

THE COSTS AND BENEFITS OF ADDING A THIRD MANEUVER BATTALION  
TO THE BRIGADE COMBAT TEAM

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

### THE COSTS AND BENEFITS OF ADDING A THIRD MANEUVER BATTALION TO THE BRIGADE COMBAT TEAM, by MAJ Francis R. Moss, 96 pages

The two-maneuver battalion design of the modular brigade combat team (BCT) was intended to be as lethal as pre-modularity Army of Excellence brigades while creating as many BCTs as possible. The troop density required for conducting stability operations was not a consideration of the design. The Army has had two opportunities to add troops to the modular BCTs, in January 2004 and in December 2007. In both instances, the decision was to add BCTs. This study identifies the costs and benefits of adding a third maneuver battalion to existing modular BCTs instead of adding BCTs. The research did show that through leveraging capabilities built into existing BCTs, the Army would gain 13 additional battalions. Adding maneuver battalions achieves a cost savings of \$7.590 billion. With the Army short approximately 3,000 captains and majors, this study found that adding battalions reduces the need to 54.6% of adding BCTs. Finally, this study found that adding battalions does not affect the Army's Force Generation model. This study recommends that the Army not add six additional IBCTs to the force structure and that it discontinue the conversion of the four remaining heavy brigades in order to add battalions to existing modular BCTs.

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## ACRONYMS

AASLT	Air Assault
AC	Active Component
ACR	Armored Cavalry Regiment
ACS	Army Chief of Staff
AOE	Army of Excellence
ARCIC	Army Capabilities and Integration Center
ARFORGEN	Army Force Generation
ARNG	Army National Guard
ARS	Armored Reconnaissance Squadron
AUSA	Association of the United States Army
BCT	Brigade Combat Team
BRT	Brigade Reconnaissance Troop
BSB	Brigade Support Battalion
BSTB	Brigade Special Troops Battalion
C2	Command and Control
C3ISR	Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance
CAB	Combined-Arms Battalion
CFLCC	Combined Forces Land Component Command
COA	Course of Action
COE	Contemporary Operational Environment
DISCOM	Division Support Command



DIVARTY	Division Artillery
EAB	Echelons above Brigade
EXFOR	Experimental Force
FDC	Fire Direction Center
FM	Field Manual
FMI	Field Manual Interim
FSO	Full-Spectrum Operations
G3	Plans
GTA	Grow the Army
GWOT	Global War on Terror
HBCT	Heavy Brigade Combat Team
HMMWV	High Mobility, Multi-purpose, Wheeled Vehicle
HUMINT	Human Intelligence
IBCT	Infantry Brigade Combat Team
IFV	Infantry Fighting Vehicle
IPB	Intelligence Preparation of the Battlefield
ISR	Intelligence, Surveillance, and Reconnaissance
LCD XXI	Limited Conversion Division XXI
LMSR	Large, Medium Speed, Roll-on/roll off
MCO	Major Combat Operations
MEB	Maneuver Enhancement Brigade
MECH	Mechanized
METL	Mission Essential Task List

MOS	Military Occupational Specialty
NAI	Named Area of Interest
NCO	Network-Centric Operations
NCW	Network-Centric Warfare
NEO	Noncombatant Evacuation Operation
NGAUS	National Guard Association of the United States
SBCT	Stryker Brigade Combat Team
QDR	Quadrennial Defense Review
RC	Reserve Component
RISTA	Reconnaissance, Intelligence, Surveillance, and Target Acquisition
ROAD	Reorganize Objective Army Division
TCF	Tactical Combat Force
TCP	Transformation Campaign Plan
TOW	Tube-launched, Optically-tracked, Wire-guided missile
TRAC	TRADOC Analysis Center
TRADOC	Training and Doctrine Command
UAV	Unmanned Aerial Vehicle
USAFMSA	United States Army Force Management Support Agency
WMD	Weapons of Mass Destruction

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## CHAPTER ONE

### INTRODUCTION

We will tailor our units under modularity to transition and transform the force from a divisional-based Army to a brigade-based Army. We are literally pushing down assets to make brigades more autonomous. (December 16, 2004)  
Major General J.D. Thurman, U.S. Department of Defense website

Throughout its 233 year history, the Army has established a long history of experimentation and reorganization of its combat formations to meet the challenges of a forever changing battlefield. In the 20th Century alone, the Army, on average, conducted a major force design review and experimentation every ten years. Some of these initiatives were in response to an immediate threat while others were attempts to anticipate future needs (Hawkins 1997, 1). Today's Army Transformation Initiative is an example of an attempt to anticipate future strategic and operational needs.

The basis for this process is the realization after the 1990 Gulf War and the fall of the Soviet Union in 1991 that the U.S. no longer has a peer competitor in the realm of major combat operations. Furthermore, operations in Somalia in 1993 and Kosovo in 1999 indicated that the very nature of warfare may have changed, where not only nations, but transnational actors and non-nation state entities would challenge and redefine the way conflicts are fought and won (White Paper 2000,. 2). In this new paradigm, major combat operations would be the exception rather than the norm and most military operations would be short notice, expeditionary, would largely involve operations on the low-intensity end of the spectrum of military operations, and the Army would most likely be conducting such operations on an almost continual basis (Transformation Roadmap 2004, 3-1).

On October 12, 1999, Army Chief of Staff, General Eric Shinseki, announced his vision to transform the Army in a speech delivered during the Association of the United States Army (AUSA). In it he challenged the Army to create “strategic dominance across the entire spectrum of operations” and he identified his seven broad goals for the army to be more responsive, deployable, agile, versatile, lethal, survivable, and sustainable (Shinseki 2000).

On April 9, 2001 the Army published its Transformation Campaign Plan (ATCP) in an effort to synchronize and guide the Army through Shinseki’s vision. The Campaign Plan identified the changes in the operational environment and, given this new operational environment, outlined the Army’s plan to embark upon a massive reorganization of not only the active Army, but also to transform the Army National Guard and Army Reserve from a strategic reserve force to an operational force. The centerpiece of the plan was the creation of 70 modular brigade combat teams (Army Transformation Campaign Plan 2000, 10). These reorganized brigades would be combined arms formations with organic assets that were previously only task organized from the division. The intent was to create a smaller, more deployable force that would maximize the use of joint enablers, and that this force would later transition the Future Combat System.

In September 2004, the 3<sup>rd</sup> Infantry Division (MECH) and the 101<sup>st</sup> Infantry Division (AASLT) were the first divisions ordered to transform from their Army of Excellence (AOE) structure consisting of three maneuver brigades, a field artillery brigade (Division Artillery - DIVARTY), an engineer brigade, a combined air-ground aviation brigade, a support brigade (Division Support Command – DISCOM) and several

divisional separate battalions to a structure consisting of four balanced maneuver brigades, a pure aviation brigade, and a special troops battalion consisting of the division headquarters company, a signal company, and the division band. The other brigade and battalion commands were disbanded and their subordinate forces were rolled into the five remaining brigades. This reorganization redistributed the combat power of a division's ten existing maneuver battalions four ways.

