gopherus polyphemus</i>	Gopher tortoise	-	Threatened
<i>Heterodon simus</i>	Southern hognose snake	-	Threatened
<i>Malaclemys terrapin</i>	Diamondback terrapin	-	Unusual
<i>Notophthalmus perstriatus</i>	Striped newt	-	Threatened
<i>Ophisaurus mimicus</i>	Mimic glass lizard	-	Rare
<i>Rana capito</i>	Gopher frog	-	Rare
<b>FISH</b>			
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	Endangered	Endangered
<b>INVERTEBRATES</b>			
<i>Cordulegaster sayi</i>	Say's spiketail	-	Threatened

7 \* As of 8 August 07, the Bald Eagle is no longer afforded protection under the Endangered Species Act  
 8 (ESA). However, it is protected under the Bald and Golden Eagle Protection Act (Eagle Act) and the  
 9 Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very  
 10 similar to the ESA.  
 11

1 Furthermore, Fort Stewart has an active Forestry program, one of the largest in DoD.  
2 The installation contains Georgia's largest remaining stand of longleaf pine forest.

#### 3 4 **4.14.7.2 Environmental Consequences**

5  
6 **CS/CSS, Full Sustainment BDE, and IBCT.** There is an anticipated moderate  
7 (medium) impact to vegetation and the installation's listed species and SAR. The  
8 threatened and endangered species recorded on the installation will continue to be  
9 managed in accordance with the installation's INRMP and ESMP, terms and conditions  
10 identified within biological opinion(s) issued by the USFWS and any conservation  
11 measures identified in ESA, Section 7 consultation documents. However, since  
12 implementation of any of these actions may affect any of the recorded listed species,  
13 the installation will be required to consult with the USFWS either informally or formally,  
14 depending on whether take is anticipated to occur. If the proposed action were  
15 implemented at Fort Stewart, the METL is not expected to change, unless otherwise  
16 directed, therefore there will likely be no major modifications to training that would  
17 impact current threatened and endangered species management practices. If the  
18 METL were to change, Fort Stewart would modify their ESMP and/or INRMP  
19 accordingly. If a change in the METL were to occur, these changes would likely impact  
20 the installation's RCW population. The population on Fort Stewart is identified as a  
21 primary core population of the South Atlantic Coastal Plain recovery unit. If the level of  
22 RCW take and/or disturbance of RCW habitat is high, then it will be more difficult for the  
23 installation to achieve the recovery goal for the Fort Stewart RCW population. The  
24 installation will also not be able to take advantage of the lesser restrictions that are  
25 being proposed in the updated Army RCW management guidelines, if recovery goals  
26 are not met. The installation will need to continue to implement conservation and  
27 management efforts for the number of SAR species found on the installation as a  
28 means to help prevent their listing. One such species, the Gopher Tortoise has been  
29 recently petitioned for listing under the ESA.

30  
31 **HBCT and Multiple BCTs.** It is anticipated that implementation of either of these levels  
32 of Soldier strength will have a significant (high) impact on the six listed species.  
33 Implementing either of these actions would also make it difficult for the installation to  
34 support conservation efforts for the SAR and listing of the species would be more  
35 probable. There could be impacts to the Forestry program if Fort Stewart receives  
36 3,800 - 4,000 more Soldiers. The additional troops will likely reduce the available  
37 burning days at Fort Stewart. Forest road use will increase, and road conditions will  
38 deteriorate more than they already are. Timber harvest access behind SDZs and in  
39 some training areas will become more difficult. Traveling through the cantonment area  
40 daily with large trucks and heavy equipment poses added risks to traffic/pedestrian  
41 safety and reduces wildfire response time.

#### 42 43 **4.14.8 Wetlands**

##### 44 **4.14.8.1 Affected Environment**

45

1 Fort Stewart contains approximately 91,000 acres of wetlands (Army Environmental  
2 Database-Environmental Quality, (n.d)) spread across 280,000 acre installation.  
3 Palustrine wetlands comprise 77% of the wetland acreage (INRMP, Fort Stewart, 2001).  
4 The primary threat to wetlands on Fort Stewart is siltation associated with roads and  
5 trails. Fort's Stewart's recent wetland mitigation plans were proactively designed to  
6 ensure wetland mitigation for Army training growth.  
7

8 The Fort Stewart Wetland Bank (FSWB) was established in 2000. The installation has  
9 implemented a wetlands mitigation banking instrument to satisfy the needs of the  
10 installation with regards to expanding ranges to account for any major disturbances to  
11 wetlands adjacent to or within these ranges. The FSWB is located at Pond 4, west of  
12 Fort Stewart Road 40 in training compartments TA, E-2, E-3, and E-4. The federal  
13 policy of "no net loss to wetlands" is what drove the establishment of the FSWB. The  
14 FSWB enables Fort Stewart to continue meeting its mission training objectives while  
15 complying with the Clean Water Act (CWA) and the current "no net loss to wetlands"  
16 federal policy. Work on the FSWB was initiated in 1994, formally permitted in April  
17 1999, and the first credits received in 2000.  
18

19 Section 404 Permits may be required, for construction of new facilities or ranges.  
20 Section 303d (Impaired Streams) should also be taken into consideration, as there are  
21 several impaired stream segments on Fort Stewart and they could easily be impacted  
22 by the additional construction and training. Furthermore, there are 303d-specific BMPs  
23 and NPDES Permits and Stream Buffer Variances for construction.  
24

#### 25 **4.14.8.2 Environmental Consequences**

26  
27 **CS/CSS, Full Sustainment BDE, IBCT.** There will be a moderate (medium) impact on  
28 the installation wetlands as a result of the restationing of 1,000 to 3,500 Soldiers to Fort  
29 Stewart. Efforts will be made to avoid any impacts on wetlands by using the  
30 installations wetland planning level survey's/ GIS mapping. The GIS database can be  
31 used to highlight areas most suited to training. The INRMP will be addressed for best  
32 management practices.  
33

34 **HBCT, Multiple BCTs.** There will be a significant (high) impact on the installation  
35 wetlands as a result of the addition of 3,800 to 7,000 Soldiers to Fort Stewart. Training  
36 activities will be relegated to established training areas where possible. Because the  
37 METL for Fort Stewart is not expected to change, even if the proposed action were  
38 implemented at the installation, and training intensity would not change, Fort Stewart  
39 expects that impacts to wetlands would be likely cumulative from multiple (more)  
40 Soldiers and vehicles training at the installation, rather than through increased usage in  
41 alternative training locations. Fort Stewart would continue to maintain their specific land  
42 management practices to minimize wetland impacts. A permit is not required for military  
43 maneuvers, Section 404 of the Clean Water Act only prohibits discharge of fill and  
44 dredged material into jurisdictional wetlands it does not prohibit the use of wetland  
45 areas for military maneuvers, except for possible engineer troop training construction  
46 projects. There would be no instances where the training activities would require a 404

1 Permit since combat training does not entail discharge of dredged material or placement  
2 of fill in wetlands. Note, Fort Stewart has recently mapped wetland areas crucial to  
3 training for potential future low water crossings.

#### 4 5 **4.14.9 Water Resources**

##### 6 **4.14.9.1 Affected Environment**

#### 7 8 **Surface Water**

9 Fort Stewart's surface water resources are diverse and include numerous rivers,  
10 streams, ponds, and lakes. The majority of the surface waters of Fort Stewart are part  
11 of the Ogeechee River drainage system. The Canoochee River is and bisects Fort  
12 Stewart. The majority of the post drains to the Canoochee River, the main tributary of  
13 the Ogeechee. Fort Stewart uses 0.75 acres as the threshold for requiring a NPDES  
14 permit for stormwater construction. The fee is \$80 per disturbed acre. For sanitary  
15 water issues, Fort Stewart is tied into and utilizes the Hinesville Wastewater Treatment  
16 Plant.

17  
18 The watersheds of Taylor's Creek, Canoochee Creek, Horse Creek, Savage Creek, and  
19 Peacock Creeks are greatly influenced by extensive range, road, and training area  
20 facilities construction that will be needed with increased troop population. Conversely,  
21 the extensive construction in the communities outside the installation that are in the  
22 watersheds of these streams will have a marked effect upon the stream flow  
23 characteristics on post.

#### 24 25 **Water Supply**

26 Fort Stewart obtains its potable water from groundwater within the Floridian aquifer.  
27 The Georgia Department of Natural Resources (DNR) Environmental Protection Division  
28 (EPD) has identified Fort Stewart as one of the top ten water users in the southeastern  
29 region of Georgia (Fort Stewart INRMP, 2001). Fort Stewart is implementing water  
30 conservation measures, to reduce water withdrawals; however, this is being done  
31 strictly as a conservation measure and not due to a dwindling of aquifer capacity or  
32 permitted withdrawal capacity. Fort Stewart has an adequate withdrawal capacity to  
33 support additional growth.

#### 34 35 **Stormwater**

36 Per regulatory Stormwater Phase II requirements for Municipal Separate Storm Sewer  
37 Systems, the post construction site runoff is required to be the same as pre-construction  
38 runoff coefficients, to not impact the existing watershed conditions. Fort Stewart  
39 currently has an Industrial Wastewater Plant with adequate capacity. The installation is  
40 tied into and utilizes the Hinesville Wastewater Treatment Plant.

##### 41 42 **4.14.9.2 Environmental Consequences**

43  
44 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** An addition of  
45 approximately 1,000 to 7,000 Soldiers is anticipated to have a minor (low) impact on  
46 Fort Stewart's water resources. This level of growth would not adversely impact Fort

1 Stewart's water supply. Fort Stewart is currently using only approximately 50 percent of  
2 its water supply; and is currently implementing water resource conservation measures  
3 to ensure adequate resources in the future. Additional Soldiers, their Families, and any  
4 support staff would likely have only a minor drawdown impact to the current water  
5 supply. Domestic and industrial wastewaters generated from HBCT activities would  
6 have a short-term minor impact on Fort Stewart's wastewater system. The installation  
7 would need to revisit their SWP3 to incorporate best management practices for any new  
8 training activities if there are changes to the installation's METL. Additionally, any new  
9 construction/land disturbance over 0.75 acres will require a stormwater construction  
10 permit.

## 11 **4.14.10 Facilities**

### 12 **4.14.10.1 Affected Environment**

13  
14  
15 Military functions can be divided into a number of land use categories displaying, with a  
16 few exceptions, the basic attributes of civilian land use types. Land uses at Fort Stewart  
17 Headquarters and Administration, Soldier Housing, Soldier Maintenance, Industrial,  
18 Community Facilities, Medical Facilities, Operations, Family Housing, Ranges and  
19 Training Areas, and Buffer and Recreation. Training Ranges and Training Areas  
20 assessments, based upon training needs and quality requirements, are maintained on  
21 record through the SRP program under the guidance of DA G-3/5/7.

### 22 **4.14.10.2 Environmental Consequences**

23  
24  
25 **CS/CSS.** There will be moderate (medium) impacts to facilities. It is anticipated an  
26 increase of 1,000 Soldiers would increase activities within the Cantonment Area,  
27 including but not limited to, increased usage of the Post Exchange, commissary,  
28 medical, and family support facilities.

29  
30 Although Fort Stewart does not have available buildings to support the CS/CSS, the  
31 installation has buildable space. However, these activities would have to be scheduled  
32 to coordinate with existing mission activities. The installation should be able to  
33 reasonably accommodate a CS/CSS with a review of the real property management  
34 plan (RPMP). Additional facilities construction to support the CS/CSS in range areas is  
35 not likely.

36  
37 **Full Sustainment BDE.** There will be moderate (medium) short- and long-term impacts  
38 to facilities. Increased Soldier strength of 3,000 to 3,500 would be reflected through  
39 increased usage throughout the Cantonment Area. The availability of buildable space  
40 on Fort Stewart supports implementation of the ACP at this level although existing  
41 building space is not available. Increased activities within the training and range areas  
42 would be expected to cause long-term impacts due to increased human presence, as  
43 well as construction and training activities within the range and training areas. The  
44 RPMP would require modifications to allow for implementation of the ACP. A study  
45 using the Sustainable Installations Regional Resource Assessment (SIRRA) would also  
46 be beneficial.

1  
2 **IBCT, HBCT, Multiple BCTs.** Fielding a BCT would also result in moderate (medium)  
3 short- and long-term impacts to facilities. The addition of a BCT would potentially  
4 increase usage of cantonment assets beyond what is projected for a BDE; however, a  
5 review of the installation RPMP along with other facilities and infrastructure studies may  
6 be able to accommodate the proposed action. Although the installation has buildable  
7 space available, there is a lack of existing space in the installation's facilities to support  
8 an additional BCT. Construction of the required infrastructure would be necessary in  
9 both the cantonment and range areas. Special Use Airspace is also of concern as  
10 construction in the existing restricted use airspace area can adversely impact the  
11 utilization of overlying airspace. There is a high probability that multiple BCTs would  
12 increase congestion beyond the carrying capacity of the cantonment infrastructure and  
13 support services. The level of construction required for the multiple BCT scenario is  
14 resource intensive and potentially beyond the ability of Fort Stewart to sustain. The  
15 excess aggregate demand on cantonment facilities and infrastructure required by  
16 multiple BCTs may exacerbate system degradation within the Cantonment Area, or  
17 create non-compliant regulatory issues. More analysis would determine if multiple  
18 BCTs would have significant impacts to Fort Stewart.

19  
20 **4.14.11 Energy Demand/Generation**  
21 **4.14.11.1 Affected Environment**  
22

23 Fort Stewart energy consumption profile is very diverse, consisting of six different  
24 sources of energy – electric power and natural gas, both delivered by commercial  
25 utilities, as well as No. 2 fuel oil, propane, waste wood, and waste oil. The abundance  
26 of energy sources, and adequate supplies from each source, provide Fort Stewart with  
27 ample excess energy capacity, allowing them to accommodate a variety of future  
28 mission expansion scenarios.

29  
30 **4.14.11.2 Environmental Consequences**  
31

32 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Growth of 1,000 to  
33 7,000 Soldiers, their Families, and civilian support is anticipated to have a minor (low)  
34 impact on the local community and the environment. In terms of energy usage and  
35 generation, Fort Stewart's existing energy infrastructure has sufficient excess capacity,  
36 diversity, and scalability to readily absorb growth. In order to accommodate any new  
37 mission activity, an initial capital investment will be required to extend the existing  
38 energy infrastructure to meet the new demand. That said, the current electrical and  
39 natural gas distribution systems, supplemented by the additional sources of energy  
40 outlined above, have sufficient excess capacity. Multiple BCTs may require significant  
41 construction and expansion of the existing energy infrastructure, the joint capacity and  
42 scalability of the electrical and natural gas distribution systems, supplemented by the  
43 other energy sources outlined above, are not likely to be challenged. Like the others,  
44 this scenario results in a new energy demand posture that is comfortably within the  
45 capacity of the existing energy infrastructure to accommodate.

1                   **4.14.12 Land Use Conflicts/Compatibility**  
2                   **4.14.12.1 Affected Environment**

3  
4 Fort Stewart has grown to approximately 280,000 acres, becoming the largest Army  
5 installation east of the Mississippi River. Fort Stewart divides its 279,270 acres of land  
6 into 120 maneuver training areas. These areas total over 191,000 acres (including  
7 19,985 acres of impact areas), or 68 percent of Fort Stewart’s total property. The Army  
8 conducts live-fire training exercises involving mortars, artillery, and tanks at Fort Stewart  
9 on a 24-hour a day basis throughout the year. The ranges provide training and  
10 qualification firing for individual and crew-served weapons systems, anti-tank weapons,  
11 demolitions, helicopter gunnery, 25 mm gun and 120 mm tank gun firing. The artillery  
12 and mortar firing points (approximately 90) can support MLRS, 105 mm through 155  
13 mm howitzers and 60 mm through 120 mm mortars (US Army Fort Stewart, 2005).

14  
15 The cantonment area at Fort Stewart is immediately north of Hinesville, approximately  
16 35 miles southwest of Savannah. Hunter Army Airfield (HAAF) is an integral part of Fort  
17 Stewart, but approximately 40 miles east of Hinesville in the City of Savannah and  
18 Chatham County, Georgia. Hunter Army Airfield covers approximately 5,400 acres in  
19 northeastern Georgia in Chatham County. It borders Savannah at the city’s southwest  
20 corner (US Army Fort Stewart, 2002).

21  
22 Fort Stewart maintains active Army Compatible Use Buffer (ACUB) and Joint Land Use  
23 Study (JLUS) programs, working with local community partners to protect natural  
24 resources and sustain military operations. Our common goals are to minimize rural land  
25 conversion to dense residential development around the installation, utilizing a variety of  
26 methods (depending on property owners’ objectives), and to encourage smart  
27 development methods in addressing an anticipated doubling of our regional area  
28 population over the next 10 years.

29  
30                   **4.14.12.2 Environmental Consequences**

31  
32 **CS/CSS.** There will be minor (low) short and long-term environmental impacts on  
33 installation land use due to the presence of an additional 1,000 Soldiers and their family  
34 members assigned to the installation. The installation has sufficient land available to  
35 either build the facilities, sufficient vacant space in existing buildings, or a combination  
36 thereof to meet the unit’s mission requirements. Additionally, the land or existing  
37 facilities are located such that surrounding facilities are compatible with the additional  
38 CS/CSS unit. The facilities required for a CS/CSS will be located within a single  
39 contiguous land unit.

40  
41 **Full Sustainment BDE.** There will be moderate (medium) short and long-term  
42 environmental impacts on installation land use due to the presence of an additional  
43 3,000 to 3,500 Soldiers and their family members. The installation may not have  
44 sufficient land available to either build the facilities needed for this unit, or may not have  
45 sufficient vacant space in buildings suitable for the unit’s mission. Building new facilities  
46 may require the installation to re-zone existing land uses, or re-use/remodel facilities in

1 areas not compatible with land uses associated with tactical units. Existing land and/or  
2 facilities may not be contiguous and located such that tactical vehicles would need to  
3 travel extensively within the cantonment area to reach training ranges.

4  
5 **IBCT.** There will be moderate (medium) short and long-term environmental impacts on  
6 installation land use due to the presence of an additional 3,500 Soldiers and their family  
7 members. The installation may not have sufficient land available to either build the  
8 facilities needed for this unit, or may not have sufficient vacant space in existing  
9 buildings suitable for the unit's mission. Building new facilities may require the  
10 installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
11 compatible with land uses associated with tactical units. Existing land and/or facilities  
12 may not be contiguous and located such that tactical vehicles would need to travel  
13 extensively within the cantonment area to reach training ranges.

14  
15 **HBCT.** There will be moderate (medium) short- and long-term environmental impacts  
16 on installation land use due to the presence of an additional 3,800 to 4,000 Soldiers and  
17 their Families assigned to the installation. The moderate negative effects of stationing a  
18 HBCT would be similar to that of stationing an IBCT at the installation.

19  
20 **Multiple BCTs.** There will be significant (high) short- and long-term environmental  
21 impacts on installation land use due to the presence of an additional 7,000, or more  
22 Soldiers and their Families assigned to the installation. The installation will not have  
23 enough existing facilities, located in areas with comparable land uses to accommodate  
24 multiple BCTs. New or existing facilities would not be contiguous, and distant from  
25 Soldier support facilities and training and maneuver ranges. Building new training  
26 ranges for multiple BCTs could require construction on, or adjacent to, existing training  
27 facilities, such that those training facilities become unusable. This, in turn, would cause  
28 a measurable decrease of the installation's capacity to train Soldiers. Building new  
29 facilities on previously inactive ranges could also require construction on or immediately  
30 adjacent to, environmentally sensitive areas such as wetlands, requiring extensive,  
31 and/or expensive mitigation actions.

### 32 33 **4.14.13 Hazardous Materials/Hazardous Waste**

#### 34 **4.14.13.1 Affected Environment**

35  
36 The affected environment for these proposed actions include the use, storage,  
37 transport, and disposal of hazardous materials and wastes at Fort Stewart. This  
38 includes hazardous materials and wastes from underground storage tanks (USTs) and  
39 aboveground storage tanks; pesticides; lead-based paint (LBP); asbestos;  
40 polychlorinated biphenyls (PCBs); radon; and unexploded ordnance (UXO). Each  
41 installation operates under a Hazardous Waste Management Program that manages  
42 hazardous waste to promote the protection of public health and the environment. Army  
43 policy is to substitute nontoxic and non-hazardous materials for toxic and hazardous  
44 ones; ensure compliance with local, state, and federal hazardous waste requirements;  
45 and ensure the use of waste management practices that comply with all applicable  
46 requirements pertaining to generation, treatment, storage, disposal, and transportation



1 of hazardous wastes. The program reduces the need for corrective action through  
2 controlled management of solid and hazardous waste. (US Army Corps of Engineers,  
3 February, 2002)

#### 4 5 **4.14.13.2 Environmental Consequences** 6

7 **CS/CSS.** There will be minor (low) long-term impacts from hazardous materials and  
8 waste. It is anticipated that Fort Stewart would minimally increase its storage and use  
9 of hazardous chemicals during training exercises and installation maintenance with an  
10 increase of 1,000 Soldiers. Waste collection, storage, and disposal processes would  
11 remain mostly unchanged, and current waste management programs would continue.  
12

13 **Full Sustainment BDE.** Minor (low) short- and long-term impacts from hazardous  
14 materials and waste would be expected with an increased Soldier strength of 3,000 to  
15 3,500. The increase in these wastes would result in no adverse impacts because the  
16 wastes would be managed in accordance with current standards and regulations.  
17 Direct beneficial impacts include activities associated with land transactions where the  
18 Army would continue to operate under its installation restoration program to return  
19 contaminated lands to fully usable status. Direct adverse impacts include increased  
20 facility construction and modification. (US Army Corps of Engineers, February, 2002)  
21

22 **IBCT, HBCT.** There will be moderate (medium) short- and long-term impacts expected  
23 from an additional BCT. Many projects involve the use, generation, and storage of  
24 hazardous materials and wastes during facility demolition, renovation, or construction.  
25 The installation would incur an additional demand for storage and disposal capacity that  
26 would have to be met at the local level. Installation guidelines that manage the use,  
27 storage, and disposal of materials and wastes would need to be updated to reflect the  
28 change in mission at Fort Stewart and expanded training activities.  
29

30 **Multiple BCTs.** The establishment of multiple BCTs at Fort Stewart would result in  
31 significant (high) short- and long-term impacts from hazardous materials and waste.  
32 Generation and management of hazardous materials and waste, pesticides, petroleum  
33 storage tanks, ordnance and explosives would all be higher than with the other actions,  
34 and waste management plans would need to be updated to reflect the change in  
35 mission and expanded training activities.  
36

#### 37 **4.14.14 Traffic and Transportation** 38 **4.14.14.1 Affected Environment** 39

40 The region of influence (ROI) of the affected environment for traffic and transportation  
41 aspects of the proposed action include Fort Stewart, and several neighboring counties,  
42 to include Bryan, Chatham, Evans, Liberty, Long and Tattnall counties, and the  
43 communities therein, to include Hinesville, Riceboro, Flemington, Gum Branch, and  
44 Richmond Hill. Major road routes in the region include I-95 located approximately 15  
45 miles east of the Fort Stewart cantonment area, and US Route 84 another North-South  
46 arterial, which goes through Hinesville.

1  
2 **4.14.14.2 Environmental Consequences**  
3

4 **CS/CSS.** There will be moderate (medium) short and long-term impacts on traffic and  
5 transportation systems on the installation due to the presence of an additional 1,000  
6 Soldiers and their family members assigned to the installation. Spread across the ROI,  
7 this population will have *de minimis* impact on the overall traffic congestion in the  
8 neighboring communities. This additional population may contribute nominally to traffic  
9 volume on the installation, and is not expected to reduce the level of service (LOS) on  
10 the installation's road network. There may be a slight increase in traffic volume during  
11 peak morning and evening hours. The population increase may have a minor to  
12 moderate increase of risk to the safety of pedestrians and bicyclists.  
13

14 **Full Sustainment BDE.** There will be moderate (medium) short and long-term impacts  
15 on traffic and transportation systems on the installation due to the presence of an  
16 additional 3,000 to 3,500 Soldiers and their family members assigned to the installation.  
17 The increase in off-post traffic would have a minimal impact on traffic in the community  
18 overall and could contribute to a decrease in the LOS in the road network leading to the  
19 installation, particularly during peak morning and afternoon travel periods. This  
20 increase in population would also have a moderate impact on the traffic volume on the  
21 installation, and could cause a minor decrease in LOS on some of the installation's  
22 arterial routes. The increased traffic volume in both the neighboring community and on  
23 the installation could pose an increased level of risk to the safety of pedestrians and  
24 bicyclists.  
25

26 **IBCT.** There will be moderate (medium) short- and long-term impacts on traffic and  
27 transportation systems on the installation due to the presence of an additional 3,500  
28 Soldiers and their family members. Both on the installation and in the local  
29 communities, the increase in traffic congestion and accompanying decrease in LOS  
30 would be slightly greater than that caused by the presence of the Full Sustainment BDE.  
31 Similarly, the safety risk to pedestrians and bicyclists would be slightly higher than that  
32 posed by the presence of a Full Sustainment BDE.  
33

34 **HBCT.** There will be moderate (medium) short- and long-term impacts on traffic and  
35 transportation systems on the installation due to the presence of an additional 3,800 to  
36 4,000 Soldiers and their family members. Both on the installation and in the local  
37 communities, the increase in traffic congestion and accompanying decrease in LOS  
38 would be slightly greater than that caused by the presence of an IBCT. Similarly, the  
39 safety risk to pedestrians and bicyclists would be slightly higher than that posed by the  
40 presence of an IBCT.  
41

42 **Multiple BCTs.** There would significant (high) short- and long-term impacts on traffic  
43 and transportation systems on the installation due to the presence of an additional  
44 7,000 Soldiers, or more, and their family members. The effect on the traffic congestion  
45 in the local communities from this increased population level would be noticeable in the  
46 community at large and would likely cause a decrease in LOS in the community's road

1 network, and would likely cause a major decrease in the LOS on the road network  
2 leading to the installation. This increase in both Soldier and family-member population  
3 would cause a major impact on the LOS of the installation's road network and pose a  
4 significantly increased risk to the safety of pedestrians and bicyclists.

#### 6 **4.14.15 Cumulative Effects**

7  
8 Fort Stewart is bordered to the north by agriculture and wetlands; to the east by the  
9 Ogeechee River; to the south by agriculture, wetlands and the City of Hinesville; and to  
10 the west by agricultural lands. The nearest cities are Hinesville to the south; Richmond  
11 Hill to the east; Pembroke to the north; Glennville to the west; and Savannah,  
12 approximately 41 miles to the northeast. There are no known significant projects  
13 ongoing, or in the foreseeable future, in the communities outside the installation  
14 boundary; however, routine activities, such as roads maintenance and minor  
15 construction (Fort Stewart, 2007).

16  
17 Several projects have been identified that are either in progress now, or would be in  
18 progress within the next five years and have the potential to result in cumulative effects,  
19 when considered in conjunction with the proposed action. Most of these projects have  
20 been previously identified in the Installation's Real Property Master Planning Board and  
21 preliminarily assessed for environmental impacts via the NEPA process; however, some  
22 of the projects are still pending final approval and subsequent compliance with NEPA.  
23 These projects are listed below:

- 24
- 25 • Improvements to the Convoy Live-Fire training area;
- 26 • Construction of additional MOUT sites [CACTF, Shoot houses (2), Urban Assault
- 27 Course], a Convoy Live-Fire Course, a Digital Multi-Purpose Range Complex, a
- 28 Digital Multi-Purpose Training Range, an Engineers Qualification Area, permanent
- 29 facilities for the 4th Brigade Combat Team, a new AAFES shopping center;
- 30 additional Residential Communities Initiative Single Soldier Housing, several MWR
- 31 projects (to include shoppettes), new facilities within the GA Army National Guard
- 32 Complex (to include demolition of two existing facilities), and two new middle
- 33 schools (one for Bryan County and one for Liberty County);
- 34 • Upgrades to Wright Army Airfield and the Evans Field Wastewater Treatment
- 35 Plant;
- 36 • Road improvement projects, including the widening of Georgia Highway 144 and
- 37 the construction of a bypass, moving traffic away from the cantonment area; and
- 38 • Extension of utilities access to outlying areas via the Cypress Pipeline (natural
- 39 gas) and East Side Right of Way (electricity) projects.
- 40

41 Other reasonably foreseeable actions, such as routine road and tank trail maintenance,  
42 range, building, and hangar maintenance, building/hangar renovations, unit motor pool  
43 maintenance, troop training, and routine airfield activities, would continue in the current  
44 manner on an annual basis. (Fort Stewart, Environmental Assessment of the  
45 Construction of Artillery Firing Point 311, June 2007)

1 Fort Stewart expects a range of potential direct and indirect effects from Army Growth,  
2 primarily minor to moderate (low to medium). The installation currently provides training  
3 for three HBCTs stationed at Fort Stewart, and two additional HBCTs plus an IBCT  
4 stationed elsewhere. As stated above, there are no known significant projects in the  
5 reasonably foreseeable future outside the installation boundary. Cumulative impacts  
6 are expected to be the result of growth on Fort Stewart and are as follows:  
7

8 Air quality is expected to have an overall minor effect. Although Fort Stewart is a major  
9 source of air pollutants, the primary source of these pollutants are stationary (e.g.,  
10 boilers or fuel storage and dispensing areas). Only localized, short-term elevated air  
11 pollutants are expected and should not significantly impact regional air quality.  
12 Cumulatively, short-term effects are expected from periods of heavy construction  
13 combined with days when training intensity is elevated. Air quality may be impacted by  
14 an increase in ozone, particulate matter, and fugitive dust.  
15

16 Noise levels may also be elevated in NZ II during days of heavier training and heavy  
17 construction noise and traffic. Disturbance to wildlife receptors on- or off-post  
18 residential receptors is expected to be short-term and not permanent. Though during  
19 these times of increased noise intensity, the installation's peak noise thresholds may  
20 increase slightly, peak noise will not remain elevated, nor will this increase require a  
21 modification to the installation's noise plan.  
22

23 Direct and indirect impacts to cultural or historical resources may have cumulative  
24 consequences. For example, the increase in vehicle traffic and construction may  
25 directly damage unknown, undocumented artifacts. Although approximately 58 percent  
26 (164,000 of 280,000 acres) of the installation has been surveyed, a significant portion of  
27 the installation would still need to be surveyed to identify potential impacts and  
28 mitigations. Fort Stewart does maintain a programmatic agreement (as identified in  
29 Section 4.15.4.1) for projects that would not adversely affect cultural resources at the  
30 installation; however, site-specific analysis would be required to identify the level of  
31 impact, if Fort Stewart were to be significantly impacted by Army growth. Adverse  
32 effects to cultural resources or historic properties would require additional consultation  
33 under 36 CFR 800. Indirect impacts to cultural or historic resources may come from the  
34 percussion or vibration of additional traffic from heavy tactical and non-tactical vehicles.  
35

36 Minor cumulative effects to soil erosion and surface water would be expected from the  
37 combination of construction and additional maneuver traffic. The installation anticipates  
38 the potential for increased siltation and sedimentation which could have water quality  
39 impacts, resulting in indirect effects to many of the installation's Federal and State listed  
40 species, which rely on those water sources for foraging and survival.  
41

42 Overall, cumulative impacts will likely be short-term and minor in nature. However,  
43 more significant impacts would be expected if there is a change in Fort Stewart's METL.  
44 Fort Stewart already accommodates a significant amount of training (Infantry and Heavy  
45 Brigade), as well as from nearby installations. However, any impacts from an additional  
46 BCT alone are not expected to change the installation's mission. Interactions with other

1 ongoing and proposed actions would not add to these effects substantively or  
2 permanently.

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#### 4.15 WHITE SANDS MISSILE RANGE, NEW MEXICO

##### 4.15.1 Introduction

White Sands Missile Range (WSMR), located in south central New Mexico and is adjacent to Fort Bliss. It has approximately 2,200,000 acres of varied and rugged terrain (Figure 4.15-1). WSMR's mission is one of testing Army missile systems and air-defense systems, as well as other items. WSMR has six non-duded training ranges in the northern portion of the installation.



### White Sands Missile Range- Installation Location

14  
15 **Figure 4.15-1 White Sands Missile Range**

16  
17 Table 4.15-1 contains the WSMR's VEC ratings for each of the various stationing action  
18 scenarios.

19

1 **Table 4.15-1. White Sands Missile Range VEC Ratings**

<b>White Sands Missile Range</b>						
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BDE (3,000-3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Stryker BCT (4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Medium	Medium	Medium	Medium	Medium	Medium
Airspace	Low	Low	Low	Low	Low	Medium
Cultural	Low to high depending on survey results	Low to high depending on survey results	Low to high depending on survey results	Low to high depending on survey results	Low to high depending on survey results	Low to high depending on survey results
Noise	Low	Low	Low	Low	Low	Low
Soil Erosion Impacts	Low	Medium	Medium	Medium	Medium	Medium
T&E/Other Wildlife	Low	Low	Low	Low	Low	Low
Wetlands	Low	Low	Low	Low	Low	Low
Water Resources	Medium	Medium	Medium	High	High	High
Facilities	Low	Low	Low	Low	Low	Low
Socioeconomics	Low	Low	Low	Low	Low	Low
Energy Demand/ Generation	Low	Low	Low	Low	Low	Low
Land Use Conflict/ Compatibility	Low	Low	Medium	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Medium	Medium	Medium	Medium	Medium
Traffic and Transportation	Low	Low	Low	Low	Low	Low

2

3

4

**4.15.2 Air Quality**

5

**4.15.2.1 Affected Environment**

6

7

At WSMR, the ROI for air quality is located in New Mexico AQCR 6. New Mexico AQCR 6 includes Doña Ana, Otero, Sierra, and Lincoln counties. These counties, along with six counties in Texas, also are part of the EPA El Paso-Las Cruces-Alamogordo Interstate AQCR 153. WSMR is located in designated attainment areas relative to compliance with ambient air quality standards.

10

12

13

There are no sensitive receptors of air pollutant impacts associated with WSMR, and the climate does not exhibit wide variations in monthly or seasonal patterns of atmospheric dispersion conditions. Airborne dust is a persistent problem throughout

14

15

1 WSMR, with strong westerly winds in the spring (March through early May). These  
2 produce dust storms prior to the onset of the rainy season. Intact soils and vegetation  
3 generally promote better air quality; however, if vegetation is removed and soil exposed,  
4 wind erosion often leads to substantial amounts of airborne dust.

5  
6 WSMR is a major source of air pollutants and maintains a Title V Operating Permit.  
7 Primary stationary sources include boilers, generators, fuel storage and dispensing  
8 areas, and surface coating operations (USAEC, 2006)).

9  
10 Since WSMR is located in attainment areas there is no requirement to conduct a  
11 conformity analysis. The CAA's Prevention of Significant Deterioration requirements  
12 are not expected to be triggered by the installation's activities.

13  
14 Short-term intermittent minor adverse impacts would be expected within the ROI as a  
15 result of construction activities, training exercises, and increased automobile use. Heavy  
16 construction equipment and trucks would emit minor amounts of NO<sub>x</sub>, PM-10, CO, SO<sub>x</sub>,  
17 and VOCs. These affects, though possibly significant at the moment, are not  
18 considered to have a long-term impact on regional air quality.

#### 19 20 **4.15.2.2 Environmental Consequences**

21  
22 **CS/CSS.** There will be an expected moderate (medium) impact on the installation and  
23 surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It  
24 is assumed that the resulting increases in air emissions are directly proportional to the  
25 increase in population at the facility. In general, combustion and fugitive dust emissions  
26 will produce localized, short-term elevated air pollutant concentrations that will not result  
27 in any sustained impacts on regional air quality.

28  
29 **Full Sustainment BDE, IBCT.** There will be an expected moderate (medium) impact  
30 on the installation and surrounding communities by the restationing of 3,000 to 3,500  
31 Soldiers. Any construction related emissions also have the potential to produce  
32 localized, short-term elevated air pollutant concentrations but these are not anticipated  
33 to have a significant effect on regional air quality. Combustion emissions resulting from  
34 training would be primarily from mobile sources and be widely distributed both spatially  
35 and temporally. Fugitive dust emissions remain a localized issue and should be  
36 addressed as an opacity issue if activities are close enough to installation boundaries  
37 that visible emissions leave the installation. Given the wide distribution of emissions, it  
38 is not anticipated that regional air quality would be significantly affected. Additionally,  
39 with the IBCT it is anticipated that more training/operations will occur away from  
40 established roads.

41  
42 **HBCT, Stryker BCT.** There will be an expected moderate (medium) impact on the  
43 installation and surrounding communities by the restationing of a Heavy Brigade  
44 Combat Team and its 3,800 to 4,000 Soldiers. Though the facility can expect increased  
45 emissions from military vehicles and generators used to support training events as well

1 as increase in fugitive dust, these will tend to remain localized and produce no significant  
2 impact to regional air quality.

3  
4 **Multiple BCTs.** As stated above, the expected environmental impact on the installation  
5 and surrounding communities by the restationing of multiple Brigade Combat Teams  
6 and approximately 7,000 Soldiers is expected to be “moderate-level” (medium)  
7 regarding the long-term effect on air quality. Construction and changes to facility  
8 operations to support multiple brigades would be significant initially but should provide  
9 no sustained negative impact to regional air quality.

### 10 11 **4.15.3 Airspace**

#### 12 **4.15.3.1 Affected Environment**

13  
14 WSMR is the largest open-air/over-land missile range in the hemisphere, and includes  
15 major ranges and testing facilities for all of DoD. Activities include bomb delivery, air-to-  
16 air combat maneuvers, supersonic flight tactics, low-altitude flights (including fixed- and  
17 rotary-winged operations), and missile and rocket delivery (USAEC, August 2006).

#### 18 19 **4.15.3.2 Environmental Consequences**

20  
21 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT.** There will be minor  
22 (low) long-term impacts to airspace from UAV operations. It is anticipated that the  
23 activities associated with an increase of the CS/CSS or Full Sustainment BDE would not  
24 affect airspace at WSMR. The addition of a BCT would have to be scheduled to  
25 coordinate with existing mission activities. Where existing airspace is insufficient, or  
26 already saturated with military activity, the installation commander would have to seek  
27 additional special use airspace designations from the FAA. Future new systems or  
28 modifications to existing systems could also affect airspace use, resulting in greater  
29 demand for exclusive military use of the resource. No changes to airspace from firing  
30 of munitions/artillery/ordnance would accompany the BCT.

31  
32 **Multiple BCTs.** The establishment of multiple BCTs would result in a moderate-level  
33 (medium) long-term impact to airspace. Construction or modification of airfields and  
34 training and maneuver areas could result in changes to existing airspace use. The  
35 need for additional special use airspace may be necessary with the additional UAV  
36 operations, site-specific analysis would be required to make this determination.  
37 Additionally, if there are any significant changes to live-fire training areas where  
38 ordnance is delivered or exploded (such as artillery), modifications would be needed to  
39 ensure adequate training airspace is available.

### 40 41 **4.15.4 Cultural Resources**

#### 42 **4.15.4.1 Affected Environment**

43  
44 The affected environment, relating to cultural resources, is the footprint of WSMR. The  
45 installation has extremely rich deposits of archaeological resources. Many of these  
46 archaeological resources are on the surface and easily destroyed by foot and vehicle



1 traffic. In addition to Cold War-era facilities, the historical buildings inventory of WSMR  
2 includes 200 ranches and a Depression-era Civilian Conservation Corps camp.  
3

#### 4 5 **4.15.4.2 Environmental Consequences** 6

7 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs** . The  
8 environmental consequences of the proposed action, relative to cultural resources,  
9 could be minor to significant (low to high) depending on survey results for the chosen  
10 training area. WSMR is approximately 3,200 square miles. The size of WSMR has  
11 made it impossible to survey an appreciable percentage of the installation for cultural  
12 resources. Therefore, any new training missions will require surveys to identify any  
13 cultural resources within the proposed training area. This will add both cost and time to  
14 the initiation of training. There should be little impact on historic buildings as the  
15 buildings at WSMR are not over crowded at this time.  
16

#### 17 **4.15.5 Noise**

##### 18 **4.15.5.1 Affected Environment** 19

20 WSMR is the largest open-air/over-land missile range in the hemisphere, and includes  
21 major ranges and testing facilities for all of DoD. Noise at WSMR is generated from  
22 largely from bomb delivery, air-to-air combat maneuver, supersonic flight tactics  
23 (producing sonic booms), low-altitude flights (including fixed- and rotary-winged  
24 operations), missile and rocket delivery producing ordnance explosions (USAEC,  
25 August 2006). Any current noise heard off the installation would likely be from sonic  
26 booms. The National Guard uses some of WSMR's ranges, infrequently for training, but  
27 this does not register outside the installation boundary. Though low-level, vehicle noise  
28 is persistent around the main post.  
29

##### 30 **4.15.5.2 Environmental Consequences** 31

32 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT Multiple BCTs** . WSMR  
33 expects minor (low) short- and long-term impacts to wildlife or nearby residents from  
34 any of the proposed scenarios including the addition of a 1,000 to 7,000 Soldiers to  
35 WSMR. WSMR has large tracts of testing land that is far from any major population  
36 centers and the wildlife receptors located on the installation have been thriving there  
37 despite the current testing mission. Guidelines for responsible noise management  
38 which protects wildlife including T&E species can be found in the installation's ESMP  
39 and INRMP, and would continue to be followed. Noise contours would need to be  
40 reviewed and the installation's noise plan may require updating; however, noise impacts  
41 to sensitive off-post receptors would be minimal or unlikely. Construction of the  
42 required facilities and utilities to accommodate growth at the installation would have  
43 short-term impacts. There currently is not expected to be any noise generated from  
44 training, only traffic, as training is expected to take place at nearby Fort Bliss.  
45

1                   **4.15.6 Soil Erosion**

2                                   **4.15.6.1 Affected Environment**

3  
4 WSMR is located in the Tularosa basin of south-central New Mexico covered mostly by  
5 Sand Sage, Creosote bush and Tarbush Shrublands, and Alkali Sacaton grassland.  
6 Predominant soil associations include sandy and stony loams (USAEC, August 2006).  
7 Common soil stressors (to WSMR) such as wildfire and drought increase the erodibility  
8 of soils, which is accelerated by military activities such as maneuver and live-fire  
9 training and natural processes such as high wind conditions (WSMR, 2001).

10  
11                                   **4.15.6.2 Environmental Consequences**

12  
13 **CS/CSS.** Minor (low) long-term impacts are expected. Construction may not be  
14 necessary to accommodate the additional 1,000 Soldiers at WSMR. Maneuver from  
15 this level of realignment is expected to be contained to hardened or improved surfaces,  
16 with only a slight increase in foot and light vehicle traffic in range course roads and  
17 unimproved surfaces in range areas. Any training other than typical maneuver would  
18 likely occur at Fort Bliss. No adverse impacts are expected to small arms ranges. Soils  
19 and erosion potentials would continue to be monitored as part of the installation's ITAM  
20 program and in accordance with the installation's INRMP.

21  
22 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** Moderate (medium) short- and  
23 long-term impacts to soil erodibility are expected. Construction to accommodate growth  
24 for 3,000 to 7,000 additional Soldiers, their Families, and any support staff would likely  
25 be significant, but short-lived and mitigable, having only moderate impacts to the soil,  
26 which is expected to recover. Traffic and a certain degree of maneuver impacts from  
27 this increase of Soldiers, including associated equipment may displace soils in the  
28 already disturbed areas of the installation. Unimproved range roads may be more  
29 susceptible to water and wind erosion. Some of these roads may need to be improved  
30 or hardened to help control an increase in soil transport. Maintenance techniques such  
31 as re-vegetation and re-grading may need to be employed. Maneuver and training from  
32 heavy tracked and wheeled vehicles are expected to be accommodated by Fort Bliss.

33  
34                   **4.15.7 Vegetation and Wildlife/Threatened and Endangered Species**

35                                   **4.15.7.1 Affected Environment**

36  
37 A total of 61 floral species having federal or state status occur or potentially occur on  
38 WSMR. A number of priority Army species at risk are recorded on WSMR. Two are  
39 endemic to the installation and 55% of the known population of another occurs on  
40 WSMR. One federally-listed and four candidate floral species are found on the  
41 installation. In addition, 47 floral species have been designated by White Sands  
42 Environmental Stewardship as WSMR species of interest. A total of 25 faunal species  
43 having federal or state status occur or potentially occur on WSMR. There are six  
44 federal-listed species and one candidate species found on WSMR, and three federal-  
45 listed species are recorded as contiguous to the installation. Critical habitat for one  
46 federal-listed species also occurs on the installation. These species include the

1 Aplomado falcon (*Falco femoralis*) (as part of a Safe Harbor Program, breeding pairs of  
2 the Aplomado Falcon has been released into the wild), White Sands pupfish  
3 (*Cyprinodon tularosa*), and the Organ Mountain Colorado chipmunk (*Eutamias*  
4 *quadrivittatus australis*). More information on these species can be found in Appendix T  
5 of this document.  
6

#### 7 **4.15.7.2 Environmental Consequences**

8

9 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** The  
10 installation anticipates only minor (low) long-term impacts on the listed species found  
11 onsite. As long as activities are conducted in areas not inhabited or utilized by the  
12 federal-listed and other status species, these actions will have very little impact on these  
13 species. Listed species and other special status species recorded on the installation  
14 will continue to be managed in accordance with the installation's INRMP and ESMP,  
15 terms and conditions identified within biological opinion(s) issued by the USFWS and  
16 any conservation measures identified in ESA, Section 7 consultation documents.  
17 Avoiding or minimizing impacts to habitat essential for these species would be required  
18 to avoid the potential for these species to be listed. WSMR has identified that listing of  
19 any of these species under the Endangered Species Act would have an impact on the  
20 installation's mission. (WSMR Personnel, May 2007)  
21

#### 22 **4.15.8 Wetlands**

##### 23 **4.15.8.1 Affected Environment**

24

25 White Sands Missile Range contains approximately 5,160 acres of wetlands (Army  
26 Environmental Database-Environmental Quality, (n.d)). Wetland issues are not common  
27 on White Sands due to the large area that it encompasses. Numerous ephemeral playa  
28 lakes are present. Most water is the result of runoff from the San Andres and Oscura  
29 Mountains. (INRMP, US Army, 2001)  
30

##### 31 **4.15.8.2 Environmental Consequences**

32

33 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** There  
34 will be a minor (low) impact on the installation wetland areas as a result of growth of  
35 1,000 to 7,000 Soldiers to WSMR. Training activities are expected to occur at Fort  
36 Bliss, relieving WSMR of any potential impacts from training on their range lands.  
37

#### 38 **4.15.9 Water Resources**

##### 39 **4.15.9.1 Affected Environment**

40

##### 41 **Watersheds**

42 The Jornada del Muerto Basin is located in the northwest and western portions of  
43 WSMR, and drains a 1,893 square-mile area, almost half of which is located within  
44 WSMR. The Tularosa Valley watershed drains most of the lands within WSMR, as  
45 more than one third of the basin lies within the installation's boundary. This watershed  
46 receives recharge from the San Andreas and Sacramento mountain fronts with

1 discharge to evaporation occurring in the lowest portion of the basin at Lake Lucero.  
2 Additionally, a small portion of the Jornada Draw watershed (a closed basin) lies within  
3 the installation's boundary and drains 1,268 square miles. Portions of four other  
4 watersheds fall within the WSMR extension areas, these include El Paso-Las Cruces,  
5 Elephant Butte Reservoir, Rio Grande-Albuquerque, and Western Estancia (WSMR  
6 INRMP, 2001).

### 7 8 **Surface-Water**

9 Surface-water resources within WSMR are limited due to low rainfall, high evaporation  
10 rates, and high soil infiltration properties. Most streams, lakes, and rainwater  
11 catchments are ephemeral; however, Salt Creek and many of the springs found on the  
12 installation are perennial.

### 13 14 **Water Supply**

15 WSMR's produces water via five potable water systems, the Main Post, Stallion Range  
16 Center (SRC), High Energy Laser Systems Test Facility, Small Missile Range, and the  
17 Hazardous Test Area. On-post groundwater wells are the source of water for all three  
18 systems. WSMR also obtains additional water from wells located on Fort Bliss.  
19 Groundwater production for Main Post has averaged about 2.43 million m<sup>3</sup> (641 MG)  
20 annually. Groundwater production for the SRC averages about 35,200 m<sup>3</sup>/year (9.3  
21 million gal/year). Other facilities on WSMR receive hauled water from the SRC and Main  
22 Post.

### 23 24 **Wastewater**

25 Sanitary wastewater and minor commercial discharges generated at Main Post are  
26 treated by the WSMR sewage treatment facility. The treatment facility has a design  
27 capacity of 0.47 MGD and maximum capacity of 1 MGD. The system currently operates  
28 at approximately 50% of capacity.

29  
30 At SRC, the treatment system has a rated capacity of 27,000 GPD via a septic  
31 tank/evaporative lagoon system. The SRC wastewater treatment system currently  
32 operates at 20 % of capacity.

### 33 34 **4.15.9.2 Environmental Consequences**

35  
36 **CS/CSS, Full Sustainment BDE, IBCT.** An addition of 1,000 to 3,500 Soldiers is  
37 anticipated to have a moderate (medium) impact to WSMR. The region is currently  
38 experiencing potable water supply issues, though an increase of this size of Soldier  
39 strength would continue to elevate those issues, it is anticipated that growth could be  
40 supported with only moderate long-term water conservation impacts.

41  
42 **HBCT, Multiple BCTs.** An addition of a HBCT is anticipated to have a significant (high)  
43 impact on WSMR and the entire region. Although water consumption would increase,  
44 there is water capacity at the water system to handle HBCT activities. The installation is  
45 considering construction of a desalination plant, which would alleviate the significance  
46 of impact to regional water supply.

1  
2 Both the Main Post and SRC wastewater treatment facilities are currently operating  
3 below capacity. The installation would need to revisit their Storm Water Pollution  
4 Prevention Plan to incorporate best management practices for any new training  
5 activities. The installation would likely need to consider upgrades to their water supply  
6 systems to ensure adequate supply capability is met.  
7

## 8 **4.15.10 Facilities**

### 9 **4.15.10.1 Affected Environment**

10  
11 WSMR is the largest all-overland military test range in the Western Hemisphere. The  
12 Main Cantonment is the urbanized portion of WSMR, and has been developed into a  
13 wide variety of land uses that comprise the elements necessary for a complete  
14 community. The cantonment includes an extensive infrastructure that includes a central  
15 administrative and technical complex, housing, roads, air transport facilities, a railhead;  
16 and systems for water distribution, sanitary waste, natural gas distribution, solid waste  
17 landfills, electric power, and communication networks. Specific examples of activities  
18 conducted at WSMR include acoustic tower and Future Combat Systems (FCS) testing.  
19 Infrastructure and facilities have evolved over a 50-year period and are being constantly  
20 improved and expanded to accommodate the military test and evaluation mission (US  
21 Army, August 2006). The VECs for utilities, energy, and traffic/transportation are  
22 addressed in separate sections of this PEIS.  
23

24 WSMR also supports the Warrior Transition Course managed by the New Mexico  
25 National Guard. This course is designed to provide former Soldiers, Marines, Sailors,  
26 and Airmen the training required to transition into the Active Force.  
27

### 28 **4.15.10.2 Environmental Consequences**

29  
30 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** There  
31 will be minor (low) environmental impacts to facilities. It is anticipated that the activities  
32 associated with an increase of 1,000 to 7,000 Soldiers would increase facilities usage  
33 within the cantonment and training and range areas. WSMR can currently  
34 accommodate a CS/CSS or Full Sustainment BDE with good planning. The addition of  
35 an IBCT, HBCT, Stryker BCT, or even multiple BCTs would significantly increase  
36 activity within the cantonment area, and would require a reciprocal level of construction  
37 to accommodate this level of growth. Additional coordination and a review of the  
38 WSMR Real Property Master Plan may be necessary. The impacts on utilities and  
39 communications are primarily related to projected increases in population on- and off-  
40 post supporting this level of growth. These were analyzed by estimating per unit  
41 consumption on generation rates using the most recently available data, and then  
42 estimating how total consumption or generation rates would change with the changed  
43 population. The increased consumption and generation were then compared with the  
44 ability of existing infrastructure to handle those changes.  
45

1                   **4.15.11 Energy Demand/Generation**  
2                                   **4.15.11.1 Affected Environment**

3  
4 All energy requirements of White Sands Missile Range (WSMR) facilities are met by  
5 electricity, natural gas, and propane.  
6

7 **Natural Gas:** A private utility provides natural gas to Main Post for heating and other  
8 industrial and residential uses through two high-pressure pipelines from El Paso, Texas.  
9 The distribution line to WSMR enters Main Post at Building 1794, where it is metered,  
10 reduced in pressure, and distributed. All other WSMR facilities use tank-fed propane  
11 gas for heating and other purposes. In 2000, range wide consumption of natural gas  
12 and propane was 13,873 m<sup>3</sup> (495,478 ft<sup>3</sup>) and 11,632 m<sup>3</sup> (415,460 ft<sup>3</sup>), respectively.  
13

14 **Electricity:** Electric Power is provided to WSMR by several commercial electric utilities  
15 and is distributed across the installation by approximately 648 km (400 mi) of overhead  
16 and 42 km (26 mi) of underground lines. In 1999, the total quantity of electricity  
17 purchased by WSMR was 87,420,549 kWh. Portable and semi-permanent generators  
18 provide low voltage electrical power (10–700 kVA) to remote test sites across WSMR.  
19

20                                   **4.15.11.2 Environmental Consequences**

21  
22 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Any  
23 level of growth as assessed by this PEIS is expected to have only a minor (low) impact  
24 on the power supply and energy demand locally or regionally. In terms of energy usage  
25 and generation, the existing energy infrastructure has sufficient excess capacity and  
26 scalability to readily absorb the addition of 1,000 to 7,000 Soldiers. While multiple BCTs  
27 may require expansion of the existing energy infrastructure, the capacity of the  
28 electrical, natural gas, and propane distribution systems are not likely to be challenged.  
29

30                   **4.15.12 Land Use Conflicts/Compatibility**  
31                                   **4.15.12.1 Affected Environment**

32  
33 WSMR is the largest all-overland military test range in the Western Hemisphere. The  
34 Installation is supported by an extensive infrastructure that includes a central  
35 administrative and technical complex, roads, air transport facilities, a railhead; and  
36 systems for water distribution, sanitary waste, natural gas distribution, solid waste  
37 landfills, electric power, and communication networks. WSMR also supports a variety of  
38 highly specialized test sites and facilities. Main Post occupies approximately 890 acres  
39 along the eastern slopes of the Organ Mountains in the southwest corner of WSMR; it  
40 serves as the center of operations for most garrison organizations and tenants (US  
41 Army, White Sands, 2006).  
42

43 Other lands found within the boundary of WSMR as part of cooperative agreements  
44 include the 147,527 acre White Sands National Monument, and the 57,000 acres San  
45 Andres National Wildlife Refuge. A cooperative agreement with the U.S. Forest Service

1 allows co-management by WSMR and Fort Bliss of the 18,000 acre San Andreas  
2 National Wildlife Refuge.

#### 3 4 5 **4.15.12.2 Environmental Consequences** 6

7 **CS/CSS, Full Sustainment BDE.** There will be minimal (low) short and long-term  
8 environmental impacts on installation land use due to this level of growth at WSMR.  
9 The installation has sufficient land available to either build the facilities, sufficient vacant  
10 space in existing buildings, or a combination thereof to meet the unit's mission  
11 requirements. Additionally, the land, or existing facilities, are located such that  
12 surrounding facilities are compatible. The facilities required will be located within a  
13 single contiguous land unit.

14  
15 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** There is an expected moderate (medium)  
16 short- and long-term impact to installation land use due to the presence of an additional  
17 3,500 to 7,000 Soldiers and their family members. The installation may have sufficient  
18 land available to either build the facilities needed; however a significant amount of  
19 construction would be likely needed to accommodate this level of growth, having an  
20 overall moderate impact to installation resources. Building new facilities may require  
21 the installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
22 compatible with land uses associated with tactical units. Existing land and/or facilities  
23 may not be contiguous and located such that tactical vehicles would need to travel  
24 extensively within the cantonment area to reach training areas at Fort Bliss.

#### 25 26 **4.15.13 Hazardous Materials/Hazardous Waste**

##### 27 **4.15.13.1 Affected Environment** 28

29 The affected environment for these proposed actions include the use, storage,  
30 transport, and disposal of hazardous materials and wastes at WSMR. This includes  
31 hazardous materials and wastes from USTs and aboveground storage tanks;  
32 pesticides; LBP; asbestos; PCBs; radon; and UXO. Each installation operates under a  
33 Hazardous Waste Management Program that manages hazardous waste to promote  
34 the protection of public health and the environment. Army policy is to substitute  
35 nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance  
36 with local, state, and federal hazardous waste requirements; and ensure the use of  
37 waste management practices that comply with all applicable requirements pertaining to  
38 generation, treatment, storage, disposal, and transportation of hazardous wastes. The  
39 program reduces the need for corrective action through controlled management of solid  
40 and hazardous waste. (US Army Corps of Engineers, February, 2002)

##### 41 42 **4.15.13.2 Environmental Consequences** 43

44 **CS/CSS.** There will be minor (low) long-term environmental impacts from hazardous  
45 materials and waste. It is anticipated that WSMR would minimally increase its storage  
46 and use of hazardous chemicals during training exercises and installation maintenance

1 with an increase of 1,000 Soldiers. Waste collection, storage, and disposal processes  
2 would remain mostly unchanged, and current waste management programs would  
3 continue.

4  
5 **Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Moderate  
6 (medium) long-term impacts from hazardous materials and waste would be expected  
7 with an increased Soldier strength of 3,000 to 7,000. Direct beneficial and adverse  
8 impacts would be expected, which include activities associated with land transactions  
9 where the Army would continue to operate under its IRP to return contaminated lands to  
10 fully usable status. Direct adverse impacts include increased facility construction and  
11 modification. (US Army Corps of Engineers, February, 2002) Waste management  
12 programs may be updated as needed. Generation and management of hazardous  
13 materials and waste, pesticides, petroleum storage tanks, ordnance and explosives  
14 would all be higher for the HBCT and Stryker BCT. The increase in these wastes would  
15 be managed in accordance with current standards and regulations.

#### 17 **4.15.14 Traffic and Transportation**

##### 18 **4.15.14.1 Affected Environment**

19  
20 White Sands Missile Range is located in the south-central portion of the State of New  
21 Mexico approximately 45 miles north of the City of El Paso, Texas, and approximately  
22 20 miles east of Las Cruces, New Mexico. The region of influence (ROI) of the affected  
23 environment for traffic and transportation aspects of the proposed action includes White  
24 Sands Missile Range.

##### 26 **4.15.14.2 Environmental Consequences**

27  
28 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** There  
29 will be a minimal (low) short- and long-term effect to traffic and transportation systems  
30 on the installation due to the presence of an additional 1,000 to 7,000 Soldiers and their  
31 family members assigned to the installation. Spread across the ROI, this population will  
32 have de minimis impact on the overall traffic congestion in the neighboring communities.  
33 This additional population may contribute to traffic volume on the installation, however,  
34 this level of growth in the area is not expected to reduce the level of service on the  
35 installation's road network. There may be a slight increase in traffic volume during peak  
36 morning and evening hours, but it would not affect level of service or pose an increased  
37 risk to the safety of pedestrians and bicyclists. Short-term effects would come from  
38 minor road improvements that may be needed for growth at the BCT level.

##### 40 **4.15.15 Cumulative Effects**

41  
42 White Sands Missile Range has identified possible cumulative impacts to the testing  
43 and operations mission as a result of increased training on WSMR. The primary  
44 mission of White Sands is testing. If WSMR were to accommodate new units, training  
45 would likely be held at nearby Fort Bliss. Cumulative impacts would still be expected.  
46 From the stationing of units at the installation. Air quality could be affected from the



1 increase in traffic from tactical, non-tactical, and personal vehicles. Fugitive dust from  
2 the increased traffic may travel off the installation boundary. Construction on- and off-  
3 post would lead to short-term issues with air quality issues and noise. White Sands too  
4 would need to conduct surveys for cultural or archeological resources of the land  
5 identified to accommodate new growth. A significant portion of the garrison has not  
6 been surveyed, due to the large tracts of land. Depending on the amount and location  
7 of identified resources, the installation could expect significant direct and indirect  
8 impacts to include direct impacts to undocumented resources from traffic, and indirect  
9 impacts from the vibration of traffic, and from fugitive dust.

10  
11 Other cumulative issues would come from the increase in water demand from a growing  
12 on- and off-post population; however, White Sands is considering construction of a  
13 desalinization plant to reduce the pressure on the current water supply from a growing  
14 population. Regional growth would also likely have a socioeconomic impact that needs  
15 to be addressed as the schools become overcrowded. Las Cruces, a neighboring city  
16 of both WSMR and Fort Bliss currently has schools that are near or over capacity.  
17 (Conversation with David Scruggs, WSMR, 2007)

18  
19  
20 **4.16 YAKIMA TRAINING CENTER, WASHINGTON**  
21 **4.16.1 Introduction**

22  
23 Yakima Training Center (YTC), located in central Washington and east of Fort Lewis,  
24 has approximately 305,000 acres of maneuver area suited for vehicle and non-vehicular  
25 military training (Figure 4.16-1). YTC has long been supporting up to brigade level  
26 exercises for both armor and infantry units.  
27



## Yakima Training Center- Installation Location

**Figure 4.16-1 Yakima Training Center**

The few units permanently stationed at YTC are generally small support elements that have little to no impact on the environment outside the limited cantonment area. Units from Fort Lewis, and elsewhere, deploy to YTC to conduct maneuver and live-fire training, and then return home to their respective installations. The impact of a particular training rotation at YTC varies according to the unit's training objectives.

YTC has a large, varied, and challenging maneuver area and a variety of live-fire ranges, to include large and small caliber ranges. The extent of urbanization is occurring around YTC is lower compared to other installations and is not currently impacting the training mission.

Table 4.16-1 contains the YTC's VEC ratings for each of the various stationing action scenarios.

**Table 4.16-1. Yakima Training Center VEC Ratings**

**Yakima Training Center**

VEC	CS/CSS Units (1,000 Soldiers)	Full Sust. BCT (3,000-3,500 Soldiers)	IBCT (3,500 Soldiers)	HBCT (3,800 – 4,000 Soldiers)	Stryker BCT (4,000 Soldiers)	Multiple BCTs (7,000 Soldiers)
Air Quality	Medium	Medium	Medium	Medium	Medium	Medium
Airspace	Very Low	Very Low	Very Low	Very Low	Very Low	Low
Cultural	Very Low	Low	Medium	Medium	Medium	Medium
Noise (biological)	Medium	Medium	Low	Medium	Medium	Medium
Noise	Very Low	Low	Medium	Medium	Medium	Medium
Soil Erosion Impacts	Low	Medium	Medium	High	High	High
T&E/Other Wildlife	Medium	High	High	High	High	High
Wetlands	Low	Medium	Medium	Medium	Medium	Medium
Water Resources (biological)	Low	Medium	Low	High	High	High
Water Resources (Env. Compliance)	Low	Medium	Medium	Medium	Medium	Medium
Facilities	Medium	Medium	Medium	Medium	Medium	Medium
Socioeconomics	Low	High - Positive	High- Positive	High- Positive	High- Positive	High- Positive
Energy Demand/ Generation	Low	Medium	Medium	Medium	Medium	Medium
Land Use Conflict/ Compatibility	Medium	Medium	Medium	Medium	Medium	Medium
Haz Mat/ Haz Waste	Low	Medium	Medium	Medium	Medium	Medium
Traffic and Transportation	Low	Medium	Medium	Medium	Medium	Medium

1  
2  
3  
4  
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**4.16.2 Air Quality**  
**4.16.2.1 Affected Environment**

At YTC, the ROI for air quality is under the authority of the Washington Department of Ecology. Air quality regulation is carried out by the Central Region of Ecology in Kittitas County, and by the Yakima Regional Clean Air Authority in Yakima County. Opacity is regulated at YTC under the jurisdiction of the local air pollution control agencies.

Air quality on YTC is generally considered good, although a small strip of the western cantonment area lies within the Yakima PM<sub>10</sub> nonattainment maintenance area. Air quality on YTC can degrade rather quickly when particulate matter pollutants are

1 generated by rangeland fires and the fugitive dust associated with maneuver training  
2 activities. However, particulate matter pollutants commonly dissipate quickly as a result  
3 of the predominantly westerly winds.

4  
5 The largest stationary source of air pollution on YTC is fuel-burning equipment, which  
6 includes generators and boilers. Other sources of pollution include painting operations,  
7 a wastewater treatment plant, fuel storage, degreasing operations, and vehicle  
8 maintenance. Currently, YTC is a minor source of air pollution. An increase in  
9 emissions may result in a need to modify existing air emission approvals or obtain a  
10 Title V permit.

11  
12 Because approximately 50 acres of the YTC cantonment area are within a moderate  
13 PM<sub>10</sub> nonattainment maintenance area. Actions at YTC resulting in an increase to 100  
14 tpy of particulate matter could trigger a conformity analysis. The Army will conduct  
15 further review of emissions increases to determine whether analysis and documentation  
16 is required, and will prepare a conformity analysis, as required. The closest Prevention  
17 of Significant Deterioration (PSD) Class I area to YTC is the Goat Rocks Wilderness  
18 Area, which is located approximately 60 miles to the southwest of the installation. It is  
19 not expected that PSD Class I areas would be affected by Army activities.

#### 20 21 **4.16.2.2 Environmental Consequences**

22  
23 **CS/CSS.** There will be an expected moderate (medium) impact on the installation and  
24 surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It  
25 is assumed that the resulting increases in air emissions are directly proportional to the  
26 increase in population at the facility. In general, combustion and fugitive dust emissions  
27 will produce localized, short-term elevated air pollutant concentrations that will not result  
28 in any sustained impacts on regional air quality. There would be a small increase in the  
29 amount of fugitive dust and smoke produced (gunnery training, range fires). However,  
30 these impacts would be temporary and would not be expected to have significant  
31 opacity impacts outside the installation boundary.

32  
33 **Full Sustainment BCT.** There will be an expected moderate (medium) impact on the  
34 installation and surrounding communities by the restationing of a Sustainment Brigade  
35 Combat Team and its 3,000 – 3,500 Soldiers. Any construction related emissions also  
36 have the potential to produce localized, short-term elevated air pollutant concentrations  
37 but these are not anticipated to have a significant effect on regional air quality. Training,  
38 fuel storage and transfer, and generator usage would all contribute to emission  
39 increases of criteria pollutants on YTC. Increased VOC emissions would result from  
40 increased fuel storage and transfer to provide fuel to additional training vehicles. These  
41 VOCs are emitted from vents on storage tanks during the transfer of fuel from the  
42 storage tank to the vehicle. Combustion emissions resulting from training would be  
43 primarily from mobile sources and be widely distributed both spatially and temporally.  
44 Fugitive dust emissions remain a localized issue and should be addressed as an  
45 opacity issue if activities are close enough to installation boundaries that visible

1 emissions leave the installation. Given the wide distribution of emissions, it is not  
2 anticipated that regional air quality would be significantly affected.

3  
4 **IBCT.** There will be an expected moderate (medium) impact on the installation and  
5 surrounding communities by the restationing of an Infantry Brigade Combat Team and  
6 its 3,500 Soldiers. It is anticipated the emissions resulting from stationary sources  
7 required for facility operations to support the influx of Soldiers and their Families will  
8 have greater, long-term impacts than those resulting from training. It is anticipated that  
9 the installation would see increases in emissions from equipment required to support  
10 the installation such as fuel storage and dispensing, boiler and incinerator operations  
11 and possible electric peak-shaving generators. Additionally, it is anticipated that more  
12 training/operations will occur away from established roads and tank trails.

13  
14 **HBCT, Stryker BCT.** There will be an expected moderate (medium) impact on the  
15 installation and surrounding communities by the restationing of 3,800 – 4,000 Soldiers.  
16 Though the facility can expect increased emissions from military vehicles and  
17 generators used to support training events as well as increase in fugitive dust, these will  
18 tend to remain localized and produce no significant impact to regional air quality.