To accomplish this, the Army Chief of Staff (CSA) approved the current modular BCT design built around two maneuver battalions and a reconnaissance squadron where it had previously been built around three maneuver battalions and a reconnaissance troop. This reorganization reduced the number of maneuver companies in the brigade from nine to eight, but increased the number of reconnaissance troops from one to three.

Although the two-battalion structure has been successful in simulations for major combat operations and it has proven capable of conducting operations in Iraq and Afghanistan, there has been a growing concern that the modular infantry brigade combat team (IBCT) and the heavy brigade combat team (HBCT) are lacking in the number of infantry necessary to be successful in operations at the low-intensity end of the operational spectrum. Recent operations in Iraq show that brigades are being split-up by their higher commanders in an attempt to better distribute the available combat power and brigade commanders are using the reconnaissance squadrons and artillery battalions as their maneuver battalions in an attempt to achieve a satisfactory number of "boots on the ground" for stability operations.

In January 2007 the Grow the Army (GTA) plan was announced, calling for a 74,000 increase in Army troop strength by 2010. On December 19, 2007, the Army

announced that the GTA troop increase would be used to add six additional IBCTs and eight support brigades to the force structure. All six of the additional IBCTs are to be added to the active component force and were deemed necessary to create the force pool to meet strategic needs (Army Posture Statement 2007).

This thesis addresses the question: What is the benefit realized by adding a third maneuver battalion to existing Brigade Combat Teams (BCTs) versus creating additional brigades? The problem question requires answers to the following:

1. Is the reconnaissance squadron the third maneuver battalion in the BCT?
2. What capabilities are required to conduct stability operations versus traditional major combat operations?
3. What effect would adding battalions versus brigades have on the Army's force generation model (ARFORGEN)?
4. Would adding a third maneuver battalion make the modular BCTs less expeditionary?
5. What effect would the addition of a third maneuver battalion have upon the sustainment warfighting function?
6. What are the costs associated with the Army's current plan to add six additional IBCTs versus adding battalions to existing BCTs?
  - a. What are the personnel costs?
  - b. What are the monetary costs?
7. What options are available for resourcing these additional battalions?



### Assumptions

The underlying assumption of this thesis is that the Army requires additional combat forces in order to meet the needs of the Contemporary Operational Environment (COE). Another assumption is that although the Army has looked at the “Two versus three” problem on more than one occasion, the problem was approached as a comparison to the Army of Excellence (AOE) designs and not as an analysis of meeting future needs. Another assumption of this thesis is that ongoing operations in Iraq and Afghanistan provide clarity as to the true nature of future warfare in the COE. The final assumption of this thesis is that the current modular BCT designs are optimized for conducting major combat operations prior to fully understanding the true nature of future warfare in the COE.

### Limitations

This thesis covers a period in time from 1983, with the development of the Army of Excellence (AOE) to the present, with the May 13, 2008, statement by Secretary of Defense Robert Gates that the military needs to focus on the type of conflict being fought in Iraq. The core research for this thesis is limited to the decisions for structuring the modular BCT from October 12, 1999, when Army Chief of Staff, General Eric Shinseki, announced his vision to transform the Army, and December 19, 2007, the day the Army announced its plan to add six IBCTs to the force structure, an increase from the 70 BCTs announced in the 2006 Quadrennial Defense Review (QDR).

This thesis includes doctrinal concepts from the February 2008 edition of FM 3-0, Operations, and the author realizes that there is significant lag as the rest of the Army’s

doctrine must now change as a result of the update to this capstone document. Therefore, this thesis is limited to official and emerging doctrine only as it is currently published.

Where applicable, this thesis will address doctrine and organizational designs prior to 1999, but this information will be used only to frame decisions made during the core research period. This thesis is further limited to an examination of the infantry brigade combat team (IBCT) and heavy brigade combat team (HBCT) and will not address changes to the Stryker brigade combat team (SBCT), the armored cavalry regiment (ACR), or the legacy force.

Finally, this thesis is limited to unclassified sources. Although greater accuracy could be achieved through access to classified sources, it is the intent of the author to keep this discussion in the public view and therefore no classified information has been used in this study.

## CHAPTER 2

### LITERATURE REVIEW

I think it is so important to improve the quality of what we are doing by a magnum jump... I want to really leave in your mind a mission of doing it better... of establishing standards and enforcing them, of making people do it again if they are wrong... we will contribute and save lives and have a better Army and it will take years for this to percolate all the way... believe what you are doing, don't believe what I say. (June 7, 1973)

Lieutenant General William DePuy, *An Army at War*

To have a complete understanding of the modular BCT designs, we must first have an understanding of how the Army was structured and how it has been and continues to be transformed. Additionally, we must understand how ground maneuver warfare has changed as a result of the COE, the concepts of Net-Centric Warfare (NCW), Full-Spectrum Operations (FSO), and the Army Force Generation (ARFORGEN) model.

#### The All-Volunteer Army and the Nunn Amendment

The end of the Vietnam War came with several significant changes to how the Army would be manned and organized. The most significant of these were the transition to an All-Volunteer Army and the Nunn Amendment.

President Nixon created the Gates Advisory Commission in 1969 to devise a way of setting up an all-volunteer military. In spite of concerns that ending conscription would weaken the nation's defensive capabilities, Nixon signed the legislation in 1971 which created the all-volunteer force and in January 1973 the end of the draft was formally announced. The All-Volunteer Army is often credited as being the world's strongest fighting force, attracting recruits who are better educated and more skilled than those who served during the draft. Today, after four years of war in Iraq and Afghanistan, and

multiple deployments throughout the world, the all-volunteer Army is experiencing recruiting shortfalls for the first time since the late 1970s (Rostker 2006). Of particular note is a growing shortage of officers in the grades of captain and major estimated to be approximately 3,000 and growing (Galloway 2007).

In 1974, Congress began to express concerns over the Army's "tooth-to-tail," the ratio of combat personnel to headquarters and support personnel, during the post-Vietnam drawdown. Concerns over the possibility of Soviet aggression in Europe increased with due to the apparent supremacy of Soviet high-technology weapons as demonstrated during the 1973 Yom Kippur War. As a result, Senator Sam Nunn of Georgia authored the bill which stated that "the non-combat component of the total United States military strength in Europe authorized as of June 30, 1974, shall be reduced by 18,000." The Army bore the bulk of this burden with 12,175 (The Other End of the Spear 2007, 33-34).

The All-Volunteer Army and the Nunn Amendment are significant as they set the parameters for the size of the Army today. The All-Volunteer Army is limited to the proportion of the American Population not only willing to serve, but who are physically and mentally fit to serve. The Nunn Amendment, although not significant in Congress' ability to set limits upon the size of the Army, is significant in that it is a precedent example of how Congress may intervene in the event that policy makers do not believe that the military is organized to meet the overall strategic needs of the country.