19  
20 **Multiple BCTs.** As stated above, the expected environmental impact on the installation  
21 and surrounding communities by the restationing of multiple Brigade Combat Teams  
22 and approximately 7,000 Soldiers is expected to be moderate (medium) regarding the  
23 long-term effect on air quality. Construction and changes to facility operations to  
24 support multiple brigades would be significant initially but should provide no sustained  
25 negative impact to regional air quality. Fugitive dust emissions remain a localized issue  
26 and should be addressed if activities are close enough to installation boundaries that  
27 visible emissions leave the installation. Exceeding particulate matter standards (PM<sub>2.5</sub>  
28 and PM<sub>10</sub>) is an area of particular concern for Fort Lewis as the Yakima Regional Clean  
29 Air Authority has recently issued the installation a letter regarding this issue.

### 30 31 **4.16.3 Airspace**

#### 32 **4.16.3.1 Affected Environment**

33  
34 YTC has 451 square miles of FAA-designated Special use airspace (with restricted  
35 areas), up to 55,000 feet, except for 6741H which is surface to 5,500 feet MSL.. The  
36 installation has access to this airspace and it is controlled by YTC. This airspace is  
37 released to the FAA when not needed for military use (YTC Staff, 2007).

38  
39 There are two types of aircraft stationed at YTC, one is for medical, and the other is  
40 seasonal stationing of aerial firefighting helicopters. YTC has one helicopter and fixed-  
41 wing aircraft landing area. The Vagabond Army Airfield (VAAF). is located near the  
42 lower boundary of the cantonment area and is used solely for helicopters. The FAA has  
43 designated portions of the overlying airspace as special use airspace, which may be  
44 activated during special activities as restricted from nonmilitary uses. Restricted  
45 airspace over YTC includes areas located from the surface up to, but not including,  
46 55,000 feet MSL (Fort Lewis Staff, 2007).

1  
2 **4.16.3.2 Environmental Consequences**  
3

4 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Stryker BCT, Multiple BCTs.** The  
5 impacts to Airspace are expected to be minimal (very low). It is anticipated that the  
6 activities associated with an increase of a CS/CSS or Full Sustainment BDE would have  
7 no impacts to airspace at the installation, and the UAVs associated with the BCTs would  
8 only minimally effect airspace operations. The multiple BCT scenarios are expected to  
9 have a slightly higher degree of effect to the installation, due to a doubling effect of  
10 growing two BCTs requiring UAV operations. The firing ranges that use airspace for  
11 artillery or other ordnance is not expected to be considerably impacted and can  
12 adequately accommodate this level of growth.  
13

14 **4.16.4 Cultural Resources**

15 **4.16.4.1 Affected Environment**  
16

17 The footprint of Yakima Training Center is the area of potential effect (APE) for cultural  
18 resources. The area surrounding YTC is primarily agricultural in nature. The cultural  
19 resources at YTC consist of prehistoric and historic resources. Two tribes still use parts  
20 of YTC for traditional purposes and this must be taken into account when analyzing  
21 cultural resource issues.  
22

23 **4.16.4.2 Environmental Consequences**  
24

25 **CS/CSS.** A CS/CSS unit will have minimal (very low) short and long term impacts. The  
26 large landmass of YTC combined with the small number of Soldiers and types of  
27 vehicles required for a CS/CSS, are unlikely to impact cultural resources.  
28

29 **Full Sustainment BCT.** There will be minor (low) short and long term impacts from a  
30 Full Sustainment BDE at YTC. While there are additional Soldiers, the number of  
31 Soldiers and their types of activities should not change current impacts to YTC's cultural  
32 resources.  
33

34 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** There will be moderate (medium) short  
35 and long term impacts on cultural resources due to an IBCT. The number of personnel  
36 for an IBCT could lead to cultural resources being disturbed through pot hunting and  
37 accidental destruction via foot traffic. The two Native American tribes that continue to  
38 use YTC for traditional purposes could be negatively impacted if the plants, animals and  
39 sites that they use are no longer available to them due to destruction or degradation  
40 from additional training. The heavy tracked vehicles associated with the HBCT could  
41 lead to the inadvertent destruction of archaeological resources due to the weight and  
42 heavy tread, degrading further already undocumented cultural artifacts. Further impacts  
43 may also come from restrictions on access being placed from the increase in training,,  
44 though if the proposed action were implemented at YTC the installation would need to  
45 conduct site-specific analysis to verify this.  
46

1           **4.16.5 Noise**

2                   **4.16.5.1 Affected Environment**

3  
4 Yakima Training Center (YTC) is a 327,000 acre training facility that supports a diverse  
5 training mission to include conventional and tactical weapons delivery, armored  
6 maneuver and live-fire, artillery (and other large caliber weapons) fire, small arms  
7 capabilities, and rotary-winged and fighter aircraft maneuver. Most of the land adjacent  
8 to YTC is zoned as undeveloped, agricultural, rural residential, and recreation land.  
9 Major communities nearby the installation include Yakima, Terrace Heights, Selah,  
10 Moxee City, Ellensburg, and the Badger Pocket Area. Occasionally, weapons firing and  
11 EOD activities are audible at nearby residential areas (USACE, 1994).

12  
13                   **4.16.5.2 Environmental Consequences**

14  
15 **CS/CSS, Full Sustainment BCT.** Noise impacts are expected to be minimal (very low)  
16 to nearby residential areas with the addition of the CS/CSS, and low with the addition of  
17 a Full Sustainment BCT. Noise from small arms firing ranges is not typically heard off  
18 the installation boundary. Impacts to biological resources in both growth scenarios are  
19 expected to have a moderate impact to biological resources. These actions may have  
20 only short-term maneuver and small arms related impacts (flushing) to bird species  
21 (including T&E species), but biological receptors would recover quickly. The need for  
22 analysis into the impacts on migratory birds should be taken into consideration as part  
23 of site-specific NEPA analysis. The INRMP would be used for guidance and best  
24 management practices to reduce potential noise impacts. New noise contours will not  
25 be developed for this action, though the IENMP will need to be reviewed.

26  
27 **IBCT, HBCT, Stryker BCT, Multiple BCTs.** A moderate (medium) impact is expected  
28 for receptors outside YTC, and on biological receptors from restationing 3,500 to 7,000  
29 Soldiers at YTC. An IBCT is expected to increase the amount of artillery fire on the  
30 installation, though new noise contours will not be needed and noise zones will likely  
31 remain unchanged from present conditions. For the HBCT, Stryker BCT, or multiple  
32 BCT scenarios, the need for updated noise contours would be reviewed by site-specific  
33 NEPA analysis for this action (if implemented at YTC). Noise, however, should be  
34 unchanged as they exist today.

35  
36 Past actions at YTC have had significant impacts from noise to wildlife, however, the  
37 Final EA for FY2005 Stationing Actions states that wildlife at YTC have already  
38 habituated to loud noise and that actions from stationing would have a reduced impact.  
39 The highest quality of habitat remains protected from training impacts. Further growth  
40 at YTC from the proposed action may have moderate adverse impacts to biological  
41 receptors. Many sensitive species already avoid areas of heavy live-fire training and  
42 would not be significantly impacted from the proposed action.

43  
44           **4.16.6 Soil Erosion**

45                   **4.16.6.1 Affected Environment**

1 The topography of Yakima Training Center varies from low plains to escarpments. Five  
2 ridges cross the installation and vary from rounded hills to mountains with slopes  
3 ranging from 8 to 60 percent. The topography is more rugged in the eastern portion of  
4 YTC where the streams drain toward the Columbia River.

5  
6 There are 8 major soil groupings, and throughout the installation that consists of light silt  
7 loams forming a shallow cover over bedrock and alluvial fan material. The soils are  
8 characteristic of arid and semi-arid uplands and terraces. The soils are unsuitable for  
9 agriculture without irrigation. The majority of YTC soils are highly erodible as a result of  
10 physical properties, steep slopes, and limited vegetative cover.

#### 11 **4.16.6.2 Environmental Consequences**

12  
13  
14 **CS/CSS.** There will be minor (low) impact from the vehicles in these units. They could  
15 have a slight effect in select off-road areas. The tendency for these vehicles to mostly  
16 travel on roads with limited off-road movement results in this low value.

17  
18 **Full Sustainment BCT and IBCT.** There will be a moderate (medium) impact due to  
19 larger number of vehicles and the need to travel on unimproved roads and increased  
20 off-road use. Dismounted training and the vehicles of the IBCT may have a moderate  
21 impact on the soils at YTC. The moderate impact is also based on increased travel on  
22 unimproved roads and some increased disturbance to soils and vegetation cover due to  
23 digging and off-road vehicle movement. The condition of existing (unimproved) range  
24 roads and their ability to support for heavy truck traffic would have to be evaluated.  
25 Unimproved roads are prone to erosion, so road construction, hardening and  
26 maintenance practices would have to be reviewed. Increased off-road movement would  
27 also impact soils through disturbance to vegetation and soil surfaces.

28  
29 **HBCT, Stryker BCT, Multiple BCTs.** The HBCT will have a more significant (high)  
30 impact on roads and off-road areas due to the number of tracked vehicles in an HBCT  
31 and the weight and mobility characteristics of the tracked vehicles; Stryker vehicles  
32 traveling off-road may have significant impacts to road erodibility characteristics as well.  
33 Flat and rolling areas (vegetation and surface crust) will show the impact from the  
34 vehicle maneuvers, turns and traction. These areas could then be prone to erosion.  
35 Off-road traffic and maneuvers will increase, which will have a significant direct impact  
36 on surface vegetation and surface crust from digging, vegetation disturbance, and  
37 displacement of soils on unimproved roads.. Conditions for potential erosion will  
38 increase.

#### 39 **4.16.7 Vegetation and Wildlife/Threatened and Endangered Species**

##### 40 **4.16.7.1 Affected Environment**

41  
42  
43 YTC is home to 31 species of fauna and 22 species of flora that are listed or proposed  
44 to be listed as threatened or endangered. Of these 53 species, four are federal-listed  
45 threatened and endangered species and two are federal candidate species, one of  
46 which is a high priority Army species at risk (SAR). One federal threatened species is



1 recorded as contiguous to the installation. More information on federally listed species  
2 can be found in Appendix T of this document.

#### 4 **4.16.7.2 Environmental Consequences**

5  
6 **CS/CSS.** It is anticipated that implementation of this level of Soldier strength may have  
7 a moderate (medium) impact on the listed species and SAR that are found on the  
8 installation. The threatened and endangered species recorded on the installation will  
9 continue to be managed in accordance with the installation's INRMP and ESMP, terms  
10 and conditions identified within biological opinion(s) issued by the USFWS and any  
11 conservation measures identified in ESA, Section 7 consultation documents. However,  
12 since implementation of any of these actions may affect any of the recorded listed  
13 species, the installation will be required to consult with the USFWS either informally or  
14 formally, depending on whether take is anticipated to occur. One of the high priority  
15 SAR, Columbia Basin Distinct Population Segment of Greater Sage-Grouse, is of great  
16 importance to the installation. If listed, the Greater Sage-Grouse would have impacts  
17 on the installation's ability to meet its mission requirements. Proactive management by  
18 the installation consisting of population monitoring, habitat protection and restoration,  
19 population genetic augmentation, and reintroductions on adjacent lands has been  
20 recognized by the USFWS in their Annual Candidate Species Review as beneficial to  
21 the species and has been influential in reducing the need for listing consideration. Due  
22 to maneuver limitations on the CS/CSS, there are no anticipated impacts to vegetation  
23 at YTC.

24  
25 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** It is  
26 anticipated that implementation of any of these levels of Soldier strength will have a  
27 Significant (high) impact on not only the known listed species but also other special  
28 status species. Management and conservation of the species and installation habitat  
29 will continue to be implemented in accordance with the installation INRMP and any  
30 conservation measures identified in ESA, Section 7 consultation documents. However,  
31 since implementation of this action will most likely adversely affect the recorded listed  
32 species, the installation will be required to consult with the USFWS informally and  
33 formally to address and assess the impacts of the action. The installation would have to  
34 ensure that impacts to water sources would be minimized and possibly mitigated to  
35 reduce the impacts of these actions on the three listed fish populations (4 ESU's) that  
36 occur on the installation. With only two populations of Greater Sage-Grouse known to  
37 occur, implementation of any of these Soldier strengths will significantly impact the  
38 species and its habitat and exceed the threshold of impact that would warrant listing.  
39 Significant conservation and management effort would need to be implemented to  
40 ensure the Greater Sage -Grouse is not listed.

41  
42 Vegetative cover at YTC is shrub-steppe. Impacts to vegetation are expected to be  
43 significant if training is conducted outside the current training footprint. Training impacts  
44 could include loss or degradation of vegetative cover and unique plant species; a  
45 measurable reduction in plant diversity; and the introduction of invasive plant species.

1 Any impacts to shrub vegetation on YTC could potentially impact wildlife mortality that  
2 depends on this type of vegetative cover, including TES and migratory bird species.  
3

#### 4 **4.16.8 Wetlands**

##### 5 **4.16.8.1 Affected Environment**

6  
7 Yakima Training Center contains approximately 20 acres of wetlands (Army  
8 Environmental Database-Environmental Quality, (n.d)). Water, in the form of seeps and  
9 springs, plays an important role in the life cycles and management of wildlife species.  
10 (INRMP, US Army, 1998)  
11

##### 12 **4.16.8.2 Environmental Consequences**

13  
14 **CS/CSS.** There will be a minor (low) impact on the installation wetlands as a result of  
15 the proposed unit maneuvering mainly on roads and hardened surfaces. Training  
16 activities will be within established training areas. Wetland areas are siber staked,  
17 restricting vehicle movement in wetland areas.  
18

19 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** There is  
20 expected to be a moderate (medium) impact on the installation wetlands as a result of  
21 the restationing of 3,000 to 7,000 Soldiers to Yakima Training Center. Training activities  
22 will be within established training areas where wetland issues have previously been  
23 addressed. As identified with the CS/CSS, wetland areas of YTC are siber staked and  
24 as such are off limits to vehicle movement. Hardened crossings may need to be  
25 established where stream crossings are needed. Efforts will be made to avoid any  
26 impacts on wetlands by using best practices addressed by the installation INRMP. If  
27 additional training area is required then through the NEPA process locations will be  
28 selected that will, when possible, avoid wetland impacts.  
29

#### 30 **4.16.9 Water Resources**

##### 31 **4.16.9.1 Affected Environment**

##### 32 **Watersheds Supporting Biological Resources**

33  
34 Surface water from YTC drains into two major basins: the Columbia River Basin to the  
35 east and the Yakima River Basin to the west. Most streams on YTC are intermittent.  
36 Discharge of suspended sediments from streams at YTC increases during infrequent  
37 high flows, over very short time periods. However, monitoring data indicate that YTC is  
38 not contributing large amounts of suspended solids compared to existing loads in the  
39 river.  
40

##### 41 **Groundwater**

42 Groundwater at YTC is stored in four principal aquifers. Although precipitation is low  
43 within the region, approximately 200 springs are present on YTC, ranging from seasonal  
44 to perennial.  
45

##### 46 **Water Supply**

1 The water supply for YTC serves three systems: the Cantonment Area system, the  
2 Yakima Research Station/Range Control system, and the Range Area system. Three  
3 potable water wells and three storage tanks are located in the Cantonment Area. Two  
4 of the wells are utilized in tandem and, along with the third well, have a production  
5 capacity of 1,500 gpm. At Yakima Research Station/Range Control, there are two wells  
6 with a combined production capacity of 525 gpm. There are nine additional potable  
7 wells and 12 non-potable wells located within the range areas of YTC. Production for  
8 the range area wells varies from 5 to 150 gpm. Finally, there are ten additional range  
9 area wells that are not developed.

10  
11 Summer demand for water at YTC averages approximately 200,000 gpd. Approximately  
12 three-quarters of this water comes from the Cantonment Area systems. Water used by  
13 Soldiers during training exercises may be drawn from the Cantonment Area systems  
14 and hauled to the field, or drawn directly from one of the nine training area wells.

### 15 16 **Water Rights**

17 YTC asserts a Federally reserved water right for all its consumptive uses, present and  
18 future. YTC currently holds water rights claims for several of its sources.

### 19 20 **Wastewater**

21 There is a single wastewater treatment plant at YTC. This treatment plant, located  
22 outside the installation boundary, primarily accepts domestic wastewater. The plant has  
23 a permitted treatment capacity of 720,000 gpd. Treated wastewater is discharged into  
24 the Yakima River.

25  
26 Estimated daily peak flow can reach approximately 150,000 gpd. Several of the smaller,  
27 remote structures within the cantonment area are self-contained, with individual septic  
28 tanks and drain fields. All wastewater generated outside the cantonment area is treated  
29 with the use of septic tanks, drain fields, and lagoons.

### 30 31 **Stormwater**

32 The stormwater drainage system serving the cantonment area at YTC consists of three  
33 detention basins, several oil/water separators, and open ditches. The drainage systems  
34 discharge into intermittent streams that then enter the Yakima River. Because of the  
35 low hydraulic gradient of vegetated channels of the drainage systems and long  
36 distances to receiving waters, storm drainage does not have considerable impacts on  
37 the Yakima River.

## 38 39 **4.16.9.2 Environmental Consequences**

40  
41 **CS/CSS.** An addition of a CS/CSS is anticipated to have a minor (low) impact on YTC  
42 water resources. Given the existing population at YTC, the addition of a CS/CSS is  
43 expected to have a negligible impact on the watershed, water demand, and associated  
44 treatment systems.

1 **Full Sustainment BCT, IBCT.** A Sustainment BCT and IBCT is anticipated to have a  
2 moderate (medium) impact on YTC. The increase in water demand and wastewater  
3 generation could require upgrades to the existing water and wastewater treatment  
4 systems or new water/wastewater infrastructure if the footprint is in remote areas.  
5

6 Additionally, because maneuver for both the IBCT and Sustainment BDE is expected to  
7 stay within the current training footprint, the increase in Soldiers may only have a minor  
8 to moderate increase in sedimentation, potentially impacting water quality for biological  
9 resources.  
10

11 **HBCT, Stryker BCT, Multiple BCTs.** Such an addition would have a moderate  
12 (medium) impact on YTC water resources, and a high impact to biological resources.  
13 The addition of a HBCT would have a high impact on biological water resources due to  
14 upland disturbances (e.g. digging and off-road maneuver). The addition of a Stryker  
15 BCT, though not expected to travel off-road often, would still have high impacts to  
16 biological resources when maneuvering off-road. Potential erosion from the use of field-  
17 driven heavy tracked vehicles, and the wheeled Strykers, would increase sediment  
18 loading in receiving waters and degrade water quality. Effects would be moderate in the  
19 cantonment area due an increase in water demand and wastewater treatment would  
20 need to be evaluated to determine if the present facility could handle this level of  
21 increase. Such an increase would require upgrades to the installation's existing water  
22 and wastewater treatment system or new water/wastewater infrastructure if the footprint  
23 is in remote areas. The installation would also need to revise their SWP3 to incorporate  
24 best management practices for any new training activities. .  
25

#### 26 **4.16.10 Facilities**

##### 27 **4.16.10.1 Affected Environment**

28  
29 Yakima Training Center is a sub-installation of Fort Lewis, located in Yakima and Kittitas  
30 counties and approximately 7 miles northeast of the city of Yakima. The two major  
31 land-use areas on YTC are the cantonment and training areas. The cantonment area  
32 (1,000 acres), which includes residential, administrative, commercial, light industrial,  
33 and open spaces, is located in the southwest corner of the installation. Vagabond Army  
34 Airfield, located in the cantonment area, is used for rotary-wing aircraft (US Army,  
35 January 2005).  
36

##### 37 **4.16.10.2 Environmental Consequences**

38  
39 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**  
40 There are expected to be moderate (medium) environmental impacts to facilities from  
41 any level of growth. It is anticipated that growth of 1,000 to 7,000 Soldiers and their unit  
42 equipment will require renovation of some existing facilities and construction of new  
43 facilities within the cantonment area. The level of activity in the cantonment area will be  
44 proportionate to the level of growth expected. The addition of an HBCT or Stryker BCT  
45 would likely result in a significant increase in facilities use within the cantonment  
46 requiring renovation and an increased level of new construction to meet the unique

1 mission requirements of this number of Soldiers and their heavier tracked vehicles or  
2 Stryker vehicles and other unit equipment. The establishment of an HBCT or Stryker  
3 BCT at YTC is not expected to exceed the capacity of the installation to accommodate  
4 the proposed action. Increased activities within the training and range areas would be  
5 expected to cause long-term impacts due to increased human presence, as well as  
6 construction and training activities within the range and training areas. The installation  
7 RPMP would need to be updated.

#### 9 **4.16.11 Energy Demand/Generation**

##### 10 **4.16.11.1 Affected Environment**

11  
12 **Electricity.** Pacific Power and Light is the primary supplier of electric power to Yakima  
13 Training Center. The Kittitas Public Utility District provides electric power for the MPRC  
14 and the Doris site. The annual electricity consumption for the installation for FY 2003  
15 was 9,409 megawatt hours.

16  
17 **Heating.** Heating energy at YTC is provided primarily by interruptible natural gas, with  
18 diesel fuel as a backup. During FY03, natural gas consumption by YTC totaled 412,142  
19 MMBtu. No backup sources of fuel were used during FY03. Heat energy is currently  
20 being updated in the cantonment area. The conversions consist of individual natural  
21 gas forced air systems and currently 50-60% of the installation has been converted.

##### 22 23 24 **4.16.11.2 Environmental Consequences**

25  
26 **CS/CSS.** The likely impact of an additional CS/CSS unit to the local community and the  
27 natural environment is minor (low). In terms of energy usage and generation, YTC's  
28 existing energy infrastructure has sufficient excess capacity to readily absorb the  
29 addition of a CS/CSS unit.

30  
31 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** There is  
32 expected to be a moderate (medium) impact to the installation's energy supply. The  
33 current energy infrastructure at YTC was designed to support a relatively small  
34 cantonment area, with the bulk of the installation reserved for field training operations  
35 and live-fire ranges. Accommodating a Full Sustainment BDE would likely entail a  
36 significant capital investment to expand the existing energy infrastructure and total  
37 delivery capacity in order to meet the new demand. That said, the VEC impact rating of  
38 an additional Full Sustainment BDE on YTC is moderate. The size and scope of the  
39 HBCT, Stryker BCT and Multiple BCTs differ somewhat from the Full Sustainment BCT  
40 and IBCT in terms of increased number of Soldiers and attendant facilities, resulting in a  
41 potentially higher energy use profile. The likely impact of an additional HBCT on the  
42 existing energy infrastructure, the local community and the natural environment is  
43 moderate.

#### 44 **4.16.12 Land Use Conflicts/Compatibility**

##### 45 **4.16.12.1 Affected Environment**

46

1  
2 YTC lies in Yakima and Kittitas Counties. It is bounded by Interstate 90 and Badger  
3 Pocket to the north, the Columbia River to the east, the Yakima Ridge to the south, and  
4 Interstate 82 to the west. YTC was established in 1942 as an anti-aircraft firing range.  
5 The major land uses at YTC are the cantonment area (approximately 1,000 acres) and  
6 training areas (approximately 326,000 acres), which include Selah Airstrip and  
7 Vagabond Army Airfield. The cantonment area is located in the southwestern corner of  
8 the installation and includes light-industrial facilities and open spaces. The Yakima  
9 Nation and Wanapum Band use the land for traditional resource collecting and religious  
10 purposes (U.S. Department of the Army, 1995).

#### 11 **4.16.12.2 Environmental Consequences**

##### 12 **CS/CSS, Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.**

13  
14 There will be moderate (medium) short and long-term environmental impacts on  
15 installation land use due to the presence of an additional 1,000 to 7,000 Soldiers and  
16 their family members assigned to the installation. The installation has sufficient land  
17 available to build the facilities needed for this unit. Building new facilities may require  
18 the installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
19 compatible with land uses associated with tactical units.  
20

#### 21 **4.16.13 Hazardous Materials/Hazardous Waste**

##### 22 **4.16.13.1 Affected Environment**

23  
24 The affected environment for these proposed actions include the use, storage and  
25 transport of hazardous materials and wastes at YTC. This includes hazardous  
26 materials and wastes from aboveground storage tanks; pesticides; LBP; asbestos;  
27 PCBs; radon; and UXO. Waste for disposal (both hazardous and nonhazardous) is  
28 transported offsite to permitted disposal facilities. Much like Fort Lewis, YTC operates  
29 as a permitted large quantity hazardous waste generator. YTC has several plans in  
30 place to help manage hazardous materials and waste including a Pollution Prevention  
31 Plan; Installation Spill Contingency Plan; Spill Prevention, Control, and a  
32 Countermeasures Plan.  
33  
34

##### 35 **4.16.13.2 Environmental Consequences**

36  
37 **CS/CSS.** There will be minor (low) long-term environmental impacts from hazardous  
38 materials and waste. It is anticipated that YTC would minimally increase its storage and  
39 use of hazardous chemicals during training exercises and installation maintenance with  
40 an increase of 1,000 Soldiers. Waste collection, storage, and disposal processes would  
41 remain mostly unchanged, and current waste management programs would continue.  
42

43  
44 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, Multiple BCTs.** Moderate  
45 (medium) short- and long-term environmental impacts from hazardous materials and  
46 waste would be expected with an increased Soldier strength of 3,000 to 7,000. Direct

1 beneficial and adverse impacts would be expected. Materials used, stored, and  
2 handled would increase; and existing procedures, regulations, and facilities would need  
3 to be updated to meet the associated requirements. This would include the need for  
4 additional staffing to manage waste associated with the increase of units stationed at  
5 YTC. Overall, all waste management programs may need to be updated as needed.  
6 Many projects involve the use, generation, and storage of hazardous materials and  
7 wastes during facility demolition, renovation, or construction. The demand for additional  
8 storage capacity would have to be met at the local level at the installation.  
9

#### 10 **4.16.14 Traffic and Transportation**

##### 11 **4.16.14.1 Affected Environment**

12  
13 Major roads in the area include I-82 an east-west interstate highway that serves the City  
14 of Yakima, town of Selah and the cantonment area of Yakima Training Center. Other  
15 major routes in the area include US Routes 12 and 97, and Washington State Routes  
16 821 and 823.  
17

##### 18 **4.16.14.2 Environmental Consequences**

19  
20 **CS/CSS.** There is expected to be minor (low) short and long-term environmental  
21 impacts on traffic and transportation systems on the installation due to the presence of  
22 an additional 1,000 Soldiers and their family members assigned to the installation.  
23 Spread across the ROI, this population will have de minimis impact on the overall traffic  
24 congestion in the neighboring communities. This additional population may contribute  
25 nominally to traffic volume on the installation, and is not expected to reduce the level of  
26 service (LOS) on the installation's road network. There may be a slight increase in  
27 traffic volume during peak morning and evening hours, but it would not affect either level  
28 of service or pose an increased risk to the safety of pedestrians and bicyclists.  
29

30 **Full Sustainment BCT, IBCT, HBCT, Stryker BCT, and Multiple BCTs.** There will be  
31 moderate (medium) short and long-term environmental impacts on traffic and  
32 transportation systems on the installation due to the presence of an additional 3,000 to  
33 7,000 Soldiers and their family members assigned to the installation. The effect on the  
34 traffic congestion in the local communities from this increased population level would be  
35 noticeable in the community at large and would likely cause a moderate decrease in  
36 LOS in the community's road network, and would likely cause a moderate decrease in  
37 the LOS on the road network leading to the installation. This level of increase in  
38 population could also have a moderate impact on the traffic volume on the installation,  
39 and could cause a minor decrease in LOS on some of the installation's arterial routes.  
40 The increased traffic volume in both the neighboring communities and on the installation  
41 could pose a moderate increased level of risk to the safety of pedestrians and bicyclists.  
42

#### 43 **4.16.15 Cumulative Effects**

44  
45 Yakima Training Center has a number of planned constructions at or near the  
46 installation in the foreseeable future which include the following:

- 1  
2 • YTC is currently planning construction of a Digital Multipurpose Range Complex  
3 for FY2008, to enhance the current training capability.  
4  
5 • To accommodate growth from BRAC2005, the installation is also planning a  
6 FY2008 Armed Forces Reserve Center;  
7  
8 • (BRAC2005 Action) FY2010 Sniper Field Fire Range;  
9  
10 • (BRAC2005 Action) FY2011 Multipurpose Machine Gun Range;  
11  
12 • (BRAC2005 Action) FY2011 Aviation Gunnery Range;  
13  
14 • Gas exploration and drilling; and  
15  
16 • FY2013 Planned construction of a new Fire Station.

17  
18 Outside the installation boundary, YTC has identified the following projects (E-mail from  
19 John McDonald, YTC Personnel, 13 July 2007):  
20

- 21 • Black Rock Reservoir. To meet shortfalls in adequate water supply to support  
22 both a growing population in the Yakima Basin, and to support a declining Chinook  
23 Salmon fishery, the U.S. Bureau of Reclamation is proposing an off-stream reservoir  
24 roughly 20 miles to the east of the City of Yakima. Water would be pumped from the  
25 Columbia River and would deliver approximately 500,000 acre feet of water to the  
26 Yakima River Basin. The impacts and benefits analysis of this study is currently  
27 unavailable<sup>7</sup>;  
28  
29 • Kittitas County has recently received approval to construct a wind farm on  
30 approximately a 500-acre site. The construction zone runs along the Columbia  
31 River. This project is still in the development and planning phase; impacts have not  
32 yet been determined<sup>8</sup>; and  
33  
34 • Gas exploration and drilling.  
35

36 Short-term minor cumulative impacts are expected from periodic range construction in  
37 conjunction with construction of new facilities to accommodate potential growth, and  
38 with impacts expected from training. The installation anticipates cumulative impacts to  
39 soil erosion, air quality, and threatened and endangered species. Short-term impacts  
40 would expect to be mitigable. The excess vehicles in the training areas and cantonment  
41 area from construction and training would likely increase siltation, degrading the water  
42 quality and having indirect impacts to threatened and endangered species. Fugitive  
43 dust or opacity may also have short-term adverse effects from both activities at the  
44 installation.

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<sup>7</sup> [http://www.co.benton.wa.us/yakima\\_basin.htm](http://www.co.benton.wa.us/yakima_basin.htm)

<sup>8</sup> <http://kvnews.com/articles/2007/07/13/news/doc4697bdf5ac292799035142.txt>



1  
 2 Water demand on the installation from growth may be more significantly impacted from  
 3 construction of the Black Rock Reservoir. This project could have a high negative  
 4 impact to the installation. Although the reservoir has been identified as a potential  
 5 solution to many of the region's water issues, much of the water supply would benefit  
 6 the local fishery and local agricultural irrigation requirements. The Black Rock  
 7 Reservoir Study Final Report (Washington Infrastructure Services, May 2002) identifies  
 8 zero growth at Yakima Training Center (as a regional water consumer) through the year  
 9 2020. Without anticipating any growth at the installation, water consumption estimates  
 10 would have grossly underestimated the potential for impacts to the new water supply  
 11 system.

12  
 13 **4.17 YUMA PROVING GROUND, ARIZONA**  
 14 **4.17.1 Introduction**  
 15

16 Yuma Proving Ground, located in southwestern Arizona has approximately 838,174  
 17 acres of varied and rugged terrain (Figure 4.17-1). There are no units permanently  
 18 stationed at YPG, its mission is one of testing Army equipment, materials and other  
 19 items. It has a few ranges, but they are for test purposes.  
 20



Yuma Proving Ground- Installation Location

21

1 **Figure 4.17-1 Yuma Proving Ground**

2  
3 Table 4.17-1 contains the YPG’s VEC ratings for each of the various stationing action  
4 scenarios.

5  
6 **Table 4.17-1. Yuma Proving Ground VEC Ratings**

<b>Yuma Proving Grounds</b>					
<b>VEC</b>	<b>CS/CSS Units (1,000 Soldiers)</b>	<b>Full Sustainment BDE (3,000- 3,500 Soldiers)</b>	<b>IBCT (3,500 Soldiers)</b>	<b>HBCT (3,800 – 4,000 Soldiers)</b>	<b>Multiple BCTs (7,000 Soldiers)</b>
Air Quality	Medium	Medium	Medium	Medium	Medium
Airspace	Low	Low	Low	Low	Low
Cultural	Medium	Medium	Medium	High	High
Noise	Low	Low	Low	Medium	Medium
Soil Erosion Impacts	Low	Medium	Medium	High	High
T&E/Other Wildlife	Low	Low	Low	Low	Low
Wetlands	Low	Low	Low	Low	Low
Water Resources	Medium	High	High	High	High
Facilities	Medium	Medium	High	High	High
Socioeconomics	High	High	High	High	High
Energy Demand/ Generation	Low	Medium	Medium	Medium	Medium
Land Use Compatibility	Low	Low	Medium	Medium	Medium
Scheduling Conflict	Low	Low	High	High	High
Haz Mat/ Haz Waste	Low	Low	Low	Low	Low
Traffic and Transportation	Medium	High	High	High	High

7  
8 **4.17.2 Air Quality**  
9 **4.17.2.1 Affected Environment**

10  
11 At Yuma Proving Ground (YPG), the ROI for air quality includes the installation and La  
12 Paz and Yuma counties, Arizona. Air quality is generally good and the ROI, with one  
13 exception, is in attainment for EPA,s NAAQS. The extreme southwestern portion of  
14 YPG falls within the Yuma County nonattainment area for PM<sub>10</sub>. In most cases, PM<sub>10</sub>  
15 emissions are the result of low soil moisture, low humidity, and wind. Installation  
16 activities have been listed as minor contributions to the area.

1  
2 USAG Yuma Proving Ground is a major source and has a Title V Permit application  
3 under review by Arizona Department of Environmental Quality. To date, the installation  
4 has not been evaluated for the ability to obtain a synthetic “minor” status. If obtained,  
5 any changes to what are now their routine operation will have a significant affect(s) to  
6 their source status (not considered a major source for air pollutants). Since YPG is  
7 partially located in a nonattainment area there is a requirement to consider conformity  
8 analyses when changing installation activities affecting air emissions. The CAA’s  
9 Prevention of Significant Deterioration requirements are not expected to be triggered by  
10 the installation’s activities.

#### 11 **4.17.2.2 Environmental Consequences**

12  
13  
14 Short-term intermittent minor adverse impacts would be expected within the ROI as a  
15 result of construction activities, training exercises, and increased automobile use. Heavy  
16 construction equipment and trucks would emit minor amounts of NO<sub>x</sub>, PM-10, CO, SO<sub>x</sub>,  
17 and VOCs. These affects, though possibly significant at the moment, are not  
18 considered to have a long-term impact on regional air quality.

19  
20 **CS/CSS.** There will be an expected moderate (medium) impact on the installation and  
21 surrounding communities by the restationing of a CS/CSS unit and its 1,000 Soldiers. It  
22 is assumed that the resulting increases in air emissions are directly proportional to the  
23 increase in population at the facility. In general, combustion and fugitive dust emissions  
24 will produce localized, short-term elevated air pollutant concentrations that will not result  
25 in any sustained impacts on regional air quality. There would be a small increase in the  
26 amount of fugitive dust and smoke produced (gunnery training, range fires) however,  
27 these impacts would be temporary and would not be expected to have major opacity  
28 impacts outside the installation boundary.

29  
30 **Full Sustainment BDE.** There will be an expected moderate (medium) impact on the  
31 installation and surrounding communities by the restationing of a Sustainment Brigade  
32 Combat Team and its 3,000 – 3,500 Soldiers. Any construction related emissions also  
33 have the potential to produce localized, short-term elevated air pollutant concentrations  
34 but these are not anticipated to have a significant effect on regional air quality. Training,  
35 fuel storage and transfer, and generator usage would all contribute to emission  
36 increases of criteria pollutants on YPG. Increased VOC emissions would result from  
37 increased fuel storage and transfer to provide fuel to additional training vehicles. These  
38 VOCs are emitted from vents on storage tanks during the transfer of fuel from the  
39 storage tank to the vehicle. Combustion emissions resulting from training would be  
40 primarily from mobile sources and be widely distributed both spatially and temporally.  
41 Fugitive dust emissions remain a localized issue and should be addressed as an  
42 opacity issue if activities are close enough to installation boundaries that visible  
43 emissions leave the installation. Given the wide distribution of emissions, it is not  
44 anticipated that regional air quality would be significantly affected.

1 **IBCT.** There will be an expected moderate (medium) impact on the installation and  
2 surrounding communities by the restationing of an Infantry Brigade Combat Team and  
3 its 3,500 Soldiers. It is anticipated the emissions resulting from stationary sources  
4 required for facility operations to support the influx of Soldiers and their Families will  
5 have greater, long-term impacts than those resulting from training. It is anticipated that  
6 the installation would see increases in emissions from equipment required to support  
7 the installation such as fuel storage and dispensing, boiler and incinerator operations  
8 and possible electric peak-shaving generators. Additionally, it is anticipated that more  
9 training/operations will occur away from established roads and tank trails.

10  
11 **HBCT.** There will be an expected moderate (medium) impact on the installation and  
12 surrounding communities by the restationing of a Heavy Brigade Combat Team and its  
13 3,800 – 4,000 Soldiers. Though the facility can expect increased emissions from  
14 military vehicles and generators used to support training events as well as increase in  
15 fugitive dust, these will tend to remain localized and produce no significant impact to  
16 regional air quality.

17  
18 **Multiple BCTs.** As stated above, the expected environmental impact on the installation  
19 and surrounding communities by the restationing of multiple Brigade Combat Teams  
20 and approximately 7,000 Soldiers is expected to be moderate (medium) regarding the  
21 long-term effect on air quality. Construction and changes to facility operations to  
22 support multiple brigades would be significant initially but should provide no sustained  
23 negative impact to regional air quality.

### 24 **4.17.3 Airspace**

#### 25 **4.17.3.1 Affected Environment**

26  
27  
28 Airspace at YPG is used primarily to test fixed- and rotary-winged aircraft, firing  
29 munitions, and air delivery of personnel, cargo, and equipment. YPG airspace extends  
30 beyond the installation boundary into lands adjacent to the western border, including  
31 more than 171,000 acres of airspace rights over the Kofa National Wildlife Refuge.  
32 Airspace is often also shared with the Marine Corps Air Station, Yuma. YPG activates  
33 restricted military airspace when required. Restricted airspace is often used to conduct  
34 artillery firing missions including long-range artillery firing from remote locations. Other  
35 training activities that account for airspace over Yuma include the Military Free Fall  
36 School, air support, assault training, and radar and laser tracker use (indirectly) (Yuma,  
37 July 2001).

#### 38 **4.17.3.2 Environmental Consequences**

39  
40  
41 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There will be minor  
42 (low) long-term environmental impacts to airspace and minor short- and long-term direct  
43 adverse impacts from UAV operations. It is anticipated that the activities associated  
44 with the CS/CSS or Full Sustainment BDE would not affect airspace as no UAVs or  
45 artillery is associated with these scenarios. Increased or new activities from BCTs  
46 would have to be scheduled to coordinate with existing mission activities. Future new

1 systems or modifications to existing systems from the stationing of an additional BCT  
2 could also affect airspace use, resulting in greater demand for exclusive military use of  
3 the resource. Construction or modification of airfields and training and maneuver areas  
4 could result in changes to existing airspace use.

#### 6 **4.17.4 Cultural Resources**

##### 7 **4.17.4.1 Affected Environment**

8  
9 The affected environment for Yuma Proving Ground is the footprint of the installation.  
10 Located in Arizona, this area has a wealth of prehistoric and historic archaeological  
11 resources. The installation has more than 1,900 identified sites and the installation has  
12 only surveyed approximately 10 percent of its total area.

##### 14 **4.17.4.2 Environmental Consequences**

15  
16 **CS/CSS.** A CS/CSS unit at YPG could have moderate (medium) long term impacts on  
17 cultural resources. The number of Soldiers, the equipment required for a CS/CSS and  
18 the remoteness of the area could impact archaeological resources. Souvenir and pot  
19 hunting are not unheard of at remote installations. The fact that very little of YPG has  
20 been surveyed means that any actions on previously undisturbed land will require  
21 cultural resource surveys and consultation, with the State Historic Preservation Officer  
22 and federally recognized Native American tribes, before training can commence.

23  
24 **Full Sustainment BDE.** There could be moderate (medium) long term impacts from a  
25 Full Sustainment BDE. The environmental consequences should mirror those of a  
26 CS/CSS with a slight increase in impacts to archaeological resources due to the number  
27 of personnel.

28  
29 **IBCT.** There could be moderate (medium) level environmental impacts on cultural  
30 resources from an IBCT. The consequences to cultural resources should be on par with  
31 a Full Sustainment BDE.

32  
33 **HBCT.** There will be significant (high) long term environmental impacts to cultural  
34 resources relating to the 3,800 to 4,000 additional Soldiers of a HBCT. The higher  
35 personnel count increases the odds that archaeological resources will be impacted from  
36 both accidental and intentional means. The additional Soldiers, via foot traffic, could  
37 lead to inadvertently disturbing surface archaeological sites and buried archaeological  
38 resources. The heavy tracked vehicles of a HBCT could impact previously  
39 undiscovered archaeological resources.

40  
41 **Multiple BCTs.** There could be significant (high) impacts to cultural resources at YPG  
42 with Multiple BCTs. The consequences to cultural resources should be in line with a  
43 HBCT, except for increased foot traffic.

#### 45 **4.17.5 Noise**

##### 46 **4.17.5.1 Affected Environment**

1  
2 The noise environment from Yuma Proving Ground (YPG) is largely generated from  
3 artillery firing and the resultant ground penetration from shells, and noise from low-flying  
4 aircraft. High speed aircraft periodically use the airspace leading to Yuma, though  
5 relatively few jets are flown from the installation. Previous land use studies have shown  
6 that the noise generated from YPG is generally compatible. However, there are some  
7 residential areas adjacent to the main administrative area of the installation. The  
8 nearest town to YPG is Quartzsite, located in La Paz County. The population of  
9 Quartzsite changes significantly due to vacationers during winter months and civilians  
10 unknowingly camping on the installation thinking they are on BLM land. Hidden Shores  
11 RV Village (BLM concession) is located immediately northwest of the YPG Main  
12 Administrative Area. BLM also has two Long Term Visitor Areas (LTVA) north of YPG's  
13 Cibola Range (between the installation boundary and Quartzsite), which on average  
14 receive 250,000 winter visitors annually.  
15

#### 16 **4.17.5.2 Environmental Consequences**

17  
18 **CS/CSS.** There is a minor (low) impact associated with stationing a CS/CSS at Yuma  
19 Proving Ground. The level of small arms training and maneuver associated with this  
20 action is largely insignificant when compared with the installation's current operational  
21 testing mission. There is no significant impact to wildlife from noise; and there is no  
22 noise-sensitive T&E species observed near the installation (USAEC 2006). Noise from  
23 this action is not expected to be experienced outside the installation boundary.  
24

25 **Full Sustainment BDE.** There is an overall minor (low) impact from noise to the  
26 natural environment and to local residential communities. The small arms range is  
27 located in an unpopulated area, thus no noise impacts are expected to off-post  
28 receptors. No new noise contours will need to be developed. Noise management  
29 practices for maneuver will need to be reviewed in the installation's INRMP and IENMP.  
30

31 **IBCT.** There will be a minor (low) impact from noise associated with the proposed  
32 action. Noise generated from maneuver will be similar to that of the Full Sustainment  
33 BDE. No new noise contours will need to be developed for associated artillery fire that  
34 is expected to accompany this action.  
35

36 **HBCT.** There is an expected moderate (medium) impact from noise to residential areas  
37 on- or nearby the installation. The installation would need to conduct a new noise study  
38 to determine if the action is compatible with existing noise zones; however the noise  
39 levels associated with the impact are similar to that of the current mission.  
40

41 **Multiple BCTs.** There will be an expected moderate (medium) impact from noise to  
42 Yuma Proving Ground and surrounding areas. As with the HBCT a noise study would  
43 be recommended and the current IENMP would need to be updated.  
44

#### 45 **4.17.6 Soil Erosion**

##### 46 **4.17.6.1 Affected Environment**

1  
2 Yuma Proving Ground is located in southwestern Arizona near the Colorado River, and  
3 covering more than 1,300 square miles of the Sonoran Desert and is situated in the  
4 basin and range physiographic province. The original high mountains have, over time,  
5 been worn down by wind and water erosion, filling the basin with sediments from  
6 erosion. The ranges surrounding Yuma are composed of igneous rocks including  
7 extrusive volcanic rock and intrusive granite and crystalline rock, sedimentary, and  
8 metamorphic rock. Sand dunes are visible features along the base of some mountains.  
9

10 The soils on Yuma are characterized by the presence of cryptogamic crusts, desert  
11 pavement, and vegetation. Military activities may disrupt the natural balance of this soil;  
12 driving on unsurfaced roads, tracked and wheeled vehicle maneuver, artillery  
13 explosions in impact areas, landing helicopters in open-terrain, and other maneuver  
14 training. Once the natural stability of the soil is disturbed soil erosion can be very rapid.  
15 Other sources of erosion at Yuma occur from wind and precipitation transporting loose  
16 soils to low-laying areas (Yuma Proving Ground, 2001).  
17

#### 18 **4.17.6.2 Environmental Consequences** 19

20 **CS/CSS.** There are overall minor (low) impacts expected from training and maneuver  
21 activities associated with the CS/CSS. Small arms ranges may see a minor increase in  
22 berm maintenance, but is not expected to significantly exceed any maintenance  
23 thresholds. Other Soldier movements will likely be contained to improved surfaces and  
24 already disturbed range areas.  
25

26 **Full Sustainment BDE and IBCT.** Moderate (medium) impacts to soil erodibility are  
27 expected. An increase of up to 3,500 Soldiers, including additional artillery fire from the  
28 IBCT, may displace soils in already disturbed areas. Any new construction associated  
29 with this level of increase may also increase the erodibility of soils. Unimproved range  
30 roads may be more susceptible to water and wind erosion. These roads may need to  
31 be improved or hardened to help control an increase in soil transport. Maintenance  
32 techniques such as re-vegetation and re-grading may need to be employed.  
33

34 **HBCT and Multiple BCTs.** Significant (high) impacts are expected. Increased erosion  
35 and soil stability is anticipated from both tracked and wheeled vehicle maneuver and  
36 Soldier movement, even in disturbed range areas. As with the Full Sustainment BDE  
37 and IBCT, new construction is expected to displace soil in localized areas and  
38 unimproved roadways may need to be improved. Contamination from munitions use  
39 (residue) associated with large caliber weapon fire may result in increased soil transport  
40 due to the loss of biomass and nutrients that would otherwise keep soil integrity and  
41 thus, stability. Maintenance techniques outlined in the installation's ITAM program,  
42 including techniques to reverse the erosion process (e.g., road closures and re-  
43 vegetation), may need to be re-visited to promote the sustainable use of Yuma's range  
44 lands.  
45

1           **4.17.7 Vegetation and Wildlife/Threatened and Endangered Species**

2                   **4.17.7.1 Affected Environment**

3  
4 Yuma Proving Ground (YPG) does not record any federal-listed species as occurring  
5 onsite or contiguous to them. One priority species at risk (SAR), the Sonoran Desert  
6 Tortoise, does occur on the installation, as well as a variety of other sensitive species.  
7 More information on federally listed species can be found in Appendix T of this  
8 document.

9  
10                   **4.17.7.2 Environmental Consequences**

11  
12 **CS/CSS, Full Sustainment BDE, IBCT, HBCT and Multiple BCTs.** There is an  
13 anticipated minor (low) impact to vegetation and to the installation’s sensitive species.  
14 YPG covers a significant percentage of habitats for the SAR and listing of the species  
15 would adversely affect mission. The conservation and management programs  
16 contained within the installation’s INRMP will continue to be implemented to ensure that  
17 the population and habitat of the SAR and other special status species will be healthy  
18 and viable. However, disturbance to desert pavement surfaces can negatively affect  
19 vegetation in washes as pavement surfaces act to direct precipitation into washes  
20 creating zero riparian habitat within an otherwise sparse landscape.

21  
22           **4.17.8 Wetlands**

23                   **4.17.8.1 Affected Environment**

24  
25 Yuma Proving Ground contains approximately 5 acres of wetlands (Army Environmental  
26 Database-Environmental Quality, (n.d)). Due to the relatively small number of wetlands,  
27 training has little to no impact on wetlands.

28  
29                   **4.17.8.2 Environmental Consequences**

30  
31 **CS/CSS, Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There is an expected  
32 minor (low) impact on the installation wetlands as a result of the restationing 1,000 to  
33 7,000 Soldiers to Yuma Proving Ground. Training activities will be relegated to  
34 established training areas. Efforts will be made to avoid any impacts on wetlands by  
35 using the installations wetland planning level survey’s/ GIS mapping. Because of the  
36 small number of wetlands, a substantial increase in the number of Soldiers should have  
37 little effect on wetlands.

38  
39           **4.17.9 Water Resources**

40                   **4.17.9.1 Affected Environment**

41  
42 **Water Supply**

43 Water is supplied to Cibola Region, South Cibola Range; Kofa Region, Kofa Firing  
44 Range; and Laguna Region, Materiel Test Area, Laguna Army Airfield, and Main  
45 Administrative Area. Groundwater wells are the primary source of water. Of the 15



1 wells located on the installation, 11 are in use. The 11 wells supply water to six water  
2 systems.

3  
4 Yuma Proving Ground has the capacity to pump 10,718 acre feet of water annually with  
5 the addition of two wells drilled in the Main Administrative Area. Based on the  
6 increased mission and number of people residing and working at YPG, a projected use  
7 of over 1,900 acre feet will be required from wells and the Colorado River by 2006.

8  
9 An electro dialysis reversal unit provides potable water to the Main Administrative Area  
10 in the Laguna Region, and a reverse osmosis system provides drinking water to the  
11 Castle Dome Annex (light armored vehicle test area) in the Cibola Region. Water is not  
12 readily available in the northern part of the installation, especially the North Cibola  
13 Range. Surveys conducted in this region indicate there are two possible sites  
14 from which water production could be expected; however, no drilling has been  
15 performed to confirm this possibility. Bottled drinking water is also supplied to many  
16 other areas of the installation.

17  
18 The city of Yuma uses Colorado River water exclusively. Current use is approximately  
19 30,000 acre feet.

#### 20 21 **Wastewater Treatment**

22 Yuma Proving Ground operates six wastewater facilities. Lagoons collect domestic  
23 sewage and brine waste from water treatment plants. Waste is discharged into septic  
24 tanks or specially designed evaporative lagoons.

#### 25 26 **Stormwater**

27 Surface runoff from storm events is drained into the Colorado and Gila rivers.  
28 Infrequent rainfall produces localized flash-flooding and temporary surface water,  
29 especially during thunderstorms in August and September. Rainfall averages 3.5  
30 inches per year, and the evaporation pan rate is 107 inches per year. Most of the year,  
31 desert washes are dry, but during heavy rainstorms, these washes drain surface water.

#### 32 33 **4.17.9.2 Environmental Consequences**

34  
35 **CS/CSS.** A moderate (medium) impact is anticipated with this action to on YPG. The  
36 addition of a CS/CSS would increase water demand for consumption. The installation  
37 may need to incorporate water conservation measures. Impact to watershed is  
38 expected to be minimal. Any new construction/land disturbance over 0.75 acres will  
39 require a stormwater construction permit.

40  
41 **Full Sustainment BDE.** This addition would significantly (high) impact YPG. The  
42 addition of a BDE would increase water demand for consumption and vehicle washing.  
43 The installation may need to incorporate water conservation measures. New  
44 groundwater wells may be required in remote areas to support BDE activities. Any new  
45 construction/land disturbance over 0.75 acres will require a stormwater construction

1 permit which would entail identification and implementation of mitigation strategies to  
2 reduce impacts associated with stormwater runoff during and after construction.

3  
4 **IBCT.** This action would significantly (high) impact water resources at YPG. The  
5 addition of an IBCT would increase water demand for consumption and vehicle  
6 washing. The installation may need to incorporate water conservation measures. New  
7 groundwater wells may be required in remote areas to support IBCT activities. Any new  
8 construction/land disturbance over 0.75 acres will require a stormwater construction  
9 permit which would entail identification and implementation of mitigation strategies to  
10 reduce impacts associated with stormwater runoff during and after construction.

11  
12 **HBCT.** An addition of a HBCT would significantly (high) impact YPG. Such an action  
13 would increase water demand for consumption and washing of field-driven heavy-  
14 tracked vehicles. The installation may need to incorporate water conservation  
15 measures. New groundwater wells will most likely be required in remote areas to  
16 support HBCT activities. The installation may need to construct a new washing system  
17 to manage the heavy-tracked vehicles. Any new construction/land disturbance over  
18 0.75 acres will require a stormwater construction permit which would entail identification  
19 and implementation of mitigation strategies to reduce impacts associated with  
20 stormwater runoff during and after construction.

21  
22 **Multiple BCTs.** Multiple BCTs would significantly (high) impact YPG. Such an action  
23 would greatly increase water demand for consumption and washing of field-driven  
24 heavy-tracked vehicles. The installation may need to incorporate water conservation  
25 measures. New groundwater wells will most likely be required in remote areas to  
26 support multiple BCT activities. The installation may need to construct a new washing  
27 system to manage the heavy-tracked vehicles. Any new construction/land disturbance  
28 over 0.75 acres will require a stormwater construction permit which would entail  
29 identification and implementation of mitigation strategies to reduce impacts associated  
30 with stormwater runoff during and after construction.

## 31 **4.17.10 Facilities**

### 32 **4.17.10.1 Affected Environment**

33  
34  
35 There are five functional units of Yuma Proving Grounds (YPG) within which a variety of  
36 testing, training and administrative activities are performed. Although there are a  
37 number of isolated, miscellaneous buildings and structures located across the  
38 installation, the four principal cantonments of YPG are the Laguna Army Airfield, the  
39 Yuma Test Center, the Main Administrative Area, and the complex of buildings  
40 associated with the Kofa Firing Range.

41  
42 The Main Administrative Area, also known as the cantonment area, is a fenced complex  
43 comprising 965 acres. This area contains general support functions, such as base  
44 housing, commissary, Post Exchange, medical services, and Morale, Welfare, and  
45 Recreation services. Administration services and facility maintenance support are also  
46 located in the cantonment area. Constructed miles apart, these cantonments were

1 developed and situated in response to operational safety requirements (US Army,  
2 January 2006). Currently, YPG does not have much buildable land within the Main  
3 Administrative Area.

4  
5 The Materiel Test Area, also known as the mobility test area, is approximately 964  
6 acres. This area houses the command group, Materiel Test Directorate, and related  
7 test mission personnel. This area includes several buildings and facilities that provide  
8 support to the Automotive Division and Combat Systems Division test missions.

9  
10 Laguna Army Airfield (LAAF) can accommodate the C-5A Galaxy and smaller aircraft.  
11 LAAF has office space, an aircraft wash facility, the fire and crash rescue department,  
12 33,000 square feet of hangar and maintenance space, and 64,000 gallons of fuel  
13 storage. It is used for paraSoldier training and aviation testing activities.

14  
15 Castle Dome Heliport is approximately twelve kilometers north of LAAF and is an  
16 aviation facility for special or large helicopter programs. Castle Dome Heliport  
17 maintains 37,809 square feet of hangar space; 11,600 square feet of office space; and  
18 a 12,000-gallon fuel tank. The Castle Dome Heliport is used for aviation testing  
19 activities. The Air Cargo Complex stores and supports testing of hazardous items,  
20 including ammunition loads of 5,000 lbs, net explosive weight or less. It includes a  
21 parachute pack/maintenance and airdrop rigging facility, which contains office and  
22 maintenance space. Air drop tests and other air cargo is loaded onto aircraft here.

23  
24 The area west of Firing Front Road is referred to as Kofa Firing Front. This area  
25 provides logistical support for Kofa Firing Range. Facilities include test vehicle and  
26 equipment maintenance facilities, a fire and emergency response station, engineering  
27 and administrative support offices, communication networks, storage areas, climatic and  
28 environmental test chambers, and target fabrication facilities.

#### 30 **4.17.10.2 Environmental Consequences**

31  
32 **CS/CSS.** There will be moderate (medium) environmental impacts to facilities. It is  
33 anticipated that the activities associated with an increase of 1,000 Soldiers would not  
34 significantly increase activities within the cantonment and training areas despite the lack  
35 of buildable space within the Main Administrative Area. Activities within the training and  
36 range areas would be limited to existing firing ranges and roadways. These activities  
37 would have to be scheduled to coordinate with existing mission and testing activities. A  
38 review of the real property management plan (RPMP) would help determine if YPG  
39 could sustain a CS/CSS. Additional socioeconomic, utilities, and housing studies may  
40 be required as well.

41  
42 **Full Sustainment BDE.** There will be moderate (medium) short- and long-term  
43 environmental impacts to facilities. Additional Soldier strength of 3,000 to 3,500 would  
44 be reflected through increased facility usage within the cantonment areas. Increased  
45 activities within the training and range areas would be expected to cause long-term  
46 impacts due to a greater human presence, as well as construction and training activities

1 within the range and training areas. The YPG RPMP and other studies including, but  
2 not limited to, socioeconomics and housing capabilities would require a review to  
3 determine if implementation of the ACP at this level was feasible.

4  
5 **IBCT.** Fielding an IBCT would result in significant (high) short- and long-term  
6 environmental impacts to facilities. Since there is not much buildable space within the  
7 Main Administrative area of YPG, the addition of an IBCT may increase usage beyond  
8 current carrying capacity. However, modification of the installation RPMP and other  
9 planning documents and studies such may be able to accommodate fielding an IBCT.  
10 One option might be to study the feasibility of new construction at the Materiel Test  
11 Facility and Castle Dome Heliport to support an IBCT.

12  
13 **HBCT.** Significant (high) short- and long-term environmental impacts to facilities are  
14 expected if a HBCT were fielded at YPG. The addition of an HBCT would likely result in  
15 a major increase in facilities use within the cantonment especially since there is not  
16 much buildable space within the Main Administrative Area. The establishment of an  
17 HBCT at YPG may exceed the capacity of the installation to accommodate the  
18 proposed action. The installation RPMP and other planning documents identified by the  
19 installation would need to be re-evaluated to determine if a HBCT can be supported.  
20 New construction in the developed areas other than the Main Administrative Area may  
21 be required. If identified by the installation, additional coordination with state and/or  
22 federal agencies and consultation may be necessary for activities associated with an  
23 HBCT.

24  
25 **Multiple BCTs.** The establishment of multiple BCTs at YPG will also result in  
26 significant (high) short- and long-term environmental impacts to facilities. The lack of  
27 buildable space available within the Main Administrative Area of YPG would be a factor  
28 in fielding multiple BCTs at YPG. It is unlikely that the current installation RPMP could  
29 accommodate this iteration of the proposed action unless additional socioeconomic,  
30 business analysis, and environmental studies of YPG and surrounding communities are  
31 performed. Feasibility studies for construction at the other developed areas of YPG  
32 would be recommended.

#### 33 34 **4.17.11 Energy Demand/Generation** 35 **4.17.11.1 Affected Environment**

36  
37 Yuma Proving Ground (YPG) receives grid electric power from four separate  
38 commercial sources, the primary source being the Western Area Power Administration,  
39 which provides power from hydroelectric stations on the Colorado River at the Davis  
40 and Parker Dams. As of 2001, the YPG electrical distribution system enjoyed a 100  
41 percent excess system capacity relative to nominal demand. YPG has no other  
42 commercial-scale source of energy.

#### 43 44 **4.17.11.2 Environmental Consequences** 45

1 **CS/CSS.** The likely impact of an additional CS/CSS unit to the local community and the  
2 natural environment is minor (low). In terms of energy usage and generation, YPG's  
3 existing energy infrastructure has sufficient excess capacity to readily absorb the  
4 addition of a CS/CSS unit.

5  
6 **Full Sustainment BDE, IBCT, HBCT, Multiple BCTs.** There is an expected moderate  
7 (medium) impact to the installation's energy supply from this level of growth. The  
8 current energy infrastructure at YPG was designed to support a relatively small  
9 cantonment area, with the bulk of the installation reserved for large-scale equipment  
10 and ordnance testing activities and various live-fire ranges. Accommodating a Full  
11 Sustainment BDE or an additional BCT would likely entail a significant capital  
12 investment to expand the existing energy infrastructure and total delivery capacity in  
13 order to meet the new demand. The addition of multiple, permanently-based BCTs will  
14 likely require significant construction and expansion of the existing energy infrastructure  
15 and fundamental energy delivery capacity. However, the current supply should be  
16 adequate to accommodate this level of growth.

#### 17 18 **4.17.12 Land Use Conflicts/Compatibility**

##### 19 **4.17.12.1 Affected Environment**

20  
21 YPG encompasses 838,174 acres, of which 837,764 acres are controlled by the Army.  
22 There are 410 acres of patented mines that are neither leased nor controlled by the  
23 Army. In addition, the installation leases 7,562 acres of state-owned land, and 320  
24 acres of privately-owned land. Off-post land available to YPG totals 612 acres. This  
25 land, available under various use permit arrangements, consists of about 40 acres at  
26 the Blaisdell Railroad Siding Site and 40 acres of electric transmission line and other  
27 easements.

28  
29 The land base of YPG is dedicated to military testing and evaluation that requires most  
30 land to be reserved for firing ranges, impact areas, mobility test courses, and drop  
31 zones. These types of activities require large open areas with associated safety and  
32 buffer zones. Compared to the enormous size of the military operation areas, the four  
33 cantonment areas of the Laguna Region (i.e., Main Administrative Area, Materiel Test  
34 Area, Laguna Army Airfield, and Kofa Firing Front) use only a small portion of the land.  
35 With few exceptions, real estate under the control of YPG has the potential for military  
36 use.

37  
38 A land use study found that YPG activity is generally compatible with surrounding land  
39 use. The scattering of facilities, which is common to all built-up areas, has created vast  
40 open spaces. Land use plans should consider open spaces. Land use designations  
41 ensure only compatible activities develop in these open spaces. Civilian use of the  
42 installation does not include mining. Hunting is only permitted within designated areas.  
43 Yuma Proving Ground is officially closed to any other civilian use of the range. There  
44 are small parcels of land leased from the State throughout the installation. The leases  
45 of these sections specify that YPG may use the land to conduct activities consistent with  
46 the intended military use of the installation (Yuma Proving Ground, 2001).

1  
2 **4.17.12.2 Environmental Consequences**  
3

4 **CS/CSS.** There will be minor (low) short and long-term environmental impacts on  
5 installation land use due to the presence of an additional 1,000 Soldiers and their family  
6 members assigned to the installation. The installation has sufficient land available to  
7 either build the facilities, sufficient vacant space in existing buildings, or a combination  
8 thereof to meet the unit's mission requirements. Additionally, the land, or existing  
9 facilities, are located such that surrounding facilities are compatible with the additional  
10 CS/CSS unit. The facilities required for a CS/CSS will be located within a single  
11 contiguous land unit.  
12

13 **Full Sustainment BDE.** There will be minor (low) short and long-term environmental  
14 impacts on installation land use due to the presence of an additional 3,000 to 3,500  
15 Soldiers. The installation has sufficient land available to either build the facilities  
16 needed for this unit, or would have sufficient vacant space in buildings that would be  
17 suitable for the units' mission. Additionally, the land, or existing facilities, are located  
18 such that surrounding facilities are compatible with the additional BDE. The facilities for  
19 a BDE will likely be located within a single contiguous land unit.  
20

21 **IBCT.** There will be moderate (medium) short and long-term environmental impacts on  
22 installation land use due to the presence of an additional 3,500 Soldiers and their family  
23 members. The installation may not have sufficient land available to either build the  
24 facilities needed for this unit, or may not have sufficient vacant space in existing  
25 buildings suitable for the unit's mission. Building new facilities may require the  
26 installation to re-zone existing land uses, or re-use/remodel facilities in areas not  
27 compatible with land uses associated with tactical units. Existing land and/or facilities  
28 may not be contiguous and located such that tactical vehicles would need to travel  
29 extensively within the cantonment area to reach training ranges. Since designated  
30 hunting areas are located in areas not extensively utilized for testing mission, likely  
31 establishment of maneuver areas within designated hunting areas may impact hunter  
32 (public) access. The additional units would likely pose a scheduling conflict for training  
33 activities to occur at the installation.  
34

35 **HBCT.** There will be moderate (medium) short- and long-term environmental impacts  
36 on installation land use due to the presence of an additional 3,800 to 4,000 Soldiers and  
37 their Families assigned to the installation. The moderate negative impacts of stationing  
38 a HBCT would be similar to that of stationing an IBCT at the installation. The additional  
39 units would likely pose a scheduling conflict for training activities to occur at the  
40 installation.  
41

42 **Multiple BCTs.** There will be moderate (medium) short- and long-term environmental  
43 impacts on installation land use due to the presence of an additional 7,000, or more  
44 Soldiers and their Families assigned to the installation. The installation may not have  
45 sufficient land available to either build the facilities needed for these units, or would not  
46 have sufficient vacant space in buildings suitable for the units' mission. Building new

1 facilities may require the installation to re-zone existing land uses, or re-use/remodel  
2 facilities in areas not compatible with land uses associated with tactical units. Existing  
3 land and/or facilities would not be contiguous and located such that tactical vehicles  
4 would need to travel extensively within the cantonment area to reach training ranges.  
5 The additional units would likely pose a scheduling conflict for training activities to occur  
6 at the installation.

#### 8 **4.17.13 Hazardous Materials/Hazardous Waste**

##### 9 **4.17.13.1 Affected Environment**

10  
11 The affected environment for these proposed actions include the use, storage,  
12 transport, and disposal of hazardous materials and wastes at YPG. This includes  
13 hazardous materials and wastes from USTs and aboveground storage tanks;  
14 pesticides; LBP; asbestos; PCBs; radon; and UXO. Each installation operates under a  
15 Hazardous Waste Management Program that manages hazardous waste to promote  
16 the protection of public health and the environment. Army policy is to substitute  
17 nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance  
18 with local, state, and federal hazardous waste requirements; and ensure the use of  
19 waste management practices that comply with all applicable requirements pertaining to  
20 generation, treatment, storage, disposal, and transportation of hazardous wastes. The  
21 program reduces the need for corrective action through controlled management of solid  
22 and hazardous waste. (US Army Corps of Engineers, February, 2002)

##### 23 24 **4.17.13.2 Environmental Consequences**

25  
26 **CS/CSS.** There will be minor (low) long-term environmental impacts from hazardous  
27 materials and waste. It is anticipated that YPG would minimally increase its storage and  
28 use of hazardous chemicals during training exercises and installation maintenance with  
29 an increase of 1,000 Soldiers. Waste collection, storage, and disposal processes would  
30 remain mostly unchanged, and current waste management programs would continue.

31  
32 **Full Sustainment BDE.** Minor (low) short- and long-term environmental impacts from  
33 hazardous materials and waste would be expected with an increased Soldier strength of  
34 3,000 to 3,500. An increase in the use of hazardous chemicals may be seen in the  
35 cantonment and training and range areas. Demolition, renovation, and construction  
36 would most likely result in an increase in the generation of asbestos, lead-contaminated  
37 wastes, and other hazardous waste, as well as an increase in the use of pesticides due  
38 to the addition of family housing and other facilities. The increase in these wastes  
39 would result in no adverse impacts because the wastes would be managed in  
40 accordance with current standards and regulations. The hazardous waste disposal  
41 facilities would be adequate to manage the increase in hazardous waste. Waste  
42 management programs may be updated as needed.

43  
44 **IBCT.** There will be minor (low) short- and long-term environmental impacts from  
45 hazardous materials and waste associated with the addition of an IBCT. The volume

1 and type of hazardous waste would be the same as described under the Full  
2 Sustainment BDE, with similar environmental impacts as well.

3  
4 **HBCT.** As with the IBCT, there will be minor (low) short- and long-term environmental  
5 impacts from hazardous materials and wastes. The volume of hazardous waste would  
6 be slightly higher than the IBCT, but existing procedures would be adequate to ensure  
7 that the increases do not adversely affect the environment. Waste management plans  
8 would be updated as needed to incorporate mission activities associated with the new  
9 units stationed at YPG and expanded training activities.

10  
11 **Multiple BCTs.** The establishment of multiple BCTs at YPG would also result in minor  
12 (low) short- and long-term environmental impacts from hazardous materials and waste.  
13 Generation and management of hazardous materials and waste, pesticides, petroleum  
14 storage tanks, ordnance and explosives would all be higher than with the other actions,  
15 but would continue to be managed in accordance with current procedures and  
16 regulations. Waste management plans would be updated as needed to incorporate  
17 mission activities associated with the new units stationed at YPG and expanded training  
18 activities.

#### 19 20 **4.17.14 Traffic and Transportation** 21 **4.17.14.1 Affected Environment**

22  
23 Yuma Proving Ground is located near the Arizona-California Border, approximately 20  
24 miles north of the city of Yuma, Arizona. The region of influence (ROI) of the affected  
25 environment for traffic and transportation aspects of the proposed action includes Yuma  
26 Proving Ground, and the southeastern portion of Yuma County. Major road routes in  
27 the region include US Route 95, a north-south arterial route.

#### 28 29 **4.17.14.2 Environmental Consequences**

30  
31 **CS/CSS.** There will be moderate (medium) short and long-term environmental impacts  
32 on traffic and transportation systems on the installation due to the presence of an  
33 additional 1,000 Soldiers and their family members assigned to the installation. Spread  
34 across the ROI, this population will have de minimis impact on the overall traffic  
35 congestion in the neighboring communities. This additional population may contribute  
36 nominally to traffic volume on the installation, and is not expected to reduce the level of  
37 service (LOS) on the installation's road network. There may be a slight increase in  
38 traffic volume during peak morning and evening hours. The population increase may  
39 have a minor to moderate increase of risk to the safety of pedestrians and bicyclists.

40  
41 **Full Sustainment BDE, IBCT, HBCT.** There will be significant (high) short and long-  
42 term environmental impacts on traffic and transportation systems on the installation due  
43 to the presence of an additional 3,000 to 4,000 Soldiers. As more Soldiers are assigned  
44 to the installation, an increasing percentage of married Soldiers, and unmarried Soldiers  
45 with a grade of E-6 (Staff Sergeant) and higher will reside in off-post housing. The  
46 increase in off-post traffic would have a noticeable impact on traffic in the community



1 overall and could contribute a notable decrease in the LOS in the road network leading  
2 to the installation, particularly during peak morning and afternoon travel periods. This  
3 level of increase in population would also have a major impact on the traffic volume on  
4 the installation, and contribute to a decrease in LOS on the installation's road network.  
5 The increased traffic volume in both the neighboring community and on the installation  
6 would pose an increased level of risk to the safety of pedestrians and bicyclists.  
7

8 **Multiple BCTs.** There would be significant (high) long-term environmental impacts on  
9 traffic and transportation systems on the installation due to the presence of an additional  
10 7,000 Soldiers, or more. The effect on the traffic congestion in the local community  
11 from this increased population level would be noticeable in the community at large and  
12 would likely cause a decrease in LOS in the community's road network, and would likely  
13 cause a significant decrease in the LOS on the road network leading to the installation.  
14 This increase in both Soldier and family-member population would cause a major  
15 impact on the LOS of the installation's road network to a degree higher than that  
16 expected for the Full Sustainment BDE through HBCT scenarios.  
17

#### 18 **4.17.15 Cumulative Effects**

19  
20 Yuma Proving Ground does not anticipate significant cumulative effects from any  
21 increase of Soldiers at the installation, no matter which type of unit is considered.  
22 Through proper planning and communication, any potential impacts from growth would  
23 be readily addressed and could be supported by the installation's mission. Additionally,  
24 encroachment is not currently a major issue at Yuma, and installation personnel  
25 anticipate that even with growth, encroachment will continue to stay manageable and  
26 reasonable.

## 4.18 SOCIECONOMIC IMPACT ANALYSIS

### **Analysis of Socioeconomic Effects for Army Growth and Force Structure Realignment Alternatives**

The proposed action is fully articulated in Section 2 of this PEIS. In summary, it involves the stationing of tactical Army military units at prospective locations (installations) in the Continental U.S. (CONUS). This PEIS concentrates on the stationing of 5 such “notional” units at the following 17 major Army installations:

- Fort Benning
- Fort Bliss
- Fort Bragg
- Fort Campbell
- Fort Carson
- Fort Drum
- Fort Knox
- Fort Hood
- Fort Hunter Liggett
- Fort Irwin
- Fort Lewis
- Fort Riley
- Fort Polk
- Fort Stewart
- White Sands Missile Range
- Yakima Training Center
- Yuma Proving Ground

- 1  
2 This programmatic analysis of socioeconomic affects includes four major components:  
3 (1) the use of the Economic Impact Forecast System (EIFS) (Huppertz, Claire E.;  
4 Bloomquist, Kim M.; Barbehenn, Jacinda M.; EIFS 5.0 Economic Impact  
5 Forecast System, User's Reference Manual; USACERL Technical Report  
6 TA-94/03; July 1994), and the Rational Threshold Value (RTV) technique  
7 (Webster, R.D.; and Shannon, E.; The Rational Threshold Value (RTV)  
8 Technique for the Evaluation of Regional Economic Impacts; USACERL  
9 Technical Report TR N-49/ADA055561; 1978).  
10 (2) installation evaluation of important Valued Environmental Components  
11 (VECs) (Email from Rick Williams (AEC), 20 April, 2007). These  
12 evaluations are "programmatic" in nature—intended to identify the relative  
13 severity and significance of likely socioeconomic impacts from the  
14 stationing of notional units at the subject locations (installations).  
15 (3) the analysis of accompanying (previous, current, and future) stationing  
16 actions  
17 at the affected installations (Email from Teresa Garnett (AEC), 26 April,  
18 2007).  
19 (4) existing published and draft NEPA documents (when available) (Email from  
20 Rick Williams (AEC), 30 April, 2007) from the affected installations.

21  
22 **The EIFS and RTV analyses** are uniformly applied, using the same assumptions and  
23 methodologies among the various installations. As such, the results do present a  
24 comparative ranking of various alternatives (each alternative defined as a unit size and  
25 a location (the multi-county (or multi-parish in Louisiana) region of influence (ROI) that  
26 comprises the regional economic community). Using these analyses, accompanied by  
27 the other readily available data, programmatic stationing decisions can be made,  
28 consistent with the informed decision making mandated by NEPA and 32 CFR Part 651.

29  
30 Some data was not yet available at this programmatic level. For example, the increase  
31 in local expenditures and increased construction in support of these stationing decisions  
32 are not available at this time. If preliminary decisions indicate a specific course of action,  
33 additional analyses can be performed using EIFS (or some other regional economic  
34 model), once the additional case-specific data has been developed (using a "tiered"  
35 process consistent with NEPA).

36  
37 Complete documentation of the EIFS model, its development, and applicable theoretical  
38 underpinnings is available in numerous publications; and these are identified and  
39 synopsised in Appendix A, in a brief presentation of the overall theoretical basis of the  
40 model and supporting tools. EIFS is a location quotient/ export base model, while the  
41 RTV technique was developed to measure the regional significance of projected  
42 economic change, using the yearly Bureau of Economic Analysis (BEA) time series data  
43 on employment, income, and population to evaluate historical trends in the ROI to  
44 measure the "resilience" of the local community. The combined use of EIFS and the  
45 RTV technique meets the two pronged approach for significance determinations,  
46 intensity and context (CEQ, 1992).

1  
2 To effect these analyses, the inputs to the EIFS model must be estimated. The normal  
3 EIFS inputs include:

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

9  
10 This data has often proven difficult to obtain (particularly if the decision making is at an  
11 early stage), as the actual numbers depend upon numerous unknown factors. To  
12 simplify, this programmatic analysis will focus only on military strength, as associated  
13 civilian strengths would not be large, and these stationing analyses focus entirely on  
14 tactical military units.

15  
16 To establish the Soldier strength for these notional units, the following data was used to  
17 develop the 5 “notional” units (6 units if the Stryker BCT is included) for this  
18 programmatic analysis (Email from Rick Williams (AEC), 20 April, 2007):

19

20 CS/ CSS	1,000 Soldiers
21 Full SBCT	3,000-3,500 Soldiers
22 IBCT	3,500 Soldiers
23 HBCT	3,800 to 4,000 Soldiers
24 Multiple BCTs	7,000 Soldiers
25 Stryker BCT	4,000 Soldiers

26  
27 For practical purposes, the analysis of the Full Sustainment BDE, IBCT, HBCT, and  
28 Stryker BCT can be done using a Soldier strength of 4,000 Soldiers. This simplification  
29 will produce a conservative (maximum) estimate of socioeconomic effects, and any  
30 introduced errors will fall well within the accuracy of any regional economic modeling  
31 techniques.

32  
33 The grade distribution (within the units) was derived from the following data (Email from  
34 Michael Ackerman (AEC), 2 January, 2007).

MPC	GRADE	2-25 ID (SBCT)	2-2 ID (IBCT)	DELTA
OFFICER	O6	1	1	0
	O5	7	9	2
	O4	30	32	2
	O3	119	102	-17
	O2	147	131	-16
<b>OFFICER Total</b>		<b>304</b>	<b>275</b>	<b>-29</b>
WARRANT	W4	1	2	1
	W3	12	4	-8
	W2	20	24	4
<b>WARRANT Total</b>		<b>33</b>	<b>30</b>	<b>-3</b>
ENLISTED	E9	13	12	-1
	E8	42	46	4
	E7	168	158	-10
	E6	368	341	-27
	E5	855	618	-237
	E4	1362	1114	-248
	E3	860	854	-6
<b>ENLISTED Total</b>		<b>3668</b>	<b>3143</b>	<b>-525</b>
<b>TOTAL</b>		<b>4005</b>	<b>3448</b>	<b>-557</b>

1  
2  
3  
4  
5  
6  
7  
8

These following tables illustrate the calculation of average salary for the Stryker and IBCT units, using mid-point (within grade) salary and housing allowance averages:

**Table 4.18 -2. Stryker BCT Average Salary Calculation**

Grade	No.	Mo. Salary	Total Salary	% On-post	Average BAH	Housing Expend	Salary + Housing	
O6	1	6414	6414	0.5	2600	1300	7714	
O5	7	6110	42770	0.5	2039	7136.5	49906.5	
O4	30	5882	176460	0.5	1856	27840	204300	
O3	119	5228	622132	0.5	1628	96866	718998	
O2	147	3936	578592	0.5	1387	101944.5	680536.5	
E9	13	4203	54639	0.5	1628	10582	65221	
E8	42	3606	151452	0.5	1519	31899	183351	
E7	168	3250	546000	0.5	1429	120036	666036	
E6	368	2928	1077504	0.5	1388	255392	1332896	
E5	855	2582	2207610	0.5	1239	529672.5	2737282.5	
E4	1362	2062	2808444	0.5	1151	783831	3592275	
E3	860	1729	1486940	0.5	1148	493640	1980580	
W4	1	4574	4574	0.5	1636	818	5392	
W3	12	4123	49476	0.5	1587	9522	58998	
W2	20	3755	75100	0.5	1497	14970	90070	
Totals	4005						12373556.5	
							Average Monthly Salary + BAH	3089.527216
							<b>Average Yearly Salary +BAH for Stryker BCT</b>	<b>37074</b>

BAH is the Basic Housing Allowance afforded to personnel living off post. The higher "accompanied" value was used.

Source: <http://usmilitary.about.com/housingallowance>

Monthly salary was obtained from attachments in an Email from Michael Ackerman (AEC), 3 January 07.

Mid-point values (within each grade) were used.

1

2 **Table 4.18-3. IBCT Average Salary Calculation**

Grade	No.	Mo. Salary	Total Salary	% On-post	Average BAH	Housing Expend	Salary + Housing	
O6	1	6414	6414	0.5	2600	1300	7714	
O5	9	6110	54990	0.5	2039	9175.5	64165.5	
O4	32	5882	188224	0.5	1856	29696	217920	
O3	102	5228	533256	0.5	1628	83028	616284	
O2	131	3936	515616	0.5	1387	90848.5	606464.5	
E9	12	4203	50436	0.5	1628	9768	60204	
E8	46	3606	165876	0.5	1519	34937	200813	
E7	158	3250	513,500	0.5	1429	112891	626391	
E6	341	2928	998448	0.5	1388	236654	1235102	
E5	618	2582	1595676	0.5	1239	382851	1978527	
E4	1114	2062	2297068	0.5	1151	641107	2938175	
E3	854	1729	1476566	0.5	1148	490196	1966762	
W4	2	4574	9148	0.5	1636	1636	10784	
W3	4	4123	16492	0.5	1587	3174	19666	
W2	24	3755	90120	0.5	1497	17964	108084	
Totals	3448						10657056	
							Average Monthly Salary + BAH	3090.793503
							<b>Average Yearly Salary +BAH for IBCT</b>	<b>37089</b>

BAH is the Basic Housing Allowance afforded to personnel living off post. The higher "accompanied" value was used.

Source: <http://usmilitary.about.com/housingallowance>

Monthly salary was obtained from attachments in an Email from Michael Ackerman (AEC), 3 January 07.

Mid-point values (within each grade) were used.

3

4 As indicated in the tables, 50% of the personnel were estimated as on-post, and  
 5 housing allowances are taken from those afforded to "accompanied" personnel. The  
 6 mid-range salary estimates reflect approximately 14 years of military service. If  
 7 additional information is obtained to refine such estimates, additional analyses can be  
 8 done.

9

10 As illustrated in the two tables, the estimates of average salary are very close for the  
 11 Stryker BCT and the IBCT. For all practical purposes, the value of \$37,100 per year can  
 12 be effectively used for the SBCT and the IBCT notional units. This same value can be  
 13 used for the Multiple BCT, the IBCT, and the HBCT, given that the composition of these  
 14 notional units will be similar. For the CS/CSS notional units, the same composition is  
 15 also assumed, as the composition of these units is still being determined. If these  
 16 assumptions are proven wrong in the future, a supplemental NEPA analysis will be  
 17 performed consistent with 32 CFR Part 651.

1  
 2 Once input data, describing the nature of the proposed “notional actions”, has been  
 3 determined, the EIFS region of influence (ROI), a multi-county (or multi-parish in the  
 4 case of Fort Polk) determination, must be defined. The following table presents the ROI  
 5 for each subject installation:  
 6

7 **Table 4.18-4 Installation ROI by County**

<b>Installation</b>	<b>Counties in the Region of Influence (ROI)</b>
Fort Benning*	Chattahoochee, Muscogee, Harris, and Marion, GA; Russell, AL
Fort Bliss*	El Paso, TX; Dona Ana and Otero, NM
Fort Bragg*	Cumberland, Lee, Moore, Hoke, and Harnett, NC
Fort Campbell*	Christian and Trigg, KY; Montgomery and Stewart, TN
Fort Carson*	El Paso, Fremont, Pueblo, and Teller, CO
Fort Drum*	Jefferson, Lewis, and St Lawrence, NY
Fort Knox*	Bullitt, Hardin, Meade, Breckinridge, Floyd, Grayson, Harrison, Larue, Nelson, and Spenser, KY
Fort Hood*	Bell and Coryell, TX
Fort Hunter Liggett*	Monterey and San Luis Obispo, CA
Fort Irwin	San Bernardino, CA
Fort Lewis*	Pierce and Thurston, WA
Fort Riley*	Clay, Geary, Riley, Dickinson, Morris, Ottawa, Pottawatomie, and Wabaunsee, KS
Fort Polk	Beauregard, Rapides, and Vernon, LA
Fort Stewart*	Liberty, Long, Bryan, Chatham, and Tattnall, GA
White Sands Missile Range*	El Paso, TX; Dona Ana, Sierra, Socorro, and Otero, NM
Yakima Training Center*	Kittitas, WA; Yakima, WA
Yuma Proving Ground	Yuma, AZ; Imperial, CA

8 \* These ROIs were verified specifically for these analyses.  
 9  
 10

1 The estimated inputs were used to produce EIFS reports (model results) for changes in  
 2 total business volume, employment, income, and population. These are best shown as  
 3 percentages (of the activity in the total ROI), and can be compared to the RTVs for that  
 4 variable. The following EIFS documentation is provided for each installation; detailing  
 5 the inputs, documenting projected changes, and evaluating the potential significance of  
 6 the predicted change, based on the RTV technique. Additional determinations are  
 7 provided to identify issues that indicate a need for more detailed, site-specific analyses.  
 8

9 The following results summarize the EIFS analyses for the respective installations,  
 10 oriented according to three levels of Soldier strength:

- 11 1,000 Soldiers representing the CS/CSS unit size
- 12 4,000 Soldiers representing the Full SBCT, IBCT, and HBCT unit sizes
- 13 (This also represents a Stryker BCT unit for Fort Bliss)
- 14 7,000 Soldiers representing the Multiple BCT units

15  
 16  
 17 The results present the percentage change in business volume, income, employment,  
 18 and population for the alternative “notional” units; as well as the respective RTVs for  
 19 those local economic variables. For each installation, the relative effects of these unit  
 20 sizes can be evaluated. Any EIFS projections that exceed the RTV thresholds are  
 21 “bolded”, indicating a significant change that should be accommodated through  
 22 additional planning analysis, or mitigations.  
 23

24 **Fort Benning (detailed in Appendix B)**

<u>Soldier Strength</u>	<u>1,000</u>	<u>4,000</u>	<u>7,000</u>	<u>RTV</u>
Business volume	0.24	0.97	1.71	6.89
Income	0.69	2.74	4.81	6.93
Employment	0.72	2.89	<b>5.07</b>	5.25
Population	0.89	<b>3.54</b>	<b>6.21</b>	3.13

30 **Fort Bliss (detailed in Appendix C)**

<u>Soldier Strength</u>	<u>1,000</u>	<u>4,000</u>	<u>7,000</u>	<u>RTV</u>
Business volume	0.15	0.59	1.04	4.74
Income	0.28	1.13	1.99	5.0
Employment	0.30	1.22	2.15	4.01
Population	0.27	1.11	<b>1.95</b>	1.29

36 **Fort Bragg (detailed in Appendix D)**

<u>Soldier Strength</u>	<u>1,000</u>	<u>4,000</u>	<u>7,000</u>	<u>RTV</u>
Business volume	0.22	0.89	1.55	8.90
Income	0.35	1.41	2.46	8.66
Employment	0.42	1.68	2.94	6.40
Population	0.47	1.87	<b>3.27</b>	2.16

42 **Fort Campbell (detailed in Appendix E)**

<u>Soldier Strength</u>	<u>1,000</u>	<u>4,000</u>	<u>7,000</u>	<u>RTV</u>
Business volume	0.45	1.78	3.12	11.65
Income	0.90	3.60	6.30	12.19
Employment	0.98	3.95	6.92	11.52



1	Population	1.11	4.44	<b>7.78</b>	7.69
2	<b>Fort Carson (detailed in Appendix F)</b>				
3	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
4	Business volume	0.13	0.53	0.93	5.56
5	Income	0.26	1.07	1.88	5.55
6	Employment	0.31	1.22	2.14	3.98
7	Population	0.36	1.45	2.55	3.13
8	<b>Fort Drum (detailed in Appendix H)</b>				
9	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
10	Business volume	0.44	1.77	3.10	4.01
11	Income	0.84	3.37	<b>5.91</b>	4.32
12	Employment	0.98	3.92	<b>6.87</b>	5.38
13	Population	0.98	<b>3.93</b>	<b>6.88</b>	3.20
14	<b>Fort Knox (detailed in Appendix I)</b>				
15	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
16	Business volume	0.45	1.78	3.12	4.48
17	Income	0.63	2.53	4.43	5.26
18	Employment	0.82	3.28	<b>5.75</b>	3.92
19	Population	0.74	2.98	<b>5.23</b>	3.88
20	<b>Fort Hood (detailed in Appendix J)</b>				
21	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
22	Business volume	0.33	1.35	2.37	9.89
23	Income	0.67	2.67	4.67	10.27
24	Employment	0.70	2.81	4.91	6.30
25	Population	0.81	3.26	5.72	8.08
26	<b>Fort Hunter Liggett (detailed in Appendix K)</b>				
27	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
28	Business volume	0.14	0.57	1.0	5.02
29	Income	0.26	1.05	1.85	7.19
30	Employment	0.36	1.44	2.52	3.14
31	Population	0.41	<b>1.62</b>	<b>2.84</b>	1.53
32	<b>Fort Irwin (detailed in Appendix L)</b>				
33	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
34	Business volume	0.05	0.20	0.35	4.07
35	Income	0.12	0.50	0.88	4.31
36	Employment	0.18	0.73	1.27	3.58
37	Population	0.15	0.61	1.08	3.54
38	<b>Fort Lewis (detailed in Appendix M)</b>				
39	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
40	Business volume	0.11	0.45	0.78	5.01
41	Income	0.19	0.77	1.35	4.96
42	Employment	0.28	1.13	1.98	2.79
43	Population	0.29	1.15	<b>2.02</b>	1.97
44	<b>Fort Riley (detailed in Appendix N)</b>				
45	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
46	Business volume	0.63	2.53	4.44	7.24

1	Income	1.22	4.89	<b>8.97</b>	8.57
2	Employment	0.63	2.53	<b>8.75</b>	4.43
3	Population	1.59	<b>6.34</b>	<b>11.11</b>	6.24

4 **Fort Polk (detailed in Appendix O)**

5	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
6	Business volume	0.42	1.68	2.95	4.17
7	Income	0.96	3.87	<b>6.77</b>	4.49
8	Employment	1.13	4.53	<b>7.92</b>	5.20
9	Population	1.18	<b>4.74</b>	<b>8.29</b>	4.12

10 **Fort Stewart (detailed in Appendix P)**

11	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
12	Business volume	0.27	1.08	1.89	5.12
13	Income	0.54	2.16	3.80	4.72
14	Employment	0.60	2.40	<b>4.22</b>	4.24
15	Population	0.70	2.80	<b>4.91</b>	3.46

16 **White Sands Missile Range (detailed in Appendix Q)**

17	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
18	Business volume	0.12	0.50	0.88	4.70
19	Income	0.27	1.09	1.91	4.94
20	Employment	0.29	1.16	2.03	3.83
21	Population	0.26	1.07	<b>1.88</b>	1.21

22 **Yakima Training Center (detailed in Appendix R)**

23	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
24	Business volume	0.32	1.28	2.24	3.99
25	Income	0.88	3.54	<b>6.21</b>	6.32
26	Employment	0.98	3.95	6.92	7.58
27	Population	1.14	<b>4.58</b>	<b>8.02</b>	1.39

28 **Yuma Proving Ground (detailed in Appendix S)**

29	<u>Soldier Strength</u>	1,000	4,000	7,000	RTV
30	Business volume	0.38	1.51	2.65	4.09
31	Income	0.83	3.34	5.86	13.98
32	Employment	0.92	3.66	<b>6.41</b>	4.46
33	Population	0.88	3.53	<b>6.17</b>	3.82

34  
35

36 All of these projected impacts represent an increase in economic activity, generally  
 37 viewed as a positive influence (or effect) within the economic region. The RTV  
 38 technique indicates the maximum percentage change that an ROI has undergone,  
 39 according to the historical record of the Bureau of Economic Analysis (BEA). As such, it  
 40 can facilitate a dialog with community representatives, establishing a common historical  
 41 frame of reference—obtained from the detailed information contained in the  
 42 Appendices. In many cases, these changes will prove acceptable to the affected  
 43 community (as economic growth is normally encouraged), in spite of the results of the  
 44 RTV analysis. In other cases, the affected community will express apprehension over  
 45 the projected changes, and can use the RTV to establish a level of acceptable growth,  
 46 beyond which additional planning will potentially be required.

1  
 2 These analyses indicate that the business volume, income, and employment effects are  
 3 generally triggered only by the larger (Multiple BCT) units, and, even then, the effects  
 4 are not beyond those that a community will likely accept (and appreciate in the interest  
 5 of economic growth). These are shown as “bolded figures”, and, after community  
 6 review, will likely prove less controversial. Controversy will likely occur only in cases  
 7 where recent economic growth contributes to a cumulative demand for economic  
 8 resources (employees, etc.) in the local region (community). This situation has been  
 9 identified by Fort Riley in the socioeconomic VEC scores ((Email from Rick Williams  
 10 (AEC), 20 April, 2007). Also, in practical terms, many of these effects will span multiple  
 11 years, not a single year as the model analyses and the RTV technique assumes. This  
 12 will spread these effects and dissipate their severity. In addition, unprecedented  
 13 expansion can be mitigated (for these three variables) by additional employment and  
 14 income in the region, often manifested through overtime employment and other short-  
 15 term adjustments, and other generally positive regional responses.

16  
 17 The population estimates, however, represent a different case of significance. As  
 18 shown, none of the smaller (CS/CSS) unit sizes (1,000 Soldiers) individually trigger the  
 19 RTV threshold, but the many of the intermediate (Full SBCT, IBCT, and HBCT (and  
 20 Stryker BCT for Bliss) unit sizes (4,000 Soldiers) and almost all the larger (Multiple  
 21 BCT) unit sizes (7,000 Soldiers) appear potentially significant. These population  
 22 estimates often precipitate increased demands for government services. These indirect  
 23 (secondary) effects can be approximated using the following general demand factors:

24  
 25 Example Facility/Infrastructure Demand Factors

26  
 27 This table provides "demand factors" that can be used to anticipate the need for additional  
 28 services as a result of population increases. These estimated demands will vary from community  
 29 to community and should be verified with local officials and planners when possible. In cases  
 30 where the range may be significant, they are noted.

31  
 32 Water/Wastewater: 102 to 278 gallons per day (gpd) per capita  
 33 depends on location & includes industrial/commercial demand  
 34 100-150 gpd per capita is a good planning figure  
 35 domestic consumption only  
 36  
 37 Health Care: 4.5 hospital beds per 1,000 population  
 38  
 39 Library: 1 library per 40,000- 60,000 residents  
 40 400-500 sq. ft. per 1,000 population  
 41  
 42 Law Enforcement: 1.7 personnel (policeman, etc.) per 1,000 population  
 43 range varies from 1.68 to 2.89 (city of 500,000)  
 44  
 45 Fire Protection: 1.43 firemen per 1,000 population  
 46 range varies from 1.29 to 1.72  
 47  
 48 Schools: 0.18 to 1.17 students per individual or family dwelling unit  
 49 (1.17 single family  
 50 1.46 duplex  
 51 1.28 townhome

1		0.31	mobile home
2		0.40	garden apartment
3		0.18	high rise)
4			
5	<u>Transportation:</u>	6 to 10 average daily trips (ADT) per dwelling unit for apartments	
6		7 to 15 ADT per dwelling unit for single family homes	
7			
8	<u>Open Space:</u>	7-25 acres per 1,000 population	
9			
10	<u>Parks:</u>	neighborhood parks (5-20 acres): 2.5 acres per 1,000 population	
11		district parks (20-100 acres): 2.5 acres per 1,000 population	
12		large parks (100+ acres): 5.0 acres per 1,000 population	
13		regional parks (250+ acres): 20.0 acres per 1,000 population	
14			

15 Taken from Environmental Impact Analysis Handbook by John Rau and David Wooten, McGraw-  
 16 Hill, 1980, ISBN 0-07-051217-5 \_

17  
 18 In the case of many such services, these can be developed over time, and such  
 19 demands can be met. In the case of school (educational) services, however, this  
 20 demand for services requires some significant planning and infrastructure development  
 21 (with associated timelines). This impact can be particularly acute (significant) when  
 22 schools are already stressed. The following subset of the previous summary impact  
 23 table, concentrating on population impacts, is provided for further analysis:  
 24

	<u>Soldier Strength</u>				
	<u>1,000</u>	<u>4,000</u>	<u>7,000</u>	<u>RTV</u>	
27 Fort Benning		0.89	<b>3.54</b>	<b>6.21</b>	3.13
28 Fort Bliss	0.27	1.11	<b>1.95</b>	1.29	
29 Fort Bragg	0.47	1.87	<b>3.27</b>	2.16	
30 Fort Campbell	1.11	4.44	<b>7.78</b>	7.69	
31 Fort Carson	0.36	1.45	2.55	3.13	
32 Fort Drum	0.98	<b>3.93</b>	<b>6.88</b>	3.20	
33 Fort Knox	0.74	2.98	<b>5.23</b>	3.88	
34 Fort Hood	0.81	3.26	5.72	8.08	
35 Fort Hunter Liggett	0.41	<b>1.62</b>	<b>2.84</b>	1.53	
36 Fort Irwin	0.15	0.61	1.08	3.54	
37 Fort Lewis	0.29	1.15	<b>2.02</b>	1.97	
38 Fort Riley	1.59	<b>6.34</b>	<b>11.11</b>	6.24	
39 Fort Polk	1.18	<b>4.74</b>	<b>8.29</b>	4.12	
40 Fort Stewart	0.70	2.80	<b>4.91</b>	3.10	
41 White Sands		0.26	1.07	<b>1.88</b>	1.29
42 Yakima Training Center	1.14	<b>4.58</b>	<b>8.02</b>	1.39	
43 Yuma Proving Ground	0.88	3.53	<b>6.17</b>	3.82	

44  
 45  
 46 Using the RTV approach for the analysis of direct environmental effects on population,  
 47 none of the smaller unit sizes ((CS/CSS) trigger the RTV threshold; while the  
 48 intermediate size units (Full SBCT, IBCT, and HBCT (and Stryker BCT for Bliss)) trigger  
 49 the thresholds in 39% of the analyses; and 83% trigger the thresholds for analysis of the

larger (Multiple BCT) unit sizes; to be expected with the much larger Multiple BCT size. As with the other regional economic variables, these effects will be mitigated by longer implementation timelines (an inevitable practical mitigation). However, the population thresholds (as designed into the RTV approach) require more consideration, as the timelines required for expanded government services (especially schools) can be critical.

**Installation VEC evaluations** (Email from Rick Williams (AEC), 20 April, 2007) can be used to further evaluate the severity of these issues. These results of these evaluations are add to the EIFS/RTV results for the population variable in the following table, illustrating the socioeconomic VEC score and highlighting cases where school impacts were emphasized.

Soldier Strength & VEC Scores for Socioeconomic Effects								
	1,000	VEC	4,000	VEC	7,000	VEC	RTV	
Fort Benning		0.89	M*	<b>3.54</b>	M/H*	<b>6.21</b>	H*	3.13
Fort Bliss	0.27	H*	1.11	H*	<b>1.95</b>	H*	1.29	
Fort Bragg	0.47	M*	1.68	M*	<b>3.27</b>	H*	2.16	
Fort Campbell	1.11	M*	4.44	H*	<b>7.78</b>	H*	7.69	
Fort Carson	0.36	L	1.45	M	2.55	H	3.13	
Fort Drum	0.98	M*	<b>3.93</b>	H*	<b>6.88</b>	H*	3.20	
Fort Knox	0.74	L*	2.98	M*	<b>5.23</b>	H*	3.88	
Fort Hood	0.81	VL	3.26	VL/L	5.72	L	8.08	
Fort Hunter Liggett	0.41	L	<b>1.62</b>	M	<b>2.84</b>	M	1.53	
Fort Irwin	0.15	L	0.61	L	1.08	L	3.54	
Fort Lewis	0.29	M*	1.15	H*	<b>2.02</b>	H*	1.97	
Fort Riley	1.59	L	<b>6.34</b>	H	<b>11.11</b>	H	6.24	
Fort Polk	1.18	M	<b>4.74</b>	M	<b>8.29</b>	H	4.12	
Fort Stewart	0.70	L*	2.80	M*	<b>4.91</b>	H*	3.46	
White Sands		0.26	L	1.07	L	<b>1.88</b>	L	1.21
Yakima Training Center	1.14	L	<b>4.58</b>	H+	<b>8.02</b>	H+	1.39	
Yuma Proving Ground	0.88	H*	3.53	H*	<b>6.17</b>	H*	3.82	

- VL-very low impact
- L- low impact
- M- medium impact
- H- high impact
- VH- very high impact
- \* concerns over schools
- + positive impact
- NA – no data available

This table reflects, for direct population effects and indirect population effects, a summary of both the analytical tool (EIFS results and the RTVs) and the subjective

1 evaluations of the installations. As such, it represents a combination of analytical and  
 2 subjective analysis; one based on historical trends in the ROI (reflecting the resiliency of  
 3 the local community) and one reflecting noted (by each installation) stresses in the  
 4 community. Further installation collaboration can refine and strengthen these  
 5 evaluations.

6  
 7 **Other accompanying (previous, current, and future) stationing actions** provide  
 8 some insight into Army-induced socioeconomic cumulative effects. As previously  
 9 discussed, these EIFS projections indicate the likely socioeconomic effects of military  
 10 stationing (excluding civilian employee and procurement/construction effects, which  
 11 cannot be estimated at this programmatic level). The severity of these direct effects  
 12 must also be evaluated against the cumulative socioeconomic effects that occur through  
 13 other Army actions. These actions include both discretionary actions and non-  
 14 discretionary actions associated with Base Realignment and Closure (BRAC). Three  
 15 information sources can be used to capture any major discretionary or non-discretionary  
 16 actions in the affected communities. For non-discretionary BRAC actions, Appendix B of  
 17 the BRAC Commission announcement was used (to establish the net BRAC changes in  
 18 the ROI); and, for discretionary actions, and “Future Installation State as of 26 March,  
 19 2007” and “The PUAL Roll-up as of 26 March 2007” (Email from Teresa Garnett (AEC),  
 20 26 April, 2007) was used. This information is summarized in the following table:

21  
 22 **4.18-4. BRAC Changes Within the ROI**

23

Installation	Future State				PUAL				BRAC	
	Off	WO		Enl	Civ	Completed		Pending		
		Total	>300			Total	>300			
Benning		90	20	662	32	(410)	1; (1)	1214		
Bliss	861	49	8899	(379)	1071	1	7565		2936	
Bragg	979	86	4362	0	1640	15; (10)	3787	5	0	
Campbell	(40)	(98)	(383)	(1)	244	1; (2)	(766)	(1)		
Carson	no information available									
Drum	62	8	930	0	299		771		0	
Knox	no information available									
Hood	638	222	8408	128	7451	10;(4)	1855	3;(2)		
Hunter Liggett	no information available									
Irwin	11	6	(92)	0	(100)		25	1	0	
Lewis	no information available									
Riley	no information available									
Polk	no information available									
Stewart		(8)	(33)	306	0	1194	(2)	1459	0	
White Sands	(10)	0	19	(56)	(47)		0	1		
Yakima	no information available									
Yuma	0	0	0	0	0	0	1	0		

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Installation	BRAC Net Change in the ROI	
	Mil	Civ
Benning		853
Bliss	11,248	147
Bragg	(743)	1055
Campbell	(360)	9
Carson	4674	222

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1	Drum	(9)	0
2	Knox	(4867)	1739
3	Hood	(73)	(118)
4	Hunter Liggett	15	(33)
5	Irwin	-	-
6	Lewis	(110)	(54)
7	<b>Riley</b>	<b>2415</b>	<b>440</b>
8	Polk	-	-
9	Stewart	17	21
10	<b>White Sands</b>	<b>11,248</b>	<b>147</b>
11	Yakima	-	-
12	Yuma	0	5

13  
14 A review of these tables can indicate where the Army-induced cumulative effects are  
15 more likely to occur. Installations are highlighted (bolded) in the table if the data  
16 indicates (1) a large net positive military or civilian employee growth, (2) a large number  
17 of past or pending actions (minor or greater than 300) is indicated. Net negative  
18 reductions are not highlighted but may mitigate the effects of these analyses (reducing  
19 the net predicted effects). These potential mitigations are indicated at Forts Campbell,  
20 Knox and Hood.

21  
22 In all cases, the timing of this proposed action (relative to other planned stationing  
23 actions) is critical. In some cases, these other actions may be completed; while, in other  
24 cases, this proposed action may encompass (or replace) those already identified at the  
25 affected installations. In such cases, the socioeconomic effects may be (at least  
26 partially) evaluated in existing or ongoing NEPA analyses; and may be reflected in  
27 some of the NEPA documents analyzed in the following paragraphs. If this proposed  
28 action introduces new units in addition to those covered in the PUAL, Future State, or  
29 BRAC summaries; further case-specific analysis of cumulative socioeconomic effects  
30 will be required.

31  
32 **A review of recent (published and draft) NEPA documents** (Email from Rick  
33 Williams (AEC), 30 April, 2007), using a database (of NEPA documents) developed in  
34 support of this PEIS. This review provided a “sanity check” for the three previous  
35 components of this analysis, and led to the following general observations:

- 36  
37 (1) The EIFS/RTV analysis is consistent with previous such NEPA analyses. Small  
38 unit actions (units of approximately 1,000 Soldier units) can be accommodated,  
39 although short-term impacts will require management (mitigation). The larger  
40 units (at the 4,000 and 7,000 Soldier level) will be potentially significant at those  
41 installations where population RTVs are exceeded and where other stationing  
42 actions are underway.  
43 (2) Environmental Justice (EJ) considerations appear minor. While minority  
44 populations and low income populations exist near the affected installations,  
45 such impacts are limited primarily to noise impacts, and most of these are minor  
46 and acceptable. While some short-term economic impacts may occur, these will  
47 be mitigated over time, and will likely provide net positive benefit over the long  
48 term. If these proposed actions utilize existing training and facility infrastructure,

1 and are consistent with their existing use, no additional analysis is likely required.  
 2 Similarly, if similar planned actions have been analyzed under NEPA, these may  
 3 adequately address potential socioeconomic and EJ issues (an installation  
 4 determination).

5 (3)

6  
 7  
 8 The applicable NEPA documents are referenced in the following Installation  
 9 Summaries.

10  
 11 **Installation Summaries**

12 The following composite table presents the total measure of socioeconomic effects,  
 13 including the EIFS/RTV analyses, the installation socioeconomic VEC scores, and the  
 14 analysis of cumulative Army actions. The table has been grouped to illustrate the  
 15 relationships between the installations and to highlight those that require no additional  
 16 analysis.

17  
 18 **Soldier Strength - VEC Scores – Cumulative Issues**

	1,000	VEC	4,000	VEC	7,000	VEC	RTV	Cumulative	
20 Fort Benning	0.89	M*	<b>3.54</b>	M/H*	<b>6.21</b>	H*	3.13	*	
21 Fort Bragg	0.47	M*	1.87	M*	<b>3.27</b>	H*	2.16	*	
22 Fort Campbell	1.11	M*	4.44	H*	<b>7.78</b>	H*	7.69	m	
23 Fort Drum	0.98	M*	<b>3.93</b>	H*	<b>6.88</b>	H*	3.20	*	
24 Fort Knox		0.74	L*	2.98	M*	<b>5.23</b>	H*	3.88	m
25 Fort Hunter Liggett		0.41	L	<b>1.62</b>	M	<b>2.84</b>	M	1.53	
26 Fort Riley		1.59	L	<b>6.34</b>	H	<b>11.11</b>	H	6.24	*
27 Fort Polk		1.18	M	<b>4.74</b>	M	<b>8.29</b>	H	4.12	
28 Fort Stewart	0.70	L*	2.80	M*	<b>4.91</b>	H*	3.46	*	
29 Yuma Proving Ground	0.88	H*	3.53	H*	<b>6.17</b>	H*	3.82		
30									
31 Fort Bliss		0.27	H*	1.11	H*	<b>1.95</b>	H*	1.29	*
32 White Sands	0.26	L	1.07	L	<b>1.88</b>	L	1.21	*	
33									
34 Fort Carson	0.36	L	1.45	M	2.55	H	3.13	*	
35									
36 Fort Lewis	0.29	M*	1.15	H*	<b>2.02</b>	H*	1.97		
37 Yakima Training Center	1.14	L	<b>4.58</b>	H+	<b>8.02</b>	H+	1.39		
38									
39									
40 Fort Hood		0.81	VL	3.26	VL/L	5.72	L	8.08	*, m
41 Fort Irwin		0.15	L	0.61	L	1.08	L	3.54	
42									

43 \* indicates cumulative Army-induced cumulative effects

44 m indicates offsetting reductions in strength that may partially mitigate impacts

45  
 46  
 47  
 48 Fort Benning effects appear potentially significant, given the predicted impact level of  
 49 both intermediate (Full SBCT, IBCT, and HBCT) and large (Multiple BCT) unit sizes  
 50 when compared to the RTVs and installation socioeconomic VEC scores (Medium/High  
 51 and High, respectively), particularly given the accompanying large number of indicated



1 actions and total net change in installation strength. Installation concerns focus  
2 specifically on school impacts.

3  
4 The results of recent Fort Benning NEPA analyses (*Draft EIS for BRAC 2005 and*  
5 *Transformation Activities at Fort Benning, Georgia, April, 2007*) support these  
6 conclusions. No significant EJ issues were identified.

7  
8 Fort Bragg effects appear potentially significant, given the predicted impact level of  
9 large (Multiple BCT) unit sizes when compared to the RTVs and installation  
10 socioeconomic VEC scores (High), particularly given the accompanying large number of  
11 indicated actions and total net change in installation strength. Installation concerns  
12 focus specifically on school impacts.

13  
14 No recent NEPA analyses for Fort Bragg have yet been located for the types of unit  
15 stationing actions in this proposed action. While NEPA analyses exist, they apply to  
16 smaller actions.

17  
18 Fort Campbell effects appear potentially significant, given the predicted impact level of  
19 large (Multiple BCT) unit sizes when compared to the RTVs and installation  
20 socioeconomic VEC scores (High). Installation concerns focus specifically on school  
21 impacts, and concerns over the current impacts of Modularity. Some mitigating activities  
22 are on-going at the installation, particularly pending actions that may somewhat reduce  
23 net Soldier strength in the long term, particularly if they occur during or prior to pending  
24 unit relocations as part of this proposed action.

25  
26 No recent NEPA analyses for Fort Campbell have yet been located for the types of unit  
27 stationing actions in this proposed action. While NEPA analyses exist, they apply to  
28 smaller actions.

29  
30  
31 Fort Drum effects appear potentially significant, given the predicted impact level of both  
32 intermediate (Full SBCT, IBCT, and HBCT) and large (Multiple BCT) unit sizes when  
33 compared to the RTVs and installation socioeconomic VEC scores (High), particularly  
34 given the accompanying large number of indicated actions and total net change in  
35 installation strength. The installation indicates 3 existing BCTs, currently in rotation.  
36 Though these Soldiers are in deployment rotation, socioeconomic effects (from families  
37 desiring services) remains present (at least partially) in spite of the rotations. Installation  
38 concerns focus specifically on school impacts.

39  
40 The results of recent Fort Drum NEPA analyses (*Environmental Assessment for Army*  
41 *Transformation Implementation at Fort Drum, New York, April, 2005*) support these  
42 conclusions. Some impacts on the local housing supplies were noted. No significant EJ  
43 issues were identified.

44  
45 Fort Knox effects appear potentially significant, given the predicted impact level of large  
46 (Multiple BCT) unit sizes when compared to the RTVs and installation socioeconomic  
47 VEC scores (High). Installation concerns focus specifically on school impacts. Some

1 mitigating activities are on-going at the installation, particularly pending actions such as  
2 the Armor School move in FY11 (as indicated in the installation VEC survey). These  
3 mitigations will, however, be ineffective unless they occur before (or during) any  
4 projected new unit increases as part of this proposed action.

5  
6 The results of recent Fort Knox NEPA analyses (*Environmental Assessment of*  
7 *Implementation of BRAC Recommendations and Other Army Transformation Activities*  
8 *at Fort Knox, Kentucky* August, 2006) support these conclusions. No significant EJ  
9 issues were identified.

10  
11  
12 Fort Hunter Liggett effects appear potentially significant, given the predicted impact  
13 level of both intermediate (Full SBCT, IBCT, and HBCT) and large (Multiple BCT) unit  
14 sizes when compared to the RTVs and installation socioeconomic VEC scores  
15 (Medium).

16  
17 The results of recent Fort Hunter Liggett NEPA analyses (*Environmental Assessment*  
18 *and Finding of No Significant Impact of Construction and Operation of Military*  
19 *Qualification Ranges at Fort Hunter Liggett, Monterrey, California*, October, 2006)  
20 support these conclusions. No significant socioeconomic or EJ issues were identified.  
21 These analyses dealt only with the use of training facilities and temporary Soldier  
22 presence at the facility. If permanent party Soldier stationing is anticipated at Fort  
23 Hunter Liggett, additional analyses will be required.

24  
25 Fort Riley effects appear potentially significant, given the predicted impact level of both  
26 intermediate (Full SBCT, IBCT, and HBCT) and large (Multiple BCT) unit sizes when  
27 compared to the RTVs and installation socioeconomic VEC scores (High), particularly  
28 given the accompanying large number of indicated actions and total net change in  
29 installation strength. Installation concerns focus specifically on the stresses already  
30 created by BRAC and IGPBS actions, and resultant demands on contractor supply and  
31 local labor pools. These concerns will be further complicated if new construction is  
32 required by any anticipated (proposed action) unit additions.

33  
34 The results of recent Fort Riley NEPA analyses (*Environmental Assessment of the*  
35 *Modular Reorganization of Forces at Fort Riley, Kansas*) support these conclusions. No  
36 significant EJ issues were identified. Socioeconomic issues were identified, but are  
37 considered beneficial in the long term.

38  
39 Fort Polk effects appear potentially significant, given the predicted impact level of both  
40 intermediate (Full SBCT, IBCT, and HBCT) and large (Multiple BCT) unit sizes when  
41 compared to the RTVs and installation socioeconomic VEC scores (Medium and High,  
42 respectively). The installation also indicates an existing IBCT and JBCT, as well as  
43 other Soldier level increases.

44  
45 The results of recent Fort Polk NEPA analyses (*Final EIS for 2<sup>nd</sup> Army Cavalry*  
46 *Regiment Transformation and Installation Mission Support, Joint Readiness Training*

1 *Center (JRTC) and Fort Polk, Louisiana, and Long Term Military Training Use of*  
2 *Kisatchie National Forest Lands, January, 2004) support these conclusions. No*  
3 *significant EJ issues were identified.*  
4  
5

6 Fort Stewart effects appear potentially significant, given the predicted impact level of  
7 large (Multiple BCT) unit sizes when compared to the RTVs and installation  
8 socioeconomic VEC scores (High), particularly given the accompanying large number of  
9 indicated actions and total net change in installation strength. Installation concerns  
10 focus specifically on school impacts.  
11

12 No recent NEPA analyses for Fort Stewart have yet been located for the types of unit  
13 stationing actions in this proposed action. While NEPA analyses exist, they apply to  
14 smaller actions.  
15

16  
17 Yuma Proving Ground effects appear potentially significant, given the predicted impact  
18 level of large (Multiple BCT) unit sizes when compared to the RTVs and installation  
19 VEC scores (High). Installation concerns focus specifically on school impacts.  
20

21 The results of recent Yuma Proving Ground NEPA analyses (*EA for the Joint*  
22 *Experimentation Range Complex 2 at U.S. Army Yuma Proving Ground, August, 2006)*  
23 support these conclusions. No significant EJ issues were identified, those noise and  
24 dust impacts were discussed. These analyses dealt only with the use of training  
25 facilities and temporary Soldier presence at the facility. If permanent party Soldier  
26 stationing, at the medium (4,000 Soldier) or large (7,000 Soldier) range, is anticipated at  
27 Yuma Proving Ground as part of this proposed action, additional analyses will be  
28 required.  
29

30 Fort Bliss and White Sands Missile Range (WSMR) share much of the same ROI, and  
31 should be jointly considered. Both exhibit potentially significant impacts for the large  
32 (Multiple BCT) unit sizes when compared to the RTVs and installation socioeconomic  
33 VEC scores (High for Fort Bliss, though Low for WSMR). Both installations voice  
34 concerns over school impacts. The significance of Army-induced socioeconomic effects  
35 is magnified by the large Soldier increases associated with the BRAC actions, in  
36 addition to other discretionary Army actions that are underway or pending. If both were  
37 chosen for additional BCT stationing under this proposed action, the impacts would be  
38 potentially very significant, and require detailed mitigation planning. Fort Bliss and  
39 WSMR have also indicated the need for additional Environmental Justice (EJ) analysis.  
40

41 The results of recent Fort Bliss NEPA analyses (*Fort Bliss Texas and New Mexico*  
42 *Mission and Master Plan Final Supplemental Programmatic EIS, March, 2007)* and  
43 WSMR NEPA analyses (*Environmental Assessment for Proposed Training Ranges at*  
44 *White Sands Missile Range, New Mexico, August, 2006)* support these conclusions. No  
45 significant EJ issues were identified, though noise issues were discussed at Fort Bliss.  
46 The WSMR analysis concentrated on the construction and operation of training  
47 facilities.

1 If permanent party Soldier stationing, at the medium (4,000 Soldier) or large (7,000  
2 Soldier) range, is anticipated at WSMR as part of this proposed action, additional  
3 analyses will be required.

4  
5 Fort Carson The predicted impacts of all notional units at Fort Carson appear within RTV  
6 significance thresholds, but installation socioeconomic VEC scores are Medium for  
7 intermediate (Full SBCT, IBCT, and HBCT) unit sizes and High for large (Multiple BCT)  
8 unit sizes. In addition, Fort Carson impacts from BRAC actions are already underway,  
9 adding to Army-induced cumulative effects. If Fort Carson were chosen for additional  
10 BCT stationing under this proposed action, the additional incremental impacts at Fort  
11 Carson would also require additional analyses, once details become available.

12  
13 The results of recent Fort Carson NEPA analyses (*Final EA for Construction of FY06*  
14 *Facilities at Fort Carson, Colorado, December, 2005*) support these conclusions. No  
15 significant EJ issues were identified.

16  
17 Fort Lewis and Yakima Training Center (YTC) also have different ROIs, but are  
18 interdependent. Fort Lewis EIFS and RTV analyses indicate significant (though  
19 marginal) impacts from large (Multiple BCT) unit sizes, and installation socioeconomic  
20 VEC scores are high for both intermediate (Full SBCT, IBCT, and HBCT) unit sizes and  
21 High for large (Multiple BCT) unit sizes. Fort Lewis expresses concerns for schools at all  
22 potential stationing levels. The YTC EIFS/RTV analyses indicate significant impacts for  
23 both intermediate (Full SBCT, IBCT, and HBCT) unit sizes and large (Multiple BCT) unit  
24 sizes, The installation socioeconomic VEC scores indicate High (though positive) scores  
25 for both levels of stationing; probably reflecting the opportunity for improved schools in  
26 the YTC ROI. If significant Soldier and family presence at YTC is anticipated, the  
27 impacts will be significant, as reflected by the EIFS/RTV comparisons, even for a small  
28 (CS/CSS) unit sizes. If Fort Lewis provides some of these functions, impacts will be  
29 dramatically lower and probably fall well below the significance (RTV) threshold.  
30 However, any major construction at YTC will likely produce significant impacts, though  
31 site specific analysis will be required once the size of a construction program is known.  
32 If both were chosen for additional BCT stationing under this proposed action, the  
33 additional incremental impacts at Fort Lewis would also require additional analyses,  
34 once details become available.

35  
36 The results of recent Fort Lewis and YTC NEPA analyses (*Final EA for Stationing*  
37 *Regimental Aviation Assets at Fort Lewis and Yakima Training Center, Washington,*  
38 *January, 2006* and *Final EA for Fiscal Year Stationing actions at Fort Lewis and Yakima*  
39 *Training Center, Washington, August , 2006*) support these conclusions. No significant  
40 socioeconomic or EJ issues were identified. YTC analysis concentrated on the  
41 construction and operation of training facilities. If permanent party Soldier stationing, at  
42 the medium (4,000 Soldier) or large (7,000 Soldier) range, is anticipated at YTC as part  
43 of this proposed action, additional analyses will be required.

44  
45  
46 Fort Hood direct effects (associated with this proposed action) appear well within the  
47 EIFS/RTV significance thresholds, though cumulative Army-induced effects (associated

1 with planned expansions and pending unit moves) may be significant, depending on  
 2 timing of the stationing actions. Installation socioeconomic VECS are scored Low.

3  
 4 The results of recent Fort Hood NEPA analyses (*Environmental Assessment for*  
 5 *Transformation to Modular Brigades and Construction of Support Facilities at Fort Hood,*  
 6 *Texas, September, 2004*) support these conclusions. No significant socioeconomic or  
 7 EJ issues were identified, though short-term adverse school impacts were identified.

8  
 9 Fort Irwin direct effects (associated with this proposed action) appear well within the  
 10 EIFS/RTV significance thresholds. In addition, installation socioeconomic VECS are  
 11 scored Low.

12  
 13 The results of recent Fort Irwin NEPA analyses (*Supplemental Final EIS for the*  
 14 *Proposed Addition of Maneuver Training Land at Fort Irwin, California, August, 2005*)  
 15 support these conclusions. The socioeconomic effects concentrated primary on the  
 16 conversion of land ownership. No significant EJ issues were identified.

17  
 18  
 19 **Summary Conclusions**

20  
 21 The following table is a summary presentation of identified impacts at the 17 candidate  
 22 installations for the applicable notional units. Direct impacts and Army-induced  
 23 cumulative impacts are scored as follows:

24  
 25  
 26 **Table 4.18-5 Summary Presentation of Identified Impacts**

27  
 28

	CS/CSS	FSBDE	IBCT	HBCT	StrBCT	MultBCTs	Comments
29 Benning	I/I	MS/S	MS/S	MS/S	N	S/S	schools
30 Bragg	I/I	MS/MS	MS/MS	MS/MS	N	S/S	schools
31 Campbell	I/I	I/MI	I/MI	I/MI	N	S/S	schools
32 Drum	I/I	MS/MS	MS/MS	MS/MS	N	S/S	schools
33 Knox	I/I	I/MI	I/MI	I/MI	N	S/S	schools
34 Hunter Liggett	I/I	MS/MS	MS/MS	MS/MS	N	S/S	
35 Riley	I/I	MS/S	MS/S	MS/S	N	S/S	schools, labor pool
36 Polk	I/I	S/S	S/S	S/S	N	S/S	
37 Stewart	I/I	I/MI	I/MI	I/MI	N	S/S	schools
38 YPG	I/I	MI/MI	MI/MI	MI/MI	N	S/S	schools
39							
40 Bliss	I/S	I/S	I/S	I/S	I/S	S/S	schools/EJ
41 WSMR	I/S	I/S	I/S	I/S	N	S/S	schools/EJ
42 Both Selected	S/S	S/S	S/S	S/S	S/S	S/S	schools/EJ
43							
44 Carson	I/I	I/S	I/S	I/S	N	I/S	
45							
46 Lewis	I/I	I/I	I/I	I/I	N	MS/MS	schools
47 YTC	MI/MS	S/S	S/S	S/S	N	S/S	schools
48 Combined	*	*	*	*	N	*	schools
49							
50 Fort Hood	I/I	I/MI	I/MI	I/MI	N	I/MS	

1	Fort Irwin	I/I	I/I	I/I	I/I	N	I/MI
2							
3	I	insignificant impact					
4	MI	just below the significance threshold					
5	MS	just over the significance threshold					
6	S	significant impact					
7	N	not applicable					
8	*	requires additional analysis and information					

10 As shown, numerous unit moves can have potentially significant impacts on the local  
11 communities. Given the consistent identification of schools as a local concern, and the  
12 long timeframes required to develop school infrastructures, the following tables can be  
13 used to facilitate further coordination and mitigation at the local level. The values in this  
14 table were derived from Army statistics, by grade, on the marital status of Army  
15 Soldiers, the number of children that Soldiers have, and other Army wide statistics  
16 (Email from Jeff Springer (AEC), 23 April 2007). The grade distribution for a Stryker  
17 brigade was used to develop a distribution of children for the affected Soldiers  
18 (approximately 4,000 Soldiers). Assuming the same distribution for the smaller units  
19 (1,000 Soldiers) and the larger units (7,000 Soldiers), the original distribution was  
20 proportionately altered to produce the distributions shown.

22 **Table 4.18-6. Distribution of Children for the affected Soldiers**

	1,000 Soldiers	4,000 Soldiers	7,000 Soldiers
Total Children	401	1605	2809
1 yr old	72	287	503
2 yr old	33	132	230
3 yr old	32	130	227
4 yr old	30	122	213
5 yr old	28	112	196
6 yr old	26	104	181
7 yr old	24	95	166
8 yr old	22	87	152
9 yr old	19	77	134
10 yr old	17	70	122
11 yr old	16	64	112
12 yr old	15	59	103
13 yr old	13	53	92
14 yr old	12	49	86
15 yr old	10	40	71
16 yr old	9	36	63
17 yr old	8	30	53
18 yr old	6	24	41
19+ yr old	9	36	63

23  
24

1 Depending on the actual decisions associated with this proposed action, these  
2 estimates can be used for coordination with local communities. The smaller distribution  
3 (for 1,000 Soldiers) can be used for any CS/CSS units; the medium distribution (4,000  
4 Soldiers) can be used for the Full Sustainment BDE, IBCT, HBCT, and Stryker BCT;  
5 and the larger distribution (7,000 Soldiers) can be used for a Multiple BCT. While these  
6 tables represent the general, nation-wide distribution of school-age dependents  
7 associated with a given military grade distribution within the units (Email from Jeff  
8 Springer (AEC), 23 April 2007), and will not provide perfect estimates, they can be used  
9 for planning purposes in coordination with potentially affected school systems. .

10  
11 In summary, the intermediate and large unit sizes will likely create significant impacts in  
12 the affected communities (ROIs). These communities will likely view most of these  
13 impacts as a positive opportunity to stimulate economic growth, but stresses will likely  
14 be encountered as populations grow, and will require resolution. The scheduling of  
15 these actions (unit moves) can provide an effective mitigation technique. If strength  
16 increases can be offset by planned strength reductions, or timelines for the strength  
17 increases (particularly for the Multiple BCTs) can be extended over multiple years,  
18 these effects can be readily mitigated. However, when decisions appear eminent,  
19 collaboration with affected communities must commence early (once final decisions are  
20 contemplated). As the major issues surround school impacts, applicable coordination  
21 should commence as soon as possible, and Army/DoD assistance programs should be  
22 implemented or developed.

23  
24 These conclusions will require installation review and verification/modification, once  
25 stationing decisions are made at a programmatic level.

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1 **6.0 ACRONYM LIST**

2

3 **A**

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4 AAF – Army Airfield

5 AAFES – Air Force Exchange Service

6 ACP- Army Campaign Plan

7 ACSIM – Army Chief of Staff for Installation Management

8 ACUBs – Army Compatible Use Buffer

9 ADA- Air Defense Artillery

10 AFB- Air Force Base

11 AFF – Army Field Fire

12 AMF- Army Modular Force

13 APCD – Air Pollution Control District

14 APE – Area of Potential Effect

15 APOE – Aerial Port of Embarkation

16 AQCC – Air Quality Control Center

17 AQCR – Air Quality Control Regions

18 AR – Army Regulation

19 ARAC – Army Radar Approach Control

20 ARC – Armored Cavalry Regiment

21 ARF – Automatic Rifle Fire

22 ARFORGEN- Army Force Generation

23 ARPA – Archeological Resources Protection Act

24 ASP – Ammunition Storage Point

25 ATC – Air Traffic Control Center

26 ATEC- Army Test and Evaluation Command

27 ATTACC- Army Training and Testing Area Carrying Capacity

28

29 **B**

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30 BAA – Butts Army Airfield

31 BAAF- Biggs Army Airfield

32 BAX – Battle Area Complex

33 BCT- Brigade Combat Team

34 BDE – Brigade

35 BEA – Bureau of Economic Analysis

36 BfSB – Battlefield Surveillance Brigade

37 BLM – Bureau of Land Management

38 BLORA - BeltonLake Outdoor Recreation Center

39 BMP – Best Management Practices

40 BO – Biological Opinion

41 BRAC- Base Realignment and Closure

42

43 **C**

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44 CAA – Clean Air Act

45 CAAF – Campbell Army Airfield

- 1 CAB – Combat Air Brigade
- 2 CACTF – Combined Arms Collective Training Facility
- 3 CAL – Combat Assault Landing Strip
- 4 CALFEX- Combined Arms Live-Fire Exercise
- 5 CAP – Criteria Air Pollutants
- 6 CC – Compliance-Related Cleanup
- 7 CCA – Candidate Conservation Agreement
- 8 CEQ- Council on Environmental Quality
- 9 CERL- Construction Engineering Research Laboratory
- 10 CFR – Code of Federal Regulations
- 11 CHPPM- U.S. Army Center for Health Promotion and Preventative Medicine
- 12 CIG – Colorado Interstate Gas
- 13 CLFXs – Convoy Live-fire Exercises
- 14 CO – Carbon Monoxide
- 15 CONUS – Continental United States
- 16 CP 08 – Command Plan 08
- 17 CPQC – Combat Pistol Qualification Course
- 18 CRM – Cultural Resource Manager
- 19 CS- Combat Service
- 20 CSA – Chief of Staff of the Army
- 21 CSB – Combat Support Brigade
- 22 CSB HQD – Combat Support Battalion, Headquarters
- 23 CSS- Combat Service Support
- 24 CSTC – Combat Support Training Center
- 25 CTC – Combat Training Center
- 26 CWA – Clean Water Act

27

28 **D**

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- 29 DA – Department of the Army
- 30 DANC – Development Authority of the North County
- 31 DECAM – Directorate of Environmental Compliance and Management
- 32 DEIS – Draft Environmental Impact Statement
- 33 DMPRC – Digital Multi-purpose Range Complex
- 34 DMPTR – Digital Multi-purpose Training Range
- 35 DNR – Department of Natural Resources
- 36 DoD – Department of Defense
- 37 DOL – Directorate of Logistics
- 38 DOT – Department of Transportation
- 39 DPW – Department of Public Works
- 40 DRMO – Defense Reutilization and Marketing Office
- 41 DTA- Donnelly Training Area

42

43 **E**

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- 44 EA- Environmental Assessment
- 45 EAC – Early Action Compact
- 46 EIFS – Economic Impact Forecast System

- 1 EIS – Environmental Impact Statement
- 2 ECM- Environmental Climate Model
- 3 EFI- Efficient Facilities Initiative
- 4 EMD – Environmental Management Division
- 5 ENG – Engineers
- 6 EOD- Explosive Ordnance Detachment
- 7 EPA – Environmental Protective Agency
- 8 EPACT – Energy Policy Act
- 9 EPD – Environmental Protection Division
- 10 EPEC – El Paso Electric Company
- 11 EPGC – El Paso Gas Company
- 12 EPWU – El Paso Water Utility
- 13 ERDC- Environmental Research and Development Center
- 14 ESA – Endangered Species Act
- 15 ESMP = Endangered Species Management Plan

16

17 **F**

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- 18 FA – Field Artillery
- 19 FAA – Federal Aviation Administration
- 20 FCS- Future Combat Systems
- 21 FEIS – Final Environmental Impact Statement
- 22 FHL- Fort Hunter Liggett
- 23 FM – Field Manual
- 24 FMTV- Family of Moderate Tactical Vehicle
- 25 FOB – Forward Operations Base
- 26 FORSCOM – United States Army Forces Command
- 27 FR – Federal Register
- 28 FSWB – Fort Stewart Wetland Bank
- 29 FSI- Finding of Significant Impacts
- 30 FY – Fiscal Year

31

32 **G**

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- 33 GCR – Guaranteed Capacity Rate
- 34 GDPR- Global Defense Posture Realignment
- 35 GIG- Global Information Grid
- 36 GIS- Geographic Information System
- 37 GPM – Gallons per Minute
- 38 GWOT- Global War on Terror

39

40 **H**

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- 41 HAAF – Hunter Army Airfield
- 42 HAP – Hazardous Air Pollutants
- 43 HBCT- Heavy Brigade Combat Team
- 44 HET – Heavy Equipment Transports
- 45 HEMTT- Heavy Expanded Mobility Tactical Truck
- 46 HET- Heavy Equipment Transport

1 HMMWV- High Mobility Multipurpose Wheeled Vehicle  
2 HQDA TISG – Headquarters, Department of the Army-Training Integration Support  
3 Group  
4 HVAC – Heating Ventilation and Air Conditioning  
5 HWFS – Hazardous Waste Storage Facility  
6 HWRO – Hazardous Waste and Recycling Office  
7

8 **I**

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9 IBCT- Infantry Brigade Combat Team  
10 ICRMP – Integrated Cultural Resources Management Plan  
11 ICUZ- Installation Compatible Use Zones  
12 IED- Improvised Explosive Device  
13 IENMP- Integrated Environmental Noise Management Plan  
14 IGPBS- Integrated Global Presence and Basing Strategy  
15 IMA- Installation Management Agency (see IMCOM)  
16 IMCOM- Installation Management Command  
17 INRMP- Integrated Natural Resources Management Plan  
18 IONMP – Installation Operational Noise Management Plan  
19 IPBC – Infantry Platoon Battle Course  
20 IRP – Installation Restoration Program  
21 ISR- Intelligence, Surveillance, Reconnaissance  
22 ITAM – Integrated Training Area Management  
23 ITC- Installation Training Capacity  
24 IUA – Intensive Use Area  
25 IWTF – Industrial Waste Treatment Facility  
26

27 **J**

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28 JFC- Joint Force Commander  
29 JHSV- Joint High Speed Vessel  
30 JLUS – Joint Land Use Study  
31 JRTC – Joint Readiness Training Center  
32 JTF- Joint Task Force  
33

34 **K**

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35 KFC – Thousand Cubic Feet  
36 KD – Known Distance  
37 kVA – Kilovolt - amperes  
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39 **L**

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40 LAAF – Laguna Army Airfield  
41 LBP – Lead Based Point  
42 LFX- Live-Fire Exercises  
43 LM- Lifecycle Management  
44 LOS – Line of Service  
45 LPG – Liquid Propane Gas  
46 LUA – Limited Use Area

1 LUPZ- Land Use Planning Zones

2

3 **M**

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4 MAAF – Marshall Army Airfield

5 MAC – Military Airlift Command

6 MAINT – Maintenance

7 MBUAPCD - Monterey Bay Unified Air Pollution Control District

8 MCS- Mobility Capabilities Study

9 ME – Maneuver Enhancement

10 MEB – Maneuver Enhancement Brigade

11 METL- Mission Essential Task List

12 MGD – Million Gallons per Day

13 MGS- Mobile Gun System

14 MI – Military Intelligence

15 MILCON – Military Construction

16 MILES- Multiple Integrated Laser Engagement System

17 MIM – Maneuver Impact Mile

18 mm- millimeter

19 MMBtu- One million British Thermal Units

20 MMRP – Military Munitions Response Program

21 MOA – Memorandum of Agreement

22 MOU – Memorandum of Understanding

23 MOUT – Military Operations Urban Team

24 MP- Military Police

25 MPMG – Multi-purpose Machine Gun Range

26 MPRC- Multi-Purpose Range Complex

27 MPTR- Multi-Purpose Training Range

28 MRE – Mission Rehearsal Exercise

29 MRF – Modified Record Pire Range

30 MS4 – Municipal Separate Storm Sewer System

31 MSA – Metropolitan Statistical Area

32 MSFA – Modular Support Forces Analysis

33 MSL – Mean Sea Level

34 MSO – Mexican Spotted Owl

35 MTR – Military Training Routes

36 MVA – Megavolt amperes

37 MW – Megawatts

38 MWH – Megawatts -hours

39

40 **N**

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41 NAAQS- National Ambient Air Quality Standards

42 NAGPRA – Native American Graves Protection and Restoration Act

43 NCDOT – North Carolina Department of Transportation

44 NDAA – National Defense Authorization Act

45 NDS- National Defense Strategy

46 NEPA- National Environmental Policy Act of 1969

1 NFWWTP – North Fort Wastewater Treatment Plant  
2 NHPA – National Historic Preservation Act  
3 NKA- Now Known As  
4 NMFS – National Marine Fisheries Service  
5 NOA – Notice of Availability  
6 NOI – Notice of Intent  
7 NOTAM – Notice to Airmen  
8 NPDES – National Pollution Discharge Elimination System  
9 NSR – New Source Review  
10 NSS- National Security Strategy  
11 NTA – Northern Training Area  
12 NZ – Noise Zone

13  
14 **O**

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15 OA- Operational Availability  
16 OCONUS- outside the continental U.S.  
17 ODS – Ozone Depleting Substance  
18 OEF- Operation Enduring Freedom  
19 OIF- Operation Iraqi Freedom

20  
21 **P**

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22 P – Provisional  
23 P2 – Pollution Prevention  
24 PAL – Privatization of Army Lodging  
25 PCB – Polychlorinated Biphenyls  
26 PCMS- Piñon Canyon Maneuver Site  
27 PEIS- Programmatic Environmental Impact Statement  
28 PM – Particulate Matter  
29 POM- Program Objective Memorandum  
30 POTW – Publicly-Owned Treatment Works  
31 PSCAA - Puget Sound Clean Air Agency  
32 PSD – Prevention of Significant Deterioration  
33 PSDR – Personnel Services Delivery Redesign  
34 PTE – Potential to Emit  
35 PUAL- Pending Unit Action List  
36 PWBC – Public Works Business Center  
37 PX – Post Exchange  
38 PY – Program Year

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40 **Q**

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41 QDR- Quadrennial Defense Review  
42 QM – Quarter Master  
43 QTR – Qualification Training Range

44  
45 **R**

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46 RCI – Residential Communities Initiative

- 1 RCRA – Resource Conservation And Recovery Act
- 2 RCW- Red-cockaded Woodpecker
- 3 RGAAF – Robert Gray Army Airfield
- 4 ROD- Record of Decision
- 5 ROI – Region of Influence
- 6 RONA – Record of Non-Applicability
- 7 RPMP – Real Property Management Plan
- 8 RTLP –Ranges and Training Land Program
- 9 RTV- Rational Threshold Value

10

11 **S**

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- 12 SAR – Species at Risk
- 13 Stryker BCT- Stryker Brigade Combat Team
- 14 SEIS – Supplemental Environmental Impact Statement
- 15 SFF – Sniper Field Fire Range
- 16 SFG – Special Forces Group
- 17 SFWWTP – South Fort Wastewater Treatment Plant
- 18 SHORAD- Short Range Air Defense System
- 19 SHPO – State Historic Preservation Office
- 20 SIG – Signal
- 21 SIP – State Implementation Plan
- 22 SIRRA – Sustainable Installations Regional Resource Assessment
- 23 SLUA – Special Limited Use Area
- 24 SOAR – Special Operations Aviation Regiment
- 25 SOCOM- U.S. Special Operations Command
- 26 SPOE – Seaport of Embarkation
- 27 SRC – Stallion Range Center
- 28 STRATCOM- U.S. Strategic Command
- 29 STX- situational training exercises
- 30 SUA – Special Use Airspace
- 31 SWP3 – Storm Water Pollution Prevention Plan

32

33 **T**

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- 34 T&E Species- Threatened and Endangered Species
- 35 TAA – Total Army Analysis
- 36 TC – Army Training Circular
- 37 TCEQ – Texas Commission on Environmental Quality
- 38 TDS – Total Dissolver Fluids
- 39 TMDL – Total Maximum Daily Load
- 40 TPDES – Texas Pollutant Discharge Elimination System
- 41 TPY – Tons per Year
- 42 TSAT- Transformational Satellite
- 43 TSC – Training Support Center
- 44 TSD – Treatment, Storage and Disposal
- 45 TUAV – Tactical Unmanned Aerial Vehicle
- 46 TWGSS- Tank Weapons Gunnery Simulation System



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**U**

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- UA – Unit of Action
- UAC – Urban Assault Corse
- UAS – Unmanned Aerial System
- UAV- Unmanned Aerial Vehicle
- USACE- U.S. Army Corps of Engineers
- USFWS – U.S. Fish and Wildlife Service
- USGS – U.S. Geological Service
- UST – Underground Storage Tank
- UXO – Unexploded Ordnance

**V**

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- VAAF – Vagabond Army Airfield
- VEC- Valued Environmental Component
- VOC – Volatile Organic Compounds

**W**

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- WBAMC – William Beaumont Army Medical Center
- WS DOE – Washington State Department of Ecology
- WSAAF – Wheeler-Sacks Army Airfield
- WSMR- White Sands Missile Range
- WTP – Water Treatment Plant
- WWTP – Wastewater Treatment Plant

**Y**

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- YPG- Yuma Proving Ground
- YTA- Yakima Training Area
- YTC- Yakima Training Center

## 7.0 List of Contributors and Preparers

**Table 7-1 Installation and Program Office Personnel Contacted**

Contact Name	Installation, Affiliation or Program Office	Position
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Deb Owings	Fort Carson	NEPA Coordinator
Cait Schaddock	Fort Drum	NEPA Coordinator
Denean Summers	Fort Hood	NEPA Coordinator
Amber Preston	Fort Hood	NEPA Coordinator
Gary Houston	Fort Hunter Liggett	NEPA Coordinator
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## Appendix A -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.
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- 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.