### The Army of Excellence

When the Army of Excellence (AOE) BCT was created in 1983, the mainstay of offensive maneuver was the movement to contact (Army of Excellence 2007). The

movement to contact was executed when a commander desired to engage the enemy, but was uncertain about his exact location and disposition. To offset this uncertainty, the BCT commander would send his reconnaissance, usually a company-sized element, forward of his force in order to “find” the enemy and to direct the rest of the brigade forward to the engagement. As there would still be considerable uncertainty, the BCT commander would attempt to meet the enemy with the greatest amount of firepower possible upon initial contact, usually two reduced battalions, and “fix” him at his current location. Once fixed, the BCT commander would then maneuver his main effort force, typically a reinforced battalion, against an exposed flank or seam, and “finish” the attack. This is commonly called the “Two-forward, one back” method of maneuver. As synchronizing the maneuver of these forces is incredibly difficult, the BCT commander would organize a reserve force, usually a reinforced company, which could be repositioned to prevent the failure of the attack, or to exploit success (Doughty 1979, 45).

### Division XXI

With the Division XXI experiments of 1994 came an effort to reduce the necessity to conduct a movement to contact through leveraging emerging command, control, communications, intelligence, surveillance, and reconnaissance (C3ISR) technologies. It was discovered that if the BCT was organized with organic reconnaissance troops, rather than having to task a combat maneuver company for the task, and contained its own electronic sensor teams and unmanned aerial vehicles (UAV), the BCT could dedicate less combat power to finding the enemy and it could operate over a much wider area. The experiments concluded that a fully “digitized” force could be reduced 25% in combat power, could operate effectively over a 140% larger area of

operations, and be more lethal. Therefore, a Force XXI BCT was reorganized from three battalions of four companies each, to three battalions of three companies each.

Additionally, the BCT received an organic brigade reconnaissance troop (BRT), and had a locked task organization that included fires, engineers, air defense, military police, intelligence, communications, chemical, and logistics (Twohig 1998).

The key to Force XXI operations was the concept of finding the enemy out of direct fire contact, then to fix him with indirect and joint fires, rather than using the BCT's direct fires. This allowed a greater opportunity to develop the situation and to direct combat power from over a much more dispersed area and to mass fires, rather than maneuver forces. As the Force XXI BCT would operate over an area that was too large to maneuver ground forces to any particular location in a timely manner, the effectiveness of a reserve was greatly reduced. The BCT commander would rely upon joint interoperability and precision fires in place of a large reserve.

Although tested in simulations and force-on-force mock warfare, the Force XXI experiments were deemed successful enough to have all heavy BCTs in the Army be converted to what was called the "Limited Conversion Division XXI (LCD XXI)" BCT, where the BCT was reorganized like the Force XXI BCT, but did not receive the full suite of C3ISR systems. Whereas the Force XXI BCT was determined to be far superior to its predecessors, these LCD XXI BCTs were deemed just as effective as their AOE BCT.

One of the key limiting factors to the size of the area of operations a BCT could control was communications and the ability to maneuver forces to a given location once the enemy was discovered. Whereas the AOE BCT was limited to approximately 100 x

100 kilometers of communications capability and primarily it's organic ground combat units, the Force XXI BCT had the ability to command and control (C2) forces over a 140 x 200 kilometer area of operations and to leverage joint assets in addition to its organic ground combat units (TRADOC PAM 525-5 1994, 3-18).

### The Modular Force

Modularity has taken the Force XXI concept further, by giving the BCT commander not just one troop, but an entire reconnaissance squadron in order operate over an even wider area of operations. As the capability of C3ISR systems has improved, there has been a movement away from “find, fix, and finish” toward “see first, understand first, act first, and finish decisively.” (Network-Centric Warfare 2005, 51) As the BCT commander is more capable of identifying the enemy early and fixing or destroying him with fires or joint assets, the necessity of a separate fixing force and reserve force has all but been eliminated. In Network-Centric Operations (NCO), the organic reconnaissance of the BCT will find the enemy outside of direct fire range, fix the enemy with indirect and joint fires, and maneuver the remainder of the force to simply finish the enemy.

With the Global War on Terror (GWOT) came the need for strategic depth in the Army. This strategic depth came from the ability to have many forces that could be disbursed over a wide area, linked via an information network that would allow information sharing and the massing of effects versus the massing of forces. As indicated above, with digitization, a much smaller force could operate over a wider geographic area and require less of a reserve. This concept appeared to be combat proven with the rapid destruction of the Iraqi Army by V Corps and the 3rd Infantry Division in 2003

(Cammons 2006, 1). Taking the lessons learned under Force XXI, the Army was ordered to divide its divisions into four BCTs where there had been only two or three previously in order to create 42 active component (AC) brigades. The Army National Guard was ordered to reduce from 42 BCT to 34 in order to fill units that had been historically at 80% strength or lower and to create the support structure necessary to operationalize what had historically been a strategic reserve force that did not require a large logistical base as, in the event of major warfare, it was intended to fall-in on the logistics of the operational force.