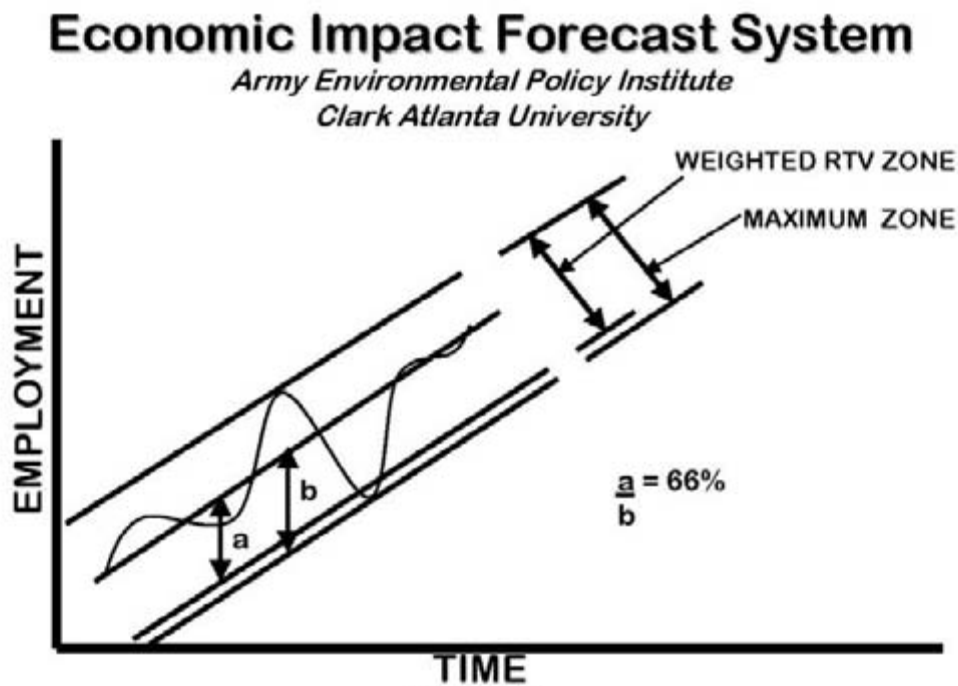
#### Determining Significance:

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 Threshold 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. The 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.

## Appendix B - Fort Benning EIFS Analysis

# Economic Impact Forecast System

## EIFS REPORT

### PROJECT NAME

Army Growth Fort Benning

### STUDY AREA

13053 Chattahoochee, GA  
 13145 Harris, GA  
 13197 Marion, GA  
 13215 Muscogee, GA  
 01113 Russell, AL

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.27	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$105,129,800	
Sales Volume - Total	\$187,909,200	1.71%
Income - Direct	\$259,700,000	
Income - Induced	\$17,682,870	
Income - Total	\$277,382,900	4.81%
Employment - Direct	7453	
Employment - Induced	575	
Employment - Total	8027	5.07%
Local Population	17430	
Local Off-base Population	8715	6.21%

### RTV SUMMARY

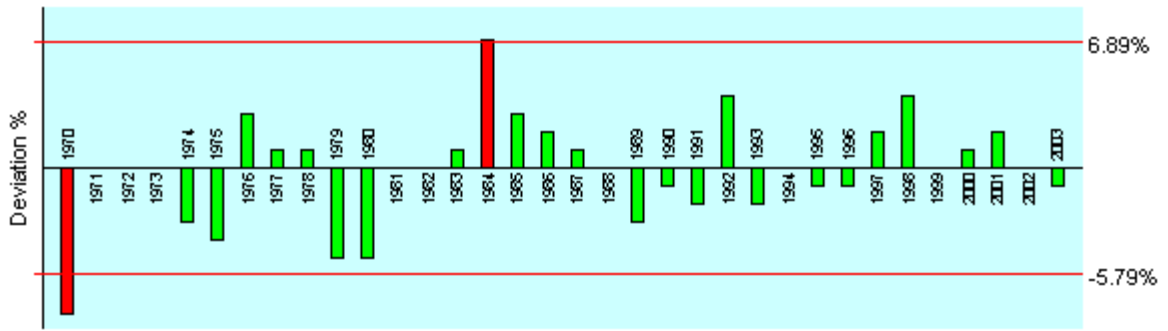
	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	6.89 %	6.93 %	5.25 %	3.13 %
<b>Negative RTV</b>	-5.79 %	-5.19 %	-9.4 %	-2.12 %

### RTV DETAILED

#### SALES VOLUME



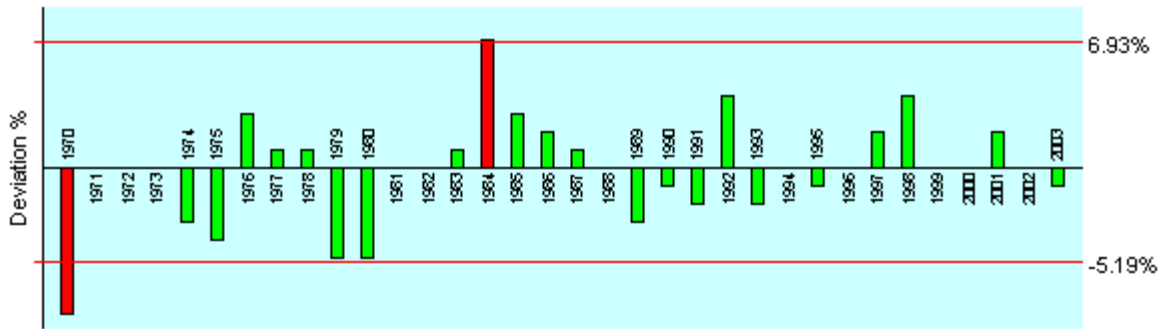
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1630920	8578639	0	-206979	0
1970	1637694	8155716	-422923	-629902	-7.72
1971	1756276	8377437	221720	14741	0.18
1972	1854652	8568492	191056	-15923	-0.19
1973	2022992	8800015	231523	24544	0.28
1974	2242660	8768801	-31215	-238194	-2.72
1975	2415464	8671516	-97285	-304264	-3.51
1976	2683888	9125219	453703	246724	2.7
1977	2956918	9432568	307349	100370	1.06
1978	3273672	9690069	257501	50522	0.52
1979	3529272	9387864	-302206	-509185	-5.42
1980	3913012	9156448	-231415	-438394	-4.79
1981	4384896	9339828	183380	-23599	-0.25
1982	4788360	9576720	236892	29913	0.31
1983	5104044	9901845	325125	118146	1.19
1984	5837040	10856894	955049	748070	6.89
1985	6312708	11362874	505980	299001	2.63
1986	6708988	11807819	444944	237965	2.02
1987	7127768	12117206	309387	102408	0.85
1988	7547136	12301832	184626	-22353	-0.18
1989	7819154	12197880	-103951	-310930	-2.55
1990	8231060	12264279	66399	-140580	-1.15
1991	8618364	12238077	-26203	-233182	-1.91
1992	9385002	12951303	713226	506247	3.91
1993	9595482	12857946	-93357	-300336	-2.34
1994	1,0006736	13008757	150811	-56168	-0.43
1995	10349064	13143311	134554	-72425	-0.55
1996	10796576	13279788	136477	-70502	-0.53
1997	11510452	13812542	532754	325775	2.36
1998	12267748	14598620	786078	579099	3.97
1999	12745548	14784836	186216	-20763	-0.14
2000	13455754	15070444	285609	78630	0.52
2001	14325930	15615264	544819	337840	2.16
2002	14752204	15784858	169595	-37384	-0.24
2003	15069434	15822906	38047	-168932	-1.07

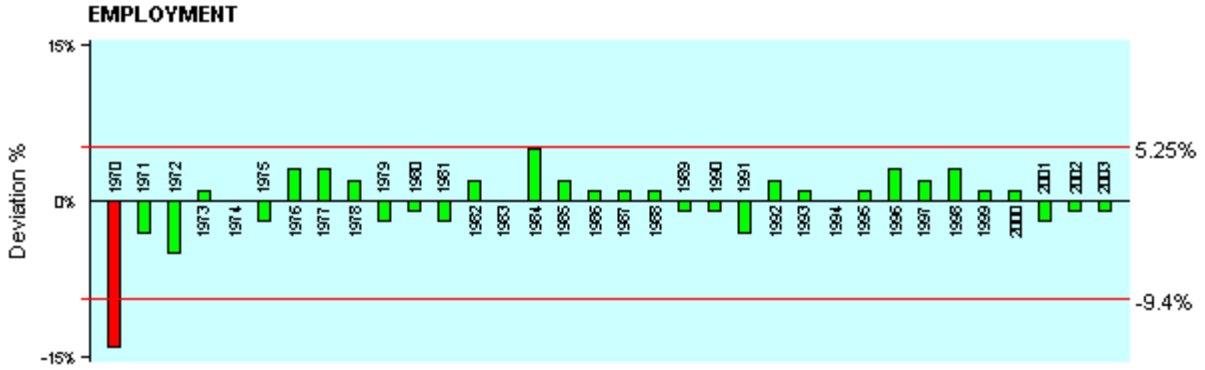
**INCOME**

**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	819613	4311164	0	-103374	0
1970	822770	4097395	-213770	-317144	-7.74
1971	882190	4208046	110652	7278	0.17
1972	931996	4305822	97775	-5599	-0.13
1973	1018269	4429470	123649	20275	0.46
1974	1127002	4406578	-22892	-126266	-2.87
1975	1212141	4351586	-54992	-158366	-3.64
1976	1348870	4586158	234572	131198	2.86
1977	1482290	4728505	142347	38973	0.82
1978	1643112	4863612	135106	31732	0.65
1979	1773119	4716497	-147115	-250489	-5.31
1980	1962162	4591459	-125037	-228411	-4.97
1981	2203956	4694426	102967	-407	-0.01
1982	2404824	4809648	115222	11848	0.25
1983	2558793	4964058	154410	51036	1.03
1984	2927351	5444873	480814	377440	6.93
1985	3161996	5691593	246720	143346	2.52
1986	3358831	5911543	219950	116576	1.97
1987	3570842	6070431	158889	55515	0.91
1988	3782883	6166099	95668	-7706	-0.12
1989	3919080	6113765	-52334	-155708	-2.55
1990	4123180	6143538	29773	-73601	-1.2
1991	4320874	6135641	-7897	-111271	-1.81
1992	4702491	6489438	353796	250422	3.86
1993	4808508	6443401	-46037	-149411	-2.32
1994	5016649	6521644	78243	-25131	-0.39
1995	5183571	6583135	61491	-41883	-0.64
1996	5410617	6655059	71924	-31450	-0.47
1997	5767795	6921354	266295	162921	2.35
1998	6147485	7315507	394153	290779	3.97
1999	6393221	7416136	100629	-2745	-0.04
2000	6740100	7548912	132776	29402	0.39
2001	7178431	7824490	275578	172204	2.2
2002	7385101	7902058	77568	-25806	-0.33
2003	7551657	7929240	27182	-76192	-0.96

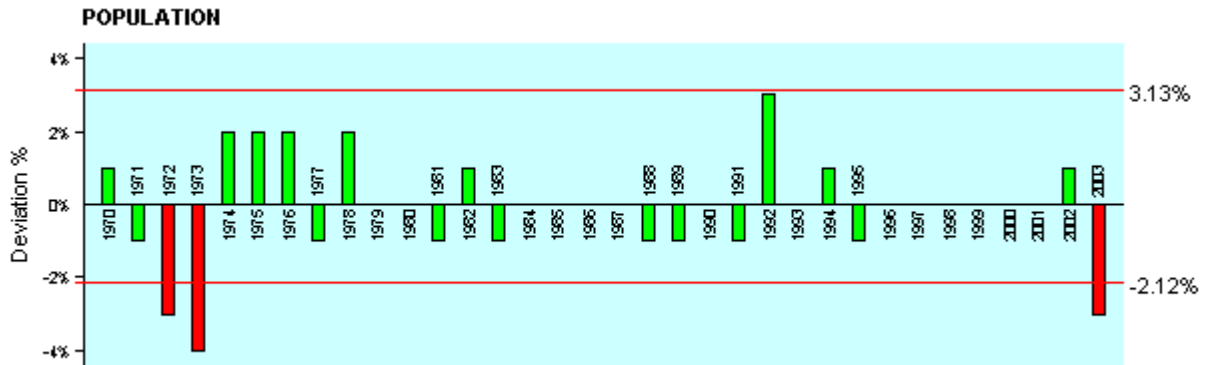
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	139152	0	-677	0
1970	122621	-16531	-17208	-14.03
1971	120023	-2598	-3275	-2.73
1972	115159	-4864	-5541	-4.81
1973	116479	1320	643	0.55
1974	117041	562	-115	-0.1
1975	114969	-2072	-2749	-2.39
1976	119817	4848	4171	3.48
1977	124512	4695	4018	3.23
1978	127463	2951	2274	1.78
1979	126219	-1244	-1921	-1.52
1980	125917	-302	-979	-0.78
1981	123860	-2057	-2734	-2.21
1982	126492	2632	1955	1.55
1983	126598	106	-571	-0.45
1984	134330	7732	7055	5.25
1985	137507	3177	2500	1.82
1986	140127	2620	1943	1.39
1987	142697	2570	1893	1.33
1988	145067	2370	1693	1.17
1989	143682	-1385	-2062	-1.44
1990	142848	-834	-1511	-1.06
1991	139456	-3392	-4069	-2.92
1992	143157	3701	3024	2.11
1993	145775	2618	1941	1.33
1994	147023	1248	571	0.39
1995	148522	1499	822	0.55
1996	153823	5301	4624	3.01
1997	158404	4581	3904	2.46
1998	163536	5132	4455	2.72
1999	165080	1544	867	0.53
2000	167205	2125	1448	0.87
2001	165280	-1925	-2602	-1.57

2002	163828	-1452	-2129	-1.3
2003	162834	-994	-1671	-1.03

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	251025	0	-759	0
1970	254664	3639	2880	1.13
1971	253660	-1004	-1763	-0.7
1972	246940	-6720	-7479	-3.03
1973	237599	-9341	-10100	-4.25
1974	244309	6710	5951	2.44
1975	249515	5206	4447	1.78
1976	255031	5516	4757	1.87
1977	253528	-1503	-2262	-0.89
1978	259685	6157	5398	2.08
1979	260109	424	-335	-0.13
1980	259921	-188	-947	-0.36
1981	259295	-626	-1385	-0.53
1982	263318	4023	3264	1.24
1983	261838	-1480	-2239	-0.86
1984	262983	1145	386	0.15
1985	264556	1573	814	0.31
1986	266407	1851	1092	0.41
1987	267567	1160	401	0.15
1988	266586	-981	-1740	-0.65
1989	265634	-952	-1711	-0.64
1990	266931	1297	538	0.2
1991	266314	-617	-1376	-0.52
1992	275715	9401	8642	3.13
1993	277655	1940	1181	0.43
1994	280889	3234	2475	0.88
1995	279663	-1226	-1985	-0.71
1996	279725	62	-697	-0.25
1997	280896	1171	412	0.15

1998	280686	-210	-969	-0.35
1999	280899	213	-546	-0.19
2000	282122	1223	464	0.16
2001	283096	974	215	0.08
2002	286161	3065	2306	0.81
2003	277580	-8581	-9340	-3.36

## Appendix C - Fort Bliss EIFS Analysis

# Economic Impact Forecast System

## EIFS REPORT

### PROJECT NAME

Army Growth Fort Bliss

### STUDY AREA

35013 Dona Ana, NM  
 35035 Otero, NM  
 48141 El Paso, TX

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	0

### FORECAST OUTPUT

Multiplier	2.39	
Sales Volume - Direct	\$105,827,800	
Sales Volume - Induced	\$147,100,600	
Sales Volume - Total	\$252,928,300	1.04%
Income - Direct	\$259,700,000	
Income - Induced	\$26,765,360	
Income - Total	\$286,465,300	1.99%
Employment - Direct	7702	
Employment - Induced	976	
Employment - Total	8678	2.15%
Local Population	17430	
Local Off-base Population	17430	1.95%

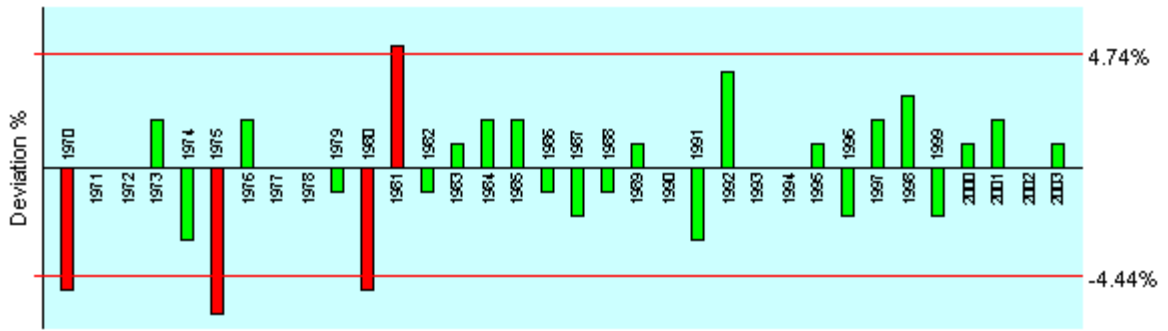
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.74 %	5 %	4.01 %	1.29 %
<b>Negative RTV</b>	-4.44 %	-4.33 %	-4.21 %	-1.62 %

### RTV DETAILED

#### SALES VOLUME

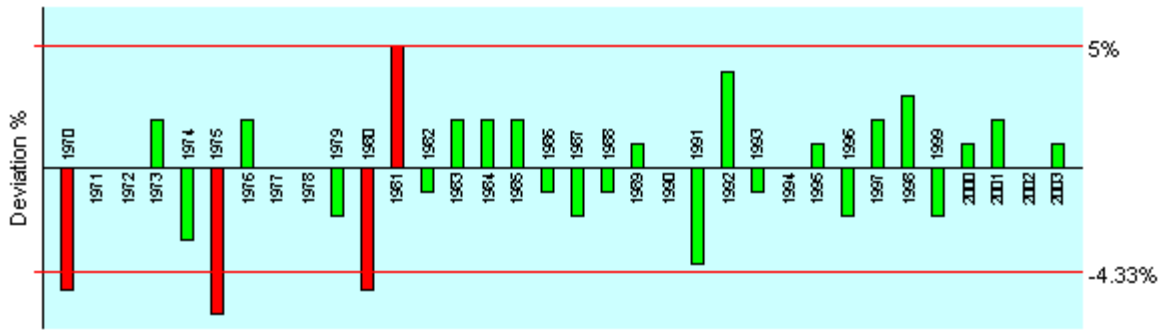
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2634708	13858564	0	-775392	0
1970	2794104	13914638	56074	-719318	-5.17
1971	3074718	14666405	751767	-23625	-0.16
1972	3340384	15432574	766169	-9223	-0.06
1973	3799646	16528460	1095886	320494	1.94
1974	4295372	16794905	266444	-508948	-3.03
1975	4620548	16587767	-207137	-982529	-5.92
1976	5189662	17644851	1057083	281691	1.6
1977	5760616	18376365	731514	-43878	-0.24
1978	6480950	19183612	807247	31855	0.17
1979	7399830	19683548	499936	-275456	-1.4
1980	8296632	19414119	-269429	-1044821	-5.38
1981	9950134	21193785	1779667	1004275	4.74
1982	10862602	21725204	531419	-243973	-1.12
1983	11773176	22839961	1114757	339365	1.49
1984	12983506	24149321	1309360	533968	2.21
1985	14063594	25314469	1165148	389756	1.54
1986	14703584	25878308	563839	-211553	-0.82
1987	15397108	26175084	296776	-478616	-1.83
1988	16379742	26698979	523896	-251496	-0.94
1989	17822690	27803396	1104417	329025	1.18
1990	19240320	28668077	864680	89288	0.31
1991	20054450	28477319	-190758	-966150	-3.39
1992	21993684	30351284	1873965	1098573	3.62
1993	23135286	31001283	649999	-125393	-0.4
1994	24396860	31715918	714635	-60757	-0.19
1995	25763304	32719396	1003478	228086	0.7
1996	26819988	32988585	269189	-506203	-1.53
1997	28585462	34302554	1313969	538577	1.57
1998	30279482	36032584	1730029	954637	2.65
1999	31196676	36188144	155561	-619831	-1.71
2000	33441720	37454726	1266582	491190	1.31
2001	35896856	39127573	1672847	897455	2.29
2002	37370118	39986026	858453	83061	0.21
2003	39045032	40997284	1011257	235865	0.58

**INCOME**

**PERSONAL INCOME**

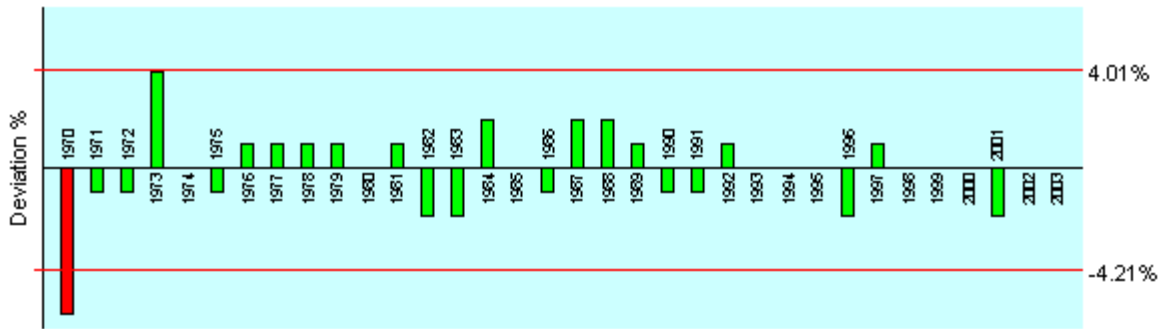


Year	Value	Adj. Value	Change	Deviation	%Deviation
1969	1339691	7046775	0	-389269	0
1970	1418354	7063403	16628	-372641	-5.28
1971	1558400	7433568	370165	-19104	-0.26
1972	1696395	7837345	403777	14508	0.19
1973	1926011	8378148	540803	151534	1.81
1974	2184783	8542502	164354	-224915	-2.63
1975	2336704	8388767	-153734	-543003	-6.47
1976	2628796	8937906	549139	159870	1.79
1977	2912376	9290479	352573	-36696	-0.39
1978	3271696	9684220	393741	4472	0.05
1979	3720264	9895902	211682	-177587	-1.79
1980	4170980	9760093	-135809	-525078	-5.38
1981	5015864	10683790	923697	534428	5
1982	5463861	10927722	243932	-145337	-1.33
1983	5943154	11529719	601997	212728	1.85
1984	6541883	12167902	638184	248915	2.05
1985	7089555	12761199	593297	204028	1.6
1986	7426183	13070082	308883	-80386	-0.62
1987	7776094	13219360	149278	-239991	-1.82
1988	8271561	13482644	263285	-125984	-0.93
1989	9013767	14061477	578832	189563	1.35
1990	9736106	14506798	445321	56052	0.39
1991	10126018	14378946	-127852	-517121	-3.6
1992	11126373	15354395	975449	586180	3.82
1993	11674835	15644279	289884	-99385	-0.64
1994	12294496	15982845	338566	-50703	-0.32
1995	13007501	16519526	536681	147412	0.89
1996	13508523	16615483	95957	-293312	-1.77
1997	14418275	17301930	686447	297178	1.72
1998	15285783	18190082	888152	498883	2.74
1999	15752526	18272930	82848	-306421	-1.68
2000	16823640	18842477	569547	180278	0.96
2001	18093019	19721391	878914	489645	2.48
2002	18818797	20136113	414722	25453	0.13
2003	19686846	20671188	535076	145807	0.71

**EMPLOYMENT**



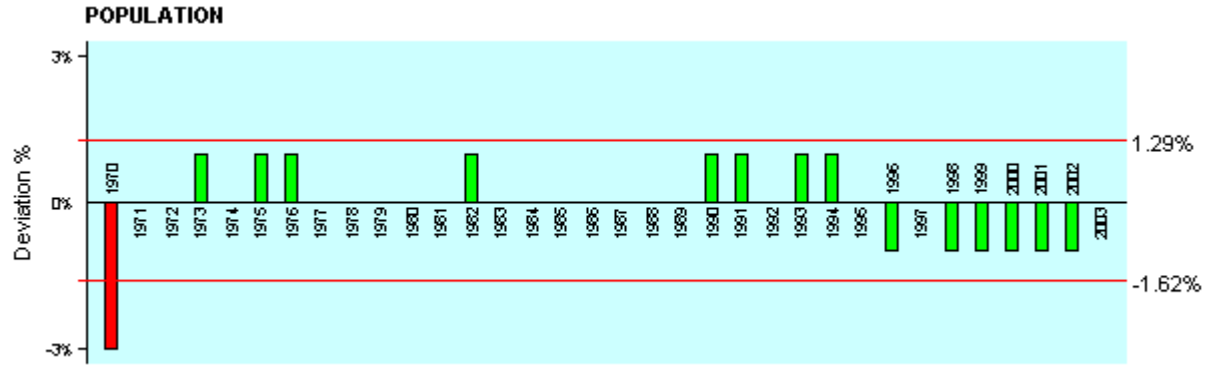
## EMPLOYMENT



Year	Value	Change	Deviation	%Deviation
1969	200881	0	-6920	0
1970	195525	-5356	-12276	-6.28
1971	201228	5703	-1217	-0.6
1972	206123	4895	-2025	-0.98
1973	221933	15810	8890	4.01
1974	228575	6642	-278	-0.12
1975	233935	5360	-1560	-0.67
1976	242588	8653	1733	0.71
1977	250860	8272	1352	0.54
1978	260276	9416	2496	0.96
1979	270114	9838	2918	1.08
1980	276776	6662	-258	-0.09
1981	286190	9414	2494	0.87
1982	288627	2437	-4483	-1.55
1983	288815	188	-6732	-2.33
1984	300363	11548	4628	1.54
1985	307548	7185	265	0.09
1986	311968	4420	-2500	-0.8
1987	325384	13416	6496	2
1988	337801	12417	5497	1.63
1989	348202	10401	3481	1
1990	353222	5020	-1900	-0.54
1991	357542	4320	-2600	-0.73
1992	369184	11642	4722	1.28
1993	377786	8602	1682	0.45
1994	385646	7860	940	0.24
1995	393964	8318	1398	0.35
1996	394384	420	-6500	-1.65
1997	403771	9387	2467	0.61
1998	412172	8401	1481	0.36
1999	420341	8169	1249	0.3
2000	429107	8766	1846	0.43
2001	428794	-313	-7233	-1.69

2002	437027	8233	1313	0.3
2003	443083	6056	-864	-0.19

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	473822	0	-13526	0
1970	472094	-1728	-15254	-3.23
1971	484736	12642	-884	-0.18
1972	497231	12495	-1031	-0.21
1973	517408	20177	6651	1.29
1974	533437	16029	2503	0.47
1975	553054	19617	6091	1.1
1976	569539	16485	2959	0.52
1977	583030	13491	-35	-0.01
1978	598302	15272	1746	0.29
1979	611443	13141	-385	-0.06
1980	625462	14019	493	0.08
1981	642148	16686	3160	0.49
1982	661376	19228	5702	0.86
1983	676615	15239	1713	0.25
1984	691237	14622	1096	0.16
1985	705442	14205	679	0.1
1986	721529	16087	2561	0.35
1987	736660	15131	1605	0.22
1988	751258	14598	1072	0.14
1989	766410	15152	1626	0.21
1990	783922	17512	3986	0.51
1991	802461	18539	5013	0.62
1992	819721	17260	3734	0.46
1993	842512	22791	9265	1.1
1994	861423	18911	5385	0.63
1995	874780	13357	-169	-0.02
1996	882898	8118	-5408	-0.61
1997	895673	12775	-751	-0.08

1998	904565	8892	-4634	-0.51
1999	911189	6624	-6902	-0.76
2000	918736	7547	-5979	-0.65
2001	925711	6975	-6551	-0.71
2002	933838	8127	-5399	-0.58
2003	947218	13380	-146	-0.02

## Appendix D - Fort Bragg EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Bragg

### STUDY AREA

37051 Cumberland, NC  
 37085 Harnett, NC  
 37093 Hoke, NC  
 37105 Lee, NC  
 37125 Moore, NC

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.41	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$116,718,900	
Sales Volume - Total	\$199,498,300	1.55%
Income - Direct	\$259,700,000	
Income - Induced	\$22,447,530	
Income - Total	\$282,147,500	2.46%
Employment - Direct	7597	
Employment - Induced	842	
Employment - Total	8439	2.94%
Local Population	17430	
Local Off-base Population	8715	3.27%

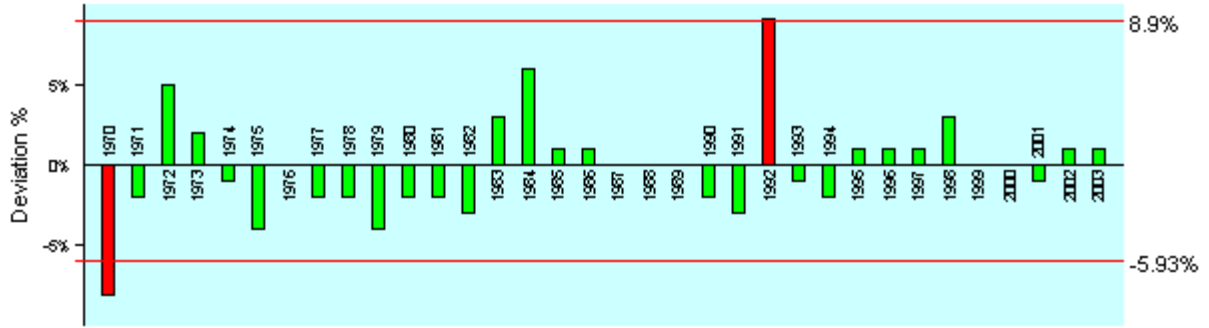
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	8.9 %	8.66 %	6.4 %	2.16 %
Negative RTV	-5.93 %	-5.15 %	-7.34 %	-0.68 %

### RTV DETAILED

#### SALES VOLUME

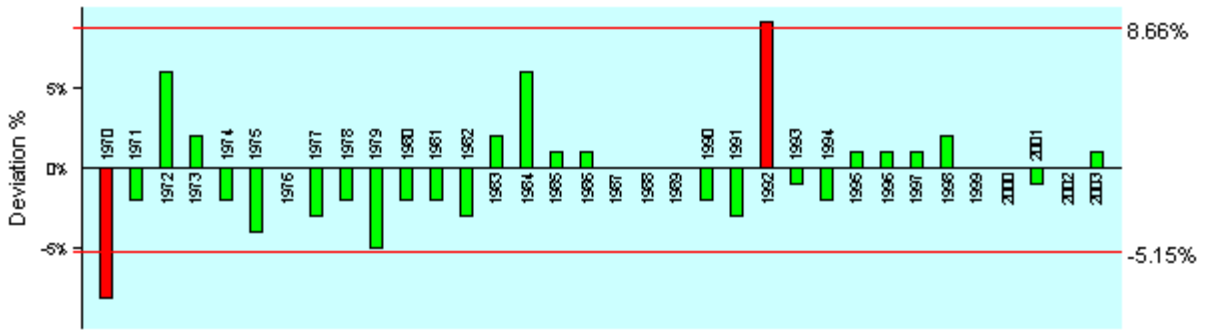
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1959794	10308516	0	-613107	0
1970	2032370	10121203	-187314	-800421	-7.91
1971	2203638	10511353	390151	-222956	-2.12
1972	2544538	11755766	1244412	631305	5.37
1973	2886968	12558311	802545	189438	1.51
1974	3331012	13024257	465946	-147161	-1.13
1975	3652276	13111671	87414	-525693	-4.01
1976	4041842	13742263	630592	17485	0.13
1977	4405430	14053322	311059	-302048	-2.15
1978	4864054	14397600	344278	-268829	-1.87
1979	5415004	14403911	6311	-606796	-4.21
1980	6271572	14675478	271568	-341539	-2.33
1981	7033546	14981453	305974	-307132	-2.05
1982	7595016	15190032	208579	-404528	-2.66
1983	8381810	16260711	1070679	457572	2.81
1984	9636132	17923206	1662494	1049387	5.85
1985	10420086	18756155	832949	219842	1.17
1986	11066682	19477360	721206	108099	0.55
1987	11767006	20003910	526550	-86557	-0.43
1988	12591052	20523415	519505	-93602	-0.46
1989	13513368	21080854	557439	-55668	-0.26
1990	14226700	21197783	116929	-496178	-2.34
1991	14977074	21267445	69662	-543445	-2.56
1992	17403532	24016874	2749429	2136322	8.9
1993	18225622	24422333	405459	-207648	-0.85
1994	18953344	24639347	217014	-396093	-1.61
1995	20054064	25468661	829314	216207	0.85
1996	21357402	26269604	800943	187836	0.72
1997	22595504	27114605	845000	231893	0.86
1998	23973826	28528853	1414248	801141	2.81
1999	25034760	29040322	511469	-101638	-0.35
2000	26551888	29738115	697793	84686	0.28
2001	27582894	30065354	327240	-285867	-0.95
2002	28869750	30890632	825278	212171	0.69
2003	30254522	31767248	876616	263509	0.83

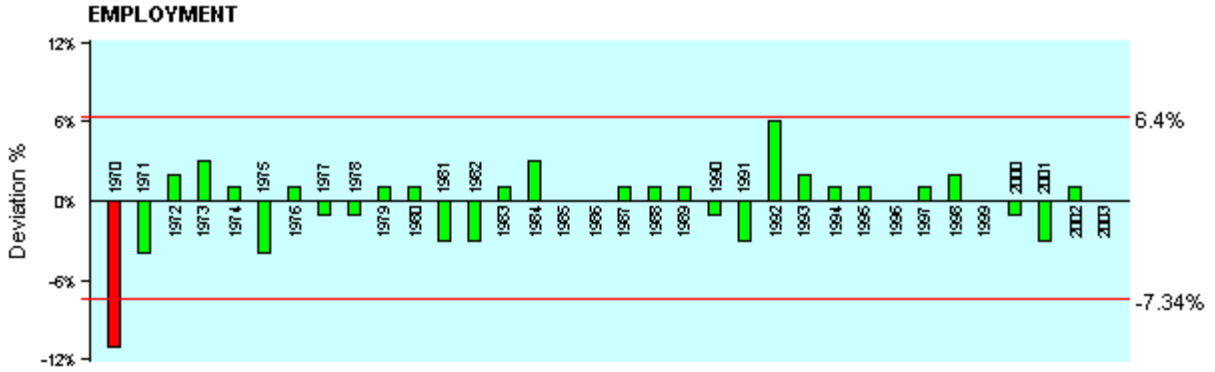
**INCOME**

**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1017750	5353365	0	-302748	0
1970	1054795	5252879	-100486	-403234	-7.68
1971	1138091	5428694	175815	-126933	-2.34
1972	1312764	6064970	636276	333528	5.5
1973	1499765	6523978	459008	156260	2.4
1974	1720006	6725223	201246	-101502	-1.51
1975	1879587	6747717	22494	-280254	-4.15
1976	2074469	7053195	305477	2729	0.04
1977	2248686	7173308	120114	-182634	-2.55
1978	2477277	7332740	159432	-143316	-1.95
1979	2733160	7270206	-62534	-365282	-5.02
1980	3166808	7410331	140125	-162623	-2.19
1981	3560873	7584659	174329	-128419	-1.69
1982	3847075	7694150	109491	-193257	-2.51
1983	4222744	8192123	497973	195225	2.38
1984	4873744	9065164	873040	570292	6.29
1985	5273192	9491746	426582	123834	1.3
1986	5596429	9849715	357969	55221	0.56
1987	5955250	10123925	274210	-28538	-0.28
1988	6382838	10404026	280101	-22647	-0.22
1989	6858013	10698500	294474	-8274	-0.08
1990	7246225	10796875	98375	-204373	-1.89
1991	7612900	10810318	13443	-289305	-2.68
1992	8816461	12166716	1356398	1053650	8.66
1993	9244096	12387089	220372	-82376	-0.67
1994	9616971	12502062	114974	-187774	-1.5
1995	10162487	12906358	404296	101548	0.79
1996	10824925	13314658	408299	105551	0.79
1997	11451252	13741502	426845	124097	0.9
1998	12104724	14404622	663119	360371	2.5
1999	12635695	14657406	252785	-49963	-0.34
2000	13416054	15025980	368574	65826	0.44
2001	13940655	15195314	169333	-133415	-0.88
2002	14482738	15496530	301216	-1532	-0.01
2003	15190051	15949554	453024	150276	0.94

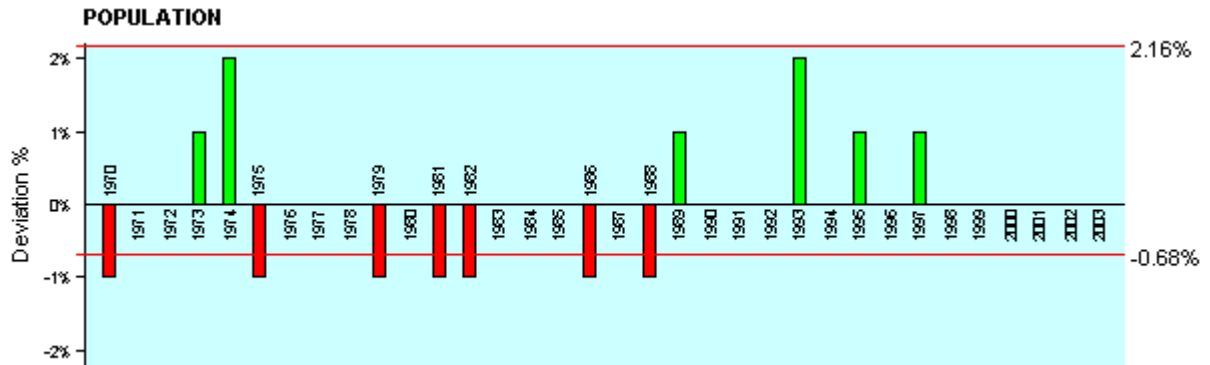
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	179235	0	-3725	0
1970	164904	-14331	-18056	-10.95
1971	161910	-2994	-6719	-4.15
1972	168711	6801	3076	1.82
1973	177713	9002	5277	2.97
1974	183596	5883	2158	1.18
1975	179462	-4134	-7859	-4.38
1976	184368	4906	1181	0.64
1977	187124	2756	-969	-0.52
1978	189349	2225	-1500	-0.79
1979	194871	5522	1797	0.92
1980	200244	5373	1648	0.82
1981	198812	-1432	-5157	-2.59
1982	196816	-1996	-5721	-2.91
1983	202328	5512	1787	0.88
1984	212056	9728	6003	2.83
1985	216192	4136	411	0.19
1986	220320	4128	403	0.18
1987	226731	6411	2686	1.18
1988	232478	5747	2022	0.87
1989	238329	5851	2126	0.89
1990	239172	843	-2882	-1.2
1991	235802	-3370	-7095	-3.01
1992	255905	20103	16378	6.4
1993	263593	7688	3963	1.5
1994	269363	5770	2045	0.76
1995	277025	7662	3937	1.42
1996	280358	3333	-392	-0.14
1997	287491	7133	3408	1.19
1998	296229	8738	5013	1.69
1999	301141	4912	1187	0.39
2000	303283	2142	-1583	-0.52
2001	299292	-3991	-7716	-2.58

2002	304883	5591	1866	0.61
2003	309600	4717	992	0.32

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	344901	0	-6489	0
1970	348053	3152	-3337	-0.96
1971	353897	5844	-645	-0.18
1972	359577	5680	-809	-0.22
1973	368055	8478	1989	0.54
1974	382821	14766	8277	2.16
1975	387078	4257	-2232	-0.58
1976	393279	6201	-288	-0.07
1977	401716	8437	1948	0.48
1978	407314	5598	-891	-0.22
1979	408246	932	-5557	-1.36
1980	415585	7339	850	0.2
1981	419332	3747	-2742	-0.65
1982	422446	3114	-3375	-0.8
1983	428087	5641	-848	-0.2
1984	434689	6602	113	0.03
1985	440496	5807	-682	-0.15
1986	443633	3137	-3352	-0.76
1987	449696	6063	-426	-0.09
1988	451778	2082	-4407	-0.98
1989	461565	9787	3298	0.71
1990	467709	6144	-345	-0.07
1991	474636	6927	438	0.09
1992	481392	6756	267	0.06
1993	496111	14719	8230	1.66
1994	504917	8806	2317	0.46
1995	514286	9369	2880	0.56
1996	522420	8134	1645	0.31
1997	532281	9861	3372	0.63



1998	538343	6062	-427	-0.08
1999	546133	7790	1301	0.24
2000	552877	6744	255	0.05
2001	557295	4418	-2071	-0.37
2002	564786	7491	1002	0.18
2003	572021	7235	746	0.13

## Appendix E - Fort Campbell EIFS Analysis

# Economic Impact Forecast System

## EIFS REPORT

### PROJECT NAME

Army Growth Fort Campbell

### STUDY AREA

21047 Christian, KY  
 21221 Trigg, KY  
 47125 Montgomery, TN  
 47161 Stewart, TN

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

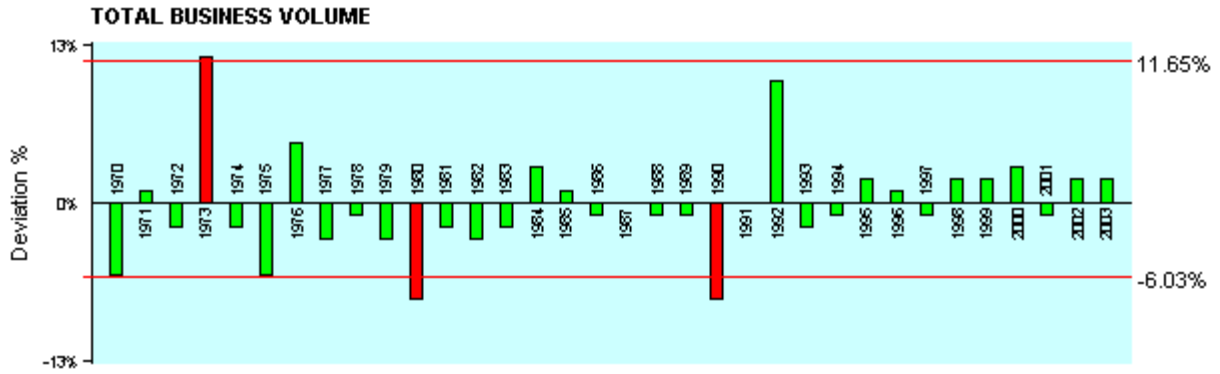
Multiplier	1.95	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$78,640,410	
Sales Volume - Total	\$161,419,800	3.12%
Income - Direct	\$259,700,000	
Income - Induced	\$14,130,740	
Income - Total	\$273,830,800	6.3%
Employment - Direct	7571	
Employment - Induced	543	
Employment - Total	8114	6.92%
Local Population	17430	
Local Off-base Population	8715	7.78%

### RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.65 %	12.19 %	11.52 %	7.69 %
Negative RTV	-6.03 %	-6.81 %	-5.23 %	-1.57 %

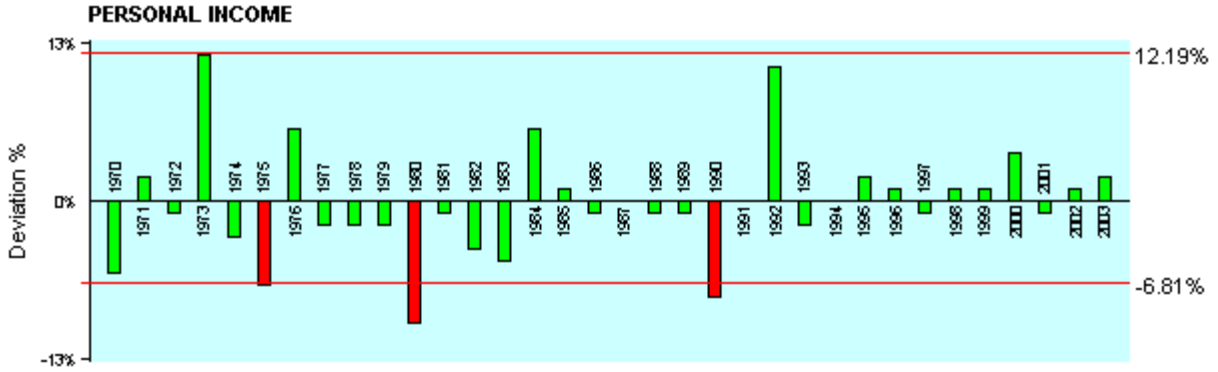
### RTV DETAILED

#### SALES VOLUME



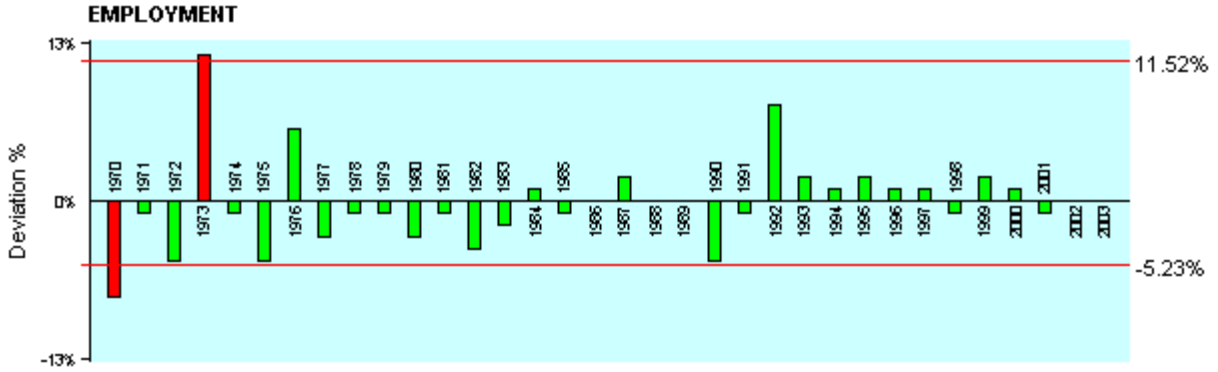
Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	764030	4018798	0	-254261	0
1970	810410	4035842	17044	-237217	-5.88
1971	910404	4342627	306785	52524	1.21
1972	980268	4528838	186211	-68050	-1.5
1973	1244508	5413610	884772	630511	11.65
1974	1421374	5557572	143963	-110298	-1.98
1975	1532072	5500138	-57434	-311695	-5.67
1976	1790016	6086054	585916	331655	5.45
1977	1925778	6143232	57177	-197084	-3.21
1978	2140384	6335537	192305	-61956	-0.98
1979	2398184	6379169	43633	-210628	-3.3
1980	2623902	6139931	-239239	-493,500	-8.04
1981	2945266	6273417	133486	-120775	-1.93
1982	3159500	6319000	45583	-208678	-3.3
1983	3313892	6428950	109950	-144311	-2.24
1984	3703692	6888867	459917	205656	2.99
1985	3996896	7194413	305546	51285	0.71
1986	4197186	7387047	192635	-61626	-0.83
1987	4501558	7652649	265601	11340	0.15
1988	4798394	7821382	168734	-85527	-1.09
1989	5108482	7969232	147850	-106411	-1.34
1990	5129648	7643176	-326056	-580317	-7.59
1991	5541366	7868740	225564	-28697	-0.36
1992	6551612	9041225	1172485	918224	10.16
1993	6793100	9102754	61529	-192732	-2.12
1994	7160186	9308242	205488	-48773	-0.52
1995	7683120	9757562	449321	195060	2
1996	8230834	10123926	366363	112102	1.11
1997	8600620	10320744	196818	-57443	-0.56
1998	9049076	10768400	447656	193395	1.8
1999	9646784	11190269	421869	167608	1.5
2000	10538734	11803382	613113	358852	3.04
2001	10941558	11926298	122916	-131345	-1.1
2002	11581700	12392419	466121	211860	1.71
2003	12302792	12917932	525513	271252	2.1

**INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	399381	2100744	0	-124921	0
1970	422217	2102641	1897	-123024	-5.85
1971	476651	2273625	170985	46064	2.03
1972	515193	2380192	106566	-18355	-0.77
1973	655859	2852987	472795	347874	12.19
1974	738518	2887605	34619	-90302	-3.13
1975	784126	2815012	-72593	-197514	-7.02
1976	918023	3121278	306266	181345	5.81
1977	1001988	3196342	75064	-49857	-1.56
1978	1099259	3253807	57465	-67456	-2.07
1979	1242360	3304678	50871	-74050	-2.24
1980	1330407	3113152	-191525	-316446	-10.16
1981	1507787	3211586	98434	-26487	-0.82
1982	1610233	3220466	8880	-116041	-3.6
1983	1641075	3183686	-36780	-161702	-5.08
1984	1884256	3504716	321031	196110	5.6
1985	2028626	3651527	146811	21890	0.6
1986	2120090	3731358	79832	-45089	-1.21
1987	2276071	3869321	137962	13041	0.34
1988	2423059	3949586	80265	-44656	-1.13
1989	2591024	4041997	92411	-32510	-0.8
1990	2594493	3865795	-176203	-301124	-7.79
1991	2796656	3971252	105457	-19464	-0.49
1992	3319740	4581241	609990	485069	10.59
1993	3431115	4597694	16453	-108468	-2.36
1994	3622662	4709461	111766	-13154	-0.28
1995	3872875	4918551	209091	84170	1.71
1996	4160587	5117522	198971	74050	1.45
1997	4344722	5213666	96144	-28777	-0.55
1998	4547014	5410947	197280	72359	1.34
1999	4821607	5593064	182117	57196	1.02
2000	5305387	5942033	348969	224048	3.77
2001	5492924	5987287	45254	-79667	-1.33
2002	5790414	6195743	208456	83535	1.35
2003	6164741	6472978	277235	152314	2.35

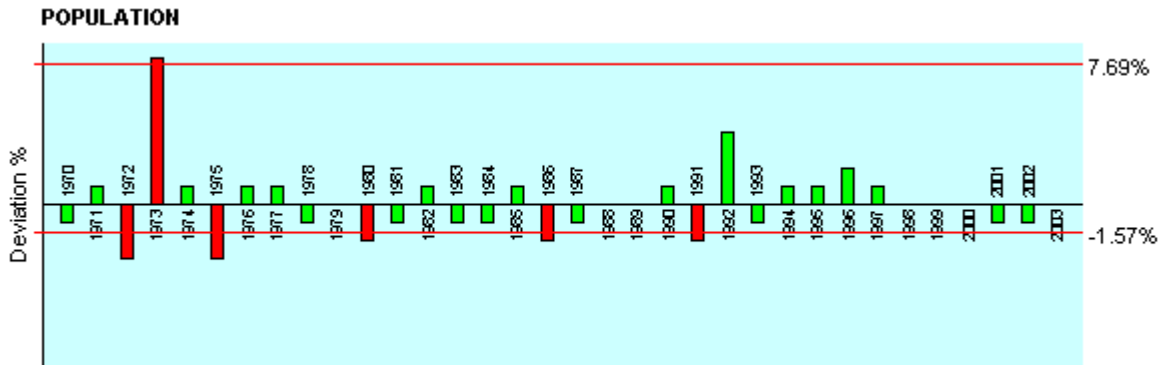
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	70679	0	-1728	0
1970	67160	-3519	-5247	-7.81
1971	67997	837	-891	-1.31
1972	66675	-1322	-3050	-4.57
1973	77310	10635	8907	11.52
1974	78458	1148	-580	-0.74
1975	76094	-2364	-4092	-5.38
1976	82729	6635	4907	5.93
1977	81992	-737	-2465	-3.01
1978	83280	1288	-440	-0.53
1979	83762	482	-1246	-1.49
1980	82965	-797	-2525	-3.04
1981	83777	812	-916	-1.09
1982	82211	-1566	-3294	-4.01
1983	82540	329	-1399	-1.69
1984	84933	2393	665	0.78
1985	86126	1193	-535	-0.62
1986	87604	1478	-250	-0.29
1987	91052	3448	1720	1.89
1988	92467	1415	-313	-0.34
1989	94164	1697	-31	-0.03
1990	91543	-2621	-4349	-4.75
1991	92030	487	-1241	-1.35
1992	101617	9587	7859	7.73
1993	105024	3407	1679	1.6
1994	107992	2968	1240	1.15
1995	112061	4069	2341	2.09
1996	114419	2358	630	0.55
1997	117174	2755	1027	0.88
1998	118272	1098	-630	-0.53
1999	123050	4778	3050	2.48
2000	126061	3011	1283	1.02
2001	126780	719	-1009	-0.8

2002	128810	2030	302	0.23
2003	131143	2333	605	0.46

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	134366	0	-2911	0
1970	135674	1308	-1603	-1.18
1971	139678	4004	1093	0.78
1972	138363	-1315	-4226	-3.05
1973	153046	14683	11772	7.69
1974	158160	5114	2203	1.39
1975	156167	-1993	-4904	-3.14
1976	159985	3818	907	0.57
1977	165292	5307	2396	1.45
1978	166124	832	-2079	-1.25
1979	168638	2514	-397	-0.24
1980	168672	34	-2877	-1.71
1981	169914	1242	-1669	-0.98
1982	174812	4898	1987	1.14
1983	175305	493	-2418	-1.38
1984	176266	961	-1950	-1.11
1985	180704	4438	1527	0.85
1986	180129	-575	-3486	-1.94
1987	181228	1099	-1812	-1
1988	183356	2128	-783	-0.43
1989	186014	2658	-253	-0.14
1990	190352	4338	1427	0.75
1991	189761	-591	-3502	-1.85
1992	200158	10397	7486	3.74
1993	201941	1783	-1128	-0.56
1994	207171	5230	2319	1.12
1995	211843	4672	1761	0.83
1996	219461	7618	4707	2.14
1997	223972	4511	1600	0.71

1998	226773	2801	-110	-0.05
1999	229368	2595	-316	-0.14
2000	232606	3238	327	0.14
2001	233333	727	-2184	-0.94
2002	234212	879	-2032	-0.87
2003	236240	2028	-883	-0.37

## Appendix F - Fort Carson EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Carson

### STUDY AREA

08041 El Paso, CO  
 08043 Fremont, CO  
 08101 Pueblo, CO  
 08119 Teller, CO

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.93	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$159,764,200	
Sales Volume - Total	\$242,543,600	0.93%
Income - Direct	\$259,700,000	
Income - Induced	\$33,258,690	
Income - Total	\$292,958,700	1.88%
Employment - Direct	7550	
Employment - Induced	1062	
Employment - Total	8613	2.14%
Local Population	17430	
Local Off-base Population	8715	2.55%

### RTV SUMMARY

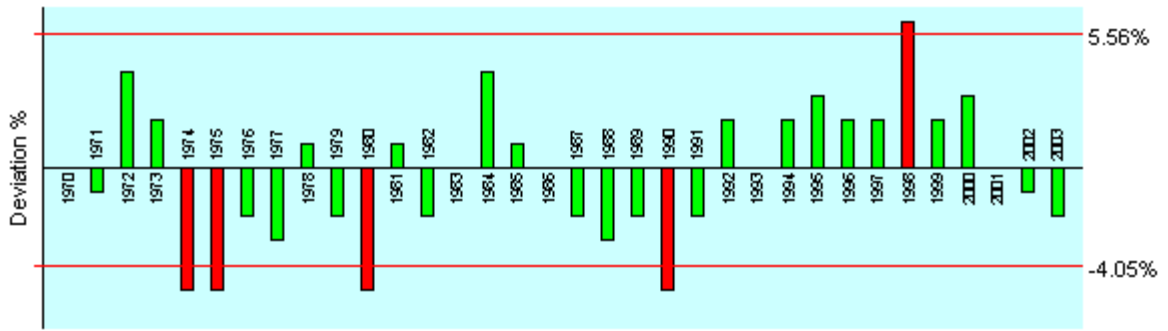
	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	5.56 %	5.55 %	3.98 %	3.13 %
<b>Negative RTV</b>	-4.05 %	-3.69 %	-3.98 %	-1.6 %

### RTV DETAILED

#### SALES VOLUME



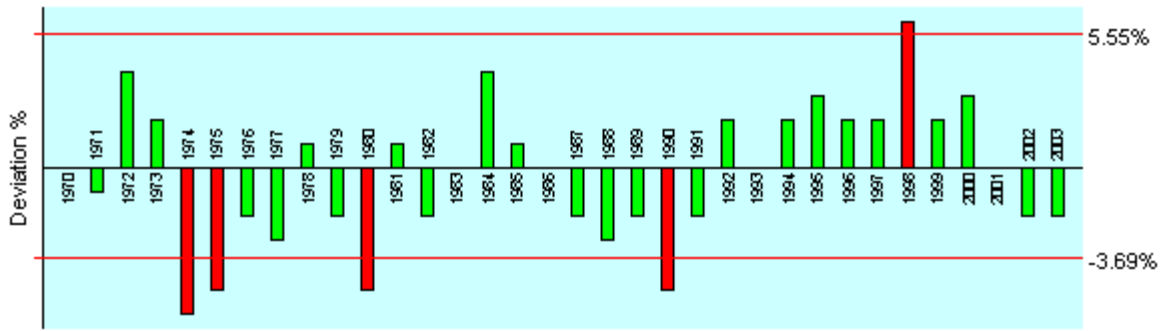
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2386978	12555504	0	-969017	0
1970	2713280	13512134	956630	-12387	-0.09
1971	3009628	14355926	843791	-125226	-0.87
1972	3468384	16023934	1668009	698992	4.36
1973	3994436	17375797	1351863	382846	2.2
1974	4455170	17419715	43918	-925099	-5.31
1975	4859856	17446883	27168	-941849	-5.4
1976	5313994	18067580	620697	-348320	-1.93
1977	5798468	18497113	429533	-539484	-2.92
1978	6617490	19587770	1090657	121640	0.62
1979	7601086	20218889	631118	-337899	-1.67
1980	8630562	20195515	-23374	-992391	-4.91
1981	10025098	21353459	1157944	188927	0.88
1982	10906198	21812396	458937	-510080	-2.34
1983	11755854	22806357	993961	24944	0.11
1984	13376262	24879847	2073491	1104474	4.44
1985	14571598	26228876	1349029	380012	1.45
1986	15472016	27230748	1001872	32855	0.12
1987	16284564	27683759	453011	-516006	-1.86
1988	17139884	27938011	254252	-714765	-2.56
1989	18191072	28378072	440061	-528956	-1.86
1990	18764110	27958524	-419548	-1388565	-4.97
1991	19890532	28244555	286032	-682985	-2.42
1992	21534216	29717218	1472663	503646	1.69
1993	22819230	30577768	860550	-108467	-0.35
1994	24656764	32053793	1476025	507008	1.58
1995	26927428	34197834	2144040	1175023	3.44
1996	29070220	35756371	1558537	589520	1.65
1997	31117788	37341346	1584975	615958	1.65
1998	34088416	40565215	3223869	2254852	5.56
1999	36693468	42564423	1999208	1030191	2.42
2000	40267152	45099210	2534787	1565770	3.47
2001	42147296	45940553	841342	-127675	-0.28
2002	43211810	46236637	296084	-672933	-1.46
2003	44258198	46471108	234471	-734546	-1.58

**INCOME**

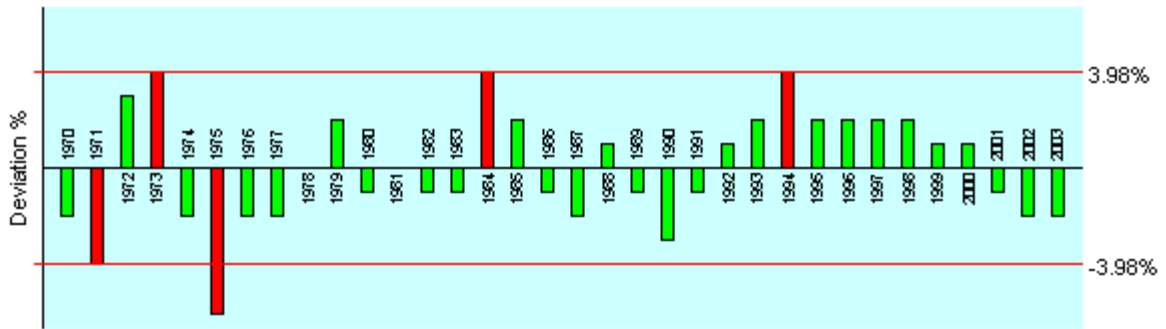
**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1201100	6317786	0	-482905	0
1970	1363001	6787745	469959	-12946	-0.19
1971	1510233	7203811	416066	-66839	-0.93
1972	1741942	8047772	843961	361056	4.49
1973	2009010	8739194	691421	208516	2.39
1974	2235459	8740645	1451	-481454	-5.51
1975	2440980	8763118	22474	-460431	-5.25
1976	2669535	9076419	313301	-169604	-1.87
1977	2909181	9280287	203868	-279037	-3.01
1978	3316915	9818068	537781	54876	0.56
1979	3805541	10122739	304671	-178234	-1.76
1980	4322380	10114369	-8370	-491275	-4.86
1981	5019929	10692449	578080	95175	0.89
1982	5459747	10919494	227045	-255860	-2.34
1983	5885861	11418570	499076	16171	0.14
1984	6695074	12452838	1034267	551362	4.43
1985	7289661	13121390	668552	185647	1.41
1986	7740875	13623940	502550	19645	0.14
1987	8152294	13858900	234960	-247945	-1.79
1988	8578819	13983475	124575	-358330	-2.56
1989	9103146	14200908	217433	-265472	-1.87
1990	9391670	13993588	-207319	-690224	-4.93
1991	9949575	14128396	134808	-348097	-2.46
1992	10774766	14869177	740781	257876	1.73
1993	11417447	15299379	430202	-52703	-0.34
1994	12325641	16023333	723954	241049	1.5
1995	13457169	17090605	1067271	584366	3.42
1996	14528432	17869971	779367	296462	1.66
1997	15554206	18665047	795076	312171	1.67
1998	17037091	20274138	1609091	1126186	5.55
1999	18339929	21274318	1,000179	517274	2.43
2000	20119271	22533584	1259266	776361	3.45
2001	21064062	22959828	426244	-56661	-0.25
2002	21585222	23096188	136360	-346545	-1.5
2003	22113773	23219462	123274	-359631	-1.55

**EMPLOYMENT**

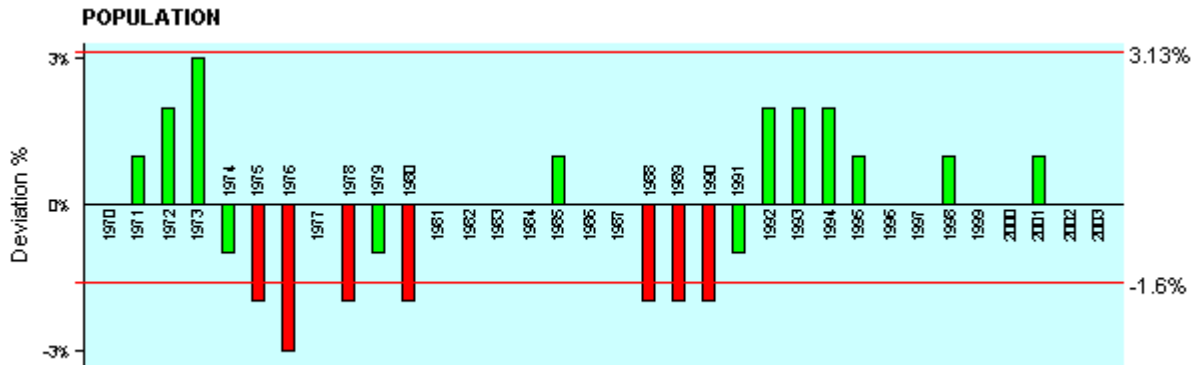
## EMPLOYMENT



Year	Value	Change	Deviation	%Deviation
1969	165178	0	-7851	0
1970	169931	4753	-3098	-1.82
1971	171716	1785	-6066	-3.53
1972	185343	13627	5776	3.12
1973	200754	15411	7560	3.77
1974	203546	2792	-5059	-2.49
1975	199552	-3994	-11845	-5.94
1976	204198	4646	-3205	-1.57
1977	208826	4628	-3223	-1.54
1978	217334	8508	657	0.3
1979	229501	12167	4316	1.88
1980	234230	4729	-3122	-1.33
1981	241614	7384	-467	-0.19
1982	245995	4381	-3470	-1.41
1983	251552	5557	-2294	-0.91
1984	270158	18606	10755	3.98
1985	282894	12736	4885	1.73
1986	289192	6298	-1553	-0.54
1987	292088	2896	-4955	-1.7
1988	301667	9579	1728	0.57
1989	305779	4112	-3739	-1.22
1990	305126	-653	-8504	-2.79
1991	311196	6070	-1781	-0.57
1992	322265	11069	3218	1
1993	335483	13218	5367	1.6
1994	356630	21147	13296	3.73
1995	370724	14094	6243	1.68
1996	386926	16202	8351	2.16
1997	402358	15432	7581	1.88
1998	416717	14359	6508	1.56
1999	427290	10573	2722	0.64
2000	439363	12073	4222	0.96
2001	442139	2776	-5075	-1.15

2002	439869	-2270	-10121	-2.3
2003	439970	101	-7750	-1.76

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	371114	0	-11287	0
1970	382239	11125	-162	-0.04
1971	397619	15380	4093	1.03
1972	419290	21671	10384	2.48
1973	444495	25205	13918	3.13
1974	450051	5556	-5731	-1.27
1975	452884	2833	-8454	-1.87
1976	449808	-3076	-14363	-3.19
1977	458850	9042	-2245	-0.49
1978	463101	4251	-7036	-1.52
1979	471594	8493	-2794	-0.59
1980	474996	3402	-7885	-1.66
1981	485389	10393	-894	-0.18
1982	496558	11169	-118	-0.02
1983	509902	13344	2057	0.4
1984	520298	10396	-891	-0.17
1985	536670	16372	5085	0.95
1986	550178	13508	2221	0.4
1987	563907	13729	2442	0.43
1988	564705	798	-10489	-1.86
1989	565904	1199	-10088	-1.78
1990	565405	-499	-11786	-2.08
1991	573030	7625	-3662	-0.64
1992	593203	20173	8886	1.5
1993	614598	21395	10108	1.64
1994	640695	26097	14810	2.31
1995	658973	18278	6991	1.06
1996	671900	12927	1640	0.24
1997	684724	12824	1537	0.22

1998	700515	15791	4504	0.64
1999	715177	14662	3375	0.47
2000	728181	13004	1717	0.24
2001	746726	18545	7258	0.97
2002	758331	11605	318	0.04
2003	766156	7825	-3462	-0.45

## Appendix G - Fort Drum EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Drum

### STUDY AREA

36045 Jefferson, NY  
 36049 Lewis, NY  
 36089 St. Lawrence, NY

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	1.93	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$76,984,820	
Sales Volume - Total	\$159,764,200	3.1%
Income - Direct	\$259,700,000	
Income - Induced	\$14,979,200	
Income - Total	\$274,679,200	5.91%
Employment - Direct	7611	
Employment - Induced	568	
Employment - Total	8179	6.87%
Local Population	17430	
Local Off-base Population	8715	6.88%

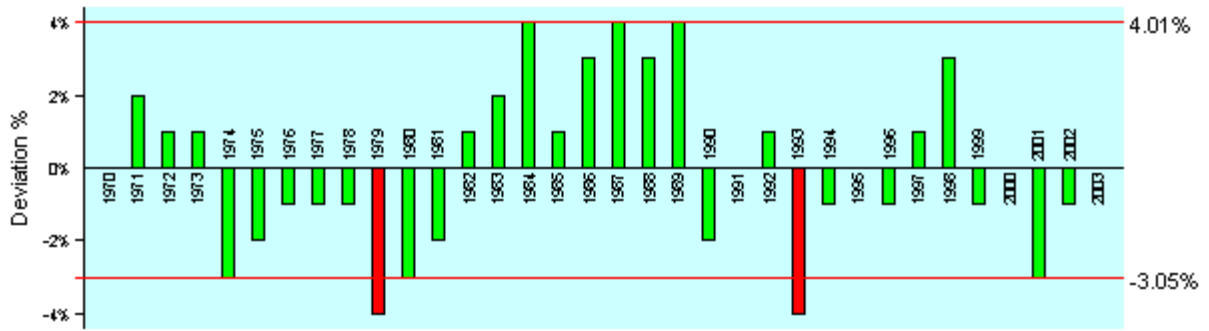
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.01 %	4.32 %	5.38 %	3.2 %
<b>Negative RTV</b>	-3.05 %	-2.74 %	-3.16 %	-0.87 %

### RTV DETAILED

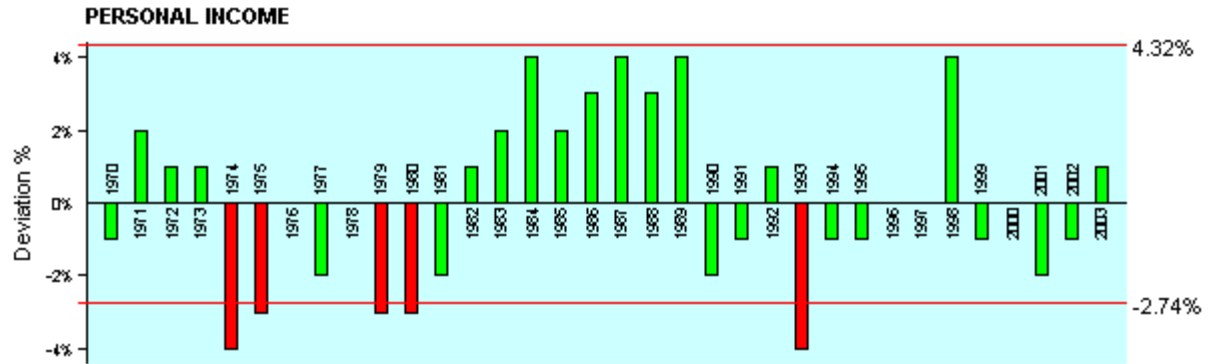
#### SALES VOLUME

**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1272866	6695275	0	-147313	0
1970	1368908	6817162	121887	-25426	-0.37
1971	1489050	7102768	285607	138294	1.95
1972	1579772	7298547	195778	48465	0.66
1973	1725026	7503863	205316	58003	0.77
1974	1906762	7455439	-48424	-195737	-2.63
1975	2069510	7429541	-25899	-173212	-2.33
1976	2214342	7528763	99222	-48091	-0.64
1977	2378500	7587415	58652	-88661	-1.17
1978	2581838	7642240	54825	-92488	-1.21
1979	2828022	7522539	-119702	-267015	-3.55
1980	3175234	7430048	-92491	-239804	-3.23
1981	3493158	7440427	10379	-136934	-1.84
1982	3818996	7637992	197565	50252	0.66
1983	4107642	7968825	330833	183520	2.3
1984	4533722	8432723	463897	316584	3.75
1985	4823434	8682181	249458	102145	1.18
1986	5159542	9080794	398613	251300	2.77
1987	5655162	9613775	532981	385668	4.01
1988	6185802	10082857	469082	321769	3.19
1989	6822396	10642938	560080	412768	3.88
1990	7104720	10586033	-56905	-204218	-1.93
1991	7526212	10687221	101188	-46125	-0.43
1992	7932948	10947468	260247	112934	1.03
1993	7955870	10660866	-286602	-433915	-4.07
1994	8224604	10691985	31119	-116194	-1.09
1995	8497070	10791279	99294	-48019	-0.44
1996	8842672	10876487	85208	-62105	-0.57
1997	9258282	11109938	233452	86139	0.78
1998	9750378	11602950	493011	345698	2.98
1999	10017680	11620509	17559	-129754	-1.12
2000	10538442	11803055	182546	35233	0.3
2001	10684604	11646218	-156837	-304150	-2.61
2002	10888016	11650177	3959	-143354	-1.23
2003	11286900	11851245	201068	53755	0.45

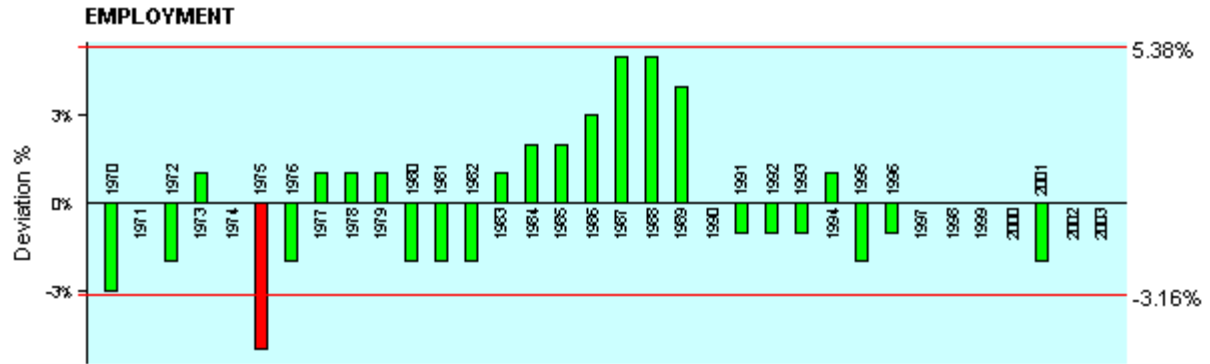
**INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	670827	3528550	0	-69681	0
1970	718263	3576950	48400	-21281	-0.59
1971	778096	3711518	134568	64887	1.75
1972	823973	3806755	95237	25556	0.67
1973	896726	3900758	94003	24322	0.62
1974	980482	3833685	-67073	-136754	-3.57
1975	1057557	3796630	-37055	-106736	-2.81
1976	1138271	3870121	73492	3811	0.1
1977	1205301	3844910	-25211	-94892	-2.47
1978	1317191	3898885	53975	-15706	-0.4
1979	1444269	3841756	-57130	-126811	-3.3
1980	1618219	3786632	-55123	-124804	-3.3
1981	1770989	3772207	-14426	-84107	-2.23
1982	1935560	3871120	98913	29232	0.76
1983	2074112	4023777	152657	82976	2.06
1984	2292416	4263894	240116	170435	4
1985	2446894	4404409	140515	70834	1.61
1986	2624407	4618956	214547	144866	3.14
1987	2879182	4894609	275653	205972	4.21
1988	3129977	5101863	207253	137572	2.7
1989	3464735	5404987	303124	233443	4.32
1990	3608019	5375948	-29038	-98719	-1.84
1991	3796493	5391020	15072	-54609	-1.01
1992	4016867	5543276	152256	82575	1.49
1993	4023995	5392153	-151123	-220804	-4.09
1994	4151798	5397337	5184	-64497	-1.19
1995	4274722	5428897	31560	-38121	-0.7
1996	4478551	5508618	79721	10040	0.18
1997	4644115	5572938	64320	-5361	-0.1
1998	4914776	5848583	275645	205964	3.52
1999	5053611	5862189	13605	-56076	-0.96
2000	5305791	5942486	80297	10616	0.18
2001	5393078	5878455	-64031	-133712	-2.27
2002	5481962	5865699	-12756	-82437	-1.41
2003	5683228	5967389	101690	32009	0.54

**EMPLOYMENT**

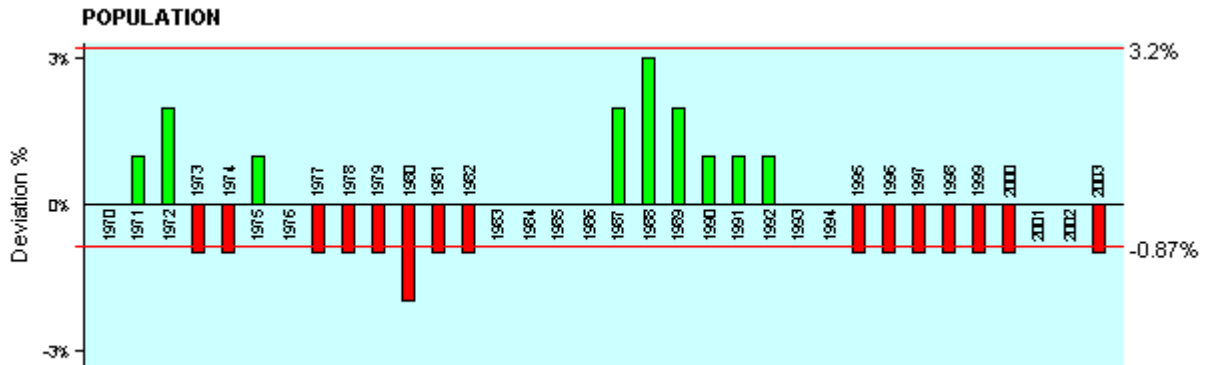




Year	Value	Change	Deviation	%Deviation
1969	84981	0	-1083	0
1970	83897	-1084	-2167	-2.58
1971	84691	794	-289	-0.34
1972	84462	-229	-1312	-1.55
1973	86609	2147	1064	1.23
1974	87661	1052	-31	-0.04
1975	84753	-2908	-3991	-4.71
1976	83835	-918	-2001	-2.39
1977	85368	1533	450	0.53
1978	87679	2311	1228	1.4
1979	89589	1910	827	0.92
1980	88794	-795	-1878	-2.12
1981	87778	-1016	-2099	-2.39
1982	87093	-685	-1768	-2.03
1983	89071	1978	895	1
1984	91711	2640	1557	1.7
1985	94371	2660	1577	1.67
1986	98028	3657	2574	2.63
1987	103927	5899	4816	4.63
1988	110979	7052	5969	5.38
1989	116427	5448	4365	3.75
1990	117890	1463	380	0.32
1991	117957	67	-1016	-0.86
1992	117583	-374	-1457	-1.24
1993	117066	-517	-1600	-1.37
1994	119197	2131	1048	0.88
1995	118310	-887	-1970	-1.67
1996	118255	-55	-1138	-0.96
1997	119004	749	-334	-0.28
1998	119957	953	-130	-0.11
1999	121082	1125	42	0.03
2000	122400	1318	235	0.19
2001	121393	-1007	-2090	-1.72

2002	122313	920	-163	-0.13
2003	122899	586	-497	-0.4

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	224487	0	-763	0
1970	225176	689	-74	-0.03
1971	227735	2559	1796	0.79
1972	232340	4605	3842	1.65
1973	230735	-1605	-2368	-1.03
1974	229509	-1226	-1989	-0.87
1975	232174	2665	1902	0.82
1976	232980	806	43	0.02
1977	232564	-416	-1179	-0.51
1978	231540	-1024	-1787	-0.77
1979	230477	-1063	-1826	-0.79
1980	227295	-3182	-3945	-1.74
1981	225914	-1381	-2144	-0.95
1982	224709	-1205	-1968	-0.88
1983	224772	63	-700	-0.31
1984	225876	1104	341	0.15
1985	226820	944	181	0.08
1986	227645	825	62	0.03
1987	232220	4575	3812	1.64
1988	240682	8462	7699	3.2
1989	247576	6894	6131	2.48
1990	250579	3003	2240	0.89
1991	253006	2427	1664	0.66
1992	255682	2676	1913	0.75
1993	256899	1217	454	0.18
1994	258746	1847	1084	0.42
1995	257042	-1704	-2467	-0.96
1996	255830	-1212	-1975	-0.77
1997	253173	-2657	-3420	-1.35

1998	251879	-1294	-2057	-0.82
1999	251197	-682	-1445	-0.58
2000	250305	-892	-1655	-0.66
2001	251060	755	-8	0
2002	251743	683	-80	-0.03
2003	251202	-541	-1304	-0.52

## Appendix H - Fort Knox EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Knox

### STUDY AREA

21027 Breckinridge, KY  
 21029 Bullitt, KY  
 21071 Floyd, KY  
 21085 Grayson, KY  
 21093 Hardin, KY  
 21097 Harrison, KY  
 21123 Larue, KY  
 21163 Meade, KY  
 21179 Nelson, KY  
 21215 Spencer, KY

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.29	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$106,785,400	
Sales Volume - Total	\$189,564,800	3.12%
Income - Direct	\$259,700,000	
Income - Induced	\$20,682,440	
Income - Total	\$280,382,400	4.43%
Employment - Direct	7604	
Employment - Induced	779	
Employment - Total	8382	5.75%
Local Population	17430	
Local Off-base Population	8715	5.23%

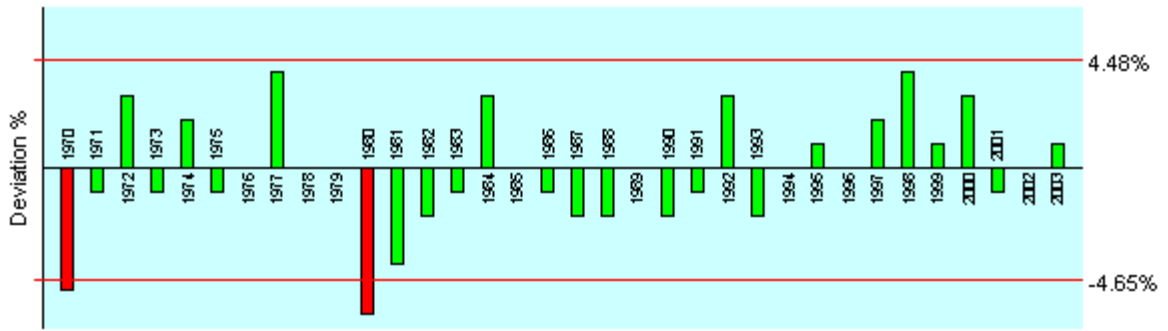
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.48 %	5.26 %	3.92 %	3.88 %
<b>Negative RTV</b>	-4.65 %	-4.5 %	-5.37 %	-1.61 %

### RTV DETAILED

#### SALES VOLUME

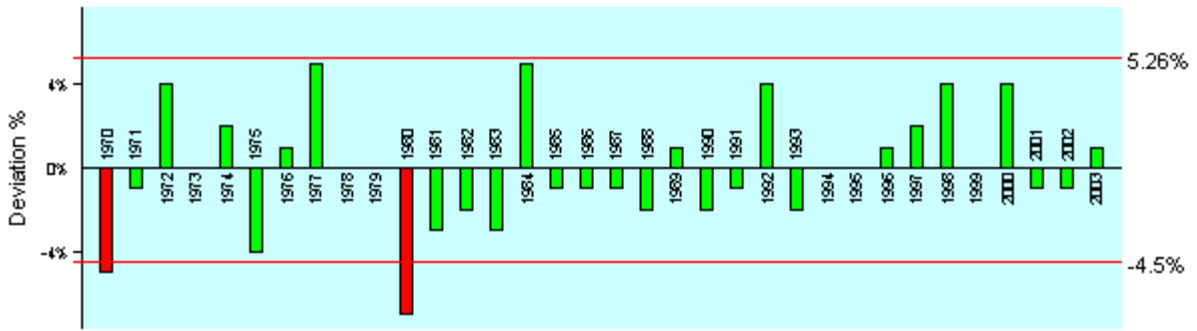
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1312052	6901394	0	-328031	0
1970	1388284	6913654	12261	-315770	-4.57
1971	1499128	7150841	237186	-90845	-1.27
1972	1667928	7705827	554987	226956	2.95
1973	1824428	7936262	230434	-97597	-1.23
1974	2148094	8399048	462786	134755	1.6
1975	2416760	8676168	277121	-50910	-0.59
1976	2656834	9033236	357067	29036	0.32
1977	3070192	9793912	760677	432646	4.42
1978	3436808	10172952	379039	51008	0.5
1979	3944306	10491854	318902	-9129	-0.09
1980	4354098	10188589	-303265	-631296	-6.2
1981	4731854	10078849	-109740	-437771	-4.34
1982	5125458	10250916	172067	-155964	-1.52
1983	5421092	10516918	266002	-62029	-0.59
1984	5997302	11154982	638063	310032	2.78
1985	6373474	11472253	317271	-10760	-0.09
1986	6620494	11652069	179816	-148215	-1.27
1987	6919862	11763765	111696	-216335	-1.84
1988	7301098	11900790	137024	-191007	-1.6
1989	7812698	12187809	287019	-41012	-0.34
1990	8226916	12258105	70296	-257735	-2.1
1991	8770040	12453457	195352	-132679	-1.07
1992	9578978	13218990	765533	437502	3.31
1993	9929946	13306128	87138	-240893	-1.81
1994	10476526	13619484	313356	-14675	-0.11
1995	11045878	14028265	408781	80750	0.58
1996	11711192	14404766	376501	48470	0.34
1997	12539348	15047218	642451	314420	2.09
1998	13526078	16096033	1048815	720784	4.48
1999	14238284	16516409	420377	92346	0.56
2000	15556838	17423659	907249	579218	3.32
2001	16105176	17554642	130983	-197048	-1.12
2002	16703328	17872561	317919	-10112	-0.06
2003	17507126	18382482	509921	181890	0.99

**INCOME**

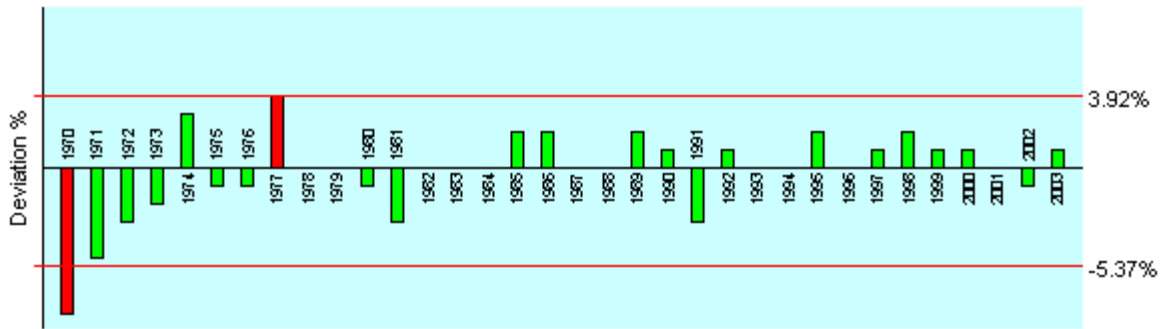
**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	702704	3696223	0	-156442	0
1970	734028	3655459	-40764	-197206	-5.39
1971	789390	3765390	109931	-46511	-1.24
1972	882493	4077118	311727	155285	3.81
1973	969305	4216477	139359	-17083	-0.41
1974	1142456	4467003	250526	94084	2.11
1975	1242649	4461110	-5893	-162335	-3.64
1976	1365857	4643914	182804	26362	0.57
1977	1583782	5052265	408351	251909	4.99
1978	1758137	5204086	151821	-4621	-0.09
1979	2014957	5359786	155700	-742	-0.01
1980	2208942	5168924	-190861	-347303	-6.72
1981	2429878	5175640	6716	-149726	-2.89
1982	2626613	5253226	77586	-78856	-1.5
1983	2701544	5240995	-12231	-168673	-3.22
1984	3062929	5697048	456053	299611	5.26
1985	3229693	5813447	116399	-40043	-0.69
1986	3344412	5886165	72718	-83724	-1.42
1987	3509411	5965999	79834	-76608	-1.28
1988	3695235	6023233	57234	-99208	-1.65
1989	3988484	6222035	198802	42360	0.68
1990	4196702	6253086	31051	-125391	-2.01
1991	4472501	6350951	97865	-58577	-0.92
1992	4893853	6753517	402566	246124	3.64
1993	5055331	6774144	20626	-135816	-2
1994	5320753	6916979	142835	-13607	-0.2
1995	5554413	7054105	137126	-19316	-0.27
1996	5917141	7278083	223979	67537	0.93
1997	6325644	7590773	312689	156247	2.06
1998	6791500	8081885	491112	334670	4.14
1999	7097878	8233538	151653	-4789	-0.06
2000	7829574	8769123	535584	379142	4.32
2001	8069091	8795309	26186	-130256	-1.48
2002	8315069	8897124	101815	-54627	-0.61
2003	8734933	9171680	274556	118114	1.29

**EMPLOYMENT**

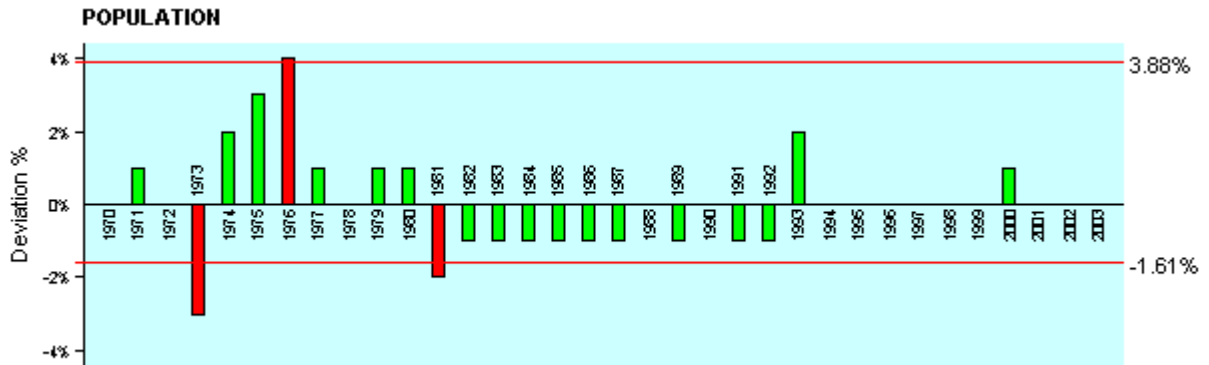
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	112099	0	-1398	0
1970	105068	-7031	-8429	-8.02
1971	101216	-3852	-5250	-5.19
1972	99715	-1501	-2899	-2.91
1973	99009	-706	-2104	-2.13
1974	103348	4339	2941	2.85
1975	103586	238	-1160	-1.12
1976	104310	724	-674	-0.65
1977	110026	5716	4318	3.92
1978	111836	1810	412	0.37
1979	113088	1252	-146	-0.13
1980	113619	531	-867	-0.76
1981	111271	-2348	-3746	-3.37
1982	112676	1405	7	0.01
1983	114323	1647	249	0.22
1984	115968	1645	247	0.21
1985	119324	3356	1958	1.64
1986	122775	3451	2053	1.67
1987	124216	1441	43	0.03
1988	125806	1590	192	0.15
1989	129468	3662	2264	1.75
1990	132463	2995	1597	1.21
1991	130212	-2251	-3649	-2.8
1992	133200	2988	1590	1.19
1993	134584	1384	-14	-0.01
1994	136471	1887	489	0.36
1995	140833	4362	2964	2.1
1996	142336	1503	105	0.07
1997	145894	3558	2160	1.48
1998	150643	4749	3351	2.22
1999	153435	2792	1394	0.91
2000	156731	3296	1898	1.21
2001	158700	1969	571	0.36

2002	158266	-434	-1832	-1.16
2003	161042	2776	1378	0.86

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	242113	0	-3367	0
1970	244870	2757	-610	-0.25
1971	250443	5573	2206	0.88
1972	252637	2194	-1173	-0.46
1973	248008	-4629	-7996	-3.22
1974	257482	9474	6107	2.37
1975	267779	10297	6930	2.59
1976	282082	14303	10936	3.88
1977	288391	6309	2942	1.02
1978	290508	2117	-1250	-0.43
1979	295570	5062	1695	0.57
1980	302012	6442	3075	1.02
1981	300538	-1474	-4841	-1.61
1982	300104	-434	-3801	-1.27
1983	301329	1225	-2142	-0.71
1984	302502	1173	-2194	-0.73
1985	303707	1205	-2162	-0.71
1986	303138	-569	-3936	-1.3
1987	303264	126	-3241	-1.07
1988	305176	1912	-1455	-0.48
1989	305204	28	-3339	-1.09
1990	307191	1987	-1380	-0.45
1991	306044	-1147	-4514	-1.47
1992	307674	1630	-1737	-0.56
1993	317924	10250	6883	2.16
1994	322602	4678	1311	0.41
1995	326888	4286	919	0.28
1996	329120	2232	-1135	-0.34
1997	333447	4327	960	0.29



1998	338234	4787	1420	0.42
1999	343262	5028	1661	0.48
2000	348851	5589	2222	0.64
2001	352334	3483	116	0.03
2002	356205	3871	504	0.14
2003	359942	3737	370	0.1

## Appendix I - Fort Hood EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Hood

### STUDY AREA

48027 Bell, TX  
48099 Coryell, TX

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

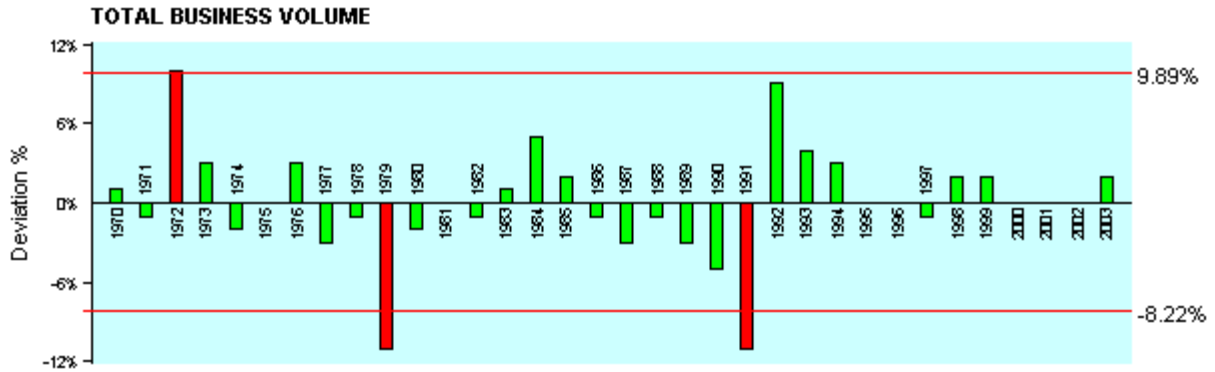
Multiplier	1.91	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$75,329,230	
Sales Volume - Total	\$158,108,600	2.37%
Income - Direct	\$259,700,000	
Income - Induced	\$16,798,520	
Income - Total	\$276,498,500	4.67%
Employment - Direct	7648	
Employment - Induced	590	
Employment - Total	8238	4.91%
Local Population	17430	
Local Off-base Population	8715	5.72%

### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	9.89 %	10.27 %	6.3 %	8.08 %
<b>Negative RTV</b>	-8.22 %	-7.26 %	-7.06 %	-2.07 %

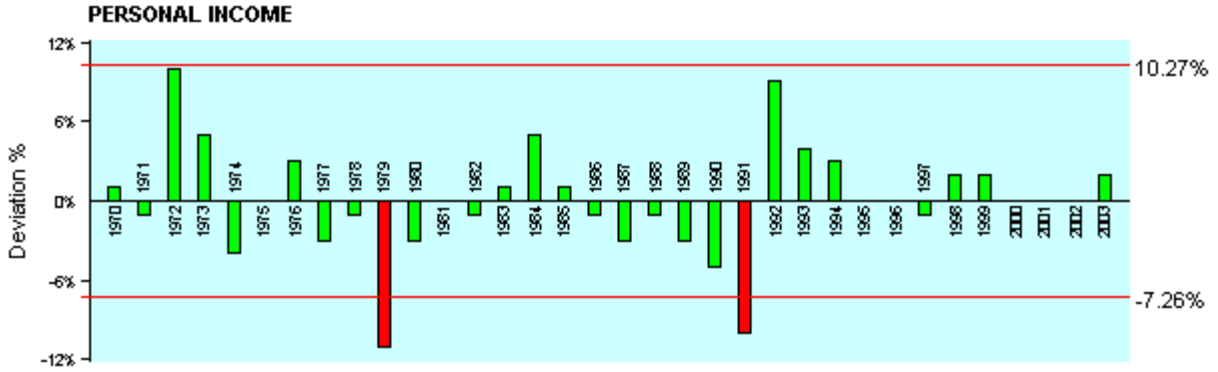
### RTV DETAILED

#### SALES VOLUME



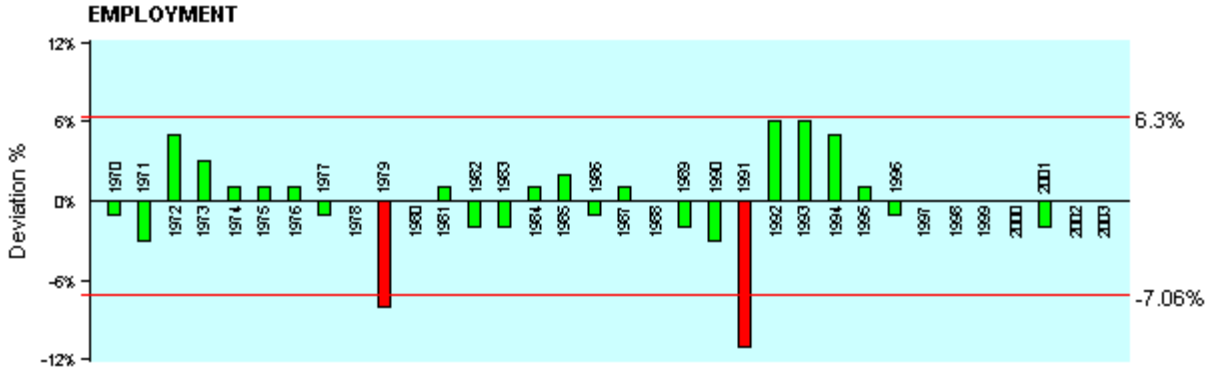
Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	993652	5226610	0	-337167	0
1970	1123650	5595777	369167	32000	0.57
1971	1236782	5899450	303673	-33494	-0.57
1972	1498016	6920834	1021384	684217	9.89
1973	1727174	7513207	592373	255206	3.4
1974	1977202	7730860	217653	-119514	-1.55
1975	2243088	8052686	321826	-15341	-0.19
1976	2539786	8635272	582586	245419	2.84
1977	2741212	8744466	109194	-227973	-2.61
1978	3030586	8970535	226068	-111099	-1.24
1979	3153376	8387980	-582554	-919721	-10.96
1980	3645566	8530624	142644	-194523	-2.28
1981	4151208	8842073	311449	-25718	-0.29
1982	4538818	9077636	235563	-101604	-1.12
1983	4908564	9522614	444978	107811	1.13
1984	5589766	10396965	874351	537184	5.17
1985	6057948	10904306	507342	170175	1.56
1986	6335296	11150121	245815	-91352	-0.82
1987	6570418	11169711	19590	-317577	-2.84
1988	6973304	11366486	196775	-140392	-1.24
1989	7264852	11333169	-33316	-370483	-3.27
1990	7486552	11154962	-178207	-515374	-4.62
1991	7317522	10390881	-764081	-1101248	-10.6
1992	8535432	11778896	1388015	1050848	8.92
1993	9419978	12622771	843874	506707	4.01
1994	10231526	13300984	678213	341046	2.56
1995	10766086	13672929	371945	34778	0.25
1996	11429324	14058069	385139	47972	0.34
1997	11822890	14187468	129399	-207768	-1.46
1998	12468086	14837022	649554	312387	2.11
1999	13303932	15432561	595539	258372	1.67
2000	14078708	15768153	335592	-1575	-0.01
2001	14712726	16036871	268718	-68449	-0.43
2002	15295974	16366692	329821	-7346	-0.04
2003	16216634	17027466	660774	323607	1.9

**INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	500731	2633845	0	-168348	0
1970	566959	2823456	189611	21263	0.75
1971	623610	2974620	151164	-17184	-0.58
1972	758192	3502847	528227	359879	10.27
1973	886980	3858363	355516	187168	4.85
1974	990533	3872984	14621	-153727	-3.97
1975	1127879	4049086	176102	7754	0.19
1976	1274988	4334959	285874	117526	2.71
1977	1367663	4362845	27886	-140462	-3.22
1978	1517367	4491406	128561	-39787	-0.89
1979	1580454	4204008	-287399	-455747	-10.84
1980	1820276	4259446	55438	-112910	-2.65
1981	2085262	4441608	182162	13814	0.31
1982	2274733	4549466	107858	-60490	-1.33
1983	2454705	4762128	212662	44314	0.93
1984	2796983	5202388	440261	271913	5.23
1985	3025708	5446274	243886	75538	1.39
1986	3163757	5568212	121938	-46410	-0.83
1987	3288961	5591234	23021	-145327	-2.6
1988	3487932	5685329	94095	-74253	-1.31
1989	3637814	5674990	-10339	-178687	-3.15
1990	3744642	5579517	-95473	-263821	-4.73
1991	3664909	5204171	-375346	-543694	-10.45
1992	4272023	5895392	691221	522873	8.87
1993	4717406	6321324	425932	257584	4.07
1994	5121134	6657474	336150	167802	2.52
1995	5381946	6835071	177597	9249	0.14
1996	5718570	7033841	198770	30422	0.43
1997	5922692	7107230	73389	-94959	-1.34
1998	6236792	7421782	314552	146204	1.97
1999	6670695	7738006	316224	147876	1.91
2000	7049586	7895536	157530	-10818	-0.14
2001	7362024	8024606	129070	-39278	-0.49
2002	7658286	8194366	169760	1412	0.02
2003	8120028	8526029	331663	163315	1.92

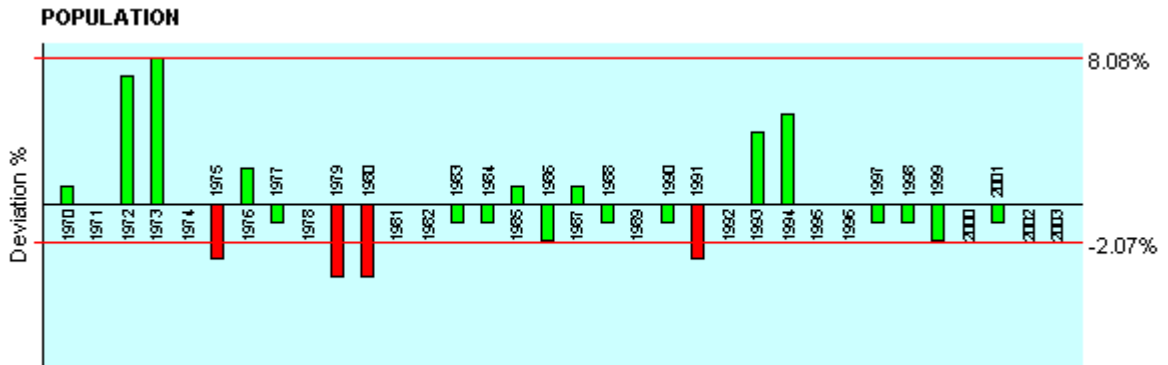
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	84726	0	-2786	0
1970	86316	1590	-1196	-1.39
1971	86442	126	-2660	-3.08
1972	93496	7054	4268	4.56
1973	98802	5306	2520	2.55
1974	102754	3952	1166	1.13
1975	106868	4114	1328	1.24
1976	111181	4313	1527	1.37
1977	113194	2013	-773	-0.68
1978	116131	2937	151	0.13
1979	110602	-5529	-8315	-7.52
1980	113513	2911	125	0.11
1981	117055	3542	756	0.65
1982	117268	213	-2573	-2.19
1983	118004	736	-2050	-1.74
1984	122335	4331	1545	1.26
1985	127105	4770	1984	1.56
1986	128966	1861	-925	-0.72
1987	132960	3994	1208	0.91
1988	135282	2322	-464	-0.34
1989	135614	332	-2454	-1.81
1990	134485	-1129	-3915	-2.91
1991	124192	-10293	-13079	-10.53
1992	135178	10986	8200	6.07
1993	147246	12068	9282	6.3
1994	158650	11404	8618	5.43
1995	163607	4957	2171	1.33
1996	165386	1779	-1007	-0.61
1997	167943	2557	-229	-0.14
1998	171296	3353	567	0.33
1999	174157	2861	75	0.04
2000	176506	2349	-437	-0.25
2001	176450	-56	-2842	-1.61

2002	179630	3180	394	0.22
2003	182230	2600	-186	-0.1

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	153274	0	-4896	0
1970	160303	7029	2133	1.33
1971	164506	4203	-693	-0.42
1972	182540	18034	13138	7.2
1973	203911	21371	16475	8.08
1974	209172	5261	365	0.17
1975	208269	-903	-5799	-2.78
1976	217154	8885	3989	1.84
1977	219762	2608	-2288	-1.04
1978	223925	4163	-733	-0.33
1979	219993	-3932	-8828	-4.01
1980	215958	-4035	-8931	-4.14
1981	220807	4849	-47	-0.02
1982	226549	5742	846	0.37
1983	229601	3052	-1844	-0.8
1984	231777	2176	-2720	-1.17
1985	239632	7855	2959	1.23
1986	240129	497	-4399	-1.83
1987	246347	6218	1322	0.54
1988	248996	2649	-2247	-0.9
1989	252860	3864	-1032	-0.41
1990	255995	3135	-1761	-0.69
1991	252206	-3789	-8685	-3.44
1992	257110	4904	8	0
1993	272288	15178	10282	3.78
1994	292778	20490	15594	5.33
1995	296903	4125	-771	-0.26
1996	301687	4784	-112	-0.04
1997	304561	2874	-2022	-0.66

1998	307900	3339	-1557	-0.51
1999	308150	250	-4646	-1.51
2000	313915	5765	869	0.28
2001	315281	1366	-3530	-1.12
2002	319346	4065	-831	-0.26
2003	324649	5303	407	0.13

## Appendix J - Fort Hunter Liggett EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Hunter Liggett

### STUDY AREA

06053 Monterey, CA  
06079 San Luis Obispo, CA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.41	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$116,718,900	
Sales Volume - Total	\$199,498,300	1%
Income - Direct	\$259,700,000	
Income - Induced	\$20,829,320	
Income - Total	\$280,529,300	1.85%
Employment - Direct	7513	
Employment - Induced	723	
Employment - Total	8235	2.52%
Local Population	17430	
Local Off-base Population	8715	2.84%

### RTV SUMMARY

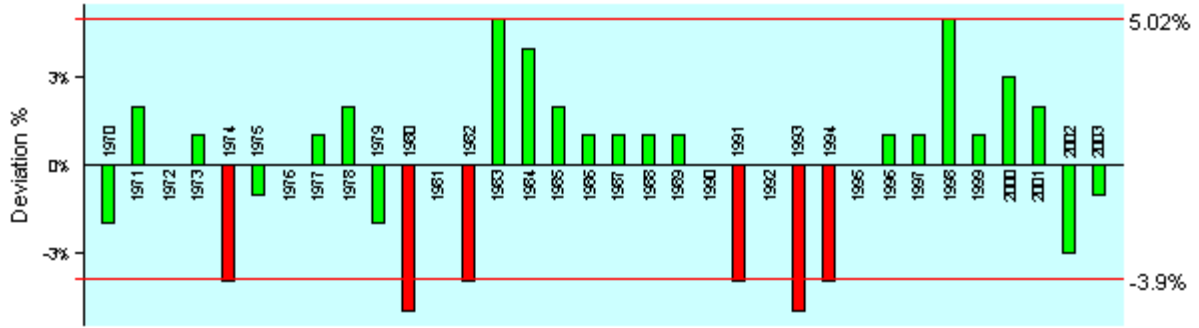
	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	5.02 %	7.19 %	3.14 %	1.53 %
<b>Negative RTV</b>	-3.9 %	-3.58 %	-2.54 %	-2.13 %

### RTV DETAILED

#### SALES VOLUME



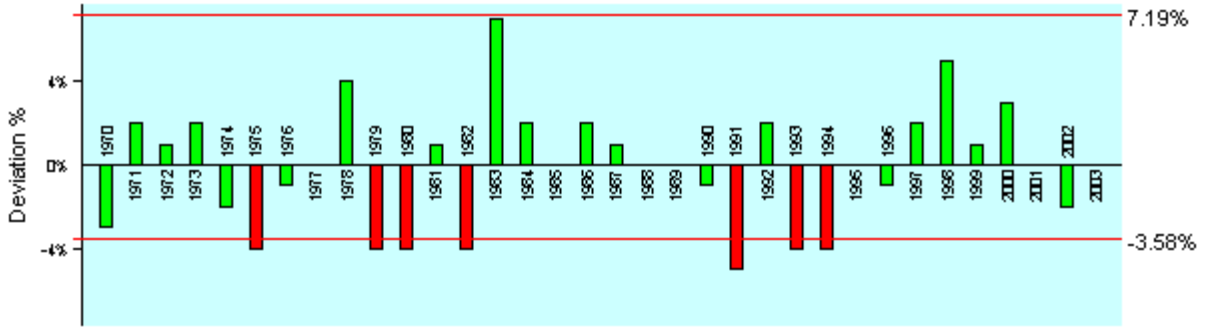
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2713154	14271190	0	-757811	0
1970	2960980	14745680	474490	-283321	-1.92
1971	3304510	15762513	1016832	259021	1.64
1972	3567266	16480769	718256	-39555	-0.24
1973	4017892	17477830	997061	239250	1.37
1974	4478470	17510818	32988	-724824	-4.14
1975	5037796	18085688	574870	-182941	-1.01
1976	5525512	18786741	701053	-56758	-0.3
1977	6161992	19656754	870014	112203	0.57
1978	7055088	20883060	1226306	468495	2.24
1979	7946600	21137956	254896	-502915	-2.38
1980	8894568	20813289	-324667	-1082478	-5.2
1981	10161390	21643761	830472	72661	0.34
1982	10805962	21611924	-31837	-789648	-3.65
1983	12138162	23548034	1936110	1178299	5
1984	13628668	25349322	1801288	1043477	4.12
1985	14763242	26573836	1224513	466702	1.76
1986	15756078	27730697	1156862	399051	1.44
1987	16958408	28829294	1098596	340785	1.18
1988	18279176	29795057	965763	207952	0.7
1989	19792020	30875551	1080494	322683	1.05
1990	21145714	31507114	631563	-126248	-0.4
1991	21889842	31083576	-423538	-1181349	-3.8
1992	23166898	31970319	886744	128933	0.4
1993	23231902	31130749	-839571	-1597382	-5.13
1994	23655940	30752722	-378027	-1135838	-3.69
1995	24860488	31572820	820098	62287	0.2
1996	26495886	32589940	1017120	259309	0.8
1997	28131506	33757807	1167867	410056	1.21
1998	30537544	36339677	2581870	1824059	5.02
1999	32374574	37554506	1214828	457017	1.22
2000	35240262	39469093	1914588	1156777	2.93
2001	37465976	40837914	1368820	611009	1.5
2002	37717812	40358059	-479855	-1237666	-3.07
2003	38851970	40794568	436510	-321301	-0.79

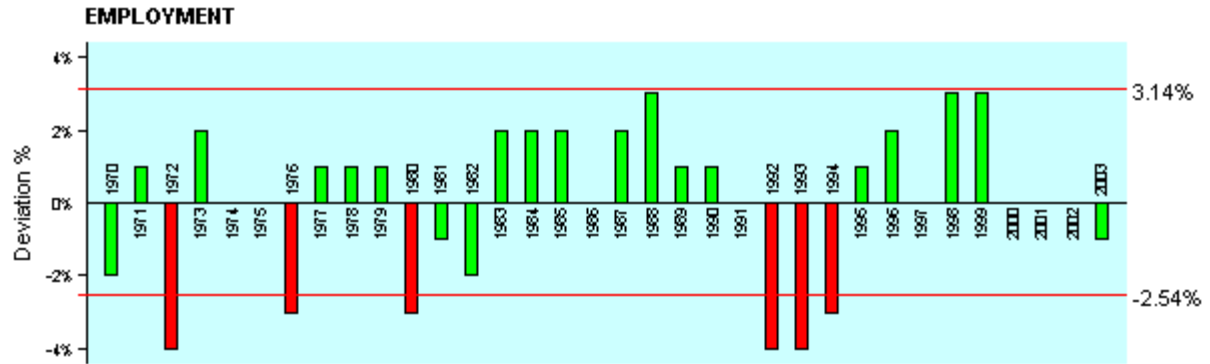
**INCOME**

**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1486388	7818401	0	-401480	0
1970	1604495	7990385	171984	-229496	-2.87
1971	1798009	8576503	586118	184638	2.15
1972	1968671	9095260	518757	117277	1.29
1973	2226434	9684988	589728	188248	1.94
1974	2526139	9877203	192216	-209264	-2.12
1975	2754970	9890342	13139	-388341	-3.93
1976	2988214	10159928	269585	-131895	-1.3
1977	3318041	10584551	424623	23143	0.22
1978	3861064	11428749	844199	442719	3.87
1979	4275897	11373886	-54863	-456343	-4.01
1980	4825120	11290781	-83105	-484585	-4.29
1981	5546148	11813295	522514	121034	1.02
1982	5887460	11774920	-38375	-439855	-3.74
1983	6762734	13119704	1344784	943304	7.19
1984	7415148	13792175	672471	270991	1.96
1985	7905863	14230553	438378	36898	0.26
1986	8514436	14985407	754854	353374	2.36
1987	9169155	15587564	602156	200676	1.29
1988	9776578	15935822	348259	-53221	-0.33
1989	10461806	16320417	384595	-16885	-0.1
1990	11157203	16624232	303815	-97665	-0.59
1991	11381843	16162217	-462015	-863495	-5.34
1992	12310286	16988195	825978	424498	2.5
1993	12514948	16770030	-218164	-619644	-3.69
1994	12737313	16558507	-211523	-613003	-3.7
1995	13417712	17040494	481987	80507	0.47
1996	14091295	17332293	291799	-109681	-0.63
1997	15126118	18151342	819049	417569	2.3
1998	16398978	19514784	1363442	961962	4.93
1999	17420636	20207938	693154	291674	1.44
2000	18898164	21165944	958006	556526	2.63
2001	19750951	21528537	362593	-38887	-0.18
2002	20003934	21404209	-124327	-525807	-2.46
2003	20828770	21870208	465999	64519	0.3

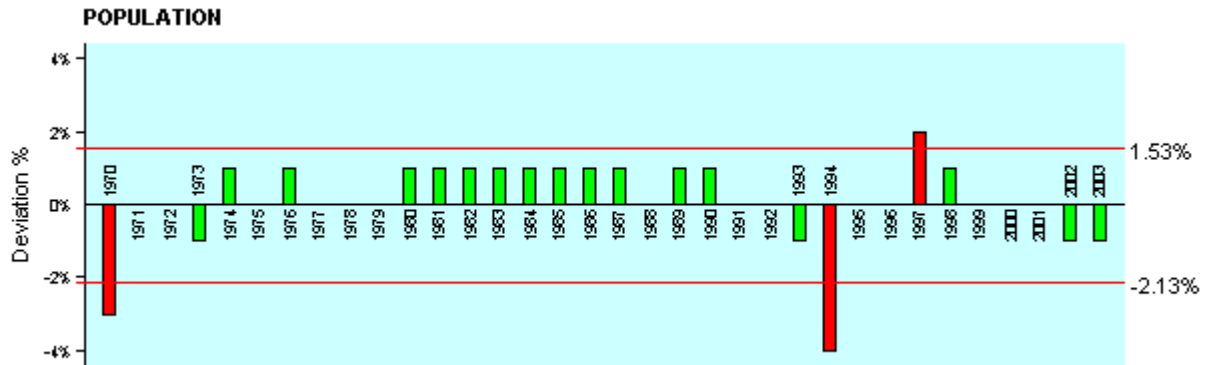
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	171487	0	-5897	0
1970	173441	1954	-3943	-2.27
1971	181079	7638	1741	0.96
1972	180152	-927	-6824	-3.79
1973	190249	10097	4200	2.21
1974	195667	5418	-479	-0.24
1975	201354	5687	-210	-0.1
1976	201894	540	-5357	-2.65
1977	210713	8819	2922	1.39
1978	219247	8534	2637	1.2
1979	227469	8222	2325	1.02
1980	227530	61	-5836	-2.56
1981	230226	2696	-3201	-1.39
1982	230609	383	-5514	-2.39
1983	240421	9812	3915	1.63
1984	250813	10392	4495	1.79
1985	260718	9905	4008	1.54
1986	266066	5348	-549	-0.21
1987	277457	11391	5494	1.98
1988	292138	14681	8784	3.01
1989	301019	8881	2984	0.99
1990	309222	8203	2306	0.75
1991	314450	5228	-669	-0.21
1992	309033	-5417	-11314	-3.66
1993	304276	-4757	-10654	-3.5
1994	300126	-4150	-10047	-3.35
1995	307756	7630	1733	0.56
1996	319237	11481	5584	1.75
1997	326293	7056	1159	0.36
1998	342950	16657	10760	3.14
1999	357893	14943	9046	2.53
2000	363883	5990	93	0.03
2001	369606	5723	-174	-0.05

2002	376319	6713	816	0.22
2003	377880	1561	-4336	-1.15

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	357776	0	-8849	0
1970	354515	-3261	-12110	-3.42
1971	362031	7516	-1333	-0.37
1972	369624	7593	-1256	-0.34
1973	375104	5480	-3369	-0.9
1974	389069	13965	5116	1.31
1975	397432	8363	-486	-0.12
1976	410202	12770	3921	0.96
1977	420180	9978	1129	0.27
1978	430043	9863	1014	0.24
1979	437732	7689	-1160	-0.27
1980	449192	11460	2611	0.58
1981	461563	12371	3522	0.76
1982	472804	11241	2392	0.51
1983	485063	12259	3410	0.7
1984	499024	13961	5112	1.02
1985	513350	14326	5477	1.07
1986	528346	14996	6147	1.16
1987	540613	12267	3418	0.63
1988	550208	9595	746	0.14
1989	563186	12978	4129	0.73
1990	575811	12625	3776	0.66
1991	584700	8889	40	0.01
1992	593708	9008	159	0.03
1993	594372	664	-8185	-1.38
1994	578591	-15781	-24630	-4.26
1995	584856	6265	-2584	-0.44
1996	595191	10335	1486	0.25
1997	613395	18204	9355	1.53

1998	627909	14514	5665	0.9
1999	639747	11838	2989	0.47
2000	650878	11131	2282	0.35
2001	659125	8247	-602	-0.09
2002	663633	4508	-4341	-0.65
2003	667495	3862	-4987	-0.75

## Appendix K - Fort Irwin EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Irwin

### STUDY AREA

06071 San Bernardino, CA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	1.95	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$78,640,410	
Sales Volume - Total	\$161,419,800	0.35%
Income - Direct	\$259,700,000	
Income - Induced	\$13,349,370	
Income - Total	\$273,049,400	0.88%
Employment - Direct	7481	
Employment - Induced	457	
Employment - Total	7938	1.27%
Local Population	17430	
Local Off-base Population	8715	1.08%

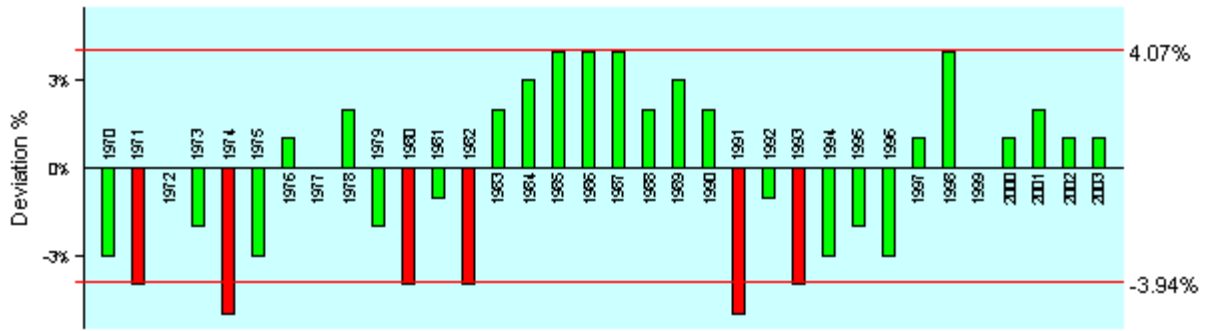
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.07 %	4.31 %	3.58 %	3.54 %
<b>Negative RTV</b>	-3.94 %	-3.44 %	-3.92 %	-2.25 %

### RTV DETAILED

#### SALES VOLUME

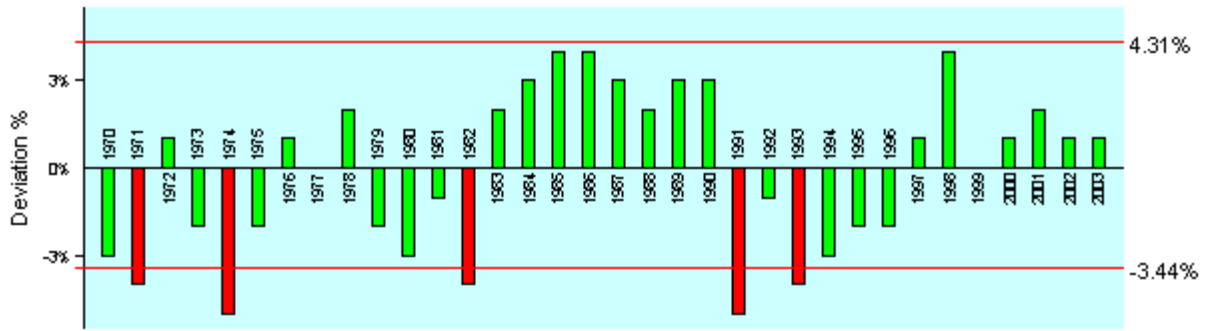
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	4808276	25291532	0	-1955923	0
1970	5325216	26519576	1228044	-727879	-2.74
1971	5754840	27450587	931011	-1024912	-3.73
1972	6389230	29518243	2067656	111733	0.38
1973	7072858	30766932	1248690	-707233	-2.3
1974	7950680	31087159	320227	-1635696	-5.26
1975	8977648	32229756	1142598	-813325	-2.52
1976	10179626	34610728	2380972	425049	1.23
1977	11464858	36572897	1962169	6246	0.02
1978	13281762	39314016	2741118	785196	2
1979	15272400	40624584	1310568	-645355	-1.59
1980	17511724	40977434	352850	-1603073	-3.91
1981	20045408	42696719	1719285	-236638	-0.55
1982	21471104	42942208	245489	-1710434	-3.98
1983	23548540	45684168	2741960	786037	1.72
1984	26513196	49314545	3630377	1674454	3.4
1985	29691046	53443883	4129338	2173415	4.07
1986	32691662	57537325	4093442	2137519	3.72
1987	36272460	61663182	4125857	2169934	3.52
1988	39830600	64923878	3260696	1304773	2.01
1989	44106544	68806209	3882331	1926408	2.8
1990	48702516	72566749	3760540	1804617	2.49
1991	50197280	71280138	-1286611	-3242534	-4.55
1992	52371280	72272366	992229	-963694	-1.33
1993	53353440	71493610	-778757	-2734680	-3.83
1994	54641184	71033539	-460070	-2415993	-3.4
1995	56475040	71723301	689762	-1266161	-1.77
1996	58385056	71813619	90318	-1865605	-2.6
1997	61908564	74290277	2476658	520735	0.7
1998	66503224	79138837	4848560	2892637	3.66
1999	70190224	81420660	2281823	325900	0.4
2000	75279584	84313134	2892474	936551	1.11
2001	80565960	87816896	3503762	1547839	1.76
2002	84715776	90645880	2828984	873061	0.96
2003	89284592	93748822	3102941	1147018	1.22

**INCOME**

**PERSONAL INCOME**

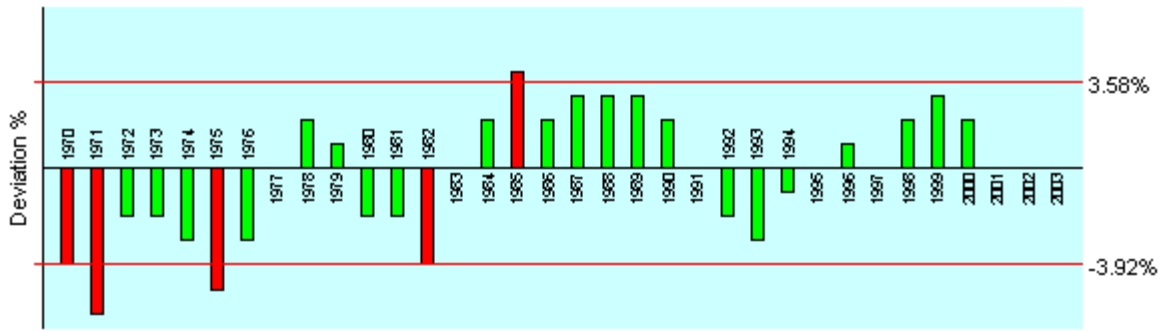


Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2439763	12833153	0	-976493	0
1970	2703137	13461622	628469	-348024	-2.59
1971	2908806	13875005	413382	-563111	-4.06
1972	3243903	14986832	1111827	135334	0.9
1973	3589611	15614808	627976	-348517	-2.23
1974	4036202	15781550	166742	-809751	-5.13
1975	4563503	16382976	601426	-375067	-2.29
1976	5179170	17609178	1226202	249709	1.42
1977	5833535	18608977	999799	23306	0.13
1978	6731867	19926326	1317350	340857	1.71
1979	7698282	20477430	551104	-425389	-2.08
1980	8872751	20762237	284807	-691686	-3.33
1981	10144635	21608073	845835	-130658	-0.6
1982	10882308	21764616	156543	-819950	-3.77
1983	11909510	23104449	1339833	363340	1.57
1984	13395339	24915331	1810881	834388	3.35
1985	15031619	27056914	2141584	1165091	4.31
1986	16545424	29119946	2063032	1086539	3.73
1987	18329332	31159864	2039918	1063425	3.41
1988	20082940	32735192	1575328	598835	1.83
1989	22276212	34750891	2015699	1039206	2.99
1990	24606270	36663342	1912452	935959	2.55
1991	25310136	35940393	-722949	-1699442	-4.73
1992	26388596	36416262	475869	-500624	-1.37
1993	26841012	35966956	-449306	-1425799	-3.96
1994	27529488	35788334	-178622	-1155115	-3.23
1995	28374516	36035635	247301	-729192	-2.02
1996	29449680	36223106	187471	-789022	-2.18
1997	31179596	37415515	1192409	215916	0.58
1998	33523752	39893265	2477750	1501257	3.76
1999	35314520	40964843	1071578	95085	0.23
2000	37772136	42304792	1339949	363456	0.86
2001	40431224	44070034	1765242	788749	1.79
2002	42460540	45432778	1362744	386251	0.85
2003	44771824	47010415	1577637	601144	1.28

**EMPLOYMENT**



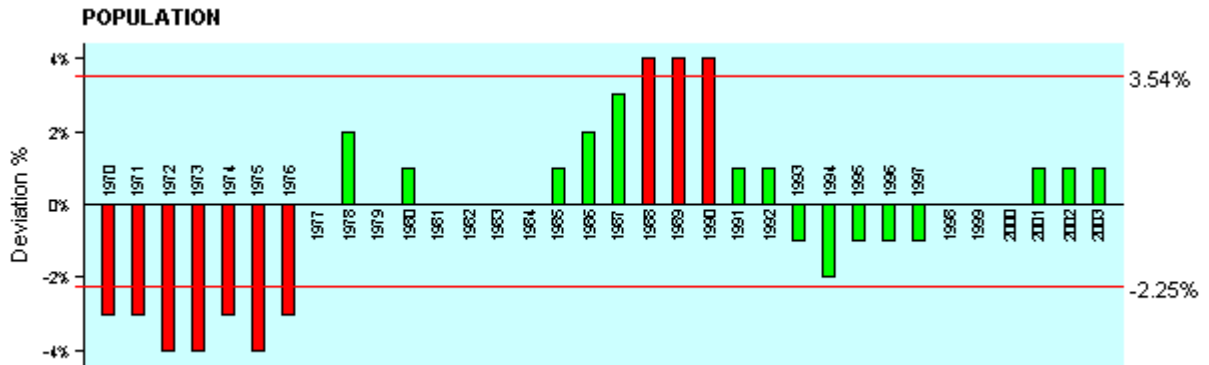
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	243210	0	-15157	0
1970	247450	4240	-10917	-4.41
1971	248085	635	-14522	-5.85
1972	257251	9166	-5991	-2.33
1973	267393	10142	-5015	-1.88
1974	273578	6185	-8972	-3.28
1975	274274	696	-14461	-5.27
1976	281191	6917	-8240	-2.93
1977	297424	16233	1076	0.36
1978	318322	20898	5741	1.8
1979	337033	18711	3554	1.05
1980	345910	8877	-6280	-1.82
1981	352766	6856	-8301	-2.35
1982	352103	-663	-15820	-4.49
1983	366573	14470	-687	-0.19
1984	388038	21465	6308	1.63
1985	418169	30131	14974	3.58
1986	443108	24939	9782	2.21
1987	470474	27366	12209	2.6
1988	501471	30997	15840	3.16
1989	531623	30152	14995	2.82
1990	555328	23705	8548	1.54
1991	572532	17204	2047	0.36
1992	573410	878	-14279	-2.49
1993	569642	-3768	-18925	-3.32
1994	578895	9253	-5904	-1.02
1995	593968	15073	-84	-0.01
1996	613389	19421	4264	0.7
1997	626701	13312	-1845	-0.29
1998	656700	29999	14842	2.26
1999	693537	36837	21680	3.13
2000	722006	28469	13312	1.84
2001	739628	17622	2465	0.33

2002	755620	15992	835	0.11
2003	773690	18070	2913	0.38

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	671688	0	-34014	0
1970	682857	11169	-22845	-3.35
1971	693604	10747	-23267	-3.35
1972	696255	2651	-31363	-4.5
1973	704268	8013	-26001	-3.69
1974	713868	9600	-24414	-3.42
1975	719939	6071	-27943	-3.88
1976	734488	14549	-19465	-2.65
1977	769670	35182	1168	0.15
1978	823881	54211	20197	2.45
1979	856803	32922	-1092	-0.13
1980	902956	46153	12139	1.34
1981	932934	29978	-4036	-0.43
1982	966760	33826	-188	-0.02
1983	996565	29805	-4209	-0.42
1984	1027817	31252	-2762	-0.27
1985	1072242	44425	10411	0.97
1986	1124169	51927	17913	1.59
1987	1192197	68028	34014	2.85
1988	1271189	78992	44978	3.54
1989	1352911	81722	47708	3.53
1990	1437315	84404	50390	3.51
1991	1492824	55509	21495	1.44
1992	1534977	42153	8139	0.53
1993	1549427	14450	-19564	-1.26
1994	1558854	9427	-24587	-1.58
1995	1576773	17919	-16095	-1.02
1996	1596584	19811	-14203	-0.89
1997	1618438	21854	-12160	-0.75

1998	1646304	27866	-6148	-0.37
1999	1681601	35297	1283	0.08
2000	1719107	37506	3492	0.2
2001	1765578	46471	12457	0.71
2002	1808893	43315	9301	0.51
2003	1862195	53302	19288	1.04