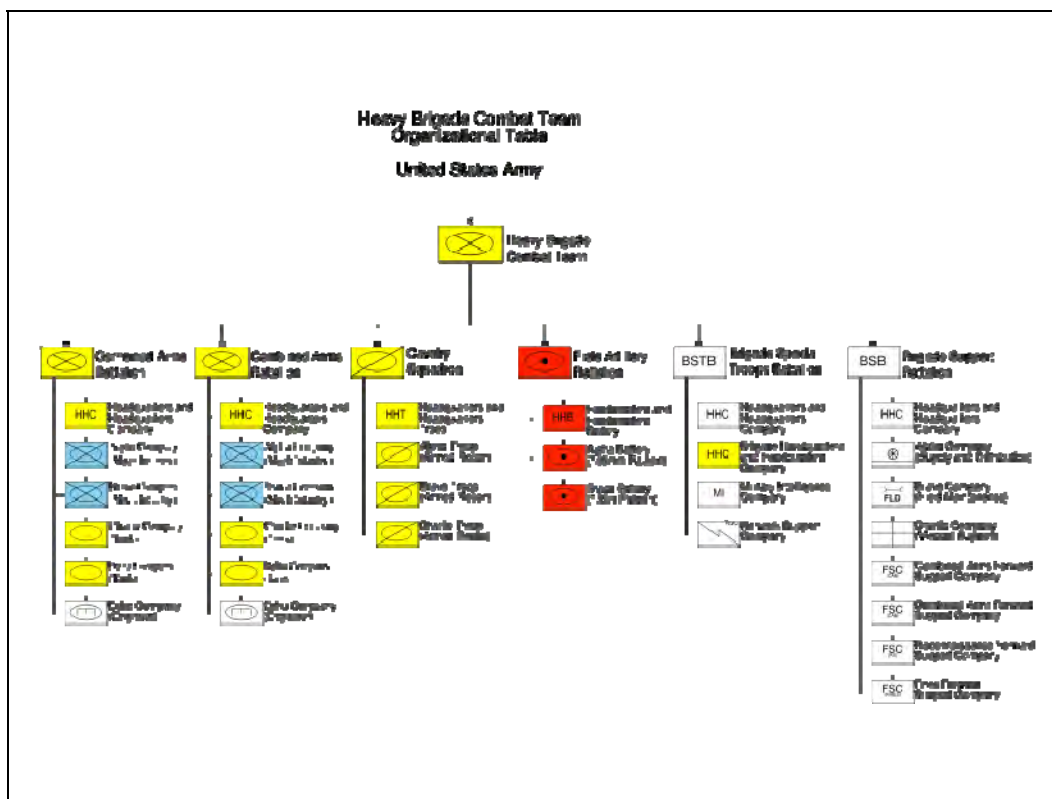


Figure 1. Heavy Brigade Combat Team

Source: [http://en.wikipedia.org/wiki/Transformation\\_of\\_the\\_United\\_States\\_Army](http://en.wikipedia.org/wiki/Transformation_of_the_United_States_Army) [accessed December 12, 2007]



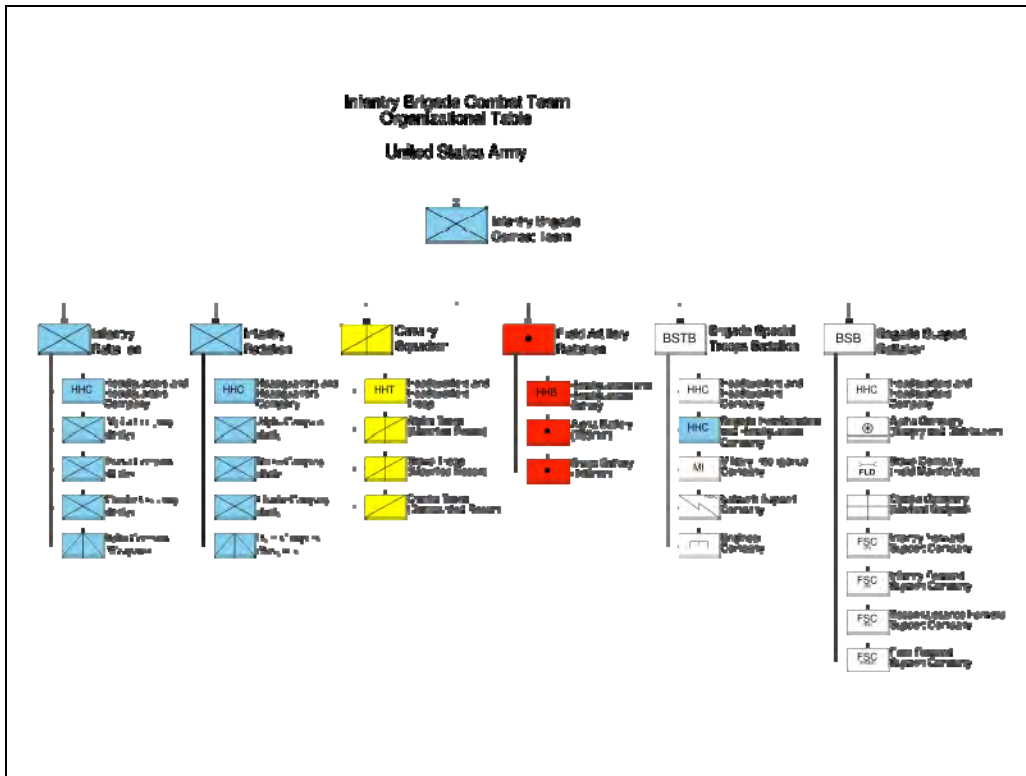


Figure 2. Infantry Brigade Combat Team

Source: [http://en.wikipedia.org/wiki/Transformation\\_of\\_the\\_United\\_States\\_Army](http://en.wikipedia.org/wiki/Transformation_of_the_United_States_Army) [accessed December 12, 2007]

To create these 42 BCTs, it became necessary to reduce the number of battalions in the BCT in an effort to reduce C2 overhead. By returning to the AOE four-company battalion, the modular BCT was able to achieve almost the same amount of maneuver combat power and gain a reconnaissance squadron headquarters (See Figure 1). This gave the modular BCT three-times the amount of ground reconnaissance capability of the LCD XXI BCT. The brigade's engineer battalion was converted into a brigade special troops battalion (BSTB), an organization that would command and control all the units that were previously brigade separate companies and platoons, thus alleviating the brigade staff from the burden of having to manage companies. Similar organizational

changes were made to the light infantry brigades through the conversion of all infantry BCT (IBCT) (See Figure 2) to the AOE Airborne/Air Assault design, with three rifle companies and one anti-armor company in each battalion. The third rifle company was converted into a reconnaissance squadron with two mounted troops and one dismounted troops providing the IBCT with a reconnaissance capability it did not previously have with the AOE designs.

A weak area of both modular BCT designs is the lack of infantry. In both HBCT and IBCT design, the modular BCTs lost either one or two rifle companies over the previous AOE designs. Only when compared to the armored BCT did the modular HBCT gain in rifle companies from three to four. Although the modular BCT designs are fully capable of conducting NCO, their lack of infantry reduces their capability during stability operations where troop density or “boots on the ground” becomes more critical than the ability to engage armor at maximum standoff range. Which leads us back to our earlier question, why do we continue to create BCTs with only two battalions?

Although the specifics of how large an army the United States requires are contained in the Total Army Analysis, a biennial, multi-phased force structuring process used to determine the size and composition of the force necessary to support the national strategy, the results are reviewable publicly under the Army Force Generation Model (ARFORGEN). Under ARFORGEN, AC BCTs are expected to go through a three-year cycle of reset, ready, and deployment and the ARNG was expected to provide 5 BCT during a six-year cycle (Army Game Plan 2006, Encl 8). Before the December 2007, decision to increase from 42 to 48 AC BCT and decrease from 34 to 28 ARNG BCT, the AC was expected to provide 14 BCT and the ARNG was expected to provide 5 BCT.

Under the December 2007, change, the AC will now provide 16 and the ARNG will provide 4, creating a total deployable force of 20 BCT on a continuous basis.

Given the information from the Grow the Army (GTA) plan of January 2007, it is clear that the Army leadership is attempting to maximize the number of BCT available in an effort to create strategic depth and add tactical forces, as stated in the latest edition of *FM 3-0, Operations*, “In stability and civil support operations, initiative is about improving civil conditions and applying combat power to prevent the situation from deteriorating.” (FM 3-0 2008, 3-3) The analysis in this chapter will examine the current GTA plan and two alternative courses of action (COA) to determine if adding BCTs is the most effective way to add strategic depth and tactical forces.

#### Full-Spectrum Operations

The spectrum of conflict is a description of the differing levels of violence a military force must be prepared to operate in. This scale begins with stable peace on the lowest end of violence and moves through unstable peace and insurgency on its way to general war at the highest end of violence. Stable peace is characterized by a general lack of militarily related violence where police and government are fully capable of dealing with internal problems and the aim of parties with disputes is to solve them using a political process. Unstable peace is characterized by one or more parties threatening to use violence to achieve their political objectives. Unstable peace is usually an internal issue where the police and government may or may not be fully capable of dealing with specific threats and a limited use of military force may be necessary. Insurgency is characterized by an organized movement to overthrow the constituted government through subversion and armed conflict. Insurgencies are generally internal threats with

external support and are threats to national survival that require the use of military force. General War is characterized by large conventional forces in armed conflict where the total resources of all sides are committed. These operations are aimed at eliminating the opposing side's military capability in order to achieve a political end to the conflict. (FM 3-0 2008, 2-1 through 2-2)

Under the concept of full-spectrum operations, military forces can expect to operate anywhere within the spectrum of conflict and will likely be performing tasks related to more than one level of violence simultaneously. Operational themes are terms used to characterize the most dominant operation being conducted at any time within an area of operations. The operational themes are: peacetime military engagement, limited intervention, peace operations, irregular warfare, and major combat operations (MCO). The scale of these military themes is measured not in terms of military activity, but in the amount of influence the military is required to exert over the situation versus the ability of the government to exert influence over the situation. These themes coincide with the spectrum of conflict with the least amount of military influence being peacetime military engagement and the greatest amount of military influence being major combat operations. Army commanders will conduct offense, defense, and stability operations simultaneously within these operational themes with the aim to return the situation to stable peace and government control. (FM 3-0 2008, 2-3 through 2-4)

Operational themes are measured in terms of influence rather than in terms of military personnel. The total number of military personnel involved in peacetime military engagement and limited intervention is typically small. Peacetime military engagements are limited to multinational training events, security assistance, exchange

programs, recovery operations, arms control, and counterdrug activities. In each of these sub-categories, the host nation is the lead and U.S. forces are in a supporting role aimed primarily to achieve political solidarity over a long period.

Limited interventions involve noncombatant evacuation (NEO), strike operations, raids, shows of force, humanitarian assistance, consequence management, sanction enforcement, and elimination of weapons of mass destruction (WMD). Although these activities might have the U.S. in the lead, they are usually limited in time and scope or involve small, specialized forces. Although the military exerts the greatest amount of influence during MCO, the development of network-centric operations has significantly reducing the number of troops and systems required to conduct MCO. The operational themes involve the greatest number of personnel and involves considerable influence by the military are involve the area between unstable peace and general war in the spectrum of conflict, peace operations and irregular warfare.

#### Army Force Generation (ARFORGEN)

In 2004, the Army announced a new initiative, ARFORGEN, which in conjunction with the modular redesign of the Army force, is intended to provide Army planners with a predictable number of trained, equipped, and ready BCTs for use by Joint Force Commands. The 2004-2007 plan called for 42 active component (AC) BCTs and 33 Army National Guard (ARNG) BCTs for a total force of 75 BCTs.

The concept called for the creation of force pools in both the active component and Army National Guard with specific and predictable gates known as reset/train, ready, and available. AC units will rotate through the cycle every three years while ARNG units will rotate through every five years. As envisioned, the AC will have 12 to 16 BCTs in

and the ARNG will have three to four BCTs in the available pool at any given time for an expected capacity of 18 to 19 brigades available at any time. Forces in the available pool would be available to meet unforeseen strategic requirements. (Army Game Plan 2006, Encl 8) In December 2007, it was announced that the Army would “grow” an additional six AC BCTs, which would raise the total number of BCTs in the available pool to approximately 20 to 22. (Grow the Army 2007)

The 20 brigade threshold appears to have been derived from the planning estimates of the minimum force density needed for the occupation phase of OIF as determined by the Combined Forces Land Component Command (CFLCC) G5 (Plans) section between September of 2002 through April of 2003. Based upon an Iraq population estimate of 25.5 million, it was determined that it would take a minimum of 20 four-battalion brigade equivalents, consisting of 125,000 combat troops with 175,000 non combat support and command and control personnel. (Benson 2004, 187) It is important to note that this is the only estimate of required Army forces consistent with the ARFORGEN model that the author has found. The estimate timeline is consistent with the release of the *2001 Army Campaign Plan* and its update, the *2002 Transformation Roadmap* which outlined the transformation of the Army into 42 AC BCTs and 28 ARNG BCTs.

### Summary

The literature concerning this thesis topic includes history, the operational environment, emerging doctrine, and limitations to the size of the force. Although the majority of transformation information is condensed in the six years between 2002 and 2008, the Army has been in a state of continual transformation since the 1950’s.

The realization that dispersion was the only way conventional forces were to survive a tactical nuclear attack led to the small battle groups of the short-lived Pentomic division of 1957. Improvements in the technologies of communications and air transport meant that U.S. forces could be more flexible, deployable, and respond more effectively to regional threats. The move toward lighter, more lethal, more deployable forces resulted in the Flexible Response doctrine of 1961 and the ROAD initiative of 1962. In 1972 the 9th Infantry Division was converted to a motorized formation in an attempt to create a more deployable force with greater survivability, mobility, and firepower than the infantry division. The end of the Vietnam War, the Army's transition to the all-volunteer force, and the devastating firepower of Soviet anti-tank and surface to air missiles used during the Yom Kippur War, all occurring in 1973, led to the Active Defense doctrine of 1976, emphasizing a small, mobile reserve and the use of shaping fires. The development of the AirLand Battle doctrine of 1982 brought inter-service cooperation, synchronizing the efforts of both the Army and the Air Force and led to the creation of the AOE light infantry division and the four-company combined-arms mechanized battalion.

The first discussions of the COE appeared in the 1993 version of *FM 100-5 Operations*. This manual identified the change in the operational environment as a result of the implosion of the Soviet Union and the U.S. emergence as the sole superpower in the world and the affect digitization would have on the way the Army fights. This concept of the "dynamic world" was described in even greater detail in *TRADOC PAM 525-5 Force XXI Operations* along with how digitized forces would fight "full-dimensional operations" in the 21st century. The success of the EXFOR led to a conversion of all

Army mechanized forces to the LCD XXI design with organic reconnaissance and a fixed brigade structure. This was the mechanized force design that fought to Baghdad in OIF-1.

The development of the modular BCTs, heavy, infantry, and Stryker can be traced back to the 1950's. The concepts of dispersion, medium forces, small reserves, expeditionary forces, combined-arms battalions, digitization, and full-dimensional operations are not new.



## CHAPTER 3

### RESEARCH METHODOLOGY

If we knew what it was we were doing, it would not be called research, would it?