## Appendix L - Fort Lewis EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Lewis

### STUDY AREA

53053 Pierce, WA  
53067 Thurston, WA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.43	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$118,374,500	
Sales Volume - Total	\$201,153,900	0.78%
Income - Direct	\$259,700,000	
Income - Induced	\$22,808,140	
Income - Total	\$282,508,100	1.35%
Employment - Direct	7531	
Employment - Induced	759	
Employment - Total	8290	1.98%
Local Population	17430	
Local Off-base Population	8715	2.02%

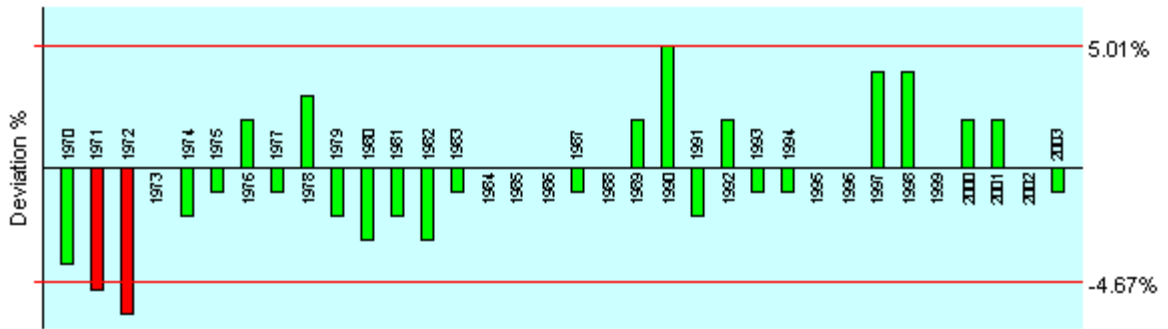
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	5.01 %	4.96 %	2.79 %	1.97 %
<b>Negative RTV</b>	-4.67 %	-4.06 %	-7.1 %	-2.54 %

### RTV DETAILED

#### SALES VOLUME

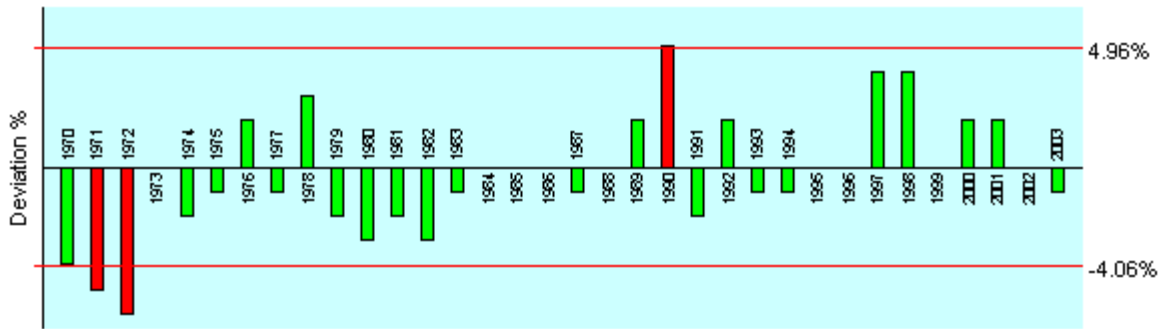
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	3663956	19272409	0	-1193327	0
1970	3939364	19618033	345624	-847703	-4.32
1971	4165340	19868672	250639	-942688	-4.74
1972	4291438	19826444	-42228	-1235555	-6.23
1973	4819374	20964277	1137833	-55494	-0.26
1974	5539580	21659758	695481	-497846	-2.3
1975	6281812	22551705	891947	-301380	-1.34
1976	7107766	24166404	1614699	421372	1.74
1977	7855838	25060123	893719	-299608	-1.2
1978	9101606	26940754	1880631	687304	2.55
1979	10344594	27516620	575866	-617461	-2.24
1980	11891616	27826381	309761	-883566	-3.18
1981	13418212	28580792	754410	-438917	-1.54
1982	14437904	28875808	295016	-898311	-3.11
1983	15309530	29700488	824680	-368647	-1.24
1984	16636302	30943522	1243034	49707	0.16
1985	17859598	32147276	1203755	10428	0.03
1986	18961960	33373050	1225773	32446	0.1
1987	20085014	34144524	771474	-421853	-1.24
1988	21629048	35255348	1110824	-82503	-0.23
1989	23734096	37025190	1769842	576515	1.56
1990	27003196	40234762	3209572	2016245	5.01
1991	28534742	40519334	284572	-908755	-2.24
1992	30924834	42676271	2156937	963610	2.26
1993	32503888	43555210	878939	-314388	-0.72
1994	33971710	44163223	608013	-585314	-1.33
1995	35895070	45586739	1423516	230189	0.5
1996	38181346	46963056	1376317	182990	0.39
1997	41710204	50052245	3089189	1895862	3.79
1998	44639550	53121064	3068820	1875493	3.53
1999	46894924	54398112	1277047	83720	0.15
2000	50904218	57012724	2614612	1421285	2.49
2001	54246640	59128838	2116113	922786	1.56
2002	56233638	60169993	1041155	-152172	-0.25
2003	58132228	61038839	868847	-324480	-0.53

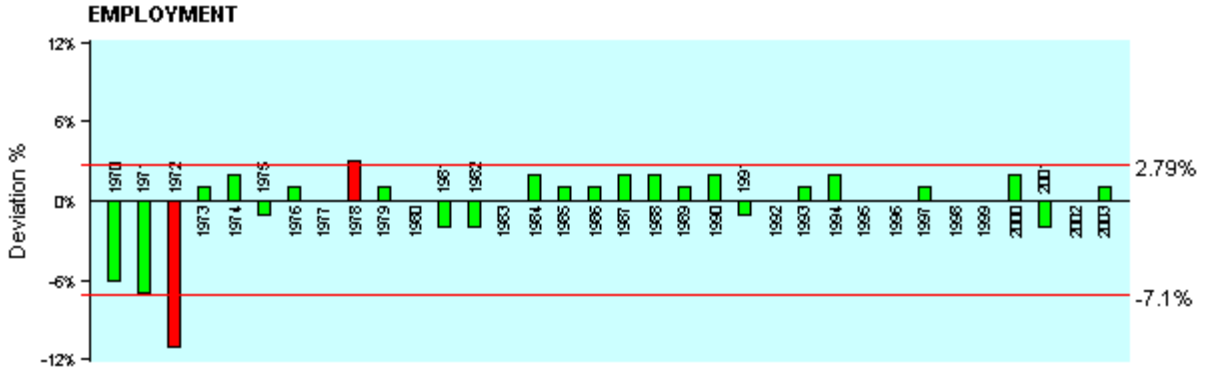
**INCOME**

**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1848106	9721038	0	-596213	0
1970	1983704	9878846	157808	-438405	-4.44
1971	2095463	9995359	116513	-479700	-4.8
1972	2161606	9986620	-8739	-604952	-6.06
1973	2439573	10612143	625523	29310	0.28
1974	2797070	10936544	324401	-271812	-2.49
1975	3167073	11369792	433248	-162965	-1.43
1976	3580564	12173918	804126	207913	1.71
1977	3956082	12619902	445984	-150229	-1.19
1978	4583753	13567909	948007	351794	2.59
1979	5209534	13857360	289452	-306761	-2.21
1980	5976305	13984554	127193	-469020	-3.35
1981	6742200	14360886	376332	-219881	-1.53
1982	7252786	14505572	144686	-451527	-3.11
1983	7686427	14911668	406096	-190117	-1.27
1984	8350786	15532462	620794	24581	0.16
1985	8963188	16133738	601276	5063	0.03
1986	9517554	16750895	617157	20944	0.13
1987	10074840	17127228	376333	-219880	-1.28
1988	10848494	17683045	555817	-40396	-0.23
1989	11911863	18582506	899461	303248	1.63
1990	13543521	20179846	1597340	1001127	4.96
1991	14309461	20319435	139588	-456625	-2.25
1992	15510801	21404905	1085471	489258	2.29
1993	16307276	21851750	446844	-149369	-0.68
1994	17041089	22153416	301666	-294547	-1.33
1995	18002766	22863513	710097	113884	0.5
1996	19151333	23556140	692627	96414	0.41
1997	20917815	25101378	1545238	949025	3.78
1998	22388361	26642150	1540772	944559	3.55
1999	23522972	27286648	644498	48285	0.18
2000	25509714	28570880	1284232	688019	2.41
2001	27190294	29637420	1066541	470328	1.59
2002	28177359	30149774	512354	-83859	-0.28
2003	29131884	30588478	438704	-157509	-0.51

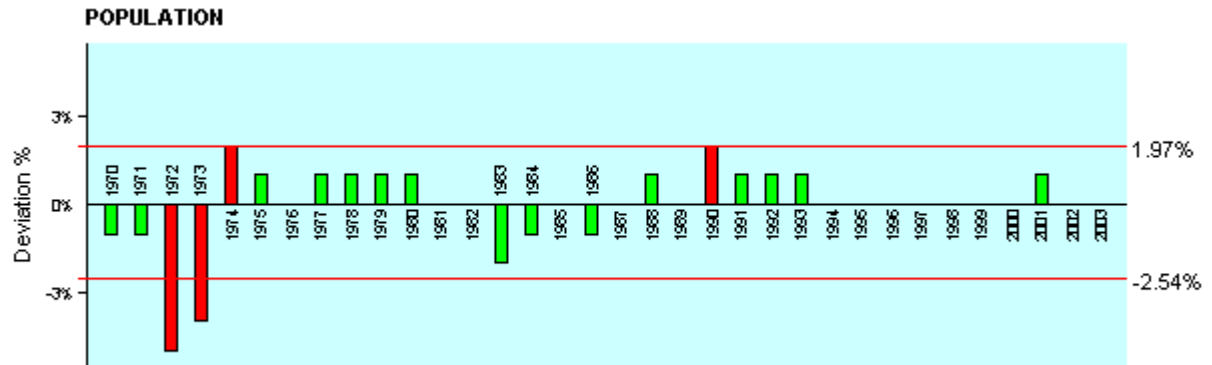
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	228586	0	-6707	0
1970	221639	-6947	-13654	-6.16
1971	214229	-7410	-14117	-6.59
1972	199756	-14473	-21180	-10.6
1973	208471	8715	2008	0.96
1974	218722	10251	3544	1.62
1975	222393	3671	-3036	-1.37
1976	231301	8908	2201	0.95
1977	237065	5764	-943	-0.4
1978	250776	13711	7004	2.79
1979	259576	8800	2093	0.81
1980	266857	7281	574	0.22
1981	268975	2118	-4589	-1.71
1982	270812	1837	-4870	-1.8
1983	278219	7407	700	0.25
1984	290647	12428	5721	1.97
1985	301190	10543	3836	1.27
1986	310905	9715	3008	0.97
1987	325169	14264	7557	2.32
1988	340252	15083	8376	2.46
1989	351281	11029	4322	1.23
1990	363854	12573	5866	1.61
1991	366136	2282	-4425	-1.21
1992	371569	5433	-1274	-0.34
1993	381779	10210	3503	0.92
1994	397854	16075	9368	2.35
1995	402729	4875	-1832	-0.45
1996	408668	5939	-768	-0.19
1997	418982	10314	3607	0.86
1998	426601	7619	912	0.21
1999	433284	6683	-24	-0.01
2000	447546	14262	7555	1.69
2001	446861	-685	-7392	-1.65

2002	453020	6159	-548	-0.12
2003	463339	10319	3612	0.78

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	480736	0	-13734	0
1970	490236	9500	-4234	-0.86
1971	497542	7306	-6428	-1.29
1972	486504	-11038	-24772	-5.09
1973	480906	-5598	-19332	-4.02
1974	504564	23658	9924	1.97
1975	525732	21168	7434	1.41
1976	536948	11216	-2518	-0.47
1977	553549	16601	2867	0.52
1978	574491	20942	7208	1.25
1979	592365	17874	4140	0.7
1980	614079	21714	7980	1.3
1981	629458	15379	1645	0.26
1982	642085	12627	-1107	-0.17
1983	645741	3656	-10078	-1.56
1984	655589	9848	-3886	-0.59
1985	666902	11313	-2421	-0.36
1986	676604	9702	-4032	-0.6
1987	690832	14228	494	0.07
1988	711355	20523	6789	0.95
1989	725934	14579	845	0.12
1990	753533	27599	13865	1.84
1991	774147	20614	6880	0.89
1992	795467	21320	7586	0.95
1993	813388	17921	4187	0.51
1994	825394	12006	-1728	-0.21
1995	840833	15439	1705	0.2
1996	852493	11660	-2074	-0.24
1997	864644	12151	-1583	-0.18



1998	881050	16406	2672	0.3
1999	897535	16485	2751	0.31
2000	912334	14799	1065	0.12
2001	930995	18661	4927	0.53
2002	948451	17456	3722	0.39
2003	961440	12989	-745	-0.08

## Appendix M - Fort Riley EIFS Analysis

# Economic Impact Forecast System

## EIFS REPORT

### PROJECT NAME

Army Growth Fort Riley

### STUDY AREA

20027 Clay, KS  
 20041 Dickinson, KS  
 20061 Geary, KS  
 20127 Morris, KS  
 20143 Ottawa, KS  
 20149 Pottawatomie, KS  
 20161 Riley, KS  
 20197 Wabaunsee, KS

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

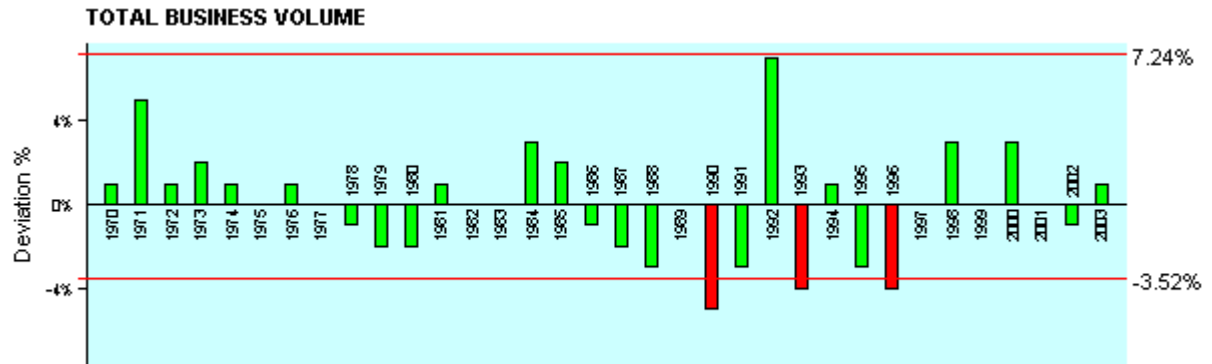
Multiplier	2.19	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$98,507,460	
Sales Volume - Total	\$181,286,800	4.44%
Income - Direct	\$259,700,000	
Income - Induced	\$18,652,730	
Income - Total	\$278,352,700	8.97%
Employment - Direct	7563	
Employment - Induced	670	
Employment - Total	8233	8.75%
Local Population	17430	
Local Off-base Population	8715	11.11%

### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	7.24 %	8.57 %	4.43 %	6.24 %
<b>Negative RTV</b>	-3.52 %	-3.16 %	-3.24 %	-2.08 %

### RTV DETAILED

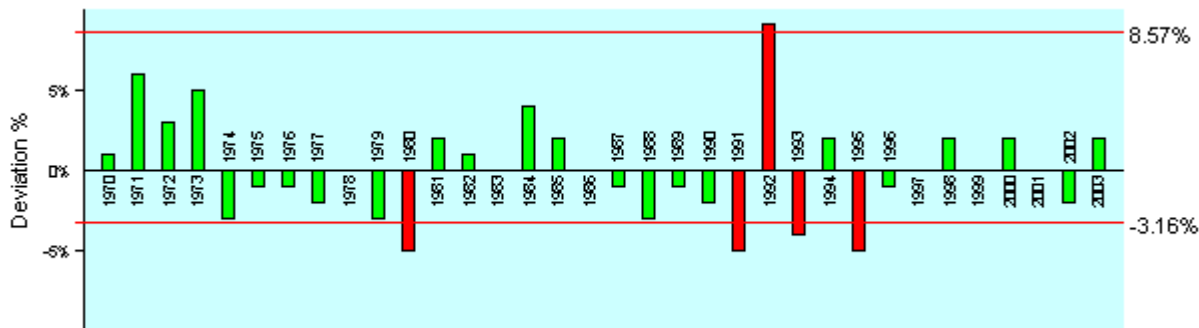
**SALES VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	903828	4754135	0	-1,00073	0
1970	985118	4905888	151752	51679	1.05
1971	1106028	5275754	369866	269793	5.11
1972	1176830	5436955	161201	61128	1.12
1973	1295314	5634616	197661	97588	1.73
1974	1474216	5764185	129569	29496	0.51
1975	1632176	5859512	95327	-4746	-0.08
1976	1774498	6033293	173781	73708	1.22
1977	1931370	6161070	127777	27704	0.45
1978	2104278	6228663	67593	-32480	-0.52
1979	2324024	6181904	-46759	-146832	-2.38
1980	2622994	6137806	-44098	-144171	-2.35
1981	2944620	6272041	134235	34162	0.54
1982	3187486	6374972	102931	2858	0.04
1983	3350944	6500831	125859	25786	0.4
1984	3673934	6833517	332686	232613	3.4
1985	3914550	7046190	212673	112600	1.6
1986	4035936	7103247	57057	-43016	-0.61
1987	4164060	7078902	-24345	-124418	-1.76
1988	4279572	6975702	-103200	-203273	-2.91
1989	4537350	7078266	102564	2491	0.04
1990	4601678	6856500	-221766	-321839	-4.69
1991	4774460	6779733	-76767	-176840	-2.61
1992	5374266	7416487	636754	536681	7.24
1993	5416396	7257971	-158516	-258589	-3.56
1994	5704466	7415806	157835	57762	0.78
1995	5737210	7286257	-129549	-229622	-3.15
1996	5794996	7127845	-158412	-258485	-3.63
1997	6037256	7244707	116862	16789	0.23
1998	6349426	7555817	311110	211037	2.79
1999	6602954	7659427	103610	3537	0.05
2000	7135574	7991843	332416	232343	2.91
2001	7415764	8083183	91340	-8733	-0.11
2002	7564854	8094394	11211	-88862	-1.1
2003	7863508	8256683	162290	62217	0.75

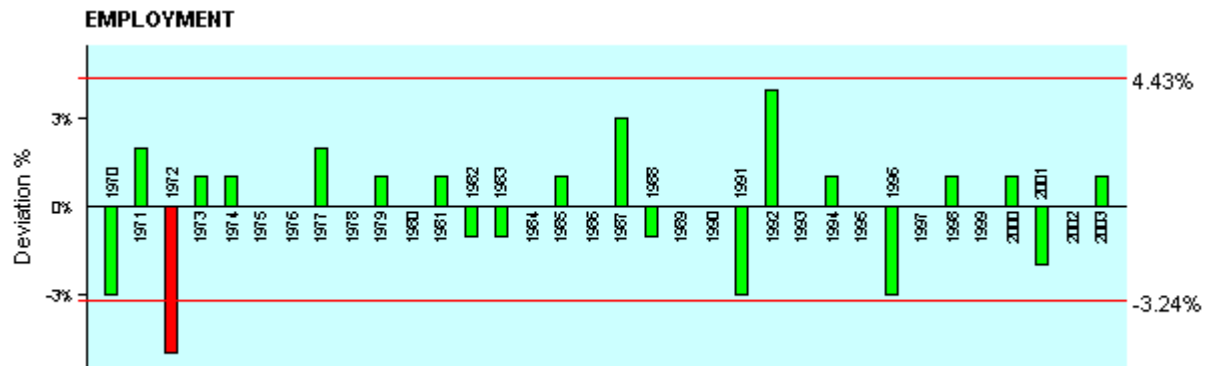
**INCOME**

**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	481217	2531201	0	-46147	0
1970	520882	2593992	62791	16644	0.64
1971	589892	2813785	219792	173645	6.17
1972	639920	2956430	142646	96499	3.26
1973	728967	3171006	214576	168429	5.31
1974	797932	3119914	-51092	-97239	-3.12
1975	870989	3126851	6936	-39211	-1.25
1976	925522	3146775	19924	-26223	-0.83
1977	979926	3125964	-20811	-66958	-2.14
1978	1076833	3187426	61462	15315	0.48
1979	1184101	3149709	-37717	-83864	-2.66
1980	1305417	3054676	-95033	-141180	-4.62
1981	1480333	3153109	98434	52287	1.66
1982	1613365	3226730	73621	27474	0.85
1983	1686587	3271979	45249	-898	-0.03
1984	1862738	3464693	192714	146567	4.23
1985	1986931	3576476	111783	65636	1.84
1986	2055282	3617296	40821	-5326	-0.15
1987	2135893	3631018	13722	-32425	-0.89
1988	2183793	3559583	-71436	-117583	-3.3
1989	2284988	3564581	4999	-41148	-1.15
1990	2381452	3548363	-16218	-62365	-1.76
1991	2420601	3437253	-111110	-157257	-4.58
1992	2760916	3810064	372811	326664	8.57
1993	2755670	3692598	-117466	-163613	-4.43
1994	2927017	3805122	112524	66377	1.74
1995	2896143	3678102	-127020	-173167	-4.71
1996	2992839	3681192	3090	-43057	-1.17
1997	3102476	3722971	41779	-4368	-0.12
1998	3230994	3844883	121912	75765	1.97
1999	3353161	3889667	44784	-1363	-0.04
2000	3585235	4015463	125796	79649	1.98
2001	3737350	4073712	58248	12101	0.3
2002	3762963	4026370	-47341	-93488	-2.32
2003	3948892	4146337	119966	73819	1.78

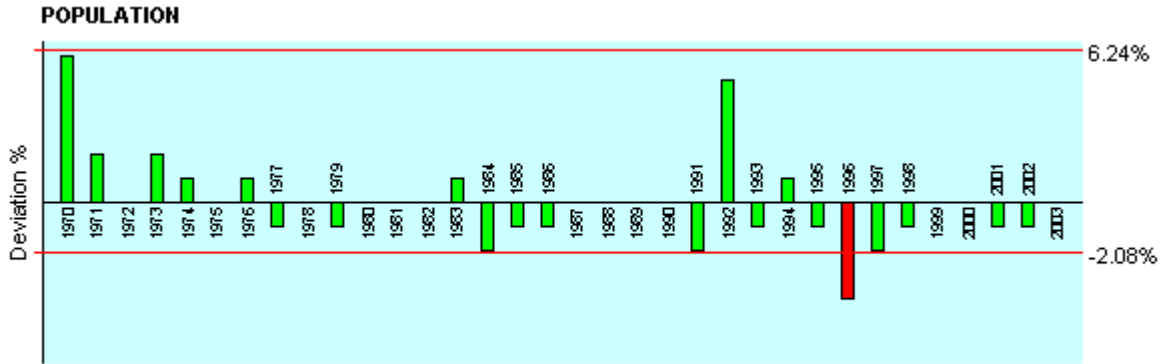
## EMPLOYMENT



Year	Value	Change	Deviation	%Deviation
1969	77289	0	-613	0
1970	75854	-1435	-2048	-2.7
1971	77698	1844	1231	1.58
1972	74695	-3003	-3616	-4.84
1973	76133	1438	825	1.08
1974	77206	1073	460	0.6
1975	77628	422	-191	-0.25
1976	78309	681	68	0.09
1977	80602	2293	1680	2.08
1978	81598	996	383	0.47
1979	83011	1413	800	0.96
1980	83680	669	56	0.07
1981	85326	1646	1033	1.21
1982	85051	-275	-888	-1.04
1983	84830	-221	-834	-0.98
1984	85217	387	-226	-0.27
1985	86299	1082	469	0.54
1986	86654	355	-258	-0.3
1987	89629	2975	2362	2.64
1988	88998	-631	-1244	-1.4
1989	89373	375	-238	-0.27
1990	89894	521	-92	-0.1
1991	87984	-1910	-2523	-2.87
1992	92704	4720	4107	4.43
1993	92948	244	-369	-0.4
1994	94140	1192	579	0.62
1995	95061	921	308	0.32
1996	93100	-1961	-2574	-2.76
1997	94098	998	385	0.41
1998	95623	1525	912	0.95
1999	96640	1017	404	0.42

2000	97788	1148	535	0.55
2001	96837	-951	-1564	-1.62
2002	97167	330	-283	-0.29
2003	98735	1568	955	0.97

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	136623	0	-512	0
1970	146259	9636	9124	6.24
1971	149577	3318	2806	1.88
1972	150427	850	338	0.22
1973	154521	4094	3582	2.32
1974	156410	1889	1377	0.88
1975	157102	692	180	0.11
1976	158847	1745	1233	0.78
1977	157088	-1759	-2271	-1.45
1978	158283	1195	683	0.43
1979	157909	-374	-886	-0.56
1980	157712	-197	-709	-0.45
1981	158869	1157	645	0.41
1982	159770	901	389	0.24
1983	162372	2602	2090	1.29
1984	160448	-1924	-2436	-1.52
1985	159463	-985	-1497	-0.94
1986	158810	-653	-1165	-0.73
1987	159251	441	-71	-0.04
1988	159952	701	189	0.12
1989	160126	174	-338	-0.21
1990	160338	212	-300	-0.19
1991	157386	-2952	-3464	-2.2
1992	165374	7988	7476	4.52
1993	163518	-1856	-2368	-1.45
1994	165592	2074	1562	0.94
1995	165214	-378	-890	-0.54

1996	159123	-6091	-6603	-4.15
1997	156952	-2171	-2683	-1.71
1998	156529	-423	-935	-0.6
1999	156341	-188	-700	-0.45
2000	156174	-167	-679	-0.43
2001	154772	-1402	-1914	-1.24
2002	153818	-954	-1466	-0.95
2003	154550	732	220	0.14

## Appendix N - Fort Polk EIFS Analysis

# Economic Impact Forecast System

## EIFS REPORT

### PROJECT NAME

Army Growth Fort Polk

### STUDY AREA

22011 Beauregard, LA  
 22079 Rapides, LA  
 22115 Vernon, LA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.02	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$84,434,960	
Sales Volume - Total	\$167,214,300	2.95%
Income - Direct	\$259,700,000	
Income - Induced	\$17,216,580	
Income - Total	\$276,916,600	6.77%
Employment - Direct	7582	
Employment - Induced	593	
Employment - Total	8175	7.92%
Local Population	17430	
Local Off-base Population	8715	8.29%

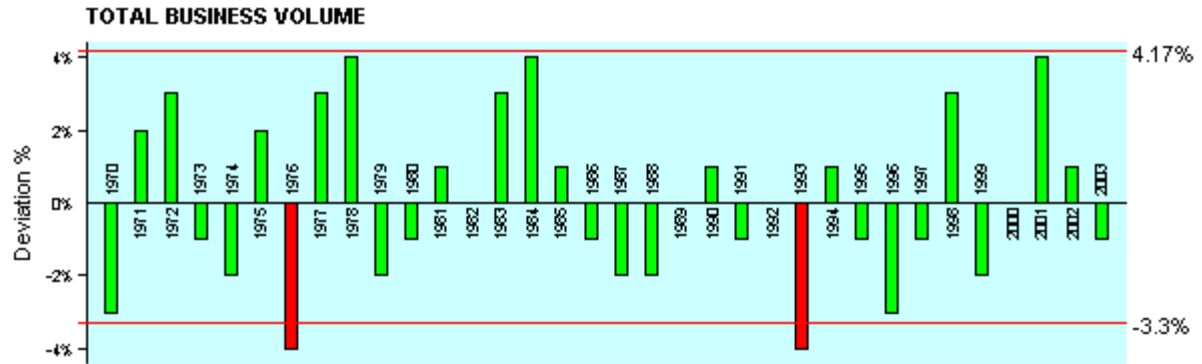
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.17 %	4.49 %	5.2 %	4.12 %
<b>Negative RTV</b>	-3.3 %	-2.59 %	-5.46 %	-3.14 %

### RTV DETAILED

#### SALES VOLUME

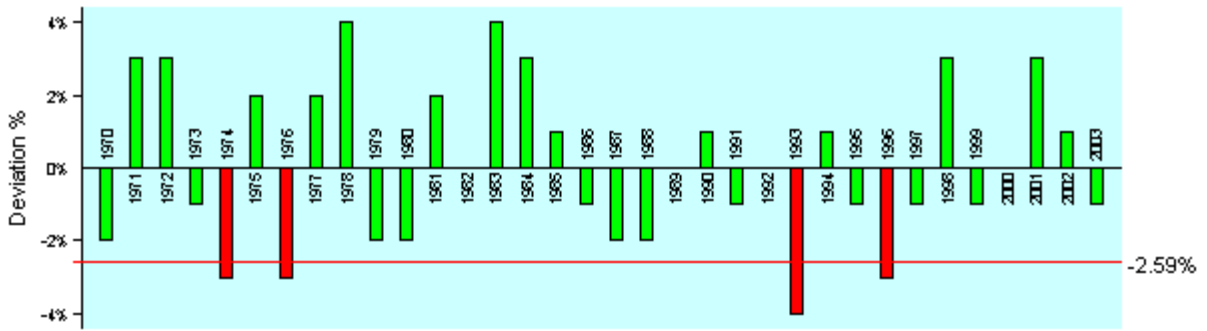




Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1097026	5770357	0	-156924	0
1970	1160816	5780864	10507	-146417	-2.53
1971	1272948	6071962	291098	134174	2.21
1972	1383546	6391983	320021	163097	2.55
1973	1490004	6481517	89535	-67389	-1.04
1974	1657004	6478886	-2632	-159556	-2.46
1975	1893032	6795985	317099	160175	2.36
1976	1958708	6659607	-136378	-293302	-4.4
1977	2197134	7008857	349250	192326	2.74
1978	2526128	7477339	468481	311557	4.17
1979	2805878	7463635	-13703	-170627	-2.29
1980	3236076	7572418	108782	-48142	-0.64
1981	3677464	7832998	260580	103656	1.32
1982	3989658	7979316	146318	-10606	-0.13
1983	4322114	8384901	405585	248661	2.97
1984	4771628	8875228	490327	333403	3.76
1985	5070990	9127782	252554	95630	1.05
1986	5237442	9217898	90116	-66808	-0.72
1987	5415570	9206469	-11429	-168353	-1.83
1988	5604670	9135612	-70857	-227781	-2.49
1989	5983538	9334319	198707	41783	0.45
1990	6443992	9601548	267229	110305	1.15
1991	6809502	9669493	67945	-88979	-0.92
1992	7092520	9787678	118185	-38739	-0.4
1993	7144622	9573793	-213884	-370808	-3.87
1994	7525478	9783121	209328	52404	0.54
1995	7724946	9810681	27560	-129364	-1.32
1996	7892116	9707303	-103379	-260303	-2.68
1997	8132824	9759389	52086	-104838	-1.07
1998	8608576	10244205	484817	327893	3.2
1999	8829214	10241888	-2317	-159241	-1.55
2000	9284340	10398461	156573	-351	0
2001	10041654	10945403	546942	390018	3.56
2002	10459236	11191383	245980	89056	0.8
2003	10726392	11262712	71329	-85595	-0.76

**INCOME**

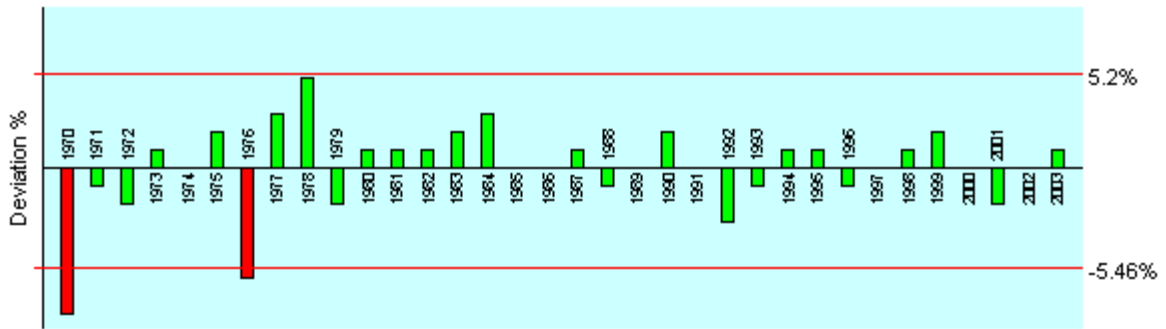
**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	555713	2923050	0	-77941	0
1970	588889	2932667	9617	-68324	-2.33
1971	648090	3091389	158722	80781	2.61
1972	704649	3255478	164089	86148	2.65
1973	762281	3315922	60444	-17497	-0.53
1974	841034	3288443	-27479	-105420	-3.21
1975	956166	3432636	144193	66252	1.93
1976	998460	3394764	-37872	-115813	-3.41
1977	1113317	3551481	156717	78776	2.22
1978	1283851	3800199	248718	170777	4.49
1979	1428340	3799384	-815	-78756	-2.07
1980	1622521	3796699	-2685	-80626	-2.12
1981	1847170	3934472	137773	59832	1.52
1982	2001477	4002954	68482	-9459	-0.24
1983	2182420	4233895	230941	153,000	3.61
1984	2397635	4459601	225706	147765	3.31
1985	2548621	4587518	127917	49976	1.09
1986	2631170	4630859	43341	-34600	-0.75
1987	2723553	4630040	-819	-78760	-1.7
1988	2830648	4613956	-16084	-94025	-2.04
1989	3013393	4700893	86937	8996	0.19
1990	3237895	4824464	123570	45629	0.95
1991	3413959	4847822	23358	-54583	-1.13
1992	3573105	4930885	83063	5122	0.1
1993	3598640	4822178	-108707	-186648	-3.87
1994	3790419	4927545	105367	27426	0.56
1995	3888262	4938093	10548	-67393	-1.36
1996	3975919	4890380	-47712	-125653	-2.57
1997	4091767	4910120	19740	-58201	-1.19
1998	4323341	5144776	234655	156714	3.05
1999	4438347	5148483	3707	-74234	-1.44
2000	4665011	5224812	76330	-1611	-0.03
2001	5038790	5492281	267469	189528	3.45
2002	5238151	5604822	112540	34599	0.62
2003	5381878	5650972	46150	-31791	-0.56

**EMPLOYMENT**

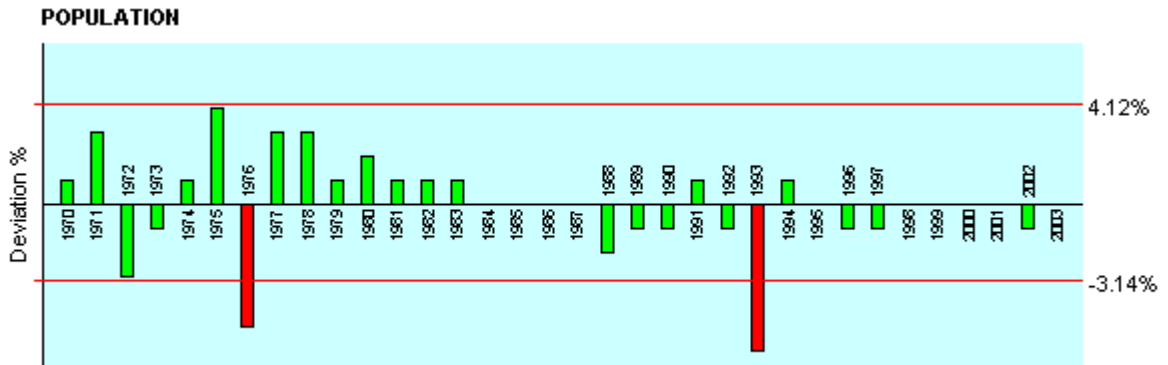
## EMPLOYMENT



Year	Value	Change	Deviation	%Deviation
1969	92158	0	-486	0
1970	85665	-6493	-6979	-8.15
1971	85409	-256	-742	-0.87
1972	84038	-1371	-1857	-2.21
1973	85444	1406	920	1.08
1974	85565	121	-365	-0.43
1975	87736	2171	1685	1.92
1976	83042	-4694	-5180	-6.24
1977	85739	2697	2211	2.58
1978	90954	5215	4729	5.2
1979	89944	-1010	-1496	-1.66
1980	91358	1414	928	1.02
1981	92551	1193	707	0.76
1982	93526	975	489	0.52
1983	95676	2150	1664	1.74
1984	99145	3469	2983	3.01
1985	99680	535	49	0.05
1986	99703	23	-463	-0.46
1987	101039	1336	850	0.84
1988	1,00063	-976	-1462	-1.46
1989	100578	515	29	0.03
1990	102756	2178	1692	1.65
1991	103280	524	38	0.04
1992	101100	-2180	-2666	-2.64
1993	100119	-981	-1467	-1.47
1994	101206	1087	601	0.59
1995	103111	1905	1419	1.38
1996	102813	-298	-784	-0.76
1997	103227	414	-72	-0.07
1998	104920	1693	1207	1.15
1999	107633	2713	2227	2.07
2000	108289	656	170	0.16
2001	106483	-1806	-2292	-2.15

2002	107488	1005	519	0.48
2003	109169	1681	1195	1.09

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	193567	0	-511	0
1970	195404	1837	1326	0.68
1971	201174	5770	5259	2.61
1972	195241	-5933	-6444	-3.3
1973	194580	-661	-1172	-0.6
1974	197959	3379	2868	1.45
1975	206999	9040	8529	4.12
1976	197547	-9452	-9963	-5.04
1977	204191	6644	6133	3
1978	211568	7377	6866	3.25
1979	214219	2651	2140	1
1980	219494	5275	4764	2.17
1981	223284	3790	3279	1.47
1982	226170	2886	2375	1.05
1983	229729	3559	3048	1.33
1984	230712	983	472	0.2
1985	230350	-362	-873	-0.38
1986	230553	203	-308	-0.13
1987	230448	-105	-616	-0.27
1988	227238	-3210	-3721	-1.64
1989	224571	-2667	-3178	-1.42
1990	223645	-926	-1437	-0.64
1991	226312	2667	2156	0.95
1992	225337	-975	-1486	-0.66
1993	212519	-12818	-13329	-6.27
1994	214123	1604	1093	0.51
1995	213779	-344	-855	-0.4
1996	212268	-1511	-2022	-0.95
1997	210330	-1938	-2449	-1.16

1998	210345	15	-496	-0.24
1999	211142	797	286	0.14
2000	212004	862	351	0.17
2001	211802	-202	-713	-0.34
2002	211186	-616	-1127	-0.53
2003	211468	282	-229	-0.11

## Appendix O - Fort Stewart EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Fort Stewart

### STUDY AREA

13029 Bryan, GA  
 13051 Chatham, GA  
 13109 Evans, GA  
 13179 Liberty, GA  
 13183 Long, GA  
 13267 Tattnall, GA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.7	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$140,724,900	
Sales Volume - Total	\$223,504,300	1.89%
Income - Direct	\$259,700,000	
Income - Induced	\$27,455,150	
Income - Total	\$287,155,100	3.8%
Employment - Direct	7575	
Employment - Induced	978	
Employment - Total	8553	4.22%
Local Population	17430	
Local Off-base Population	8715	4.91%

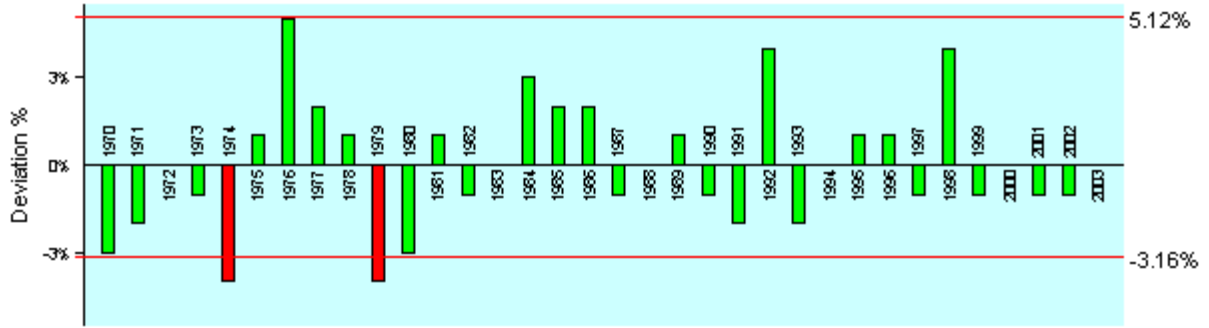
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	5.12 %	4.72 %	4.24 %	3.46 %
<b>Negative RTV</b>	-3.16 %	-2.9 %	-3.18 %	-1.34 %

### RTV DETAILED

#### SALES VOLUME

**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1424240	7491502	0	-367814	0
1970	1529912	7618962	127459	-240355	-3.15
1971	1635010	7798998	180036	-187778	-2.41
1972	1772580	8189320	390322	22508	0.27
1973	1950004	8482517	293198	-74616	-0.88
1974	2172050	8492716	10198	-357616	-4.21
1975	2501932	8981936	489220	121406	1.35
1976	2898450	9854730	872794	504980	5.12
1977	3283634	10474792	620062	252248	2.41
1978	3713922	10993209	518417	150603	1.37
1979	4111054	10935404	-57805	-425619	-3.89
1980	4680558	10952506	17102	-350712	-3.2
1981	5366908	11431514	479008	111194	0.97
1982	5841360	11682720	251206	-116608	-1
1983	6196906	12021998	339278	-28536	-0.24
1984	6896118	12826779	804782	436968	3.41
1985	7456814	13422265	595486	227672	1.7
1986	7956370	14003211	580946	213132	1.52
1987	8384442	14253551	250340	-117474	-0.82
1988	8933890	14562241	308689	-59125	-0.41
1989	9678288	15098129	535889	168075	1.11
1990	10229950	15242626	144496	-223318	-1.47
1991	10762734	15283082	40457	-327357	-2.14
1992	11801878	16286592	1003509	635695	3.9
1993	12179642	16320720	34129	-333685	-2.04
1994	12866030	16725839	405119	37305	0.22
1995	13541378	17197550	471711	103897	0.6
1996	14466372	17793638	596088	228274	1.28
1997	14931602	17917922	124285	-243529	-1.36
1998	15955410	18986938	1069016	701202	3.69
1999	16578260	19230782	243844	-123970	-0.64
2000	17523282	19626076	395294	27480	0.14
2001	18145998	19779138	153062	-214752	-1.09
2002	18676700	19984069	204931	-162883	-0.82
2003	19395234	20364996	380927	13113	0.06

## Appendix P - White Sands Missile Range EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth White Sands Missile Range

### STUDY AREA

35013 Dona Ana, NM  
 35035 Otero, NM  
 35051 Sierra, NM  
 35053 Socorro, NM  
 48141 El Paso, TX

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Multiplier	2.62	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$134,102,600	
Sales Volume - Total	\$216,882,000	0.88%
Income - Direct	\$259,700,000	
Income - Induced	\$24,487,370	
Income - Total	\$284,187,400	1.91%
Employment - Direct	7552	
Employment - Induced	894	
Employment - Total	8445	2.03%
Local Population	17430	
Local Off-base Population	8715	1.88%

### RTV SUMMARY

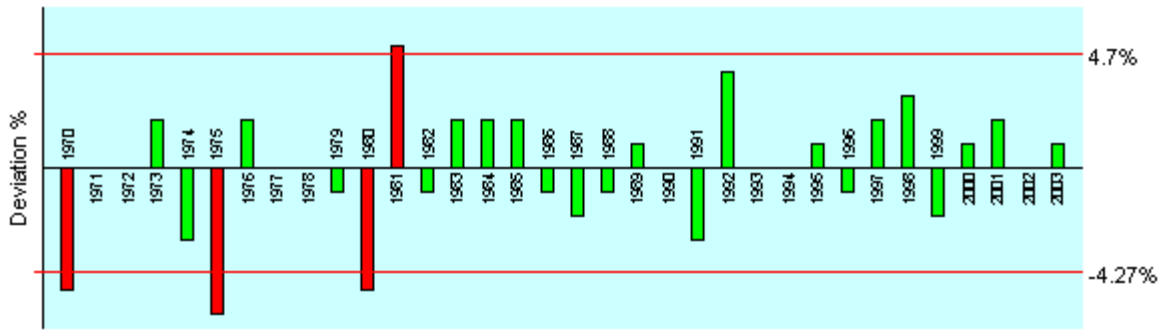
	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.7 %	4.94 %	3.83 %	1.21 %
<b>Negative RTV</b>	-4.27 %	-4.17 %	-4.17 %	-1.59 %

### RTV DETAILED

#### SALES VOLUME



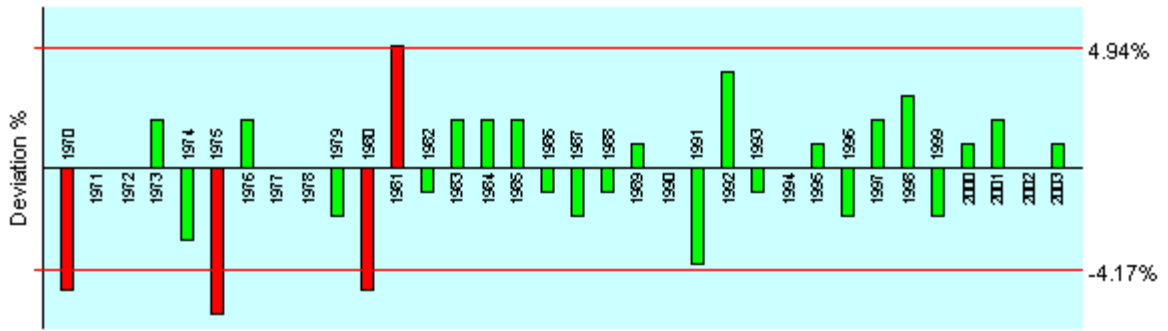
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2709878	14253958	0	-798145	0
1970	2875102	14318008	64050	-734095	-5.13
1971	3159692	15071731	753723	-44422	-0.29
1972	3435662	15872758	801028	2883	0.02
1973	3904054	16982635	1109876	311731	1.84
1974	4418040	17274536	291902	-506243	-2.93
1975	4763040	17099314	-175223	-973368	-5.69
1976	5350778	18192645	1093332	295187	1.62
1977	5936342	18936931	744286	-53859	-0.28
1978	6681140	19776174	839243	41098	0.21
1979	7627760	20289842	513667	-284478	-1.4
1980	8565896	20044197	-245645	-1043790	-5.21
1981	10267534	21869847	1825651	1027506	4.7
1982	11202490	22404980	535133	-263012	-1.17
1983	12142440	23556334	1151354	353209	1.5
1984	13378118	24883299	1326966	528821	2.13
1985	14493310	26087958	1204659	406514	1.56
1986	15160336	26682191	594233	-203912	-0.76
1987	15872480	26983216	301025	-497120	-1.84
1988	16881094	27516183	532967	-265178	-0.96
1989	18374926	28664885	1148701	350556	1.22
1990	19806650	29511908	847024	48879	0.17
1991	20651566	29325224	-186685	-984830	-3.36
1992	22625282	31222889	1897665	1099520	3.52
1993	23814272	31911124	688235	-109910	-0.34
1994	25123926	32661104	749979	-48166	-0.15
1995	26545020	33712175	1051072	252927	0.75
1996	27650408	3401,0002	297826	-500319	-1.47
1997	29458118	35349742	1339740	541595	1.53
1998	31202010	37130392	1780650	982505	2.65
1999	32128856	37269473	139081	-659064	-1.77
2000	34429622	38561177	1291704	493559	1.28
2001	36950830	40276405	1715228	917083	2.28
2002	38464048	41156531	880127	81982	0.2
2003	40180022	42189023	1032492	234347	0.56

**INCOME**

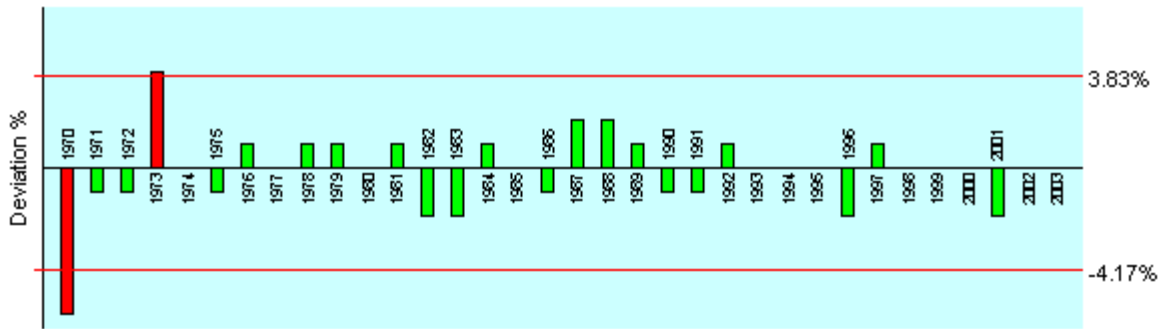
**PERSONAL INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1381704	7267763	0	-400347	0
1970	1461617	7278853	11090	-389257	-5.35
1971	1604077	7651447	372595	-27752	-0.36
1972	1747524	8073561	422114	21767	0.27
1973	1982764	8625023	551463	151116	1.75
1974	2249713	8796378	171354	-228993	-2.6
1975	2411750	8658182	-138195	-538542	-6.22
1976	2714177	9228202	570019	169672	1.84
1977	3007399	9593603	365401	-34946	-0.36
1978	3382510	10012230	418627	18280	0.18
1979	3844591	10226612	214382	-185965	-1.82
1980	4311557	10089043	-137569	-537916	-5.33
1981	5180373	11034194	945151	544804	4.94
1982	5635855	11271710	237516	-162831	-1.44
1983	6128214	11888735	617025	216678	1.82
1984	6741641	12539452	650717	250370	2
1985	7310530	13158954	619502	219155	1.67
1986	7658487	13478937	319983	-80364	-0.6
1987	8018397	13631275	152338	-248009	-1.82
1988	8529902	13903740	272465	-127882	-0.92
1989	9300105	14508164	604424	204077	1.41
1990	10030061	14944791	436627	36280	0.24
1991	10440088	14824925	-119866	-520213	-3.51
1992	11456230	15809597	984672	584325	3.7
1993	12033272	16124584	314987	-85360	-0.53
1994	12671950	16473535	348951	-51396	-0.31
1995	13407831	17027945	554410	154063	0.9
1996	13935223	17140324	112379	-287968	-1.68
1997	14865502	17838602	698278	297931	1.67
1998	15761619	18756327	917724	517377	2.76
1999	16233338	18830672	74345	-326002	-1.73
2000	17329576	19409125	578453	178106	0.92
2001	18639059	20316574	907449	507102	2.5
2002	19378625	20735129	418554	18207	0.09
2003	20266588	21279917	544789	144442	0.68

**EMPLOYMENT**

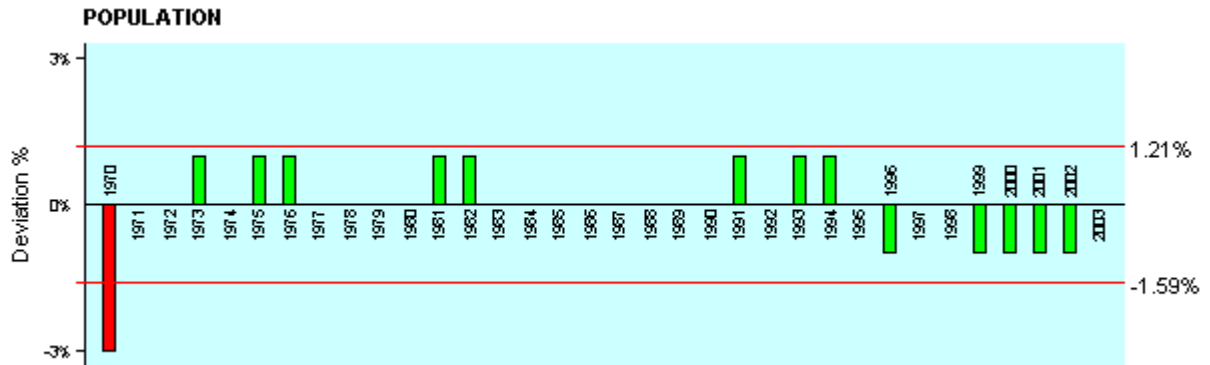
## EMPLOYMENT



Year	Value	Change	Deviation	%Deviation
1969	206538	0	-7108	0
1970	201142	-5396	-12504	-6.22
1971	206678	5536	-1572	-0.76
1972	211856	5178	-1930	-0.91
1973	227688	15832	8724	3.83
1974	234653	6965	-143	-0.06
1975	240340	5687	-1421	-0.59
1976	249250	8910	1802	0.72
1977	257591	8341	1233	0.48
1978	267252	9661	2553	0.96
1979	277555	10303	3195	1.15
1980	284449	6894	-214	-0.08
1981	294426	9977	2869	0.97
1982	296401	1975	-5133	-1.73
1983	296783	382	-6726	-2.27
1984	308421	11638	4530	1.47
1985	315869	7448	340	0.11
1986	320432	4563	-2545	-0.79
1987	334195	13763	6655	1.99
1988	347136	12941	5833	1.68
1989	358096	10960	3852	1.08
1990	363132	5036	-2072	-0.57
1991	367496	4364	-2744	-0.75
1992	379168	11672	4564	1.2
1993	388137	8969	1861	0.48
1994	396238	8101	993	0.25
1995	404961	8723	1615	0.4
1996	405654	693	-6415	-1.58
1997	415212	9558	2450	0.59
1998	423669	8457	1349	0.32
1999	431904	8235	1127	0.26
2000	440947	9043	1935	0.44
2001	440538	-409	-7517	-1.71

2002	449089	8551	1443	0.32
2003	455318	6229	-879	-0.19

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	490722	0	-13937	0
1970	489084	-1638	-15575	-3.18
1971	502147	13063	-874	-0.17
1972	515446	13299	-638	-0.12
1973	535876	20430	6493	1.21
1974	551928	16052	2115	0.38
1975	572446	20518	6581	1.15
1976	589871	17425	3488	0.59
1977	603828	13957	20	0
1978	619509	15681	1744	0.28
1979	632981	13472	-465	-0.07
1980	646698	13717	-220	-0.03
1981	664231	17533	3596	0.54
1982	683826	19595	5658	0.83
1983	699251	15425	1488	0.21
1984	714246	14995	1058	0.15
1985	728714	14468	531	0.07
1986	745238	16524	2587	0.35
1987	760510	15272	1335	0.18
1988	775501	14991	1054	0.14
1989	790894	15393	1456	0.18
1990	808768	17874	3937	0.49
1991	827677	18909	4972	0.6
1992	845482	17805	3868	0.46
1993	869279	23797	9860	1.13
1994	889145	19866	5929	0.67
1995	903208	14063	126	0.01
1996	912301	9093	-4844	-0.53
1997	925540	13239	-698	-0.08

1998	934951	9411	-4526	-0.48
1999	942253	7302	-6635	-0.7
2000	950040	7787	-6150	-0.65
2001	956924	6884	-7053	-0.74
2002	964796	7872	-6065	-0.63
2003	978509	13713	-224	-0.02

## Appendix Q - Yakima Training Center EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Yakima Training Center

### STUDY AREA

53077 Yakima, WA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Employment Multiplier	1.63	
Income Multiplier	1.63	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$52,151,010	
Sales Volume - Total	\$134,930,400	2.24%
Income - Direct	\$259,700,000	
Income - Induced)	\$9,027,192	
Income - Total(place of work)	\$268,727,200	6.21%
Employment - Direct	7513	
Employment - Induced	323	
Employment - Total	7835	6.92%
Local Population	17430	
Local Off-base Population	8715	8.02%

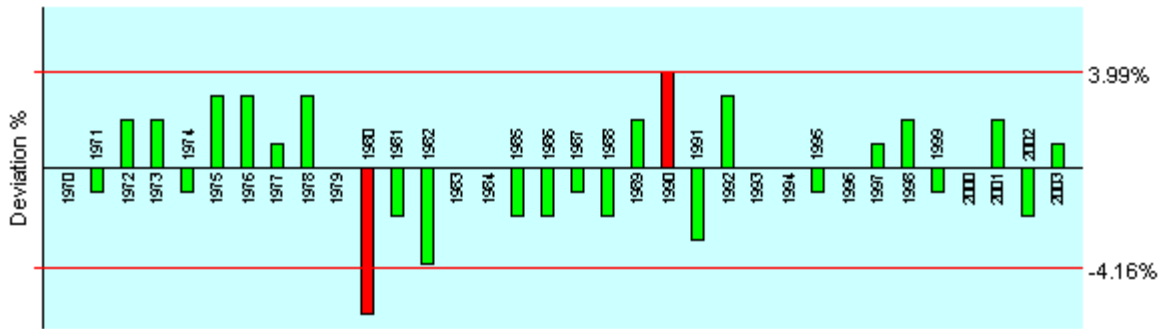
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	3.99 %	6.32 %	7.58 %	1.39 %
<b>Negative RTV</b>	-4.16 %	-4.16 %	-3.07 %	-0.78 %

### RTV DETAILED

#### SALES VOLUME

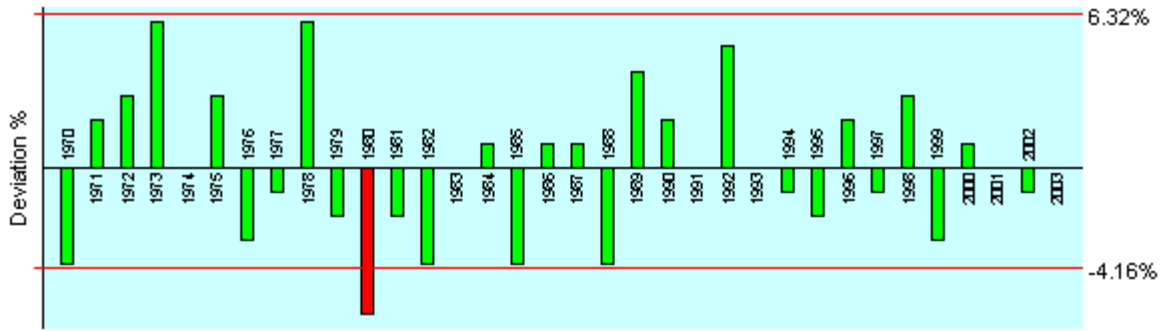
**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	835016	4392184	0	-179581	0
1970	916218	4562766	170581	-9000	-0.2
1971	981894	4683634	120869	-58712	-1.25
1972	1074058	4962148	278514	98933	1.99
1973	1203168	5233781	271633	92052	1.76
1974	1371398	5362166	128385	-51196	-0.95
1975	1597914	5736511	374345	194764	3.4
1976	1798464	6114778	378266	198685	3.25
1977	1996280	6368133	253356	73775	1.16
1978	2277742	6742116	373983	194402	2.88
1979	2603438	6925145	183029	3448	0.05
1980	2876862	6731857	-193288	-372869	-5.54
1981	3186942	6788186	56329	-123252	-1.82
1982	3341500	6683,000	-105186	-284767	-4.26
1983	3521378	6831473	148473	-31108	-0.46
1984	3752984	6980550	149077	-30504	-0.44
1985	3908892	7036006	55455	-124126	-1.76
1986	4036796	7104761	68755	-110826	-1.56
1987	4247298	7220407	115646	-63935	-0.89
1988	4450510	7254331	33925	-145656	-2.01
1989	4872294	7600779	346447	166866	2.2
1990	5438930	8104006	503227	323646	3.99
1991	5653392	8027817	-76189	-255770	-3.19
1992	6151442	8488990	461173	281592	3.32
1993	6462914	8660305	171315	-8266	-0.1
1994	6826286	8874172	213867	34286	0.39
1995	7081974	8994107	119935	-59646	-0.66
1996	7455686	9170494	176387	-3194	-0.03
1997	7879142	9454970	284477	104896	1.11
1998	8266030	9836576	381605	202024	2.05
1999	8578036	9950522	113946	-65635	-0.66
2000	9010936	10092248	141727	-37854	-0.38
2001	9652628	10521365	429116	249535	2.37
2002	9756966	10439954	-81411	-260992	-2.5
2003	10169050	10677502	237549	57968	0.54

**INCOME**

**PERSONAL INCOME**

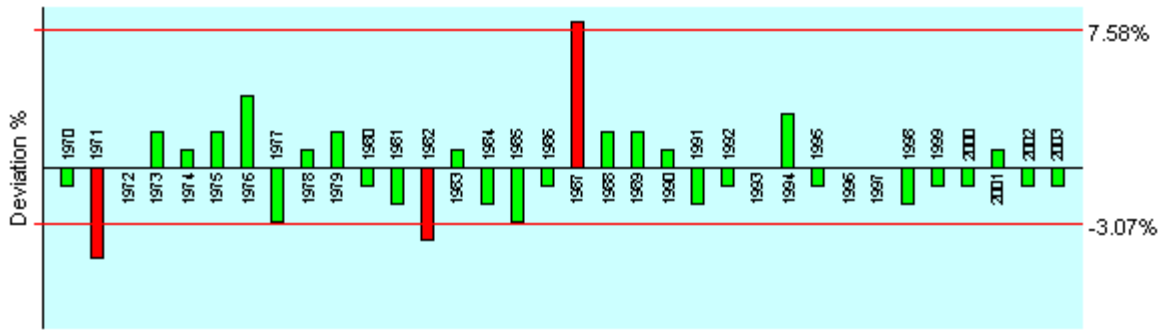


Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	479277	2520997	0	-90740	0
1970	501854	2499233	-21764	-112504	-4.5
1971	553872	2641969	142737	51997	1.97
1972	611994	2827412	185443	94703	3.35
1973	713869	3105330	277918	187178	6.03
1974	821143	3210669	105339	14599	0.45
1975	946764	3398883	188214	97474	2.87
1976	996029	3386499	-12384	-103124	-3.05
1977	1074224	3426775	40276	-50464	-1.47
1978	1268555	3754923	328148	237408	6.32
1979	1413790	3760681	5759	-84981	-2.26
1980	1549604	3626073	-134608	-225348	-6.21
1981	1714196	3651237	25164	-65576	-1.8
1982	1799474	3598948	-52289	-143029	-3.97
1983	1897518	3681185	82237	-8503	-0.23
1984	2047247	3807879	126695	35955	0.94
1985	2077822	3740080	-67800	-158540	-4.24
1986	2207580	3885341	145261	54521	1.4
1987	2370934	4030588	145247	54507	1.35
1988	2429359	3959855	-70733	-161473	-4.08
1989	2707335	4223443	263587	172847	4.09
1990	2967836	4422076	198633	107893	2.44
1991	3163550	4492241	70165	-20575	-0.46
1992	3485076	4809405	317164	226424	4.71
1993	3647293	4887373	77968	-12772	-0.26
1994	3785709	4921422	34049	-56691	-1.15
1995	3882226	4930427	9005	-81735	-1.66
1996	4176974	5137678	207251	116511	2.27
1997	4328702	5194442	56764	-33976	-0.65
1998	4556283	5421977	227534	136794	2.52
1999	4625412	5365478	-56499	-147239	-2.74
2000	4916123	5506058	140580	49840	0.91
2001	5151726	5615381	109324	18584	0.33
2002	5257954	5626011	10629	-80111	-1.42
2003	5425619	5696900	70889	-19851	-0.35

**EMPLOYMENT**



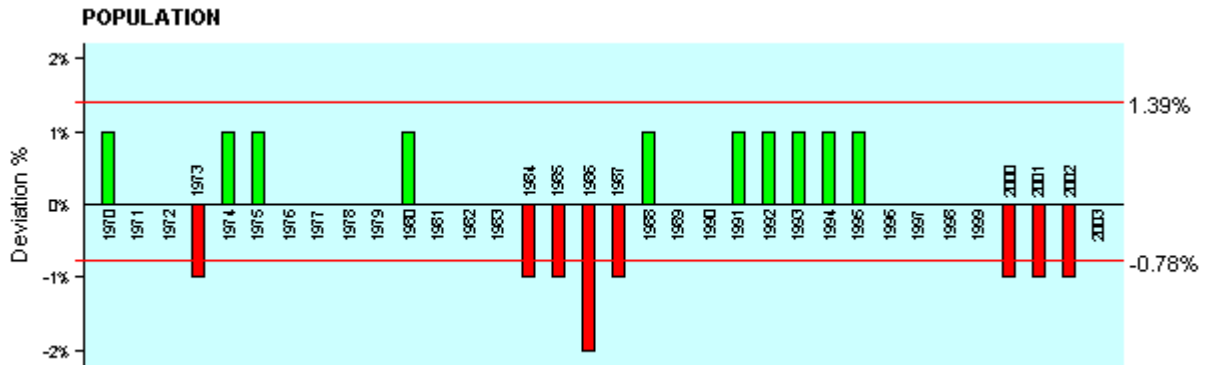
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	63018	0	-1604	0
1970	63707	689	-915	-1.44
1971	62448	-1259	-2863	-4.58
1972	64284	1836	232	0.36
1973	67149	2865	1261	1.88
1974	69450	2301	697	1
1975	72488	3038	1434	1.98
1976	77178	4690	3086	4
1977	76262	-916	-2520	-3.3
1978	79040	2778	1174	1.49
1979	82351	3311	1707	2.07
1980	82880	529	-1075	-1.3
1981	83075	195	-1409	-1.7
1982	81659	-1416	-3020	-3.7
1983	84434	2775	1171	1.39
1984	84431	-3	-1607	-1.9
1985	83846	-585	-2189	-2.61
1986	84551	705	-899	-1.06
1987	93224	8673	7069	7.58
1988	96853	3629	2025	2.09
1989	100206	3353	1749	1.75
1990	102802	2596	992	0.96
1991	102416	-386	-1990	-1.94
1992	103055	639	-965	-0.94
1993	104767	1712	108	0.1
1994	109298	4531	2927	2.68
1995	110172	874	-730	-0.66
1996	112125	1953	349	0.31
1997	113219	1094	-510	-0.45
1998	113056	-163	-1767	-1.56
1999	113979	923	-681	-0.6
2000	114502	523	-1081	-0.94
2001	117460	2958	1354	1.15

2002	118239	779	-825	-0.7
2003	119166	927	-677	-0.57

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	141416	0	-2441	0
1970	145600	4184	1743	1.2
1971	148017	2417	-24	-0.02
1972	150541	2524	83	0.06
1973	150902	361	-2080	-1.38
1974	155229	4327	1886	1.21
1975	159209	3980	1539	0.97
1976	162074	2865	424	0.26
1977	164202	2128	-313	-0.19
1978	166436	2234	-207	-0.12
1979	168987	2551	110	0.07
1980	173118	4131	1690	0.98
1981	175218	2100	-341	-0.19
1982	176825	1607	-834	-0.47
1983	179248	2423	-18	-0.01
1984	180209	961	-1480	-0.82
1985	181321	1112	-1329	-0.73
1986	180961	-360	-2801	-1.55
1987	181707	746	-1695	-0.93
1988	185454	3747	1306	0.7
1989	187574	2120	-321	-0.17
1990	189454	1880	-561	-0.3
1991	193904	4450	2009	1.04
1992	198983	5079	2638	1.33
1993	204266	5283	2842	1.39
1994	208963	4697	2256	1.08
1995	212601	3638	1197	0.56
1996	214951	2350	-91	-0.04
1997	217201	2250	-191	-0.09

1998	219748	2547	106	0.05
1999	221573	1825	-616	-0.28
2000	222752	1179	-1262	-0.57
2001	223387	635	-1806	-0.81
2002	224546	1159	-1282	-0.57
2003	226859	2313	-128	-0.06

## Appendix R - Yuma Proving Ground EIFS Analysis

# EIFS REPORT

### PROJECT NAME

Army Growth Yuma Proving Ground

### STUDY AREA

04027 Yuma, AZ  
06025 Imperial, CA

### FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	7,000
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

### FORECAST OUTPUT

Employment Multiplier	1.8	
Income Multiplier	1.8	
Sales Volume - Direct	\$82,779,380	
Sales Volume - Induced	\$66,223,500	
Sales Volume - Total	\$149,002,900	2.65%
Income - Direct	\$259,700,000	
Income - Induced)	\$11,326,610	
Income - Total(place of work)	\$271,026,600	5.86%
Employment - Direct	7561	
Employment - Induced	449	
Employment - Total	8009	6.41%
Local Population	17430	
Local Off-base Population	8715	6.17%