Albert Einstein, Albert Einstein Quotes

The question of the merit of adding a third combat maneuver battalion has been answered by Army force designers and the answer has consistently been that three battalions are superior to two. Up to this point, force design has been focused on the comparative lethality between the two-battalion modular BCT design and the AOE three-battalion design (Modular Analysis 2007). Evaluations based upon lethality inherently MCO focused and emphasize targeting technology and the ability to access fires. This thesis is unique in its approach as it is focused instead upon evaluating the modular BCTs capabilities for conducting full-spectrum operations based upon the elevation of stability operations to the same level as offensive and defensive operation (FM 3-0 2008).

The research methodology in this work relies heavily upon documentary sources, primarily those of force design, but also policy documents, press releases, speeches, and historical articles. In addition to documentary sources, this thesis uses direct interviews with commanders of modular BCTs in Iraq and force designers who were involved with the development of the modular BCT designs. Finally, this thesis uses quantitative analysis of data from the above sources. This combined approach allows for a comprehensive understanding of the historical, policy, tactical, and quantitative facts concerning the thesis question

No new data was generated as a result of this study as the body of information already existed. The interviews conducted in this study were used to confirm or deny information about how the BCT is being utilized in the current conflicts in Iraq and Afghanistan and were not used to identify new insights. The disadvantage to this methodology is that the research is restricted to the data that already exists.

This thesis research is significant as it directly affects the primary war fighting formation of the U.S. Army as it is currently deployed in a time of war. There has been considerable public criticism of the Army's redesign to a modular force as well as an ongoing debate in the Force Design realm. This debate has been centered on whether it is necessary to add a third battalion to the modular BCT designs or whether the current designs are sufficient to meet the tactical needs in the COE. This study will provide an understanding of the factors that affected the development of the modular BCTs and make a recommendation to either add a third maneuver battalion, modify the current modular design, or maintain the modular design as it is.

The larger implication of this study is that the Army is rapidly moving forward with the modular redesign of its forces while these forces are committed in the field. Army forces have been deploying to Iraq and Afghanistan for 15 month rotations in an effort to generate the necessary combat power to maintain security. A more appropriate BCT design could reduce the number of personnel required to conduct current operations and therefore provide a measure of relief that could reduce rotation times.

This thesis is unique in that most information available on the subject deals directly with the modular Force Design itself and does not address the reasons why the modular BCTs were organized as they are nor is an explanation for the total number of

brigades required to meet ARFORGEN needs given. Many of the works address reasons for adding a third maneuver battalion to the BCT, but they address the problem from the standpoint of previous lethality and MCO doctrine with limited or no analysis of the BCTs capabilities under stability operations. Works that did address stability operations focused primarily on redesigning the Army to a force optimized for stability operations; disregarding any concerns for maintaining MCO capabilities. This study is more thorough in that it addresses the reality that the Army is too small to have forces optimized for any one end of the spectrum of conflict and that, given the latest edition of *FM 3-0 Operations*, all forces must be prepared to fight up and down the scale of conflict rather than be optimized for any particular point in the spectrum.

To limit the scope, this study will examine three courses of action (COA). The first COA to be examined came about as a result of the CSA ordering the Force Development Directorate at Fort Leavenworth, Kansas to examine possible reasons and options for adding combat power to the modular BCTs. The COA that was included in the final recommendation called for adding additional dismounted scouts and tanks to the HBCT ARS in an effort to enhance survivability in stability operations and to create the capability to conduct guard missions. Therefore, the first COA to be examined will be addition of dismounts and tank platoons to the HBCT ARS and additional dismounts to the dismounted reconnaissance troop and anti-tank platoons to the two mounted troops in the IBCT reconnaissance squadron. The second COA to be examined will be the current modular BCT designs and the third COA will be the addition of a third maneuver battalion to either the HBCT or the IBCT.

The quantitative analysis in this study focuses on the ratio of combat personnel to C2 and support personnel. Although a BCT contains numerous personnel of combat arms branch, only a limited number of those personnel are actually assigned to formations specifically designed to conduct combat operations. All personnel not assigned to these combat formations provide either C2 or support functions. This study focuses on determining the value that adding a third maneuver battalion has not only on available combat power, but also on maximizing the capabilities of these C2 and support personnel as it should be the intent of any Army formation to maximize the number of personnel at the pointy end of the spear and to reduce the amount of personnel assigned to the shaft.

The qualitative analysis of this study is limited to a comparison of a BCT's capabilities to conduct FSO in accordance with *FM 3-0 Operations*. It is the view of the researcher that the ability to move up and down the spectrum of conflict from peace to general warfare requires greater redundancy than does the conduct of MCO alone. Therefore, this study will evaluate an organization's ability to conduct full-spectrum operations (FSO) based upon two criteria: 1) MCO Combat Power – determined by the number of combat vehicle sections (a combination of two Tanks; Infantry Fighting Vehicles (IFV); Tube-Launched, optically-tracked, wire-guided (TOW) missile carriers; or .50 caliber machine gun/40mm automatic grenade launcher carriers), and 2) Stability Combat Power – the total number of combat arms squads organic to the organization.

This study specifically excludes ad-hoc formations as doing so would not accurately reflect the capabilities inherent to the organization's design. This means that combat systems used for C2, such as brigade, battalion, and company command tanks

and IFVs, and fire support vehicles, have been excluded from combat power calculations as their primary purpose is not to close with and destroy enemy systems, but rather provide survivability for C2 functions. Additionally, although many of a brigade's logistics vehicles are armed with machine guns, they are neither manned for a full-time combat role nor are these weapons intended for offensive activities. Therefore, measurements of combat power have been limited to those weapon systems and personnel assigned to combat platoons, section, and squads only (i.e. infantry, armor, cavalry, engineer, and artillery). Dismounted teams smaller than squad-sized are not included in combat power calculations as these elements are too small for independent maneuver and would have to be combined with other teams to form ad-hoc squads. These teams only become relevant when looking at the survivability of vehicle sections without ground force augmentation or as multipliers when used in addition to squad or larger formations such as snipers and observer teams.

As stated by Mr. Ted Cranford, the director of the Force Design Directorate (FDD) at Fort Leavenworth, Kansas, "Nobody is debating that three battalions isn't better than two battalions, but this is an argument of end-strength..." This argument of end strength is centered on the total number of BCTs deemed necessary to meet ARFORGEN requirements. Adding a third maneuver battalion to 63 BCT's (70 minus 7 Stryker BCT) would be too costly in terms of both manpower and equipment. This study examines whether the BCT is the appropriate measurement of combat power. As a BCT is a collection of battalions that can vary according to task organization, the use of the BCT as the unit of measurement for determining ARFORGEN requirements appears to be inadequate.