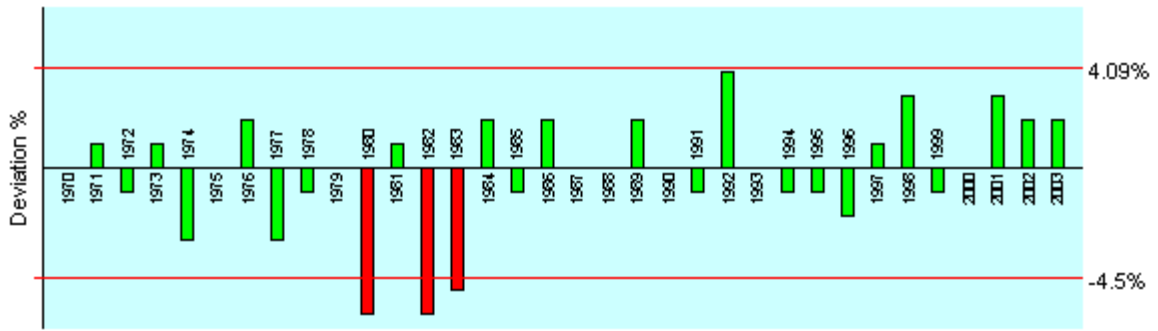
### RTV SUMMARY

	Sales Volume	Income	Employment	Population
<b>Positive RTV</b>	4.09 %	13.98 %	4.46 %	3.82 %
<b>Negative RTV</b>	-4.5 %	-9.04 %	-3.78 %	-3.86 %

### RTV DETAILED

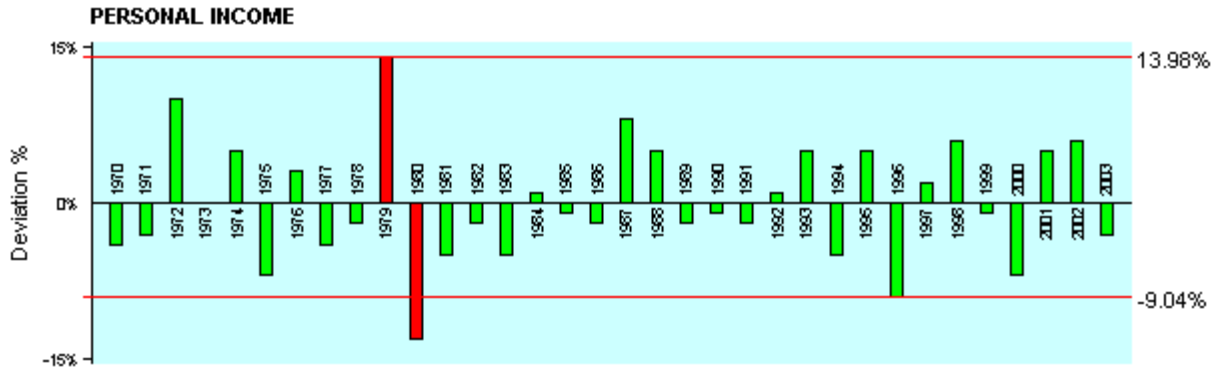
#### SALES VOLUME

**TOTAL BUSINESS VOLUME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	648626	3411773	0	-260576	0
1970	739978	3685090	273318	12742	0.35
1971	835324	3984495	299405	38829	0.97
1972	913798	4221747	237251	-23325	-0.55
1973	1042348	4534214	312467	51891	1.14
1974	1194150	4669126	134913	-125663	-2.69
1975	1369018	4914775	245648	-14928	-0.3
1976	1554354	5284804	370029	109453	2.07
1977	1694770	5406316	121513	-139063	-2.57
1978	1898148	5618518	212202	-48374	-0.86
1979	2206606	5869572	251054	-9522	-0.16
1980	2478484	5799653	-69919	-330495	-5.7
1981	2881388	6137356	337704	77128	1.26
1982	3017864	6035728	-101628	-362204	-6
1983	3094278	6002899	-32829	-293405	-4.89
1984	3445274	6408210	405310	144734	2.26
1985	3682498	6628496	220287	-40289	-0.61
1986	3984984	7013572	385075	124499	1.78
1987	4281584	7278693	265121	4545	0.06
1988	4618432	7528044	249351	-11225	-0.15
1989	5083656	7930503	402459	141883	1.79
1990	5478010	8162235	231732	-28844	-0.35
1991	5858112	8318519	156284	-104292	-1.25
1992	6481802	8944887	626368	365792	4.09
1993	6867272	9202144	257258	-3318	-0.04
1994	7191994	9349592	147448	-113128	-1.21
1995	7477168	9496003	146411	-114165	-1.2
1996	7793164	9585592	89588	-170988	-1.78
1997	8255912	9907094	321503	60927	0.61
1998	8829922	10507607	600513	339937	3.24
1999	9202930	10675399	167792	-92784	-0.87
2000	9728940	10896413	221014	-39562	-0.36
2001	10540042	11488646	592233	331657	2.89
2002	11224830	12010568	521922	261346	2.18
2003	11935180	12531939	521371	260795	2.08

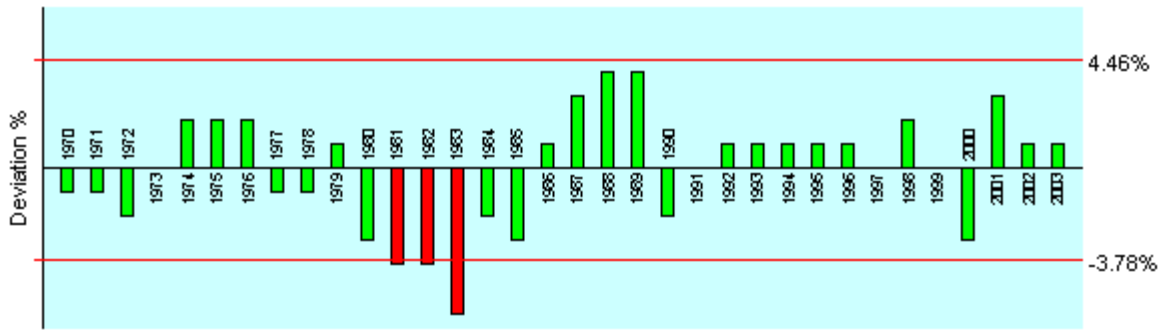
**INCOME**



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	467113	2457014	0	-120218	0
1970	499540	2487709	30695	-89523	-3.6
1971	529682	2526583	38874	-81344	-3.22
1972	636489	2940579	413996	293778	9.99
1973	702575	3056201	115622	-4596	-0.15
1974	851718	3330217	274016	153798	4.62
1975	896782	3219447	-110770	-230988	-7.17
1976	1009488	3432259	212812	92594	2.7
1977	1068766	3409364	-22896	-143114	-4.2
1978	1174860	3477586	68222	-51996	-1.5
1979	1572294	4182302	704716	584498	13.98
1980	1620058	3790936	-391366	-511584	-13.49
1981	1744399	3715570	-75366	-195584	-5.26
1982	1874923	3749846	34276	-85942	-2.29
1983	1900132	3686256	-63590	-183808	-4.99
1984	2059740	3831116	144860	24642	0.64
1985	2166454	3899617	68501	-51717	-1.33
1986	2249511	3959139	59522	-60696	-1.53
1987	2603357	4425707	466568	346350	7.83
1988	2935577	4784991	359284	239066	5
1989	3078807	4802939	17948	-102270	-2.13
1990	3262763	4861517	58578	-61640	-1.27
1991	3435781	4878809	17292	-102926	-2.11
1992	3642392	5026501	147692	27474	0.55
1993	4060374	5440901	414400	294182	5.41
1994	4077802	5301143	-139759	-259977	-4.9
1995	4478696	5687944	386801	266583	4.69
1996	4344889	5344213	-343730	-463948	-8.68
1997	4628136	5553763	209550	89332	1.61
1998	5053328	6013460	459697	339479	5.65
1999	5237949	6076021	62561	-57657	-0.95
2000	5184145	5806242	-269778	-389996	-6.72
2001	5718350	6233002	426759	306541	4.92
2002	6302843	6744042	511041	390823	5.8
2003	6347266	6664629	-79413	-199631	-3

**EMPLOYMENT**

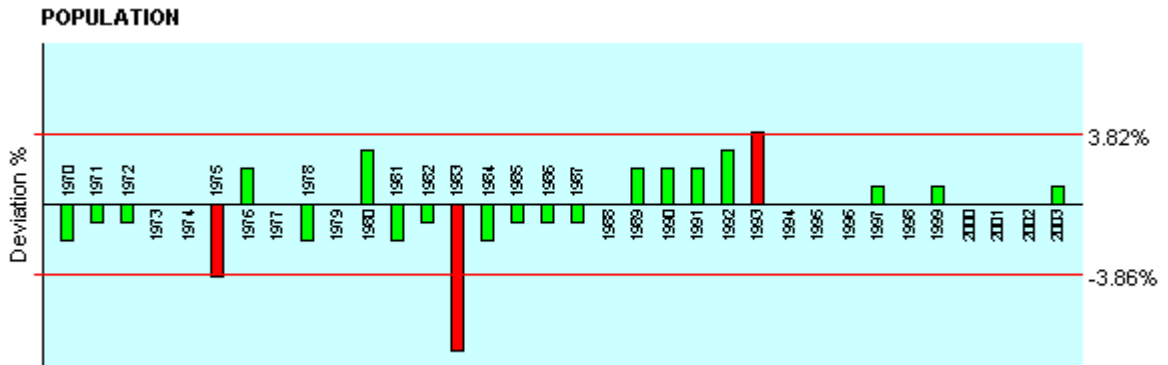
**EMPLOYMENT**



Year	Value	Change	Deviation	%Deviation
1969	62477	0	-2344	0
1970	64003	1526	-818	-1.28
1971	65549	1546	-798	-1.22
1972	66517	968	-1376	-2.07
1973	68588	2071	-273	-0.4
1974	72393	3805	1461	2.02
1975	76167	3774	1430	1.88
1976	79815	3648	1304	1.63
1977	81076	1261	-1083	-1.34
1978	82978	1902	-442	-0.53
1979	85994	3016	672	0.78
1980	85948	-46	-2390	-2.78
1981	84782	-1166	-3510	-4.14
1982	83995	-787	-3131	-3.73
1983	81728	-2267	-4611	-5.64
1984	82832	1104	-1240	-1.5
1985	82427	-405	-2749	-3.34
1986	85231	2804	460	0.54
1987	89925	4694	2350	2.61
1988	96468	6543	4199	4.35
1989	103420	6952	4608	4.46
1990	103823	403	-1941	-1.87
1991	105699	1876	-468	-0.44
1992	108613	2914	570	0.52
1993	112131	3518	1174	1.05
1994	115391	3260	916	0.79
1995	118976	3585	1241	1.04
1996	122721	3745	1401	1.14
1997	124958	2237	-107	-0.09
1998	129551	4593	2249	1.74
1999	131853	2302	-42	-0.03
2000	130137	-1716	-4060	-3.12
2001	136870	6733	4389	3.21

2002	140727	3857	1513	1.08
2003	144530	3803	1459	1.01

**POPULATION**



Year	Value	Change	Deviation	%Deviation
1969	133404	0	-5318	0
1970	136210	2806	-2512	-1.84
1971	139784	3574	-1744	-1.25
1972	143019	3235	-2083	-1.46
1973	148333	5314	-4	0
1974	152922	4589	-729	-0.48
1975	152423	-499	-5817	-3.82
1976	161740	9317	3999	2.47
1977	166435	4695	-623	-0.37
1978	169154	2719	-2599	-1.54
1979	173598	4444	-874	-0.5
1980	183977	10379	5061	2.75
1981	186135	2158	-3160	-1.7
1982	189566	3431	-1887	-1
1983	180917	-8649	-13967	-7.72
1984	182848	1931	-3387	-1.85
1985	186771	3923	-1395	-0.75
1986	189390	2619	-2699	-1.43
1987	192761	3371	-1947	-1.01
1988	198945	6184	866	0.44
1989	208546	9601	4283	2.05
1990	218902	10356	5038	2.3
1991	229110	10208	4890	2.13
1992	242483	13373	8055	3.32
1993	257650	15167	9849	3.82
1994	262290	4640	-678	-0.26
1995	268762	6472	1154	0.43
1996	275235	6473	1155	0.42
1997	282520	7285	1967	0.7



1998	288680	6160	842	0.29
1999	296721	8041	2723	0.92
2000	303283	6562	1244	0.41
2001	307192	3909	-1409	-0.46
2002	312417	5225	-93	-0.03
2003	319528	7111	1793	0.56

## Appendix S- Threatened and Endangered Species Relevant to the Affected Environment

Installation	State	Scientific Name (Genus species)	Common Name	Onsite/ Contiguous	Federal Listing Status	Category	Critical Habitat Onsite
Fort Benning	GA	<i>Alligator mississippiensis</i>	Alligator, American	Onsite	T(S/A)	Reptile	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Mycteria Americana</i>	Stork, wood	Onsite	E	Bird	N
		<i>Picoides borealis</i>	Woodpecker, red-cockaded	Onsite	E	Bird	N
		<i>Trillium relquum</i>	Trillium, relict	Onsite	E	Plant	N
Fort Bliss	TX-NM	<i>Coryphantha sneedii</i> var. <i>sneedii</i>	Cactus, Sneed pincushion	Onsite	E	Plant	N
		<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	Cactus, Kuenzler hedgehog	Onsite	E	Plant	N
		<i>Falco femoralis septentrionalis</i>	Falcon, northern aplomado	Onsite	E	Bird	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
Fort Bragg	GA	<i>Lysimachia asperulaefolia</i>	Loosestrife, rough-leaved	Onsite	E	Plant	N
		<i>Neonympha mitchellii francisci</i>	Butterfly, Saint Francis' satyr	Onsite	E	Insect	N
		<i>Picoides borealis</i>	Woodpecker, red-cockaded	Onsite	E	Bird	N
		<i>Rhus michauxii</i>	Sumac, Michaux's	Onsite	E	Plant	N
		<i>Schwalbea americana</i>	Chaffseed, American	Onsite	E	Plant	N
Fort Campbell	KY	<i>Myotis grisescens</i>	Bat, gray	Onsite	E	Mammal	N
		<i>Myotis sodalis</i>	Bat, Indiana	Onsite	E	Mammal	N
Fort Carson	CO	<i>Etheostoma cragini</i>	Darter, Arkansas	Onsite	C	Fish	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Spiranthes diuivalis</i>	Ladies'-tresses, Ute	Contiguous	T	Plant	N
		<i>Strix occidentalis lucida</i>	Owl, Mexican spotted	Contiguous	T	Bird	N
Fort Drum	NY	<i>Myotis sodalis</i>	Bat, Indiana	Contiguous	E	Mammal	N
Fort Hood	TX	<i>Dendroica chrysoparia</i>	Warbler, golden-checked	Onsite	E	Bird	N

Installation	State	Scientific Name (Genus species)	Common Name	Onsite/ Contiguous	Federal Listing Status	Category	Critical Habitat Onsite
		<i>Grus americana</i>	Crane, whooping	Onsite	E	Bird	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Vireo atricapillus</i>	Vireo, black-capped	Onsite	E	Bird	N
Fort Hunter Liggett	CA	<i>Ambystoma californiense</i>	Salamander, California tiger	Contiguous	T	Amphibian	N
		<i>Branchinecta lynchi</i>	Fairy shrimp, vernal pool	Onsite	T	Crustacean	N
		<i>Bufo californicus</i>	Toad, Arroyo	Onsite	E	Amphibian	N
		<i>Chlorogalum purpureum</i>	Amole, purple	Onsite	T	Plant	N
		<i>Gymnogyps californianus</i>	Condor, California	Onsite	E	Bird	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Rana aurora draytonii</i>	Frog, California red-legged	Contiguous	T	Amphibian	N
		<i>Vireo bellii pusillus</i>	Vireo, least Bell's	Contiguous	E	Bird	N
Fort Irwin	CA	<i>Vulpes macrotis mutica</i>	Fox, San Joaquin kit	Onsite	E	Mammal	N
		<i>Gopherus agassizii</i>	Tortoise, desert	Onsite	T	Reptile	Y
Fort Knox	KY	<i>Astragalus jaegerianus</i>	Milk-vetch, Lane Mountain	Onsite	E	Plant	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
Fort Knox	KY	<i>Myotis grisescens</i>	Bat, gray	Onsite	E	Mammal	N
		<i>Myotis sodalist</i>	Bat, Indiana	Onsite	E	Mammal	N
		<i>Brachyramphus marmoratus marmoratus</i>	Murrelet, marbled	Contiguous	T	Bird	N
Fort Lewis	WA	<i>Eremophila alpestris strigata</i>	Lark, Streaked horned	Onsite	C	Bird	N
		<i>Euphydryas editha taylori</i>	Butterfly, Whulge Checkerspot	Onsite	C	Insect	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Howellia aquatillis</i>	Howellia, water	Onsite	T	Plant	N
		<i>Oncorhynchus tshawytscha</i>	Salmon, Chinook	Onsite	T	Fish	N

Installation	State	Scientific Name (Genus species)	Common Name	Onsite/ Contiguous	Federal Listing Status	Category	Critical Habitat Onsite
		<i>Polites mardon</i>	Skipper, Mardon	Onsite	C	Insect	N
		<i>Salvelinus confluentus</i>	Trout, bull	Onsite	T	Fish	N
		<i>Strix occidentalis caurina</i>	Owl, northern spotted	Contiguous	T	Bird	Y
		<i>Thomomys mazama</i>	Pocket gopher, Mazama	Onsite	C	Mammal	N
Fort Polk	LA	<i>Picoides borealis</i>	Woodpecker, red-cockaded	Onsite	E	Bird	N
		<i>Pituophis ruthveni</i>	Snake, Louisiana Pine	Onsite	C	Reptile	N
Fort Riley	KS	<i>Charadrius melodus</i>	Plover, piping	Onsite	T	Bird	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Notropis Topeka</i>	Shiner, Topeka	Onsite	E	Fish	N
		<i>Sterna antillarum</i>	Tern, least	Onsite	E	Bird	N
Fort Stewart	GA	<i>Acipenser brevirostrum</i>	Sturgeon, shortnose	Onsite	E	Fish	N
		<i>Ambystoma cingulatum</i>	Salamander, flatwoods	Onsite	T	Amphibian	N
		<i>Drymarchon corais couperi</i>	Snake, eastern indigo	Onsite	T	Reptile	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Mycteria Americana</i>	Stork, wood	Onsite	E	Bird	N
		<i>Picoides borealis</i>	Woodpecker, red-cockaded	Onsite	E	Bird	N
White Sands Missile Range	NM	<i>Canis lupus</i>	Wolf, gray	Contiguous	E	Mammal	N
		<i>Coccyzus americanus</i>	Cuckoo, Yellow-billed	Onsite	C	Bird	N
		<i>Empidonax traillii extimus</i>	Flycatcher, southwestern willow	Contiguous	E	Bird	N
		<i>Falco femoralis septentrionalis</i>	Falcon, northern aplomado	Onsite	E	Bird	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Hedeoma todsenii</i>	Pennyroyal, Todsen's	Onsite	E	Plant	Y
		<i>Panthera onca</i>	Jaguar	Onsite	E	Mammal	N

Installation	State	Scientific Name (Genus species)	Common Name	Onsite/ Contiguous	Federal Listing Status	Category	Critical Habitat Onsite
		<i>Pelecanus occidentalis</i>	Pelican, brown	Onsite	E	Bird	N
		<i>Sterna antillarum</i>	Tern, least	Onsite	E	Bird	N
		<i>Strix occidentalis licida</i>	Owl, Mexican spotted	Contiguous	T	Bird	N
Yakima Training Center	WA	<i>Centrocercus urophasianus phaios</i>	Grouse, greater sage	Onsite	C	Bird	N
		<i>Erigeron basalticus</i>	Daisy, basalt	Onsite	C	Plant	N
		* <i>Haliaeetus leucocephalus</i>	Eagle, bald	Onsite	T	Bird	N
		<i>Oncorhynchus mykiss</i>	Steelhead	Onsite	T	Fish	N
		<i>Oncorhynchus mykiss</i>	Steelhead	Onsite	E	Fish	N
		<i>Oncorhynchus tshawytscha</i>	Salmon, chinook	Onsite	T	Fish	N
		<i>Salvelinus confluentus</i>	Trout, bull	Contiguous	T	Fish	N
Yuma Proving Ground	AZ	<i>Echinocactus horizonthalonius var. nicholii</i>	Cactus, Nichol's Turk's head	Contiguous	E	Plant	N

\* As of 8 August 07, the Bald Eagle is no longer afforded protection under the Endangered Species Act (ESA). However, it is protected under the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very similar to the ESA.

#### Federal Listing Status

C Candidate  
T Threatened  
E Endangered  
T (S/A) Threatened due to similarity of appearance

## **Appendix T: Coordination and Consultation**

[Note: The coordination and consultation process is underway. Letters received from outside agencies in response to the process will be included in subsequent iterations of the document.]

## Appendix U: Valued Environmental Component (VEC) General Descriptions

### Air Quality

Air resources are affected by gases and particulates from stationary and mobile sources and are influenced by meteorological conditions such as prevailing wind, sunlight, and temperature inversions. The Clean Air Act (CAA), the primary federal statute regulating air emissions, applies fully to the Army and all its activities.

Depending on the installation's location and whether or not it is considered a "major source" of air pollutants, the CAA may require permitting before construction commences. This "New Source Review" program is referred to as construction permitting or actually "preconstruction" permitting. The specific requirements will depend on whether the installation is located in a "non attainment" or "maintenance" area (the process is referred to as General Conformity or simply "Conformity"). If the installation is located in an "attainment" or "unclassifiable" area, it may have to assess the project's contribution to the local air shed to ensure Prevention of Significant Deterioration - PSD). The PSD regulations provide special protection from air quality impacts for certain areas, primarily National Parks and Wilderness Areas that have been designated as "Class I" areas. These are areas where air quality (especially visibility and acid deposition) have been determined to be important issues.

*Conformity.* The CAA, specifically section 176(c), prohibits federal activities from taking various actions in nonattainment or maintenance areas unless they first demonstrate conformance with the respective State Implementation Plan (SIP)<sup>9</sup>. Regardless of compliance with other environmental regulations, failure to satisfy the requirements of the conformity rule can, by itself, prohibit an installation from moving forward with the project. A conformity review is a multi-step process used to determine and document whether a proposed action meets the conformity rule. The conformity review would require the installation to:

- Evaluate the nature of the proposed action and associated air pollutant emissions;
- Determine whether the action is exempted by the rule;
- Calculate air pollutant emissions and impacts associated with the proposed action;
- Mitigate emissions if regulatory thresholds are exceeded;
- Prepare formal documentation of the findings; and,
- Publish findings to the public and regulatory community.

Many Army conformity reviews will find that conformity is satisfied because the action is exempt, clearly presumed to conform, or the projected emissions from the project are below conformity applicability threshold values.

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<sup>9</sup> SIP – The plan submitted by each state and approved by the U.S. EPA for implementing, maintaining, and enforcing the National Ambient Air Quality Standards within the state.

*Prevention of Significant Deterioration (PSD).* Installations that are classified as “major sources,” located in areas classified as “attainment” and “unclassifiable” must obtain approval to construct a new emissions source or to modify existing emissions sources if the modification project would result in a significant emission increase. It should be noted that "project" includes operational changes that affect emissions, not only equipment construction or modification. The purpose of the PSD program is to prevent areas that meet the CAA standards from becoming nonattainment areas. A PSD Permit must be obtained in order to:

- Construct a new major stationary source of criteria pollutants, or
- Modify an existing major stationary source such that emissions from the source would increase significantly. (The significance thresholds vary from 0.0004 to 100 tons per year depending on the pollutant).

*New Source Review.* The Nonattainment New Source Review (NNSR) Permit Program (also known as Nonattainment Area New Source Review or Major New Source Review) applies in nonattainment areas only. Its purpose is to ensure that emissions in these areas are not increased and preferably decreased as a result of new construction or modification projects. This program applies to operational changes as well as equipment changes. It is important to emphasize that NNSR only applies to the pollutants for which the area is in nonattainment.

A NNSR Permit must be obtained in order to:

- Construct a new major stationary source of criteria pollutants, or
- Modify an existing major source such that emissions from the source would increase significantly.

*Minor Source Pre-Construction Permitting.* Minor NSR is actually a confusing title for the "catch-all" pre-construction permit program. To be sure all emission sources are reviewed with respect to CAA regulations and to prevent sources owners from deliberately incrementing their emission increases to avoid PSD/NNSR, EPA and the States developed Minor NSR. This program has many different names - Notice of Construction, Approval to Operate, Permit to Operate, etc. Each regulatory agency develops regulations for a pre-construction permit program. Typically the regulations will include a list of exempt sources such as temporary sources to be on-site less than 90 days (this takes care of a lot of construction equipment), small boilers or furnaces (residential size), and ventilation systems. This list may have 100 exempt source types. Most regulators also exempt sources which have a potential to emit below a specific threshold. These thresholds should not be confused with any of the others thresholds previously discussed. For example, some States exempt emissions of any pollutant less than 1 ton/year from a single emission source from minor NSR permitting - if no other regulations apply.



## Air Space

The Federal Aviation Administration (FAA) manages all airspace within the United States and its territories. The FAA recognizes the military's need to conduct certain flight operations and training within airspace that is separated from that used by commercial and general aviation.

*Airspace* is defined in vertical and horizontal dimensions and by time. Airspace is a finite resource that must be managed to achieve equitable allocation among commercial, general aviation, and military needs. The FAA has established various airspace designations to protect aircraft while operating near and between airports and while operating in airspace identified for defense-related purposes. Flight rules and air traffic control procedures govern safe operations in each type of designated airspace. Most military operations are conducted within designated airspace and follow specific procedures to maximize flight safety for both military and civil aircraft.

*Controlled airspace* is a generic term for the different types of airspace (Classes A, B, C, D, E, and G airspace) and defined dimensions within which air traffic control service is provided to instrument-flight-rules (IFR) flights and visual-flight-rules (VFR) flights in accordance with the airspace classification. The classifications of airspace are as follows:

- *Class A Airspace.* This airspace occurs from 18,000 feet above mean sea level (MSL) to 60,000 feet above MSL. All operations within this airspace are in accordance with regulations pertaining to IFR flights. This airspace is dominated by commercial aircraft using jet routes between 18,000 and 45,000 feet above MSL.
- *Class B Airspace.* This airspace occurs from the surface to 14,500 feet above MSL around the Nation's busiest airports. Before operating in Class B airspace, pilots must contact controlling authorities and receive clearance to enter the airspace. Aircraft operating within Class B airspace must be equipped with specialized electronics that allow air traffic controllers to accurately track aircraft speed, altitude, and position.
- *Class C Airspace.* This airspace occurs from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and meet specified levels of IFR operations or passenger enplanements. Aircraft operating within Class C airspace must be equipped with a two-way radio and an operable radar beacon transponder with automatic altitude reporting equipment. Aircraft may not operate below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class C airspace area at an indicated airspeed of more than 200 knots (230 miles per hour).
- *Class D Airspace.* This airspace occurs from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have a control

tower. Class D airspace encompasses a 5-statute-mile radius from the airport. Unless authorized otherwise by air traffic control (ATC), aircraft must be equipped with a two-way radio. Aircraft may not operate below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class D airspace area at an indicated airspeed of more than 200 knots (230 miles per hour).

- *Class E Airspace.* This airspace is any controlled airspace not designated as Class A, B, C, or D airspace. It includes designated federal airways, portions of the jet route system, and area low routes. Federal airways have a width of 4 statute miles on either side of the airway centerline and occur between the altitudes of 700 feet above ground level (AGL) and 18,000 feet above MSL, but they may have a floor located at ground level at nontowered airfields. No specific equipment is required to operate within Class E airspace.
- *Class G Airspace.* Class G airspace (uncontrolled) is that portion of the airspace that has not been designated as Class A, B, C, D, or E airspace. ATC does not have authority over operations within uncontrolled airspace. Primary users of Class G airspace are VFR general aviation aircraft.
- *Special use airspace* permits activities that either must be confined because of their nature or require limitations on aircraft that are not a part of those activities. Prohibited Areas and Restricted Areas are regulatory special use airspace. They are established in Federal Aviation Regulation (FAR) Part 73 through the rule-making process of the Administrative Procedures Act (5 USC 551-702). Warning Areas, Military Operations Areas (MOAs), Alert Areas, and Controlled Firing Areas are non-regulatory special use airspace. The FAA may designate these types of special use airspace without resort to the procedures demanded of the Administrative Procedures Act.

## **Cultural Resources**

Cultural Resources can be referred to as both historic properties and historic resources. The definition of cultural resources in AR 200-4 states, "Historic properties as defined by the NHPA, cultural items as defined by NAGPRA, archeological resources as defined by ARPA, sacred sites as defined in EO 13007 to which access is afforded under AIRFA, and collections as defined in 36 CFR 79. The National Historic Preservation Act of 1966, as amended, states that historic resources, "means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register, including artifacts, records and material remains related to such property or resource." Cultural resources on army installations generally refer to buildings, structures and archaeological sites.

## Noise General Information

Noise can be defined as unwanted sound that interferes with normal human activities and may disturb wildlife populations or disrupt breeding cycles. Impulse noise levels from high-intensity military activities may cause buildings and objects nearby the source to vibrate, resulting in potential structural damage.

The Noise Management Program is implemented Army-wide to protect the installation mission and to protect the health and welfare of military personnel, their families, and civilian employees on the installation while also providing noise abatement and mitigation measures that protects the public by reducing environmental noise from training where feasible. Army installations develop noise management plans to identify recommended land uses based on noise exposure, and to provide a noise management strategy that supports the installation's mission.

The Installation Environmental Noise Management Plan includes education, complaint management, noise and vibration mitigation, noise abatement procedures, and the Installation Compatible Use Zone (ICUZ) program. The ICUZ program provides a methodology for analyzing exposure to noise and safety hazards associated with military operations and provide land use guidelines for achieving compatibility between the Army and the surrounding communities.

*Noise Impacts to the Community.* The U.S. Army Center for Health Promotion and Preventative Medicine (CHPPM) has defined three noise zones to be considered in land use planning (see table below) and the noise impact on the community is translated into noise zones. In general, within Zone I, where very few people will be bothered by noise levels, land use is unrestricted and thus deemed compatible with most noise-sensitive land uses. In Zone II, as outdoor noise levels increase and more people become annoyed by the noise, restrictions or qualifications are placed on certain land uses, specifically, residential development. Zone II is normally incompatible with noise-sensitive land uses. In Zone III, as noise levels escalate, fewer and fewer compatible land uses are indicated. Zone III is incompatible with noise-sensitive land uses.

Installations use the Land Use Planning Zone to provide the means to predict possible complaints, and meet the public demand for a better description of what will exist during a period of increased operations. The associated noise levels for each zones are shown in the table below and discussed throughout this document:

### Noise Levels

Noise Zone	Population Highly Annoyed	Transportation (ADNL)	Impulsive (Large Caliber) (CDNL)	Small Arms (dBP)
Zone I	<15%	<65 dBA	<65 dBA	<62 dBA
Zone II	15 – 39%	65 – 75 dBA	65 – 75 dBA	62 – 70 dBA
Zone III	>39%	>75 dBA	>75 dBA	>70 dBA

*Noise Impacts to Wildlife.* At ranges where training occurs, noise is generated from fixed-wing and rotary-winged aircraft overflights, large and small caliber weapon fire, and vehicle maneuver throughout the range. Several reference materials exist that summarize the impact of human activities (including military training) to wildlife. Two examples include the Environmental Assessment for the Aerial Gunnery Range at Yakima Training Center, WA; and, “Effects of Military Noise on Wildlife” (Bowles, 1990). The following trends in animal behavior are common to wildlife exposed to training noise.

- Quality of habitat selection tends to outweigh quality of noise. Animals flock to Army Installations because they contain large tracks of undeveloped land, providing ample suitable habitat, and due to stringent regulatory policies the land and wildlife is often managed much more responsibly than by the surrounding communities.
- Ample adequate land equates to an abundance of food and vegetative cover. Food supply is a limiting factor for survival, if the food supply is sufficient the habitat will remain preferable to the animal species regardless of the quality of noise disturbance, especially if the noise is predictable. Since soldiers train according to a prescribed schedule, the noise generated by training reduces the occurrence of responses to unexpected training activities.
- Predator species will often move toward the sound of gunfire, demonstrated in terrestrial and avian raptor species alike, largely due to the disturbance of prey from their shelter, which ultimately provide opportunities for predator species to successfully capture food.
- Studies conducted on military noise impacts to wildlife have determined that mammals will move away from loud noises, but with few exceptions, will return to their home range.

## **Soil Erosion**

Erosion is the gradual wearing away of land by water, wind, and other general weather conditions, and can be influenced by many military and human activities within a given landscape. Erosion impacts can be influenced by the types of soils, vegetative cover, topography, weather and climate, and may be amplified by the frequency and types of training. Soil erosion can be a significant concern on military lands where maneuver training involving large vehicles (tracked and wheeled), and large and small arms fire occur. It can undermine the ability of the natural environment to support the Army mission, and once the erosion process has started, the direct effects can usually not be reversed.

The Army has numerous programs and management initiatives to minimize environmental damage to training lands. The principal mechanism for this management is the Integrated Training Area Management (ITAM) program. The ITAM program provides a comprehensive means to address the cumulative effects of soil erosion on Army training lands. (Canton, et al., 2006).

## **Threatened and Endangered Species/Other Wildlife**

The Endangered Species Act (ESA) was passed in 1973 to address concerns about the decline in populations of many unique wildlife species. The purpose of the ESA is to rebuild populations of protected species and conserve “the ecosystems upon which endangered and threatened species depend” (Fish and Wildlife Service (FWS), 2001). The law offers two classes of protection for rare species in decline: endangered or threatened. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened status indicates a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened (FWS, 2001). The FWS and the National Marine Fisheries Service (NMFS) are jointly responsible for administering the ESA. As of January 31, 2001, 1,244 species were listed as either threatened or endangered. Out of these species listed under the ESA, 112 occur on 23 representative installations. All federal agencies are required to protect threatened and endangered species (TES) while carrying out projects and to preserve TES habitats on federal land. The FWS and NMFS also coordinate TES conservation efforts with state agencies and private landowners. Ideally, with sufficient protection under the ESA, the TES populations will recover to the point at which they no longer need protection under the act. To facilitate this process, a team of experts develops a recovery plan that describes the steps needed to restore the species to health.

Under the ESA, it is illegal to “take” TES. As defined in the ESA, “the term take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” The Secretary of the Interior, through regulations, defined the term “harm” in this passage as “an act which actually kills or injures wildlife.” Such an act may include significant habitat modification or degradation where it actually kills

or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (FWS, 2001). Because most TES are not significantly hunted or collected, habitat degradation is the primary reason for population declines in listed species.

The ESA contains provisions for designation of “critical habitat” for listed species when deemed essential for the conservation and recovery of a species. Critical habitat includes geographic areas “on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection (FWS, 2001).” Areas not occupied by the species at the time of listing but are considered essential to the conservation of the species can be designated as critical habitat. Critical habitat designations are limited to federal agency actions or federally funded or permitted activities.

## **Wetlands**

For regulatory purposes under the Clean Water Act, the term wetlands means “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. [40 CFR 232.2(r)]. There are many different kinds of wetlands of which generally include swamps, marshes, bogs, and similar areas. Wetland definitions can vary by agency, regulations, and policy. Wetland functions are of value to the sustainable management of military lands because of the services they provide in addition to training realism. Three services applicable to sustainable management are flood attenuation, groundwater recharge, and improvement of water quality by filtering sediment, nutrients and toxics.

The National Wetlands Inventory (NWI) of the Fish and Wildlife Service has identified and mapped most of the known wetlands in the conterminous United States, including those on military installations. (Department of Defense Instruction (DODI) 4715.3 states that installations will manage for “no net loss” of wetlands. In order to properly manage wetlands, installations have used the NWI and have conducted planning level surveys to determine the extent and location of wetlands across their installation. By identifying wetlands early in the NEPA process, and utilizing a “Go-No Go” approach where avoidance is preferred to direct or indirect impacts, installations have the ability to avoid costly mitigation and potential delays in implementation of the proposed action.

## **Water Resources**

Water resources include surface water, groundwater, and floodplains, as well as other conservable resources such as estuaries and watersheds. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water flows, which may be exacerbated by high proportions of impervious surfaces (e.g., buildings, roads, and parking lots), are important to the management of surface water. Storm water is also important to surface water quality because of its potential to introduce sediments and other contaminants into lakes, rivers, and streams. Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically may be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate. Floodplains are areas of low-level ground present along a river or stream channel. Such lands may be subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding depends on topography, the frequency of precipitation events, and the size (areal extent) of the watershed above the floodplain. Federal, state, and local regulations generally limit development in floodplains to passive uses, such as recreational and preservation activities, in order to reduce the risks to human health and safety.

The Clean Water Act (CWA) was established by the EPA to regulate the discharge of pollutants into the waters of the United States. It set the ground rules for implementing pollution control programs as well as continuing the requirement to set water quality standards for all surface water contaminants.

Army activities subject to CWA regulation include activities involving the collection and discharge of effluents (e.g., discharging pollutants from a point source into waters of the United States) or construction activities near waterways or wetlands. Several compliance responsibilities under the CWA result from the types of facilities used by and the range of activities at Army installations.

## **Facilities**

“Facilities” encompasses all aspects of Army real property management. Army real property includes lands, facilities, and infrastructure. Furthermore, this includes interests in land, leaseholds, standing timber, buildings, improvements, and appurtenances. Facilities are the buildings, structures, and other improvements that support the Army’s mission. Infrastructure is the combination of supporting systems that enable the use of this land and resident facilities.

The Army holds real estate in every state. The variety of locations provides the Army with installations having terrain with the characteristics of the key environments of deserts, the arctic, jungles, and mountains. The Army’s installations also contain lands that are classifiable as swamp/wetland, forest, open woodland/savanna, grassland prairie, and semiarid shrub/steppe. Because the majority of the Army’s lands are

dedicated to training and range uses, the array of terrain settings enables Army units to train in a wide variety of environments. In many instances, installations have multiple terrain settings within their confines.

The Army has a vast array of facilities across its installations. Each facility exists to aid the Army in a particular function or to carry out a specific aspect of the Army's mission. Facilities are classified into facility category groups (FCGs). Use of five-digit FCG codes permits the Army to manage its inventory of facilities and to achieve uniformity in facilities among installations.

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly synthetic, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to economic growth of an area. Although there is no national consensus as to what constitutes infrastructure, the following reflect the principal elements most often associated with the term: water systems, wastewater systems, storm water systems, solid waste management, energy, traffic and circulation, transportation systems, and communication systems.

To manage its land, facilities, and infrastructure, each Army installation prepares a real property management plan (RPMP) based on assigned mission and guidance contained in a variety of plans and other documents. These references establish trends, strategies, goals, and objectives on which Army planners can base long-range and near-term plans for economical, environmentally responsible, and effective support of Army goals, objectives, missions, and populations.

## **Socioeconomic**

Socioeconomics are defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Population levels are affected by regional birth and death rates and immigration and emigration. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these two fundamental socioeconomic indicators may be accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permits characterization of baseline conditions in the context of regional, state, and national trends.

The principle mechanisms for Army socioeconomics are Army expenditures and populations or employment changes. As the Army increases (or decreases) either expenditures or strength (military or civilian) at an Army installation, these are felt within three basic components of the local economic region (or community): local businesses, local individuals, and local governments (Canton, et al., 2006).



## **Energy Demand/Generation**

The prevalent sources of energy on Army installations are electricity, natural gas, fuel oil, propane, and to a much lesser extent, solid fuels, such as coal and wood.

Army installations use all of these forms of energy. Concerns regarding energy can extend to selection of type, conservation measures, availability, costs, or consumption rates. Energy consumption is perhaps the major infrastructure and budgetary challenge to Army leadership, encompassing both domestic (stateside) challenges and garrison and tactical challenges abroad (OCONUS). The power generation, transmission, and use have significant economic, environmental, and mission implications (Canton, et al., 2006). However, the Army has been very successful in the last decade of privatizing its energy supplies.

## **Land Use Compatibility**

Land use refers to the planned development of property to achieve its highest and best use and to ensure compatibility among adjacent uses. In the civilian sector, land use plans guide the type and extent of allowable land use in an effort to control and limit growth; maintain and improve social, cultural, and physical amenities; promote a stable economy; preserve agricultural lands; maintain scenic areas; supply adequate housing; ensure the availability of necessary public services and utilities; and protect specially designated or environmentally sensitive areas. These concepts apply, in part, to Army land use planning. Except for economic growth considerations, land use planning at Army installations proceeds toward the same ends. In the Army, land use planning is the mapping and planned allocation of the use of all installation lands based on established land use categories and criteria. (Cantor, et al, 2006).

The land use planning process is iterative because it needs feedback and ideas from the installation unit, tenant organizations, and residents. Plans are prepared and made to work as a matter of public business by active solicitation of comments, holding public meetings, and keeping installation residents informed of the plan. Land use planning is used on a continuing basis as a component of real property master planning.

An installation's real property master plan (RPMP), which typically covers a 20-year planning horizon, is focused on the management and development of real property resources. This plan should contain information that is vital for addressing cumulative effects on land use. The RPMP analyzes and integrates the plans prepared by the Director of Public Works and other garrison staff, mission commanders and other tenant activities, higher headquarters, and those of neighboring communities to provide: for orderly development, or in some cases, realignment and closure of real property resources (US Department of the Army, Army Regulation (AR) 210-20, May 2005, p.35).

## **Hazardous Materials/Hazardous Waste**

Hazardous material is defined as any substance with the physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.

Evaluation of environmental risks from hazardous materials and wastes focuses on underground storage tanks and aboveground storage tanks and the storage, transport, and use of pesticides and herbicides; fuels; petroleum, oils, and lubricants (POLs), and a variety of chemicals. Risks may also extend to generation, storage, transportation, and disposal of hazardous wastes when such activities occur at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources.

In general, hazardous material and hazardous waste issues are supported by such statutes as the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Federal Facilities Compliance Act (FFCA), Military Munitions Rule (MMR), and Federal Hazardous Materials Transportation Law (HMT). Army Regulations (ARs) and Executive Orders (EOs) have also been established pursuant to these and subsequent federal and state regulations.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos, radon, lead-based paint (LBP), polychlorinated biphenyls (PCBs), and unexploded ordnance (UXO). The presence of special hazards or controls over them may affect or be affected by implementation of a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of the effects of the proposed action.

Table X.X shows examples of hazardous materials and hazardous waste issue in regards to facility action alternatives.

**Table X.X. Facilities: Hazardous Materials and Wastes Issues**

<b>Action Alternative</b>	<b>Issues</b>
Use of existing facilities	UST maintenance and replacement Existing LBP Existing asbestos Existing equipment with PCBs Radon
Renovation of existing facilities	UST replacement and disposal LBP removal/disposal Asbestos disposal Replacement of PCB-containing equipment Radon
Demolition of existing facilities	UST disposal LBP disposal Asbestos disposal Disposal of PCB-containing equipment
Construction of new facilities	Installation of USTs Radon

US Army Corps of Engineers. 2002. *Final Programmatic Environmental Impact Statement for Army Transformation*. Prepared by US Army Corps of Engineers Mobile District. February, 2002.

### **Traffic and Transportation**

Traffic and transportation systems refer to organized means of moving people and commodities (Canter et al, 2006). Principal transportation systems include commercial air carriers, waterway and maritime shipping, railroads, and trucking. Movement of people by privately owned vehicles on a local or regional scale is related to traffic and circulation. In many instances the location and availability of transportation system hubs and their capacities, can affect or be affected by installation activities. The smooth flow of traffic and the adequacy of on-post and off-post road networks to move people efficiently contribute materially to the quality of the human environment in the vicinity of the installation. Unless mitigation measures are implemented, increased volume can pose an additional risk to the safety of pedestrians and bicyclists.



**Appendix V: Listing of unit stationing actions taking place as part of Alternative 1**

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
	01 58 AV CO	WHEELER AFB	2	0	56	080216		
ACTIVATION	90 0637 AQ TM	ANNISTON, AL	2	0	2	080916		
ACTIVATION	06 365 FA DET	BARKSDALE, LA	1	0	1	080916		
ACTIVATION	06 363 FA DET	CANNON AF, NM	1	0	1	080916		
ACTIVATION	53 XX HHC THEATER IO GP	CP PARKS	24	9	52	100916	TAA13	MODULARITY
ACTIVATION	53 XX HHC IO FLD SPT BN	CP PARKS	52	8	50	100916	TAA13	MODULARITY
ACTIVATION	53 XX HHC IO GEN SPT BN	CP PARKS	33	10	69	100916	TAA13	MODULARITY
ACTIVATION	06 366 FA DET	DYESS AFB	1	0	1	080916		
ACTIVATION	06 372 FA DET	DYESS AFB	1	0	1	080916		
ACTIVATION	06 358 FA DET	EGLIN AFB	1	0	1	080916		
ACTIVATION	31 4 BN, 7 SFG(A)	EGLIN AFB	45	26	359	111016	TAA13	NEW GROWTH
ACTIVATION	06 377 FA DET	EIELSON A, AK	1	0	1	080916		
ACTIVATION	06 367 FA DET	ELLSWORTH, SD	1	0	1	080916		
ACTIVATION	06 360 FA DET	ELMENDORF, AK	1	0	1	080916		
ACTIVATION	TDA US Army Correction	FT BELVOIR	1	0	2	071002		
ACTIVATION	TDA U.S. ARMY PROTECTI	FT BELVOIR	1	43	110	071003		
ACTIVATION	90 657 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 658 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 659 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 660 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 661 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 662 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 663 AQ TM	FT BELVOIR	2	0	2	090516		
ACTIVATION	90 915 AQ BN	FT BELVOIR	4	0	4	090516		
ARLINGTON, VA	AUG W1JR USA ELE DEF ACQ UN	FT BELVOIR	13	0	1	071002		TDA STN CHG
ALEXANDRIA, VA	AUG W1KJ USA ELE DTR-TCA	FT BELVOIR	168	4	110	071001		
ACTIVATION	07 75 IN HHC	FT BENNING	20	13	257	071016	MSFA	MODULARITY
ACTIVATION	05 448 ENGR BN	FT BENNING	0	0	12	080916	MSFA	MODULARITY
ACTIVATION	08 19 MD DET	FT BENNING	2	0	4	081016		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	05 793 HORIZONTAL CO	FT BENNING	5	0	141	101016	MSFA	MODULARITY
ACTIVATION	05 52 SURVEY/DESIGN TM	FT BENNING	0	1	13	101016	MSFA	MODULARITY
ACTIVATION	05 153 CONCRETE TEAM	FT BENNING	0	0	11	101016	MSFA	MODULARITY
ACTIVATION	09 EOD CO	FT BENNING	1	7	22	101016	MSFA	MODULARITY
FT BRAGG	55 216 TC DET 00	FT BENNING	3	0	18	080916		
FT BRAGG	55 385 TC DET 00	FT BENNING	3	0	18	080916		
FT BRAGG	42 507 CSG	FT BENNING	32	5	93	081001	MSFA	MODULARITY
FT KNOX	05 60 VERTICAL CO	FT BENNING	5	3	143	091016	MSFA	MODULARITY
FT POLK	19 519 MP HHD	FT BENNING	13	2	58	081016		
FT STEWART	19 385 MP HHD	FT BENNING	13	2	78	081016		
SCHOFIELD	19 728 MP HHD	FT BENNING	13	2	60	081016		
ACTIVATION	TRADOC Analysis Center - EBC	FT BLISS	5			071001		MACOM
ACTIVATION	Future Force Integration Director	FT BLISS	109	5	38	071001		Army Campaign Plan DF
ACTIVATION	55 47 TC CP (PLS)	FT BLISS	5	1	164	071016	MSFA	MODULARITY
ACTIVATION	44 AD ELE	FT BLISS	3	0	6	071016	MSFA	MODULARITY
ACTIVATION	19 MP BN	FT BLISS	13	2	58	071016	OIF NEW GROWTH	G3 APPROVED
ACTIVATION	08 DETMEDICAL TEAM, OPTO	FT BLISS	2	0	4	071016	FY07 OOC	
ACTIVATION	44 AD ELE	FT BLISS	3	0	6	071016	MSFA	MODULARITY
ACTIVATION	44 AD ELE	FT BLISS	3	0	6	071016	MSFA	MODULARITY
ACTIVATION	44 AD ELE	FT BLISS	3	0	6	071016	MSFA	MODULARITY
ACTIVATION	19 MP CO (CS)	FT BLISS	5	0	165	080216	OIF NEW GROWTH	
ACTIVATION	05 2 ENGR BN	FT BLISS	23	4	146	080616	MSFA	MODULARITY
ACTIVATION	44 AD ELE	FT BLISS	3	0	6	080616	MSFA	MODULARITY
ACTIVATION	05 40 EN CO	FT BLISS	5	0	122	080616	MSFA	MODULARITY
ACTIVATION	05 53 EN CO	FT BLISS	5	0	122	080616	MSFA	MODULARITY
ACTIVATION	44 78 AD ELE	FT BLISS	3	0	6	080616	MSFA	MODULARITY
ACTIVATION	44 79 AD ELE	FT BLISS	3	0	6	080616	MSFA	MODULARITY
ACTIVATION	05 595 SAPPER CO	FT BLISS	5	0	99	080616	MSFA	MODULARITY
ACTIVATION	87 AR BN	FT BLISS	24	5	274	080916		
ACTIVATION	90 635 AQ TM	FT BLISS	2	0	2	080916		
ACTIVATION	09 162 OD CO	FT BLISS	5	0	39	081016		
ACTIVATION	45 16 PI DET	FT BLISS	4	0	16	081016		
ACTIVATION	14 4 FMCO	FT BLISS	8	0	65	081016	TAA 08-13	MODULARITY
ACTIVATION	44 BN AMD (THAAD)	FT BLISS	53	10	637	081016	MSFA/PLCHLD	MODULARITY
ACTIVATION	44 AD ELE	FT BLISS	53	10	627	081016	MSFA	MODULARITY
ACTIVATION	87 STB, 2 BDE, 1ID	FT BLISS	19	6	247	090915	BCT BASING	MODULARITY
ACTIVATION	06 BTRY B TAB (FIRES UA)	FT BLISS	2	3	43	091016	TAA6	
ACTIVATION	34 533 MI BN (BFSB)	FT BLISS	23	10	257	091016	TAA13	MODULARITY
ACTIVATION	09 EOD CO	FT BLISS	1	3	22	091016	MSFA	MODULARITY
ACTIVATION	44 AD BN	FT BLISS	12	6	122	091016	MSFA	MODULARITY
ACTIVATION	44 AD BN	FT BLISS	12	6	122	091016	MSFA	MODULARITY

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	63 64 CO SPT (155T)	FT BLISS	5	1	223	100616	MSFA	MODULARITY
ACTIVATION	07 STB, 2 BDE, 1ID	FT BLISS	19	6	247	100716	BCT BASING	MODULARITY
ACTIVATION	09 EOD CO	FT BLISS	1	8	22	101016	MSFA	MODULARITY
ACTIVATION	44 AD BN	FT BLISS	12	6	122	101016	MSFA	MODULARITY
ACTIVATION	44 AD BN	FT BLISS	12	6	122	101016	MSFA	MODULARITY
FRIEDBERG	17 6-1 BDE RECCE TROOP (X	FT BLISS	4	0	47	100714	GDPR	1-1 AD MOVE TO CONU
FT BLISS	02 0062 AG BND	FT BLISS	0	1	39	071017		
FT EUSTIS	19 202 MP CO	FT BLISS	5	0	165	081016		
FT HOOD	09 PLT MOD AMMO MED LIFT	FT BLISS	1	1	45	071016	TAA11	
FT HOOD	09 PLT MOD AMMO MED LIFT	FT BLISS	1	1	45	071016	TAA11	
FT HOOD	42 263 MNT SPT CO	FT BLISS	9	9	225	071016	COMMAND PLAN 08	
FT HOOD	14 230 FMD A	FT BLISS				081016	TAA13	MODULARITY
FT HOOD	63 15 HHB SUSTAINMENT	FT BLISS	81	20	294	090915	TAA1	
FT HUACHUCA	11 86 ITSB-J (MIXED TROPO)	FT BLISS	25	5	392	101016	ITSB	
FT LEONARD WOOD	09 763 OD CO	FT BLISS	1	0	22	071017		
FT RILEY	05 70 EN BN	FT BLISS	27	1	390	080615	BCT BASING	MODULARITY
MANNHEIM	55 68 TRAN CO	FT BLISS	5	1	166	090716	GDPR	
USAREUR	55 606 TM MVT CTRL	FT BLISS	3	0	18	090716	GDPR	
USAREUR	08 72 VET SVC DET	FT BLISS	7	1	47	080716	GDPR	
USAREUR	07 36 IN BN 01	FT BLISS	50	0	650	080916	GDPR	
WHITE SAN, 1NM	09 734 OD CO	FT BLISS	1	0	22	081016		
ACTIVATION	TDA MED DET	FT BRAGG	38	0	57	071001		
ACTIVATION	20 24 MH TM	FT BRAGG	0	0	2	071016		
ACTIVATION	406AFSB AUG	FT BRAGG	0	0	0	071016		
ACTIVATION	90 406 AQ BDE	FT BRAGG	6	0	4	071016		
ACTIVATION	09 28 EOD CO	FT BRAGG	5	0	39	071017	MSFA	MODULARITY
ACTIVATION	08 51 LOG SPT CO	FT BRAGG	3	1	118	071216	MSFA	MODULARITY
ACTIVATION	41 98 CA BN	FT BRAGG	53	0	144	080316	MSFA	MODULARITY
ACTIVATION	10 DET SPO WATER	FT BRAGG	3	0	82	080616	BP FOR BW8/IMA	
ACTIVATION	10 PLT WATER PURIF	FT BRAGG	1	0	6	080616	TAA11	
ACTIVATION	10 PLTWATER PURIF	FT BRAGG	1	0	20	080616	TAA11	
ACTIVATION	10 PLT WATER STG/DIST	FT BRAGG	1	0	27	080616	TAA11	
ACTIVATION	10 HQ QM WTR PUR & DIST	FT BRAGG	1	0	18	080616	TAA11	
ACTIVATION	20 28 MH TM	FT BRAGG	0	0	2	080916		
ACTIVATION	49 38 SB BN 01	FT BRAGG	33	0	277	081015		
ACTIVATION	05 539 EN DET	FT BRAGG	1	0	6	081016	MSFA	MODULARITY
ACTIVATION	05 133 EN DET	FT BRAGG	3	0	6	081016		
ACTIVATION	05 EXPLOSIVE HAZ TEAM	FT BRAGG	1	0	6	081016	MSFA	MODULARITY
ACTIVATION	05 161 ENGR SPT CO	FT BRAGG	5	0	108	091016	MSFA	MODULARITY
ACTIVATION	05 102 SAPPER CO	FT BRAGG	5	0	86	091016	MSFA	MODULARITY
ACTIVATION	05 57 SAPPER CO	FT BRAGG	5	0	86	091016	MSFA	MODULARITY

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	05 500 HORIZONTAL CO	FT BRAGG	5	0	141	091016	MSFA	MODULARITY
ACTIVATION	05 738 ENGR SPT CO	FT BRAGG	5	0	108	091016	MSFA	MODULARITY
ACTIVATION	05 534 SURVEY/DESIGN TM	FT BRAGG	0	1	13	091016	MSFA	MODULARITY
ACTIVATION	05 902 VERTICAL CO	FT BRAGG	5	3	143	091016	MSFA	MODULARITY
ACTIVATION	05 264 CLEARANCE CO	FT BRAGG	6	0	159	091016	MSFA	MODULARITY
ACTIVATION	05 137 SAPPER CO	FT BRAGG	5	0	86	091016	MSFA	MODULARITY
ACTIVATION	05 596 HORIZONTAL CO	FT BRAGG	5	0	141	091016	MSFA	MODULARITY
ACTIVATION	05 521 EXP HAZ CONTROL CELL	FT BRAGG	5	0	10	091016	MSFA	MODULARITY
ACTIVATION	41 91 CA BN	FT BRAGG	53	0	144	091016	TAA13	MODULARITY
ACTIVATION	31 4 BN, 3 SFG(A)	FT BRAGG	45	26	359	091016	TAA13	MODULARITY
FAYETTEVI, NC	AUG 0004 PO HHC AUG	FT BRAGG	0	0	6	071016		
FT BELVOIR	09 737 OD CO	FT BRAGG	1	0	22	081016		
FT MCNAIR	09 767 ORDNANCE CO (EOD)	FT BRAGG	5	0	39	071017	Command Plan 08	
USAREUR	08 51 VET MEDICINE DET	FT BRAGG	3	0	11	080716	GDPR	
ACTIVATION	05 602 EN DET	FT BUCHANAN	10	0	5	071016		
ACTIVATION	MSE	FT BUCHANAN	38	3	35	080916		
ACTIVATION	05 511 SAPPER CO	FT CAMPBELL	5	0	99	071016	MSFA	MODULARITY
ACTIVATION	43 PLT AUTH/ARMNT MNT	FT CAMPBELL	0	1	14	071016	TAA11/MNT/FDU	
ACTIVATION	09 49 ORD CO (EOD)	FT CAMPBELL	5	0	39	071017	TAA13	
ACTIVATION	19 218 MP CO (CS)	FT CAMPBELL	5	0	165	080217	OIF NEW GROWTH	
ACTIVATION	31 4 BN, 5 SFG(A)	FT CAMPBELL	45	26	359	080816	TAA13	
ACTIVATION	08 501 MD CO	FT CAMPBELL	5	0	67	081016		
FT GILLEM	09 184 OD HHD	FT CAMPBELL	9	1	26	081016		
FT GILLEM	09 723 OD CO	FT CAMPBELL	1	0	22	081016		
FT GILLEM	09 52 OD HHC	FT CAMPBELL	15	3	35	081016		
FT MCCOY	09 788 ORDNANCE CO (EOD),	FT CAMPBELL	1	0	22	071017	Command Plan 08	
FT MEADE	09 744 EOD CO	FT CAMPBELL	1	0	22	071017	Command Plan 08	
TAEGU AB, KS	01 0160 AV CO	FT CAMPBELL	7	19	116	071014		
USAREUR	08 64 VET SVC DET	FT CAMPBELL	7	1	47	080716	GDPR	
ACTIVATION	AUG 43 CS HHC SPT GRP	FT CARSON	0	0	2	080416		
ACTIVATION	09 663 OD CO	FT CARSON	5	0	39	081016		
ACTIVATION	34 XX MI BN (BFSB)	FT CARSON	23	10	257	101016	FMR13	MODULARITY
ACTIVATION	09 EOD CO	FT CARSON	1	11	22	110616	MSFA	MODULARITY
ACTIVATION	31 4 BN, 10 SFG(A)	FT CARSON	45	26	359	121016	TAA13	NEW GROWTH
ANDREWS AFB	09 749 EOD CO	FT CARSON	1	0	22	080616	CP-08	
FT HOOD	87 4 AR HHC	FT CARSON	108	23	201	081016		
FT HOOD	87 4 AR HHC 01	FT CARSON	43	11	104	081016		
FT HOOD	14 230 FMCO	FT CARSON	10	0	95	081016	TAA13	MODULARITY
FT HOOD	87 4 AR HHC	FT CARSON	81	12	134	081016		



LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT JACKSON	09 748 EOD CO	FT CARSON	1	0	22	090616	CP-08	
USAREUR	19 127 MP CO CBT SUPP	FT CARSON	5	0	166	081016	GDPR	
FT DETRIC	08 6 MD DET	FT DETRIC	14	3	42	081016		
ACTIVATION	77 IN BN	FT DIX	29	5	360	080901		
ACTIVATION	63 117 CS HHD	FT DIX	15	2	61	080901		
ACTIVATION	77 42 IN BN	FT DIX	44	10	95	080901		
ACTIVATION	03 50 CM CO	FT DIX	7	0	141	080901	MSFA	MODULARITY
ACTIVATION	90 1948 AQ TM	FT DIX	2	0	2	080901		
ACTIVATION	TDA AR RGNL RDNSS SUST	FT DIX	45	6	32	080916		
ACTIVATION	05 990 EN CO	FT DIX	5	3	154	080916	MSFA	MODULARITY
ACTIVATION	63 77 CS HHC	FT DIX	69	18	223	080916	MSFA	MODULARITY
ACTIVATION	05 693 SAPPER CO	FT DRUM	5	0	99	071016	MSFA	MODULARITY
ACTIVATION	09 EOD CO	FT DRUM	1	1	22	071016	MSFA	FY07 OOC
ACTIVATION	19 563 MP CBT SPT CO	FT DRUM	5	0	165	071101	OIF NEW GROWTH	
ACTIVATION	55 110 TC CO	FT DRUM	5	1	163	081016	MSFA	MODULARITY
FT BRAGG	19 23 MP CBT SPT CO	FT DRUM	5	0	165	080316	TAA11	
FT DRUM	05 630 EN CO	FT DRUM	5	0	95	071017		
FT DRUM	02 0010 AG BND	FT DRUM	0	1	39	071017		
FT DRUM	05 693 EN CO	FT DRUM	5	0	95	071018		
FT DRUM	19 91 MP HHD	FT DRUM	13	2	78	081016		
FT DRUM	19 511 MP CO	FT DRUM	5	0	165	081016		
FT DRUM	19 543 MP CO	FT DRUM	5	0	165	081016		
ACTIVATION	55 359 INLAND CGO TR CO	FT EUSTIS	4	1	155	071016	TAA11	AC/RC REBALANCE
ACTIVATION	55 688 TC CO	FT EUSTIS	6	1	48	080316		
ACTIVATION	55 689 TC CO	FT EUSTIS	6	1	48	081016		
ACTIVATION	11 7 SIG CEN (THEATER)	FT GORDON	2	1	20	071016	MSFA	MODULARITY
ACTIVATION	11 518 TAC INSTL/NTWKG	FT GORDON	4	1	147	080115	MSFA	MODULARITY
ACTIVATION	11 TNC MODULE	FT GORDON	8	1	11	110922	MSFA	MODULARITY
ACTIVATION	05 937 CLEARANCE CO	FT HOOD	6	0	185	071016	MSFA	MODULARITY
ACTIVATION	05 584 MOBILITY AUG CO	FT HOOD	5	0	122	071016	MSFA	MODULARITY
ACTIVATION	08 176 MEDICAL TEAM (OPTO)	FT HOOD	2	0	4	071016	MSFA	MODULARITY
ACTIVATION	43 263 MOD WH VEH MNT	FT HOOD	1	0	1	071016	TAA11	
ACTIVATION	05 87 SAPPER CO	FT HOOD	5	0	99	071016	MSFA	MODULARITY
ACTIVATION	407AFSB AUG	FT HOOD	0	0	0	071016		
ACTIVATION	90 407 AQ BDE	FT HOOD	6	0	4	071016		
ACTIVATION	63 509 SUPPORT CO (BSB)	FT HOOD	5	1	118	080916	MSFA	MODULARITY

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	49 2-38 CAVALRY (R&S)	FT HOOD	33	0	277	080916	MSFA	MODULARITY
ACTIVATION	05 588 EXPLOSIVE HAZ TEAM	FT HOOD	1	0	6	081016	MSFA	MODULARITY
ACTIVATION	05 160 EXP HAZ CONTROL CELL	FT HOOD	5	0	10	081016	MSFA	MODULARITY
ACTIVATION	05 EXPLOSIVE HAZ TEAM	FT HOOD	1	0	6	081016	MSFA	MODULARITY
ACTIVATION	05 30 ASPHALT TEAM	FT HOOD	0	0	28	090616	MSFA	MODULARITY
ACTIVATION	05 104 VERTICAL CO	FT HOOD	5	3	143	090616	MSFA	MODULARITY
ACTIVATION	05 63 SURVEY/DESIGN TM	FT HOOD	0	1	13	090616	MSFA	MODULARITY
ACTIVATION	09 EOD CO	FT HOOD	1	6	22	100616	MSFA	MODULARITY
FT BLISS	44 44 AD BN	FT HOOD	44	21	723	090116		
FT GORDON	11 63 BN ITSB-J	FT HOOD	25	5	485	080916	TAA13	
FT SAM HOUSTON	09 79 OD HHD	FT HOOD	9	1	26	080416		
FT SAM HOUSTON	09 797 EOD CO	FT HOOD	5	0	39	080616	CP 08	
GIEBELSTA, GM	AUG 69 AD HHB BDE AUG	FT HOOD	0	0	4	080716		
OSAN AFB	44 1 AD BN 02	FT HOOD	37	20	551	071116		
USAREUR	44 69 ADA BDE	FT HOOD	30	9	87	080816	GDPR	
USAREUR	55 70 TC CO (MDM)	FT HOOD	5	1	166	090716	GDPR	
ACTIVATION	11 207 SC CO	FT IRWIN	4	1	46	080916		
ACTIVATION	37 3 ME DET	FT IRWIN	56	10	111	080916		
ACTIVATION	09 EOD CO	FT IRWIN	1	2	22	101016	MSFA	MODULARITY
ACTIVATION	AR RGNL RDNSS SUST	FT JACKSON	45	6	32	080916		
ACTIVATION	12 310 AG CTR	FT JACKSON	20	7	56	080916		
ACTIVATION	TDA USA REG'L CORR FAC	FT KNOX	1	0	87	071002		
ACTIVATION	TDA TNG DIV (FUNCT TNG	FT KNOX	22	2	29	071016		TDA ACTIV
ACTIVATION	TDA BN (SROTC)	FT KNOX	79	0	41	071016		TDA ACTIV
ACTIVATION	MSE	FT KNOX	23	6	13	080916		
ACTIVATION	TDA MSE MCP	FT KNOX	29	4	22	080916		
ACTIVATION	TDA MSE OCP	FT KNOX	21	1	13	080916		
ACTIVATION	TDA MSE MCP	FT KNOX	29	4	22	080916		
ACTIVATION	TDA MSE OCP	FT KNOX	21	1	13	080916		
ACTIVATION	90 631 AQ TM	FT KNOX	2	0	2	080916		
ACTIVATION	90 632 AQ TM	FT KNOX	2	0	2	080916		
ACTIVATION	05 HORIZON CONST CO	FT KNOX	5	0	153	091016	TAA 13	
ACTIVATION	05 538 CONCRETE TEAM	FT KNOX	0	0	11	101016	MSFA	MODULARITY
HANAU	05 502 EN Co	FT KNOX	5	1	179	080716	GDPR	MODULARITY
ACTIVATION	63 497 CS HHC	FT LEE	15	2	59	080916	MSFA	MODULARITY
ACTIVATION	AUG 0000 EN DET AUG	FT LEONARD WOOD	0	0	0	071016		
ACTIVATION	11 94 SC CO	FT LEONARD WOOD	4	1	49	081016		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	63 193 CS BN	FT LEONARD WOOD	26	6	316	081016		
ACTIVATION	37 4 ME HQ	FT LEONARD WOOD	56	10	110	081016		
FT BLISS	MOTOR TRANSPORT OPERA	FT LEONARD WOOD	1	1	75	100901	ACOM	
REDSTONE ARSENAL	TECHNICAL ESCORT	FT LEONARD WOOD	1	0	10	100901	ACOM	
ACTIVATION	TDA BN (SROTC)	FT LEWIS	53	0	33	071016		TDA ACTIV
ACTIVATION	12 112 MIL MAIL TERMINAL	FT LEWIS	2	1	15	071016	TAA13	
ACTIVATION	08 DETMEDICAL TEAM, OPTO	FT LEWIS	2	0	4	071016	FY07 OOC	
ACTIVATION	08 DETMEDICAL TEAM, OPTO	FT LEWIS	2	0	4	071016	FY07 OOC	
ACTIVATION	43 PLT AUTH/ARMNT MNT	FT LEWIS	0	0	11	071016	TAA11/MNT/FDU	
ACTIVATION	31 4 BN, 160 SOAR	FT LEWIS	36	79	495	071016	ACOM	
ACTIVATION	11 525 CORPS AREA SIG CO	FT LEWIS	4	3	129	080316	MSFA	
ACTIVATION	19 493 MP CO	FT LEWIS	4	0	120	080916	MSFA	MODULARITY
ACTIVATION	11 63 SIG NETWORK SUP	FT LEWIS	3	1	43	080916	MSFA	MODULARITY
ACTIVATION	05 EXPLOSIVE HAZ TEAM	FT LEWIS	1	0	6	080916	MSFA	MODULARITY
ACTIVATION	63 125 CS CO	FT LEWIS	5	1	216	081016		
ACTIVATION	05 28 CONCRETE TEAM	FT LEWIS	0	0	12	081016	MSFA	MODULARITY
ACTIVATION	05 557 HORIZONTAL CO	FT LEWIS	5	0	156	081016	MSFA	MODULARITY
ACTIVATION	05 553 VERTICAL CO	FT LEWIS	5	3	154	081016	MSFA	MODULARITY
ACTIVATION	05 617 HORIZONTAL CO	FT LEWIS	5	0	156	081016	MSFA	MODULARITY
ACTIVATION	08 575 MD CO	FT LEWIS	5	0	67	081016		
ACTIVATION	05 84 SURVEY/DESIGN TM	FT LEWIS	0	1	13	081016	MSFA	MODULARITY
ACTIVATION	34 109 MI BN (BFSB)	FT LEWIS	23	10	257	081016	TAA13	MODULARITY
ACTIVATION	19 595 MP CO	FT LEWIS	4	0	120	081016		
ACTIVATION	404AFSB AUG	FT LEWIS	0	0	0	081016		
ACTIVATION	90 404 AQ BDE	FT LEWIS	6	0	4	081016		
ACTIVATION	05 531 EXPLOSIVE HAZ TEAM	FT LEWIS	1	0	6	091016	MSFA	MODULARITY
ACTIVATION	05 22 CLEARANCE CO	FT LEWIS	6	0	159	091016	MSFA	MODULARITY
ACTIVATION	49 201 HHC BFSB	FT LEWIS	38	9	95	091216	TAA13	MODULARITY
ACTIVATION	31 4 BN, 1 SFG(A)	FT LEWIS	45	26	359	101016	TAA13	NEW GROWTH
ACTIVATION	09 EOD CO	FT LEWIS	1	10	22	110616	MSFA	MODULARITY
ACTIVATION	05 EXP HAZ CONTROL CELL	FT LEWIS	5	0	10	110916	MSFA	MODULARITY
BAUMHOLDE, GM	06 94 FA BN 01	FT LEWIS	33	2	283	081015		
FT BRAGG	08 0056 MD HHD	FT LEWIS	16	2	58	071016		
GRAFENWOH, GM	08 255 MD DET	FT LEWIS	2	0	11	080716		
TACOMA, WA	AUG W08R USA HEALTH SERV SP	FT LEWIS	8	0	3	071002		
VILSECK, GM	47 2 IN HHC 02	FT LEWIS	41	10	80	081016		
ACTIVATION	TDA BDE (SCH), 70TH DI	FT MCCOY	11	1	14	071016		TDA ACTIV
ACTIVATION	TDA BDE (TD), 70TH DIV	FT MCCOY	55	0	109	071016		TDA ACTIV
ACTIVATION	TDA BN (LT)	FT MCCOY	13	0	8	071016		TDA ACTIV