There exists an argument that the reconnaissance squadron in the BCT is the third maneuver battalion, and therefore any discussion of adding another combined-arms battalion (CAB) or infantry battalion is mute. This particular argument goes against NCO doctrine as the reconnaissance squadron is intended to find the enemy out of contact and to allow the two other maneuver battalions in the brigade to close with and destroy the enemy. As presented in the “Recon Squadron Structure Review Backbrief” during the 2007 Armor Warfighting Conference at Fort Knox, Kentucky, the BCT reconnaissance squadron was designed only to provide early warning; to conduct only screening missions and to provide observation of named areas of interest (NAI). The reconnaissance squadron lacks sufficient MCO combat power to conduct guard missions, which include screening and actions involving direct fire against an enemy main body. It is with this understanding that the reconnaissance squadron cannot be considered in the same class as the other two maneuver battalions in the brigade and keeps open the debate.

This research methodology should provide a complete and unbiased view of the factors that determined the size of the modular BCT and the arguments for adding a third battalion. The thesis statement requires a complete and thorough search of published data in order for a complete analysis to occur. This analysis should provide a clear view as to the strengths and weaknesses of each of the presented COAs. The conclusions that are found as a result of this study should be reasonably unbiased, based on a complete analysis of three COAs, and provide a recommendation for implementation.

## CHAPTER 4

### ANALYSIS

The most straightforward reason why the Army struggled in OIF Phase 4 to achieve the effectiveness demonstrated in the preceding combat phase was that it was, by design, relatively ill prepared for it. In spite of [Counterinsurgency] and [Stabilization and Reconstruction] operations having occupied the majority of the Army's operational time since the Cold War, and their being and inevitable consequence of the [Global War on Terror], these roles have not been core Army Activities. The Army's focus has been conventional warfighting and its branches into [Counterinsurgency] and [Stabilization and Reconstruction] have been regarded as a diversion, to be undertaken reluctantly, and preferably by Special Operations Forces and other specialist, many of whom are in the Army Reserves.

British Brigadier Nigel Aylwin-Foster, *Military Review*

Since the first brigades of the 3rd and 101st Infantry Divisions began their modular transformations in 2003, there has been concern over the design of the two-battalion modular brigade. Enough concern has been generated to cause the Chief of Staff of the Army (CSA) to have the modular brigade designs reevaluated on three separate occasions: September 2003 to February 2004, July 2005, and most recently October 2007. Coinciding with two of these reviews was an approval to increase army troop strength, first a temporary increase of 30,000 to be used to reorganize into a modular force in January 2004, and most recently on December 19, 2007, when this temporary increase was made permanent along with an additional 44,200 troops.

For each review, the Army Capabilities and Integration Center (ARCIC) and the Training and Doctrine Command Analysis Center (TRAC) were tasked with conducting assessments of alternatives to the current modular designs. In each study one result remained constant; that "three-battalion representative designs performed better than the existing modular two-battalion design." (Modular Analysis 2007)

### The Reconnaissance Squadron as a Third Maneuver Battalion

Some consider the reconnaissance squadron to be the third maneuver battalion in the BCT and ongoing operations in Iraq and Afghanistan show that commanders are utilizing them as such. This usage is driven by the necessity rather than design, the same as the usage of the brigade field artillery battalion as a maneuver force. “The intelligence warfighting function is the related tasks and systems that facilitate understanding of the operational environment, enemy, terrain, and civil considerations. It includes tasks associated with intelligence, surveillance, and reconnaissance (ISR) operations, and is driven by the commander.” (Operation 2008, pg. 4-4) The reconnaissance squadron was designed to provide intelligence for the brigade commander through observing named areas of interest (NAI) and occupying observation posts. It was not designed to conduct the traditional cavalry security operations of screen, guard, or cover unless augmented with forces from the other two battalions in the brigade (Armor Warfighting Conference 2007).

Other observations to come out of the 2007 ARCIC/TRAC study were that “All reconnaissance squadrons require significantly more dismounts to conduct operations in urban and complex terrain,” and that the “HBCT reconnaissance squadron requires an armor element.” (Modular Analysis 2007, pg. 125) The recommendation was to convert the HBCT reconnaissance squadron into a heavy cavalry squadron; replacing the high-mobility, multi-purpose, wheeled vehicle (HMMWV) scout vehicles with Bradley fighting vehicles, adding six additional dismounted scouts per scout platoon, and adding six tank platoons. It was also recommended that six additional dismounted scouts be added to each mounted scout platoon in the IBCT reconnaissance squadron. (Modular



Analysis 2007, pg. 122-123) The conversion of the HBCT reconnaissance squadron into a heavy cavalry squadron, although not approved, has become the center of greater discussion and has been included in the list of resolutions for consideration during the 2008 National Guard Association of the United States (NGAUS) Conference. (NGAUS 2008, pg. 33)

The recommended changes to the HBCT reconnaissance squadron appear to contradict the findings of the three ARCIC/TRAC studies. As stated in the 2007 study, “Further tactical assessments in July 2004 confirmed that the approved modular BCTs are as capable as three battalion AOE brigades,” a key decision point for moving forward with the two-battalion design. As the AOE brigade was designed to fight a major conflict between conventional forces, and the modular HBCT is deemed to be equivalent to the AOE armor brigade, the addition of tank platoons should not be necessary if the modular BCT is truly equal to the AOE brigade which proved successful during both the Gulf War and the major combat phase of the current conflict in Iraq. Additionally, tank platoons can traditionally only dismount one crewmember for the purpose of local security. Each tank platoon can provide the equivalent of one four-man dismounted team while still manning their vehicles, therefore, tank platoons add little to dismounted combat power unless all personnel dismount from their vehicles.

The recommendation to add six additional dismounted scouts to each scout platoon does not add “significant” dismounted capability to either the HBCT or IBCT reconnaissance squadrons. A review of the current tables of organization and equipment on the U.S. Army Force Management Support Agency (USAFMSA) website shows that the HBCT reconnaissance squadron has two dismounted scouts per Bradley fighting

vehicle while the IBCT reconnaissance squadron has none. The additional dismounted scouts would give the HBCT reconnaissance squadron two dismounted scouts per vehicle while the IBCT reconnaissance squadron would have one per HMMWV. In terms of dismounted fighting capability, an HBCT scout platoon would gain the equivalent of one six-man dismounted squad for a total of two and still have manned vehicles, while the IBCT scout platoon would gain the equivalent of one six-man dismounted squad, and still have manned vehicles. Additional dismounted combat power could be created, but only by dismounting all personnel from their vehicles.

Regardless of the method of employment or the recommended changes, the fact that there is a push to add additional combat power to the reconnaissance squadron indicates a need for additional combat power in the modular BCTs. Commanders in the field are asking for additional capabilities in order to better use their organic reconnaissance force for missions it was not designed for. The remainder of this chapter will now focus upon the two remaining COAs.