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT MCPHERSON	02 0214 AG BND	FT MCPHERSON	2	0	56	071017		
ACTIVATION	19 200 MP CMD	FT MEADE	57	6	94	080416	MSFA	MODULARITY
ACTIVATION	19 200 MP DET (MSE)	FT MEADE	27	4	21	080916	MSFA	MODULARITY
ACTIVATION	MSE	FT MEADE	27	4	21	080916		
FT MONROE	02 0050 AG BND	FT MONROE,	2	0	56	071017		
CP SMITH, HI	AUG W43A STRATCOM AIRBN CME	OFFUTT AF, NE	16	0	0	071002		TDA STN CHG
ACTIVATION	03 275 CHEM BIDS PLT	FT POLK	3	0	90	071018	MSFA	MODULARITY
ACTIVATION	19 287 MP CO (CS)	FT POLK	5	0	165	080216	OIF NEW GROWTH	
ACTIVATION	03 316 CM CO	FT POLK	0	0	6	080915		CM REDESIGN FDU
ACTIVATION	03 316 CM CO	FT POLK	1	0	30	080915		CM REDESIGN FDU
ACTIVATION	03 316 CM CO	FT POLK	1	0	30	080915		CM REDESIGN FDU
ACTIVATION	03 42 CM PLT	FT POLK	1	0	30	080916	MSFA	MODULARITY
ACTIVATION	03 CM PLT	FT POLK	1	0	30	080916	MSFA	MODULARITY
ACTIVATION	03 183 CM PLT	FT POLK	0	6	0	080916	MSFA	MODULARITY
ACTIVATION	90 636 AQ TM	FT POLK	2	0	2	080916		
ACTIVATION	05 633 HORIZONTAL CO	FT POLK	5	0	156	081016	MSFA	MODULARITY
ACTIVATION	05 93 VERTICAL CO	FT POLK	5	3	154	081016	MSFA	MODULARITY
ACTIVATION	08 33 MD DET	FT POLK	2	0	4	081016		
ACTIVATION	05 31 ASPHALT TEAM	FT POLK	0	0	39	081016	TAA11	SAMAS RUN
ACTIVATION	05 22 SURVEY/DESIGN TM	FT POLK	0	1	13	081016	MSFA	MODULARITY
ACTIVATION	05 687 HORIZONTAL CO	FT POLK	5	0	141	081016	MSFA	MODULARITY
USAREUR	55 51 TRANS CO	FT POLK	5	1	164	090716	GDPR	
ACTIVATION	TDA MED DET	FT RICHARDSON	19	0	27	071001		
ACTIVATION	90 1959 AQ TM	FT RICHARDSON	2	0	2	080901	MSFA	MODULARITY
ACTIVATION	77 207 IN HHC	FT RICHARDSON	44	10	95	080901	MSFA	MODULARITY
ACTIVATION	05 797 EN CO	FT RICHARDSON	5	3	154	080916	MSFA	MODULARITY
ACTIVATION	05 23 SAPPER CO	FT RICHARDSON	5	0	99	081016	MSFA	MODULARITY
ACTIVATION	05 6 ENGR BN	FT RICHARDSON	23	4	164	081016	MSFA	MODULARITY
ACTIVATION	05 84 ENG SUPPORT CO	FT RICHARDSON	5	0	116	101016	MSFA	MODULARITY
ACTIVATION	05 559 HORIZONTAL CO	FT RICHARDSON	5	0	141	101016	MSFA	MODULARITY
ACTIVATION	05 56 VERTICAL CO	FT RICHARDSON	5	0	141	101016	MSFA	MODULARITY
ACTIVATION	05 525 CONCRETE TM	FT RICHARDSON	0	0	11	101016	MSFA	MODULARITY
ACTIVATION	05 240 SURVEY/DESIGN TM	FT RICHARDSON	0	1	13	101016	MSFA	MODULARITY
FT WAINWRIGHT	05 0864 EN CO	FT RICHARDSON	5	0	138	071016		
GUAM INTL, GQ	05 297 EN CO	FT RICHARDSON	5	0	156	080917		
ACTIVATION	17 ARMORED RECON	FT RILEY	32	0	348	071016	BCT BASING	MODULARITY

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	17 ARMORED RECON	FT RILEY	32	0	348	071016	BCT BASING	MODULARITY
ACTIVATION	63 299 BSB	FT RILEY	26	5	399	080316		
ACTIVATION	63 532 CS BN	FT RILEY	26	6	312	080916		
ACTIVATION	87 AR HHC	FT RILEY	27	6	324	080916		
ACTIVATION	87 AR HHC	FT RILEY	73	13	102	080916		
ACTIVATION	90 633 AQ TM	FT RILEY	2	0	2	080916		
ACTIVATION	90 634 AQ TM	FT RILEY	2	0	2	080916		
ACTIVATION	09 EOD CO	FT RILEY	1	4	22	091016	MSFA	MODULARITY
ACTIVATION	09 EOD CO	FT RILEY	1	9	22	101016	MSFA	MODULARITY
FT BENNING	19 988 MP CO	FT RILEY	5	0	165	081016		
FT BLISS	44 31 AD HHB	FT RILEY	30	9	91	080916		
FT BLISS	19 978 MP CO	FT RILEY	5	0	165	081016		
FT BRAGG	55 126 TC CO	FT RILEY	5	1	164	081016		
FT BRAGG	14 126 FMCO (Det)	FT RILEY	2	0	21	081016	TAA-13	MODULARITY
FT BRAGG	14 126 FMCO	FT RILEY	14	0	128	081016	TAA13	
FT BRAGG	14 126 FMCO (HQ)	FT RILEY	4	0	23	081016	TAA-13	MODULARITY
FT BRAGG	19 23 MP CO	FT RILEY	5	0	165	081016		
FT CAMPBELL	19 194 MP DET	FT RILEY	5	0	165	081016		
FT CARSON	55 32 TC CO	FT RILEY	5	1	164	081016		
FT CARSON	19 984 MP CO	FT RILEY	5	0	165	081016		
FT GORDON	AUG 63 SC BN AUG	FT RILEY	0	0	1	080916		
FT HOOD	87 4 AR BN 01	FT RILEY	24	5	283	081016		
FT HOOD	87 4 AR HHC	FT RILEY	27	6	338	081016		
FT LEWIS	19 571 MP CO	FT RILEY	5	0	165	081016		
FT LEWIS	19 54 MP CO	FT RILEY	5	0	165	081016		
FT STEWART	55 396 TC CO	FT RILEY	5	1	164	081016		
FT STORY	55 611 TC CO	FT RILEY	4	1	202	081016		
SCHOFIELD	19 58 MP CO	FT RILEY	5	0	166	081016		
ACTIVATION	08 228 MED HHC	FT SAM HOUSTON	153	2	326	071016	MSFA	MODULARITY
ACTIVATION	30 338 MI BN	FT SAM HOUSTON	16	6	140	071016	MSFA	MODULARITY
ACTIVATION	TDA AUG MCP HQ ARSOUTH	FT SAM HOUSTON	1	0	4	080716		
ACTIVATION	51 HQ HHC	FT SAM HOUSTON	80	13	62	080716		
ACTIVATION	TDA AUG OCP HQ ARSOUTH	FT SAM HOUSTON	0	1	27	080716		
ACTIVATION	51 HQ HHC	FT SAM HOUSTON	95	15	86	080716		
ACTIVATION	51 HQ HHC	FT SAM HOUSTON	11	1	60	080716		
ACTIVATION	30 511 MI BN	FT SAM HOUSTON	25	32	265	081016		
ACTIVATION	30 14 MI BN	FT SAM HOUSTON	16	6	140	081016	MSFA	MODULARITY
ACTIVATION	08 42 MD DET	FT SAM HOUSTON	2	0	4	081016		
ACTIVATION	90 651 AQ TM	FT SAM HOUSTON	2	0	2	090516		
ACTIVATION	90 652 AQ TM	FT SAM HOUSTON	2	0	2	090516		
ACTIVATION	90 653 AQ TM	FT SAM HOUSTON	2	0	2	090516		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	90 654 AQ TM	FT SAM HOUSTON	2	0	2	090516		
ACTIVATION	90 655 AQ TM	FT SAM HOUSTON	2	0	2	090516		
ACTIVATION	90 656 AQ TM	FT SAM HOUSTON	2	0	2	090516		
SAN ANTON, TX	AUG W6A3 USA MED INFO MGT C	FT SAM HOUSTON	9	0	12	071002		
ACTIVATION	51 HQ HQ	FT SHAFTER	350	33	202	080616	MSFA	MODULARITY
ACTIVATION	11 98 ITSBLIGHT TROPO	FT SHAFTER	23	5	402	080916	MSFA	MODULARITY
ACTIVATION	05 955 EN DET	FT SHAFTER	0	1	13	080916	MSFA	MODULARITY
ACTIVATION	05 302 TC HHD	FT SHAFTER	14	3	47	080916	MSFA	MODULARITY
ACTIVATION	TDA USA REG'L CORR FAC	FT SILL	2	0	80	071002		
ACTIVATION	11 529 SIG NTRWK SUP CO	FT SILL	3	1	44	080916	MSFA	MODULARITY
ACTIVATION	11 258 SIG NET SUP CO	FT SILL	3	1	43	080916	MSFA	MODULARITY
ACTIVATION	05 697 HORIZONTAL CO	FT SILL	5	0	141	090616	MSFA	MODULARITY
ACTIVATION	19 139 MP CO (CS)	FT STEWART	5	0	165	071101	OIF NEW GROWTH	
ACTIVATION	05 554 VERTICAL CO	FT STEWART	5	3	154	081016	MSFA	MODULARITY
ACTIVATION	05 984 HORIZONTAL CO	FT STEWART	5	0	156	081016	MSFA	MODULARITY
ACTIVATION	05 526 HORIZONTAL CO	FT STEWART	5	0	156	081016	MSFA	MODULARITY
ACTIVATION	05 36 SURVEY/DESIGN TM	FT STEWART	0	1	13	081016	MSFA	MODULARITY
ACTIVATION	05 EXPLOSIVE HAZ TEAM	FT STEWART	1	0	6	091016	MSFA	MODULARITY
ACTIVATION	05 EXPLOSIVE HAZ TEAM	FT STEWART	1	0	6	091016	MSFA	MODULARITY
ACTIVATION	05 512 SAPPER CO	FT STEWART	5	0	86	100916	MSFA	MODULARITY
ACTIVATION	05 67 MOBILITY AUG CO	FT STEWART	5	0	92	100916	MSFA	MODULARITY
ACTIVATION	05 530 CLEARANCE CO	FT STEWART	6	0	159	100916	MSFA	MODULARITY
ACTIVATION	05 501 MOBILITY AUG CO	FT STEWART	5	0	92	100916	MSFA	MODULARITY
ACTIVATION	05 29 CONCRETE TEAM	FT STEWART	0	0	11	101016	MSFA	MODULARITY
INDIANTOWN GAP	09 756 OD CO (EOD)	FT STEWART	1	0	22	080616	CP 08	
PATRICK AFB, FL	09 766 OD CO	FT STEWART	1	0	22	080616		
USAREUR	05 10 ENGR BN	FT STEWART	23	4	146	100916	MSFA	MODULARITY
ACTIVATION	55 611 PORT OPS CGO CO	FT STORY	3	0	84	071016	TAA11	AC/RC REBALANCE
ACTIVATION	53 151 HHC THEATER IO GP	FT TOTTEN	24	9	52	090916	TAA13	MODULARITY
ACTIVATION	53 301 HHC IO FLD SPT BN	FT TOTTEN	52	8	50	090916	TAA13	MODULARITY
ACTIVATION	53 302 HHC IO GEN SPT BN	FT TOTTEN	33	10	69	090916	TAA13	MODULARITY
ACTIVATION	55 539 TC CO (PLS)	FT WAINWRIGHT	5	1	164	071016	MSFA	MODULARITY
ACTIVATION	06 380 FA DET	HICKAM, HI	1	0	1	080916		
ACTIVATION	06 359 FA DET	HILL AFB, UT	1	0	1	080916		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	44 3 AD BN 04	HOLLOMAN AFB, NM	37	20	551	080916		
ACTIVATION	06 370 FA DET	HOLLOMAN AFB, NM	1	0	1	080916		
ACTIVATION	10 CO SPO WATER	HUNTER AAF	1	0	6	071016	TAA11	
ACTIVATION	10 PLT WATER PUR	HUNTER AAF	1	0	20	071016	TAA11	
ACTIVATION	10 512 PLT WATER PUR	HUNTER AAF	1	0	20	071016	TAA11	
ACTIVATION	10 PLT WATER STOR DIST	HUNTER AAF	1	0	27	071016	TAA11	
ACTIVATION	10 165 QM TM	HUNTER AAF	3	1	6	081016		
FT STEWART	05 514 EN DET	HUNTER AAF	0	0	7	071017		
SAN ANTON, TX	AUG 0314 MIBN AUG	LACKLAND, TX	4	6	92	071017		
ACTIVATION	06 368 FA DET	LANGLEY A, VA	1	0	1	080916		
ACTIVATION	06 382 FA DET	LUKE, AZ	1	0	1	080916		
ACTIVATION	06 373 FA DET	MCGUIRE AFB	1	0	1	080916		
ACTIVATION	06 364 FA DET	MINOT, ND	1	0	1	080916		
ACTIVATION	06 357 FA DET	MOODY AFB, GA	1	0	1	080916		
ACTIVATION	06 362 FA DET	MOUNTAIN, ID	1	0	1	080916		
ACTIVATION	06 351 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 352 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 353 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 354 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 379 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 355 FA DET	NELLIS AFB	1	0	1	080916		
ACTIVATION	06 356 FA DET	NELLIS AFB	1	0	1	080916		
FT LEWIS	87 HQ I CORPS UEX	PACOM	109	22	176	080916	MSFA	MODULARITY
ACTIVATION	40 4 SPACE CO	PETERSON AFB	8	6	59	080916	MSFA	MODULARITY; MULTIC
COL SPGS, CO	AUG USA STRATEGIC & SP	PETERSON AFB	20	0	0	081001		
PETERSON AFB	AUG USA SP & MSL DEF C	REDSTONE ARSENAL	75	0	18	081001		
ACTIVATION	05 512 ENGR DET	SAN ANTONIO	2	2	22	080717		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
ACTIVATION	05 34 EN CO	SCHOFIELD	6	0	185	081016	MSFA	MODULARITY
ACTIVATION	05 15 EN DET	SCHOFIELD	1	0	6	081016	MSFA	MODULARITY
ACTIVATION	55 TMDM TRK CO PLS	SCHOFIELD	5	1	163	101016	MSFA	MODULARITY
CP CASEY	19 21 MP DET CID TM A1	SCHOFIELD	0	1	1	071016	GDPR	
CP HOWZE	19 21 MP DET CID TM B4	SCHOFIELD	0	1	1	071016	GDPR	
CP RED CLOUD, KO	19 21 MP DET CID TM B3	SCHOFIELD	0	1	1	071016	GDPR	
ACTIVATION	06 361 FA DET	SEYMOUR J, NC	1	0	1	080916		
FT DIX	55 462 TC HHD	TRENTON, 1NJ	15	2	40	080916		
CP ROBERTS	40 D CO, 1ST SATCON BN	WAHIAWA NCS, HI	3	0	56	081001	ACOM	
ACTIVATION	06 369 FA DET	WHITEMAN, MO	1	0	1	080916		

**INACTIVATIONS/ LOSSES**

DECATUR, AL	11 142 BDE CORPS	INACTIVATE	4	0	0	080831	MSFA	MODULARITY
DECATUR, AL	11 142 BDE CORPS	INACTIVATE	4	0	0	101001	MSFA	MODULARITY
FT A P HILL	TDA 8002 TRAINING DET	INACTIVATE	0	0	22	080915		
FT BELVOIR	12 888 AG CO	INACTIVATE	5	0	54	080915		
FT BELVOIR	52 9 HQ TM	INACTIVATE	7	0	3	080915		
FT BELVOIR	05 249 ENGR BN	INACTIVATE	7	1	60	091015	MSFA	
FT BEN HARRISON	12 326 AG HHD	INACTIVATE	9	0	22	080916		
FT BENNING	19 208 CO MP CO CBT SUPP	INACTIVATE	5	0	65	071015	TAA13	
FT BLISS	08 10 MED DET, MIN CARE	INACTIVATE	0	0	15	071015	TAA13	
FT BLISS	TDA HQUSA GARRISON-FT	INACTIVATE	20	1	96	080915		
FT BLISS	11 286 SIG CO	INACTIVATE	4	1	178	101015	TAA11	
FT BLISS	08 745 MED DET, MED TM	INACTIVATE	5	0	15	101015	TAA 13	
FT BRAGG	TDA SIG BN	INACTIVATE	0	0	0	071001		
FT BRAGG	51 0144 HQ DET	INACTIVATE	8	0	12	071015		
FT BRAGG	08 32 HHD MED BN	INACTIVATE	16	1	211	071215	TAA13	
FT BRAGG	05 30 EN CO	INACTIVATE	9	2	53	080715		



LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT BRAGG	63 1 CS HHC	INACTIVATE	153	28	280	081015		
FT BRAGG	08 44 MD HHC	INACTIVATE	50	4	72	081015		
FT BRAGG	05 275 CO TOPO (XVIII CORPS)	INACTIVATE	0	1	8	090915	COPRS REDES	
FT BRAGG	05 555 CO TOPO (XVIII CORPS)	INACTIVATE	0	1	8	090915	COPRS REDES	
FT BRAGG	42 CO SUPPLY DS	INACTIVATE	4	2	111	091015	TAA11	
FT BRAGG	10 186 WATER PURF DIST HQ	INACTIVATE	5	0	93	100916	TAA11	
FT BRAGG	43 TM RADER REP	INACTIVATE	0	0	2	101015	TAA11	
FT BRAGG	09 TM ABN MSL SHORAD	INACTIVATE	0	0	9	101015	TAA11	
FT BRAGG	43 TM TOWED ARTY SPT	INACTIVATE	0	0	12	101015	CTU 0304	
FT BRAGG	43 TM TOWED ARTY SPT	INACTIVATE	0	0	12	101015	TAA11	
FT BRAGG	43 TM TOWED ARTY SPT	INACTIVATE	0	0	12	101015	CTU 0476	
FT BRAGG	09 TM MLRS SPT	INACTIVATE	0	0	25	101015	CTU 0304	
FT BRAGG	10 TM WTR PUR	INACTIVATE	4	1	201	101015	TAA11	
FT BRAGG	14 126 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT BRAGG	14 126 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT BRAGG	14 126 FIN DET E	INACTIVATE	2	0	21	101015	TAA13	
FT BRAGG	43 CO AUG MAINT SUP	INACTIVATE	0	0	16	101015	TAA11	
FT BRAGG	43 TM AUG MAINT SPT	INACTIVATE	0	0	25	101015	TAA11	
FT BRAGG								
FT BUCHANAN	03 0316 CM CO	INACTIVATE	6	0	143	071015		
FT BUCHANAN	03 317 CHEM CO (BIDS)	INACTIVATE	1	0	30	080915	TAA11	CM REDESIGN FDU
FT BUCHANAN	03 318 CHEM CO (BIDS)	INACTIVATE	1	0	30	080915	TAA11	CM REDESIGN FDU
FT CAMPBELL	09 TM AIR ASLT DIV AUG	INACTIVATE	0	0	5	071015	TAA11	
FT CAMPBELL	01 0160 AV CO	INACTIVATE	7	19	116	071015		
FT CAMPBELL	14 101 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT CAMPBELL	10 DET WTR PUR	INACTIVATE	2	0	47	110815	TAA11	
FT CAMPBELL	44 ADA BN (LNBKR/AVG)	INACTIVATE	32	7	322	110915	TAA11	AR 5-10 APPR. A/SECA
FT CAMPBELL	55 106 MOTOR TRANS	INACTIVATE	12	1	39	110922	TAA09	Recommended to retain in
FT CARSON	05 947 EN CO	INACTIVATE	6	1	153	080901		
FT CARSON	TDA HQ USA GARRISON-FT	INACTIVATE	45	5	246	080915		
FT CARSON	43 TM TANK TUR RPR	INACTIVATE	0	0	9	081015	AC/RC INACT	
FT DEVENS	TDA REGIONAL READINESS	INACTIVATE	112	10	174	080915		
FT DIX	TDA 2D BN, 391ST REGT	INACTIVATE	12	1	139	080915		
FT DIX	TDA 1079 USAR GARRISON	INACTIVATE	51	6	203	080915		
FT DRUM	43 TM RADAR REPAIRER	INACTIVATE	0	0	2	091015	TAA11	
FT EUSTIS	55 98 DETAUTO CARGO DO	INACTIVATE	0	1	23	110915	TAA13	

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT GILLEM ENCLAVE	05 121 IN DET	INACTIVATE	7	1	151	080901		
FT GORDON	11 518 TAC INSTL/NTWKG	INACTIVATE	1	0	16	071015	GDPR	
FT GORDON	11 252 THEATR TAC SIG CO	INACTIVATE	3	0	88	071015	GDPR	
FT GORDON	11 518 TAC INSTL/NTWKG	INACTIVATE	4	2	182	080115	GDPR	
FT GORDON	11 518 TAC INSTL/NTWKG	INACTIVATE	2	2	87	080115	GDPR	
FT GORDON	11 518 TAC INSTL/NTWKG	INACTIVATE	1	0	79	080116	GDPR	
FT HOOD	TDA USA SIG BN	INACTIVATE	0	0	0	071001		
FT HOOD	08 534 MED DET	INACTIVATE	0	0	15	071015	TAA13	
FT HOOD	09 TM BSTF AUG TM	INACTIVATE	0	0	5	071015	TAA11	
FT HOOD	AUG 0013 CS HHC COSCOM AUG	INACTIVATE	1	0	1	071015		
FT HOOD	11 3 BDE HHC MSE	INACTIVATE	48	13	114	071215	MSFA	MODULARITY
FT HOOD	12 151 AG CO	INACTIVATE	5	0	54	080115		
FT HOOD	63 4 CS CTR	INACTIVATE	43	17	285	080115	MSFA	MODULARITY
FT HOOD	12 15 AG BN	INACTIVATE	6	3	168	080115		
FT HOOD	63 13 COSCOM	INACTIVATE	108	15	232	080115	MSFA	MODULARITY
FT HOOD	12 701 AG CTR	INACTIVATE	5	4	33	080215		
FT HOOD	08 36 HHD EVAC.MED BN	INACTIVATE	10	6	36	080715	TAA13	
FT HOOD	TDA USAR GARRISON -	INACTIVATE	41	12	276	080915		
FT HOOD	14 230 FIN DET B	INACTIVATE	2	0	21	101015	TAA13	
FT HOOD	14 230 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT HOOD	14 230 FIN DET F	INACTIVATE	2	0	21	101015	TAA13	
FT HOOD	19 26 MP DET (LAW & ORDE	INACTIVATE	3	0	42	101015	TAA13	
FT HUACHUCA	11 269 SIGNAL CO	INACTIVATE	4	2	167	071015	MSFA	MODULARITY
FT JACKSON	TDA 3 BDE, 108TH DIV	INACTIVATE	9	1	34	080415		
FT JACKSON	TDA 7 BDE, 108TH DIV	INACTIVATE	11	2	20	080915		
FT JACKSON	TDA USA RES READINESS	INACTIVATE	12	0	15	080915		
FT KNOX	UA EXPRMNT ELEMENT	INACTIVATE	60	14	74	071001		MACOM
FT KNOX	UA CAP DVLPMNT ACTIVITY	INACTIVATE	100	4	54	071001		MACOM
FT KNOX	17 123 ARMOR BN	INACTIVATE	36	1	465	080831	MSFA	MODULARITY
FT KNOX	43 207 ORD CO	INACTIVATE	8	8	269	080901	MSFA	MODULARITY
FT KNOX	TDA 1003 TRAINING DET	INACTIVATE	0	0	83	080915		
FT KNOX	TDA HQ 8 BDE 100TH D	INACTIVATE	50	0	29	080915		
FT KNOX	TDA 7TH BDE, 100TH DIV	INACTIVATE	11	2	33	090415		
FT KNOX	TDA 1 BN, 399 RGMT	INACTIVATE	11	0	81	090415		
FT LEE	TDA 1 BN, 319TH REGT	INACTIVATE	15	1	140	080415		

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT LEE	63 300 CS HHC	INACTIVATE	37	3	92	080915		
FT LEE	10 DET WATER PUR	INACTIVATE	0	0	16	101015	TAA11	
FT LEE	42 SECQM SPT OPNS SEC (F	INACTIVATE	2	0	4	101015	TAA13	
FT LEWIS	TDA USA SIG BN	INACTIVATE	0	0	0	071001		
FT LEWIS	01 0160 AV CO	INACTIVATE	6	16	90	071015		
FT LEWIS	11 142 SIG BDE CORPS	INACTIVATE	6	3	28	080101	MSFA	CORPS BRDGING STR
FT LEWIS	12 0700 AG CTR	INACTIVATE	5	4	33	080115		
FT LEWIS	TDA HQ 8 BDE 104TH D	INACTIVATE	37	0	27	080915		
FT LEWIS	43 164 OD CO	INACTIVATE	7	7	206	080915		
FT LEWIS	55 300 TC DET	INACTIVATE	1	1	11	080915		
FT LEWIS	05 64 DET TERRAIN	INACTIVATE	0	1	8	080915	TAA13	
FT LEWIS	34 201 BDE HHD HVY	INACTIVATE	17	3	31	091215	TAA13	MODULARITY
FT LEWIS	42 PLT GM PERSH SUB	INACTIVATE	1	0	56	100815	CTU 0476	
FT LEWIS	10 CO PETRO SUPP LUPS	INACTIVATE	0	0	16	110316	TAA11	
FT LEWIS	05 585 PIPELINE CONT	INACTIVATE	5	1	164	110915	CTU0507	MODULARITY
FT MCCLELLAN	05 1151 EN DET	INACTIVATE	1	1	55	080901		
FT MEADE	08 0048 MD HSP	INACTIVATE	59	2	194	071015		
FT MEADE	TDA 1 BDE, 80TH DIV	INACTIVATE	13	3	24	080915		
FT MONROE	USAG FT MONROE	INACTIVATE	2	7	6	071001	MACOM	Clears garrison TDA
FT POLK	08 433 MED DET	INACTIVATE	0	0	15	071015	MSFA	MODULARITY
FT POLK	09 TM BSTF AUG TM	INACTIVATE	4	2	111	091015	TAA11	
FT POLK	14 126 FIN DET C	INACTIVATE	2	0	21	101015	TAA13	
FT RICHARDSON	77 207 IN HHC	INACTIVATE	44	10	95	080902		
FT RILEY	05 482 EN TM	INACTIVATE	1	0	3	071016	BCT BASING	MODULARITY
FT RILEY	15 AG BN	INACTIVATE	1	1	48	080115		
FT RILEY	15 AG BN	INACTIVATE	1	1	48	080115		
FT SAM HOUSTON	08 0228 MD HSP	INACTIVATE	59	2	198	071015		
FT SAM HOUSTON	TDA USA NATION ASST PL	INACTIVATE	0	1	35	080715		
FT SAM HOUSTON	TDA HQ USA SOUTH AUG	INACTIVATE	5	1	13	080715		
FT SAM HOUSTON	51 HQ HHC	INACTIVATE	160	3	99	080715		
FT SAM HOUSTON	30 339 MI CO	INACTIVATE	19	17	77	081015		
FT SAM HOUSTON	TDA 3457 USAR MED TNG	INACTIVATE	8	0	95	090415		
FT SHAFTER	51 HQ HHC	INACTIVATE	164	3	77	080615	MSFA	MODULARITY

LOSING INSTALLATION	SRC UNIT	GAINING INSTALLATION	OFF	WO	ENL	EDATE	PROGRAM	REMARKS
FT SHAFTER	TDA USAR SCHOOL	INACTIVATE	27	1	97	080915		
FT SHAFTER	11 804 SIG CO (CMD OPS)	INACTIVATE	4	1	124	080915	MSFA	MODULARITY
FT SHAFTER	12 456 AG DET	INACTIVATE	2	0	31	080915	GDPR	TAA-11 IPR
FT SILL	TDA HQUSA GARRISON-FT	INACTIVATE	30	1	107	080915		
FT SILL	14 15 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT STEWART	42 CO SUPPLY DS	INACTIVATE	4	2	111	091015	TAA11	
FT STEWART	43 CO AUG TANK TURRET REP	INACTIVATE	0	0	0	101015	TAA11	
FT STEWART	43 TM TANK TURRET	INACTIVATE	2	0	47	101015	TAA11	
FT STEWART	14 24 FIN DET D	INACTIVATE	2	0	21	101015	TAA13	
FT STORY	TDA 1 BN, 318TH REGT	INACTIVATE	16	0	89	080415		
GAITHERSB	19 HHC BDE (TAACOM)	INACTIVATE	2	0	0	080415	CTU 0476	
HUNTER AA, 1GA	01 0160 AV CO D	INACTIVATE	4	11	69	071015		
HUNTER AAF	10 202 DET WATER PUR	INACTIVATE	4	0	6	081016	TAA11	
HUNTER AAF	55 10CO TRANS LHT-MDM TR	INACTIVATE	5	1	165	110915	CTU507	
MISAWA AFB	40 C DET, 1 SPACE CO		0	1	14	071001	ACOM	MODULARITY
PETERSON AFB	40 4 SPACE CO	INACTIVATE	4	2	23	080915	MSFA	MODULARITY
REDSTONE ARSENAL	TDA PEO AMD REDSTONE A	INACTIVATE	27	0	0	071002		
SCHOFIELD	12 556 AG BN	INACTIVATE	5	2	120	071015	MSFA	MODULARITY
SCHOFIELD	19 8 HHC MP BDE	INACTIVATE	31	4	65	091015	GDPR	

Appendix W: Listing of Unit Stationing Actions as part of Alternative 2

SRC	Unit Description	Desired Station	Strngth per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
03420F300	Eliminate BIDS CLS in HVY CM	AK - Richardson	2					1	2								
05417G000	Horizontal Company	AK - Richardson	159											1	159	159	
09447GA00	716th EOD Co	AK - Richardson	44					1	44							44	(23)
19476G000	MP CS Bn HQs	AK - Richardson	73					1	73							73	
19477G000	MP CS Co	AK - Richardson	171	2	342											342	
34308G000	MI Co (BCT)	AK - Richardson	5							1	5					5	
34-HBCT/BCT	S2 Staffs	AK - Richardson	8			1	8									8	
190Non-existent	MP Det (Law & Order) SBCT	AK - Wainwright	42	1	42											42	
34308G000	MI Co (BCT)	AK - Wainwright	5													5	
34-HBCT/BCT	S2 Staffs	AK - Wainwright	8													8	
4300-OTHER	SBCT MAINT	AK - Wainwright	100	0.33	33	0.33	33	0.34	34							100	
X09447GA00	65th EOD Co (Activation New)	AK - Wainwright	44					1	44							44	
					75		75		78							186	
0347-HBCT	NBCRV HBCT 4th Crewmember	Benning	2					1	2							2	
08567GA00	Medical Tm (Optometry)	Benning	6			1	6									6	
08948A000	Hospital Co (Retain)	Benning	52							1	52					52	(52)
1200- Wedge	Non-BCT S-1 Standardization	Benning	2	1	2											2	
09447GA00	789th EOD Co	Benning	44											1	44	44	(23)
19477G000	MP CS Co	Benning	171			1	171									171	
34308G000	MI Co (BCT)	Benning	5							1	5					5	
34-HBCT/BCT	S2 Staffs	Benning	8			1	8									8	
01707G100	ER/MP (Warrior UAS) [colocates w/CAB]	Bliss	126		2		185				57				44	290	(75)
0347-HBCT	NBCRV HBCT 4th Crewmember	Bliss	2					4	8				1		126	8	
05437G000	2nd Eng Clearance Company	Bliss	191											1	191	191	
06399G200	TAB (Fires BDE)	Bliss	47						47							47	
06402G000	HAB, Fires BDE	Bliss	137						137							137	
06465G000	FA Bn MLRS Fires UA	Bliss	309						309							309	
06465G100	FA Bn HIMARS Fires UA	Bliss	317						317							317	
09447GA00	162nd EOD Co (Activation New)	Bliss	44			1	44									44	
09447GA00	734th EOD Co	Bliss	44													44	(23)
09447GA00	741st EOD Co	Bliss	44													44	(23)
09447GA00	763d EOD Co	Bliss	44	1	44								1		44	44	(23)
11307G000	Signal Network Spt Co	Bliss	47					1	47							47	
19476G000	MP CS Bn HQs	Bliss	73	1	73											73	
19477G000	591 MP CS Co	Bliss	171	1	171											171	
34308G000	MI Co (BCT)	Bliss	5							4	20					20	
34-HBCT/BCT	S2 Staffs	Bliss	8			4	32									32	
435-47A-H00	TMDE	Bliss	7														
44623G000	JLENS Btry	Bliss	140													140	
44635G000	3/43 ADA Bn	Bliss	610	1	610											610	
45413L000	MPAD	Bliss	20			1	20									20	
55727F300	Mid Trk Co POL	Bliss	169													169	
63345G100	BSB (Fires BDE)	Bliss	312					1	312							312	
63347G000	FSC MLRS	Bliss	164					1	164							164	
63347G200	FSC HIMARS	Bliss	221					1	221							221	
GenFor	Army Exped. Task Force (AETF)	Bliss	969													969	(969)

SRC	Unit Description	Desired Station	Sirgh per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
03470F000	NBCRV CS CM 4th Crewmember	Bragg	6	-	898	1	96	-	1,562	-	189	-	170	-	375	3290	(1,038)
05419G000	Engr Support Company	Bragg	128	-	-	-	6	1	128	-	-	-	-	-	-	6	-
05601G100	Construction Mgmt Tm	Bragg	9	-	-	1	9	-	-	-	-	-	-	-	-	128	-
09446G000	192nd EOD Bn	Bragg	38	1	38	-	-	-	-	-	-	-	-	-	-	9	-
11975G000	Expeditionary Signal Bn (ESB)	Bragg/Sill	515	-	-	-	-	1	515	-	-	-	-	-	-	38	(35)
12567G100	Casualty Liaison Team	Bragg	5	-	-	1	5	-	-	-	-	-	-	-	-	515	-
12567G300	Postal Plt	Bragg	21	-	-	2	42	-	-	-	-	-	-	-	-	5	-
14537GA00	Fin Mgmt Center	Bragg	36	-	-	-	-	-	-	-	-	-	-	-	-	42	-
49225G000	525th BfSB (R&S Squadron)	Bragg	359	1	359	-	-	-	-	-	-	-	-	-	-	36	(36)
34308G000	MI Co (BCT)	Bragg	5	-	-	4	20	-	-	4	20	-	-	-	-	359	(359)
34-HBCT/IBCT	S2 Staffs	Bragg	8	-	-	4	32	-	-	-	-	-	-	-	-	20	-
42420F000	QM Supply Co	Bragg	186	-	-	-	-	1	186	-	-	1	219	-	-	32	-
43470F000	SMC	Bragg	219	-	-	-	-	-	-	-	-	-	-	-	-	186	(117)
44623G000	JLENS Btry	Bragg	140	-	-	-	-	-	-	-	-	-	-	1	140	219	(219)
44697G000	THAAD Btry	Bragg	127	-	-	-	-	-	-	1	127	-	-	-	-	140	-
55719F000	546th Light-MDM Trk Co	Bragg	171	-	-	-	-	-	-	1	171	-	-	-	-	127	-
55727F300	Mid Trk Co POL	Bragg	169	-	-	-	-	1	169	-	-	-	-	-	-	171	(171)
63400G000	SUSTAIN BDE	Bragg	363	-	-	-	-	-	-	1	363	-	-	-	-	169	-
63702G000	TSC (buy back)	Bragg	132	-	-	1	132	-	-	-	-	-	-	-	-	363	(131)
1200- Wedge	Non-BCT S-1 Standardization	Bragg	2-4	5	20	-	-	-	-	-	-	-	-	-	-	132	-
09447GA00	28 EOD Co	Bragg	44	1	44	-	-	-	-	-	-	-	-	-	-	20	-
09447GA00	722 EOD Co	Bragg	44	-	-	-	-	-	-	-	-	-	-	-	-	44	(23)
09447GA00	737 EOD Co	Bragg	44	-	-	1	44	-	-	-	-	-	-	-	-	44	(23)
09447GA00	767 EOD Co	Bragg	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
01707G100	ER/MP (Warrior) UAS [colocates w/CAB]	Campbell	126	-	505	1	270	-	998	-	681	-	219	-	140	2813	(1,160)
03470F000	NBCRV CS CM 4th Crewmember	Campbell	6	-	-	1	126	-	-	-	-	-	-	-	-	126	-
08457A000	Medical Co (AREA SUPPORT)	Campbell	72	-	-	1	72	1	6	-	-	-	-	-	-	6	-
08948A000	Hospital Co (Retain)	Campbell	52	-	-	-	-	-	-	1	52	-	-	-	-	72	-
12567GF00	HQ R5 Plt HQ	Campbell	8	1	8	-	-	-	-	-	-	-	-	-	-	52	(52)
12567G000	R5 Team	Campbell	6	3	18	-	-	-	-	-	-	-	-	-	-	8	-
19477G000	MP CS Co	Campbell	171	1	171	-	-	-	-	-	-	-	-	-	-	18	-
19880A000	CID MP Detachment	Campbell	24	-	-	-	-	-	-	1	24	-	-	-	-	171	-
34308G000	MI Co (BCT)	Campbell	5	-	-	4	32	-	-	4	20	-	-	-	-	24	-
34-HBCT/IBCT	S2 Staffs	Campbell	8	-	-	4	32	-	-	-	-	-	-	-	-	20	-
55716F001	106th MTR Trk Bn	Campbell	52	-	-	-	-	-	-	1	52	-	-	-	-	32	-
55719F000	494th Light-MDM Trk Co	Campbell	171	-	-	-	-	-	-	1	171	-	-	-	-	52	(52)
09446G000	184 EOD Bn	Campbell	38	-	-	1	38	-	-	-	-	-	-	-	-	171	(171)
09447GA00	49 EOD Co	Campbell	44	1	44	-	-	-	-	-	-	-	-	-	-	38	(35)
09447GA00	723rd EOD Co	Campbell	44	-	-	1	44	-	-	-	-	-	-	-	-	44	(23)
09447GA00	744th EOD Co	Campbell	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
09447GA00	788th EOD Co	Campbell	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
09627G001	52 EOD GP	Campbell	54	-	-	1	54	-	-	-	-	-	-	-	-	44	(23)
0347-HBCT	NBCRV HBCT 4th Crewmember	Carson	2	-	329	-	366	4	6	-	319	-	-	-	-	1020	(402)
05402GL00	Survey & Design Tm	Carson	14	-	-	-	-	-	8	-	-	-	-	-	-	8	-
05417G000	Horizontal Company	Carson	159	-	-	-	-	1	159	1	159	-	-	-	-	14	-
05418G000	Vertical Company	Carson	161	-	-	-	-	-	-	1	161	-	-	-	-	159	-
05435G000	Engr Battalion HQ	Carson	172	-	-	-	-	1	172	-	-	-	-	-	-	161	-

SRC	Unit Description	Desired Station	Sirgh per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
05437G000	Clearance Company	Carson	191	-	-	-	-	-	-	-	-	1	191	-	-	191	
05520G000	Concrete Team	Carson	12	-	-	-	-	1	12	-	-	-	-	-	-	12	
1200-Wedge	Non-BCT S-1 Standardization	Carson	4	1	4	-	-	-	-	-	-	-	-	-	-	4	
42420F001	QM Supply Co	Carson	156	-	-	-	-	-	-	1	156	-	-	-	-	156	
09446G000	242nd EOD Bn	Carson	38	1	38	-	-	-	-	-	-	-	-	-	-	38	(35)
09447G000	62 EOD Co	Carson	44	-	-	-	-	-	-	-	-	-	-	-	-	44	(23)
09447G000	663rd EOD Co (Activation New)	Carson	44	-	-	1	44	-	-	-	-	-	-	-	-	44	(23)
09447G000	748 EOD Co	Carson	44	-	-	1	44	-	-	-	-	-	-	-	-	44	(23)
09447G000	749 EOD Co	Carson	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
09447G000	764th EOD Co	Carson	44	-	-	-	-	-	-	-	-	-	-	1	44	44	(23)
09627G001	71st EOD Group	Carson	54	1	54	-	-	-	-	-	-	-	-	-	-	54	(48)
34105G000	MI Bn (BFSB)	Carson	290	-	-	-	-	-	-	1	290	-	-	-	-	290	
34308G000	MI Co (BCT)	Carson	5	-	-	-	-	-	-	4	20	-	-	-	-	20	
34-HBCT/IBCT	S2 Staffs	Carson	8	-	-	4	32	-	-	-	-	-	-	-	-	32	
43547AH00	TMDE	Carson	7	-	-	-	-	1	7	-	-	-	-	-	-	7	
55606G000	MVMT Cntrl Bn	Carson	59	-	-	1	59	-	-	-	-	-	-	-	-	59	
55506G000	MVMT Cntrl Tm	Carson	21	1	21	-	-	-	-	-	-	-	-	-	-	21	
01707G100	ER/MP (Warrior UAS) [colocates w/CAB]	Drum	126	-	161	-	179	-	358	-	830	-	191	-	44	1763	(198)
03470F000	NBCRV CS CM 4th Crewmember	Drum	6	-	-	-	-	1	6	-	-	-	-	-	-	6	
05330G200	Sapper Company	Drum	103	-	-	-	-	1	103	-	-	-	-	-	-	103	
42420F001	QM Supply Co	Drum	156	-	-	-	-	-	-	1	156	-	-	-	-	156	
09446G000	63 EOD Bn	Drum	36	-	-	-	-	-	-	-	-	-	-	-	-	36	(35)
09447G000	754 EOD Co	Drum	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
09447G000	760 EOD Co	Drum	44	-	-	-	-	-	-	-	-	-	-	-	-	44	(23)
19477G000	MP CS Co	Drum	171	1	171	-	-	-	-	-	-	-	-	-	-	171	
43547AH00	TMDE	Drum	7	-	-	-	-	-	-	-	-	-	-	-	-	-	
55606F000	MVMT Cntrl Tm	Drum	21	-	-	-	-	1	21	-	-	-	-	-	-	21	
55719F000	57th Light/MDM Trk Co	Drum	171	-	-	-	-	-	-	1	171	-	-	-	-	171	(171)
55727F100	Cargo Med Trk Co	Drum	172	-	-	-	-	-	-	1	172	-	-	-	-	172	
34308G000	MI Co (BCT)	Drum	5	-	-	-	-	-	-	3	15	-	-	-	-	15	
34-HBCT/IBCT	S2 Staffs	Drum	8	-	-	3	24	-	-	-	-	-	-	-	-	24	
51802G000	CBRNE HQs	Edgewood	231	-	215	-	24	-	130	-	544	-	-	-	126	1039	(252)
12567GF00	R5 PLT HQ	Eustis	8	1	8	-	-	-	-	-	-	-	-	-	-	0	
12567GG00	R5 Team	Eustis	6	2	12	-	-	-	-	-	-	-	-	-	-	8	
5500-No SRC	JTF-PO Tm	Eustis	55	1	55	-	-	-	-	-	-	-	-	-	-	55	
5500-No SRC	JTF-PO Tm	Eustis	55	1	55	-	-	-	-	-	-	-	-	-	-	55	
5500-No SRC	JTF-PO Tm	Eustis	55	1	55	-	-	-	-	-	-	-	-	-	-	55	
55506G000	MVMT Cntrl Tm	Eustis	21	1	21	-	-	-	-	-	-	-	-	-	-	21	
55613L000	558th Floating Craft MNT Co	Eustis	181	-	-	-	-	-	-	-	-	-	-	-	-	181	(181)
55727F100	Cargo Med Trk Co	Eustis	172	-	-	-	-	-	-	1	172	-	-	-	-	172	
55819F000	359th Inland Cargo Transfer Co (ICTC)	Eustis	162	1	162	-	-	-	-	-	-	-	-	-	-	162	(162)
55819F000	567th Inland Cargo Transfer Co (ICTC)	Eustis	162	-	-	-	-	-	-	1	162	-	-	-	-	162	
55889F000	73rd Floating Craft Co	Eustis	85	-	-	-	-	-	-	-	-	-	-	-	-	85	(85)
11604G000	Theater Network Capability Module	Gordon	7	1	368	-	-	-	-	-	334	-	-	-	-	702	(428)
01707G100	ER/MP (Warrior UAS) [colocates w/CAB]	HAAF/Stewart	126	-	-	-	-	-	-	-	-	1	126	-	-	126	

SRC	Unit Description	Desired Station	Strght per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
10414L000	QM FLD SVC Co	HAAF	122	-	-	-	-	1	122	-	-	-	-	-	-	122	(122)
10560L000	QM PETRL LNO Tm	HAAF	10	-	-	1	10	-	-	-	-	-	-	-	-	10	-
03470F000	NBCRV CS CM 4th Crewmember	HI-Schofield	6	-	-	-	-	1	6	-	-	-	126	-	-	258	(122)
34308G000	MI Co (BCT)	HI-Schofield	5	-	-	-	-	-	-	1	5	-	-	-	-	5	-
34-HBCT/IBCT	S2 Staffs	HI-Schofield	8	-	-	1	8	-	-	-	-	-	-	-	-	8	-
1200- Wedge	Non-BCT S-1 Standardization	HI-Schofield	1-3	2	4	-	-	-	-	-	-	-	-	-	-	4	-
05330G200	Sapper Company	HI-Schofield	103	-	-	-	-	-	-	1	103	-	-	-	-	103	-
05435G000	130 Engr Brigade HQ	HI-Schofield	124	1	124	-	-	-	-	-	-	-	-	-	-	124	-
05601G100	Construction Mgmt Tm	HI-Schofield	9	-	-	-	-	-	-	1	9	-	-	-	-	9	-
09447GA00	706th EOD Co	HI-Schofield	44	-	-	-	-	-	-	-	-	1	44	-	-	44	(23)
190Non-existent	MP Det (Law & Order) SBCT	HI-Schofield	42	-	-	1	42	-	-	-	-	-	-	-	-	42	-
19477G000	MP CS Co	HI-Schofield	171	-	-	1	171	-	-	-	-	-	-	-	-	171	-
19886A000	CID Bn	HI-Schofield	44	-	-	1	44	-	-	-	-	-	-	-	-	44	-
4300-OTHER	SBCT MAINT	HI-Schofield	100	0.33	33	0.33	33	0.34	34	-	-	-	-	-	-	100	-
X09447GA00	30th EOD Co (Activation New)	HI-Schofield	36	-	-	-	-	1	36	-	-	-	-	-	-	36	-
X09447GA00	74th EOD Co (Activation New)	HI-Schofield	44	-	-	-	-	1	44	-	-	-	-	-	-	44	-
01707G100	TSC (buy back)	HI-Shafter	154	-	-	1	154	-	-	-	-	-	-	-	-	154	-
	ER/MP (Warrior UAS) [colocates w/CAB]	HI-Wheeler AAF	126	-	-	-	-	1	126	-	-	-	-	-	-	126	-
01707G100	ER/MP (Warrior UAS) [colocates w/CAB]	Hood	126	-	-	-	-	-	-	1	126	-	-	-	-	126	-
03420F300	Eliminate BIDS CLS in HVY CM	Hood	2	-	-	-	-	1	2	-	-	-	-	-	-	2	-
03470F000	NBCRV CS CM 4th Crewmember	Hood	6	-	-	-	-	-	-	-	-	1	6	-	-	6	-
0347-HBCT	NBCRV HBCT 4th Crewmember	Hood	2	-	-	-	-	4	8	-	-	-	-	-	-	8	-
05437G000	Clearance Company	Hood	191	-	-	-	-	-	-	-	-	1	191	-	-	191	-
05601G100	Construction Mgmt Tm	Hood	9	-	-	-	-	-	-	1	9	-	-	-	-	9	-
08527AA00	Hospital AUG Tm Head & Neck Surgery	Hood	6	-	-	-	-	1	6	-	-	-	-	-	-	6	-
08948A00	Hospital Co (Retain)	Hood	52	-	-	-	-	-	-	1	52	-	-	-	-	52	(52)
1200- Wedge	Non-BCT S-1 Standardization	Hood	1-4	4	11	-	-	-	-	-	-	-	-	-	-	11	-
09446G000	79 EOD Bn	Hood	38	1	38	-	-	-	-	-	-	-	-	-	-	38	(35)
09447GA00	704 EOD Co	Hood	44	-	-	-	-	-	-	-	-	-	-	-	-	44	(23)
09447GA00	75 EOD Co	Hood	44	-	-	1	44	-	-	-	-	-	-	-	-	44	(23)
09447GA00	752 EOD Co	Hood	44	-	-	-	-	-	-	-	-	-	-	-	-	44	(23)
09447GA00	797 EOD Co	Hood	44	1	44	-	-	-	-	-	-	-	-	-	-	44	(23)
12567G100	Casualty Liaison Team	Hood	5	-	-	5	25	-	-	-	-	-	-	-	-	25	-
12567G000	Postal Plt	Hood	21	-	-	2	42	-	-	-	-	-	-	-	-	42	-
12567GH00	Casualty Platoon HQ	Hood	2	-	-	1	2	-	-	-	-	-	-	-	-	2	-
49225G000	504th BfSB (R&S Squadron)	Hood	359	-	-	1	359	-	-	-	-	-	-	-	-	359	-
34308G000	MI CO (BCT)	Hood	5	-	-	-	-	-	-	4	20	-	-	-	-	20	-
34-HBCT/IBCT	S2 Staffs	Hood	8	-	-	4	32	-	-	-	-	-	-	-	-	32	-
43573F000	Trk Recovery Team	Hood	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44602A000	ADA BDE Hqs (EAC)	Hood	123	1	123	-	-	-	-	-	-	-	-	-	-	123	-
44623G000	JLENS Btry	Hood	140	-	-	-	-	-	-	-	-	-	-	1	140	140	-
44635G000	Patriot Bn	Hood	608	-	-	-	-	1	608	-	-	-	-	-	-	608	-
44697G000	THAAD Btry	Hood	127	-	-	-	-	-	-	-	-	1	127	-	-	127	-
55727F100	70th Cargo Med Trk Co (Restationing)	Hood	172	-	-	1	172	-	-	-	-	-	-	-	-	172	-
03420F300	Eliminate BIDS CLS in BIDS Co	Hood	5	-	-	-	-	2	10	-	-	-	-	-	-	10	-
09447GA00	759th EOD Co	Irwin	44	-	-	-	-	-	634	207	207	-	324	1	140	2197	(179)
19880A000	CID MIP Detachment	Irwin	21	-	-	-	-	-	-	1	21	-	-	-	-	21	(23)



SRC	Unit Description	Desired Station	Sirgh per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
1200- Wedge	Non-BCT S-1 Standardization	Irwin	3	1	3											3	
X09447GA00	EOD Co (Activation New)	Irwin	44							1	44					44	
3400-OTHER	Linguist Company 09L	Irwin	156			1	156									156	
09447GA00	703th EOD Co	Knox	44	1	44		44				65				44	268	(23)
34308G000	MI Co (BCT)	Knox	5							1	5					5	(23)
34-HBCT/IBCT	S2 Staffs	Knox	8			1	8									8	
34308G000	MI Co (BCT)	KOR - Cp Casey	5							1	5					5	
1200- Wedge	Non-BCT S-1 Standardization	KOR - Cp Casey	1	1	1											1	
34-HBCT/IBCT	S2 Staffs	KOR - Cp Casey	8			1	8									8	
0347-HBCT	NBCRV HBCT 4th Crewmember	KOR - Cp Casey	2					1	2							2	
09447GA00	718th EOD Co	KOR - Humphry	44											1	44	44	(23)
03420F300	Eliminate BIDS CLS in HVY CM	KOR - Cp Casey	2					1	2							2	
01707G100	ERMP (Warrior UAS) [colocates w/CAB]	KOR - Stanley	126											1	126	126	
19543A000	MP I/R Detachments	Leavenworth	24			3	72	3	72		5				170	188	(23)
19646A000	MP I/R Bn	Leavenworth	79					1	79							79	(72)
19653A000	MP I/R Company	Leavenworth	124							1	124					124	
55272F300	Mid Trk Co POL	Lee	169			1	169				151					347	(72)
10560L000	QM PETRL LNO Trn	Lee	10									1	10			10	
1200- Wedge	Non-BCT S-1 Standardization	Lee	3	1	3											3	
05437G000	Clearance Company	Leonard Wood	191													191	
11307G600	Signal Network Spt Co	Leonard Wood	55			1	55									55	
37300G000	CSB (ME) HQs	Leonard Wood	175			1	175									175	
63355G000	CSB(ME) BSB	Leonard Wood	348			1	348									348	
03420F300	Eliminate BIDS CLS in HVY CM	Lewis	2					1	2							2	
03470F000	NBCRV CS CM 4th Crewmember	Lewis	6					1	6							6	
03537AA00	6th TEU Co HQ (Chem)	Lewis	8					1	8							8	
05435G000	555 Engr Brigade HQ	Lewis	124													124	(124)
05434L000	Engr Pipeline Const Co	Lewis	170							1	170					170	(170)
05601GT00	Construction Mgmt Trn	Lewis	9					1	9							9	
08457A000	Medical Co (Area Support)	Lewis	72			1	72									72	
1200- Wedge	Non-BCT S-1 Standardization	Lewis	2	2	4											4	
09446G000	3rd EOD Bn	Lewis	36	1	36											36	(35)
09447GA00	129th EOD Co (Activation New)	Lewis	44			1	44									44	
09447GA00	53th EOD Co	Lewis	44			1	44									44	(23)
09447GA00	707 EOD Co	Lewis	44													44	(23)
09447GA00	787 EOD Co	Lewis	44													44	(23)
12567G00	HQ R5 Plt HQ	Lewis	8	1	8											8	
12567G00	R5 Team	Lewis	6	3	18											18	
49225G000	152nd BfSB (R&S Squadron)	Lewis	359					1	359							359	
190Non-existent	MP Det (Law & Order) SBCT	Lewis	42	1	42			1	42							42	
19543A000	MP I/R Detachments	Lewis	24													24	
19653A000	MP I/R Company	Lewis	124			1	124									124	
34308G000	MI Co (BCT)	Lewis	5													5	
34-HBCT/IBCT	S2 Staffs	Lewis	8													8	

SRC	Unit Description	Desired Station	Strght per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers
4300-OTHER	SBCT MAINT	Lewis	300	0.33	99	0.33	99	0.34	102							300	
44623G000	JLENS Btry	Lewis	140											1	140	140	
45413L000	MPAD	Lewis	20							1	20					20	(20)
55506G000	MVMT Cntrl Tm	Lewis	21			1	21									21	
63702G100	ESC	Lewis	254							1	254					254	
43547A100	TMDE	Lewis	7					1	7							7	
GenFor	The Old Guard (TOG)	Myers/MDW	156	1	156		446		535		516				140	1844	(418)
03410F000	Eliminate BIDS CLS in BIDS Co	Polk	5		156			2	10							156	
03470F000	NBCRV CS CM 4th Crewmember	Polk	6									1	6			6	
08567G000	Medical Tm (Optometry)	Polk	6			1	6									6	
08948A000	Hospital Co (Retain)	Polk	52							1	52					52	(52)
09447G000	705th EOD Co	Polk	44									1	44			44	(23)
19880A000	CID MP Detachment	Polk	21					1	21							21	
3400-OTHER	Linguist Company 09L	Polk	156					1	156							156	
34308G000	MI Co (BCT)	Polk	5							1	5					5	
34-HBCT/IBCT	S2 Staffs	Polk	8			1	8									8	
X09447GA00	34th EOD Co (Activation New)	Polk	44							1	44					44	
01707G100	ER/MP (Warrior UAS) [colocates w/CAB]	Riley	126						187		101		50			352	(75)
03470F000	NBCRV CS CM 4th Crewmember	Riley	6										1		126	126	
0347-HBCT	NBCRV HBCT 4th Crewmember	Riley	2					2	4							4	
05402GL00	Survey & Design Tm	Riley	14					1	14							14	
05417G000	Horizontal Company	Riley	159					1	159	1	159					318	
05418G000	Vertical Company	Riley	161					1	161							161	
05435G000	Engr Battalion HQ	Riley	172					1	172							172	
05437G000	Clearance Company	Riley	191							1	191					191	
05520GB000	Concrete Team	Riley	12							1	12					12	
09446G000	84 EOD Bn	Riley	36													36	(35)
09447G000	774th EOD Co	Riley	44							1	44					44	(23)
19477G000	287 MP CS Co	Riley	171	1	171											171	
34308G000	MI Co (BCT)	Riley	5							3	15					15	
34-HBCT/IBCT	S2 Staffs	Riley	8			3	24									24	
42420F003	QM Supply Co	Riley	186														
55606G000	MVMT Cntrl Tm	Riley	21			1	21									21	
09447GA00	630 EOD Co	Riley	44													44	
11653G900	Strategic Signal Company (DSCS)	Riyad SA	99		171		45		510		421		6		126	1279	(58)
1200- Wedge	Non-BCT S-1 Standardization	Ruckers	3	1	3											0	
08480G000	Medical Logistics Co (Retain)	Sam Houston	80		3											3	
08480G000	Medical Logistics Co (Retain)	Sam Houston	80							1	80					80	(80)
08489A000	Blood Support DETA (Retain)	Sam Houston	30							1	30					30	(80)
08567GA00	Medical Tm (Optometry)	Sam Houston	6			1	6									6	(30)
09447GA00	761st EOD Co	Sill	44				6				190					196	(190)
1200- Wedge	Non-BCT S-1 Standardization	Sill	3	1	3											44	(23)
44635G000	Patriot Bn	Sill	610	1	610											610	

SRC	Unit Description	Desired Station	Strigth per unit	FY08	FY08 Total Pax	FY09	FY09 Total Pax	FY10	FY10 Total Pax	FY11	FY11 Total Pax	FY12	FY12 Total Pax	FY13	FY13 Total Pax	TOTAL PAX	Existing Soldiers	
43573F000	Trk Recovery Team	Sill	4		-		-		-		-		-		-			(23)
03470F000	NBCRV CS CM 4th Crewmember	Stewart	6		613		-		-	1	6		-		44	657		(23)
0347-HBCT	NBCRV HBCT 4th Crewmember	Stewart	2		-		-	3	6		-		-		-	6		
09447GA00	731 EOD Co	Stewart	44		-		-		-		-		-		-	44		(23)
09447GA00	756th EOD Co	Stewart	44	1	44		-		-		-		-		-	44		(23)
09447GA00	766th EOD Co	Stewart	44	1	44		-		-		-		-		-	44		(23)
12410G000	HR Co. Recap	Stewart	197	1	197		-		-		-		-		-	197		
19477G000	139 MP CS Co	Stewart	171	1	171		-		-		-		-		-	171		
34308G000	MI Co (BCT)	Stewart	5		-		-		-	3	15		-		-	15		
34-HBCT/IBCT	S2 Staffs	Stewart	8		-		24		-		-		-		-	24		
42420F002	QM Supply Co	Stewart	186		-		-		-	1	186		-		-	186		(117)
					456		24		6		207		-		-	693		(186)

## Appendix X: Projected National Guard and Reserve Component Growth

### Alternative 2: Army National Guard Growth

Summary: The Army National Guard Growth plan totals 8,200 soldiers.

UNIT TYPE	STATION	STATE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	GROWTH
Military Police Platoon	PHILADELP	PENNSYLVANIA						1		42
BFSB, SIGNAL CO	UNKNOWN	UNKNOWN				1				47
BFSB, Brigade Troops BN	UNKNOWN	UNKNOWN		1						310
BFSB, Forward Support CO	ATLANTA	GEORGIA			1					124
Battlefield Surveillance Brigade	UNKNOWN	UNKNOWN		1						142
BFSB, Forward Support CO	OMAHA	NEBRASKA		1						124
Engineer BDE / Grp, THEATER	VICKSBURG	MISSISSIPPI	1							125
CBRNE COMMAND	ABERDEEN	MARYLAND	1							3
ENGINEER BN , COMBAT	UNKNOWN	UNKNOWN			1					175
ENGINEER BN , COMBAT	UNKNOWN	UNKNOWN			1					175
ENGINEER BN , COMBAT	UNKNOWN	UNKNOWN						1		173
ENGINEER CO , Support	UNKNOWN	UNKNOWN					1			121
ENGINEER CO , Support	UNKNOWN	UNKNOWN					1			121
ENGINEER CO , CLEARANCE	UNKNOWN	UNKNOWN							1	191
ENGINEER CO , MOBILTY AUG	UNKNOWN	UNKNOWN						1		118
ENGINEER CO , SAPPER	UNKNOWN	UNKNOWN			1					104
ENGINEER CO , SAPPER	UNKNOWN	UNKNOWN						1		104
ENGINEER CO , SAPPER	UNKNOWN	UNKNOWN						1		104
ENGINEER CO , MULTI-ROLE BRIDGE	UNKNOWN	UNKNOWN					1			185
Engineer TM , FIRE FIGHTING TEAM	UNKNOWN	UNKNOWN			1					7
Engineer TM , CONSTRUCTION	UNKNOWN	UNKNOWN			1					25
ORDNANCE CO (EOD)	FT BUCHAN	PUERTO RICO		1						44
QUARTERMASTER CO, WATER	BARNWELL	SOUTH CAROLINA			1					188
HR PLT / DET / TM	UNKNOWN	UNKNOWN			1					10
HR PLT / DET / TM	UNKNOWN	UNKNOWN			1					10
MILITARY POLICE CBT SPT, BN	UNKNOWN	UNKNOWN		1						73
MILITARY POLICE CBT SPT, BN	UNKNOWN	UNKNOWN		1						73
MILITARY POLICE CBT SPT, BN	UNKNOWN	UNKNOWN		1						73
MILITARY POLICE CBT SPT, BN	UNKNOWN	UNKNOWN					1			73
MILITARY POLICE I/R, BN	AUBURN	NEW YORK			1					151
MILITARY POLICE CBT SPT, CO	UNKNOWN	UNKNOWN		1						170
MILITARY POLICE CBT SPT, CO	UNKNOWN	UNKNOWN		1						170
MILITARY POLICE CBT SPT, CO	UNKNOWN	UNKNOWN					1			170
MILITARY POLICE CBT SPT, CO	UNKNOWN	UNKNOWN					1			170
MILITARY POLICE CBT SPT, CO	UNKNOWN	UNKNOWN					1			170
HHD TRANSPORTATION BN	MARION	SOUTH CAROLINA		1						51
3RD MEDIC IN BCTs	UNKNOWN	UNKNOWN			1					426
A & I PLT IN BCT	UNKNOWN	UNKNOWN			1					476

BIDS CLS CONVERSION	UNKNOWN	UNKNOWN				1				28
BN S2 UPGRADE IN BCT	UNKNOWN	UNKNOWN			1					224
DEP CDR OFFICER	UNKNOWN	UNKNOWN			1					30
<b>UNIT TYPE</b>	<b>STATION</b>	<b>STATE</b>	<b>FY07</b>	<b>FY08</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>GROWTH</b>
NBCRV CREW UPDATE	UNKNOWN	UNKNOWN			1					96
PSDR	UNKNOWN	UNKNOWN			1					1900
SBCT HQ STAFF INCREASE	UNKNOWN	UNKNOWN			1					24
SBCT MAINTENANCE	UNKNOWN	UNKNOWN			1					113
SMALL ARMS MAINT	UNKNOWN	UNKNOWN			1					767
									<b>Total</b>	<b>8200</b>

**Summary of increases to Existing Units**

**Alternative 2: Army Reserve Growth**

Summary: The Army Reserve Growth plan totals 1,000 soldiers.

UNIT TYPE	STATION	LOCATION	FY2010	FY2011	FY2012	FY2013	TOTAL GROWTH
SUSTAINMENT BDE	UNKNOWN	UNKNOWN				1	363
Combat Support Brigade (CSB ME), HQ	UNKNOWN	UNKNOWN				1	176
CSB ME, SIGNAL CO	UNKNOWN	UNKNOWN			1		55
CSB ME, Brigade Support BN	UNKNOWN	UNKNOWN				1	210
BIDS CLS CONVERSION	UNKNOWN	UNKNOWN	1				100
NBCRV CREW UPDATE	UNKNOWN	UNKNOWN	1				96
						<b>Total</b>	<b>1000</b>