#### The Requirements for Stability versus Major Combat Operations

The current modular BCTs were designed to fight separate offense, defense, and stability operations. The 2008 edition of FM 3-0, *Operations*, elevates stability operations to the same level as offense and defense. Although the 2001 edition of FM 3-0 addressed full-spectrum operations, it arranged offense, defense, and stability operations in a linear arrangement with the force conducting each type of operation separately. The 2008 edition of FM 3-0 differs from the 2001 edition in that a force will have to conduct offense, defense, and stability operations simultaneously. The modular BCTs were designed two years before the rewrite of FM 3-0 began. According to

General William S. Wallace, the current commander of TRADOC, the current edition began in “2005 with a series of issue papers covering unified action, the design of the warfighting functions, the continuum of operations, and the Army’s operational concept.” (Wallace 2008, pg. 2)

Stability operations differ significantly from major combat operations (also called general war in the spectrum of conflict) in how they are conducted. Major combat operations can be successfully conducted with decentralized forces (demassification) and the massing of lethal effects. Major combat operations lend themselves to high-tech sensors due to the fact that enemy forces operate with military vehicles such as tanks, armored personnel carriers, and artillery pieces. Additionally, the enemy wears uniforms, and they operate with some sort of centralized command and control system. Stability operations are just the opposite, requiring the concentration of forces, the dispersion of non-lethal effects, and a high reliance upon precision lethal fires. Stability operations do not lend themselves easily to high-tech sensors as the majority of intelligence must be obtained through human interaction with the populace with the aim of identifying individuals who look and dress the same as the civilian populace the force must protect.

Another difference between major combat operations and stability operations is in determining force ratios. In major combat operations, the size of the friendly force is determined by the mission, the terrain, and the size of the enemy force that must be faced. Although the term “battlespace” has been removed from Army doctrine and all references to the size of the area of operations a brigade can effectively control have also been removed from Army doctrine, a comparison can still be made. As mentioned above, the ARCIC/TRAC studies have determined that the current modular BCTs are just as

effective as their AOE predecessors in major combat operations. In the offense, an AOE brigade was capable of controlling approximately 60 x 100 kilometers of terrain (Twohig 1998). In defensive operations, an AOE brigade could control approximately 40 x 50 kilometers (Doughty 1979, 24). Finally, FM 34-130, *Intelligence Preparation of the Battlefield*, provides the traditional force ratio of friendly forces to enemy forces depending upon tactical mission. For simplicity, all things remaining equal, the required force in the offense against a prepared defense is 3:1 (Intelligence Preparation of the Battlefield 1994, pg. B-38).

In comparison to stability operations, none of the above applies. As stability operations are focused upon securing the population, the force required is related to the size of the population to secure. According to John J. McGrath's *Boots on the Ground: Troop Density in Contingency Operations*, a comprehensive study of the troop density necessary for successful contingency operations, the historical troop density for contingency operations is 13.26 soldiers per 1,000 in population. Finally, McGrath states that 30.9% of a force, or 4.1 soldiers per 1,000 in population, will be devoted to police functions during contingency operations (*Boots on the Ground* 2006, 148).

McGrath determined the number of personnel devoted to police functions through analyzing the average number of military personnel utilized during successful contingency operations as well as the number of police officers per given population in the most successful municipal police forces in the United States. McGrath determined that the 13.26 soldiers per 1,000 in population was the minimum number of troops necessary for successful contingency operations. Furthermore, McGrath identified that of the 13.26 soldiers, 4.1, or roughly one-third, would be devoted to counterinsurgency

duties at a given time. The remainder of the force (the 9.16 soldiers remaining from the original 13.26) could be used to conduct counterinsurgency missions when required, but would be dedicated to conducting other tasks as necessary (Tooth-to-Tail 2007, 1).

To truly appreciate the difference between MCO and stability, we must now examine what combat power is under each condition. In MCO, the focus is on destroying combat systems or organized military formations. To do this requires combat vehicle sections, rifle squads, and observer teams. A combat vehicle section typically consists of two or three vehicles fighting as an organized unit while Army rifle squads consist of two rifle teams that maneuver together. In MCO, observer teams (scouts, artillery forward observers, combat observation lasing teams, and joint tactical air control parties) do not maneuver against an enemy formation, but instead gain overwatch of an enemy force and mass either indirect or joint fires. It is the use of these dispersed observation teams (mounted or stationary) in conjunction with the direct fire capability of the ground maneuver forces that can give a much smaller maneuver force a decisive advantage over a numerically superior enemy.

As stated previously, stability operations do not lend themselves to high-tech engagement methods. Securing the population requires the maximum number of personnel possible for securing the population. An HBCT has 1,347 ground combat personnel assigned to 45 squads, 135 vehicle sections, and 71 observation teams. An IBCT has 1,511 ground combat personnel assigned to 91 squads, 43 vehicle sections, and 63 observation teams (See Appendix A).

Given McGrath's figures, a modular HBCT is capable of conducting simultaneous offense, defense, and stability operations (full-spectrum operations) in a

population of approximately 101,584 ( $[1,347 \text{ ground combat personnel} / 13.26] * 1,000$ ). These ground combat personnel consist of the infantry and armor personnel assigned to combat duties in the two combined arms battalions (CAB). In comparison, a modular IBCT is capable of conducting full-spectrum operations in a population of approximately 113,952 ( $[1,511 \text{ ground combat personnel} / 13.26] * 1,000$ ). This means that the IBCT is 11% ( $101,584 / 113,952$ ) more capable of conducting stability operations than the HBCT. This can be attributed to the fact that the IBCT contains six infantry companies while the HBCT only contains four.

Counting individual soldiers and comparing the total to the population only tells part of the story. In order to gain a full appreciation of the capabilities of each modular BCT design, we must first determine what combat power is within a BCT.

#### Army Force Generation (ARFORGEN)

The term “strategic depth” is being used to describe the capability gained by adding to the total number of BCTs (Army Posture Statement 2007, pg. A-1). On December 19, 2007, the army’s force structure goal changed from 70 BCTs (24 HBCT—18 AC and 6 ARNG; 38 IBCT—17 AC and 21 ARNG; 7 SBCT—6 AC and 1 ARNG; and 1 ACR), to a force of 76 BCTs (25 HBCT—18 AC and 7 ARNG; 43 IBCT—23 AC and 20 ARNG; 7 SBCT—6 AC and 1 ARNG; and 1 ACR) with the addition of six IBCTs as a result of the Grow the Army plan. Under the ARFORGEN model, the active component will be able to produce a sustainable rotation force of 16 BCT ( $48 \text{ BCT} / 3 \text{ years} = 16 \text{ BCT/year}$ ) and the ARNG will be able to produce a sustainable rotation force of 5 BCT ( $28 \text{ BCT} / 5 \text{ years} = 5.6 \text{ BCT/year}$ ) for a total strategic depth of 21 BCTs per year.

When the above 21 BCTs are broken down, they translate into 50 combined-arms battalions, 86 infantry battalions, 21 Stryker battalions, 3 heavy cavalry squadrons, 25 armored reconnaissance squadrons, 43 light reconnaissance squadrons, and 7 RISTA (reconnaissance, intelligence, surveillance, and Target Acquisition) squadrons. Add to this the 17 tactical combat force (TCF) units retained by the ARNG for augmenting maneuver enhancement brigades (MEB) (3 x combined-arms battalions, 11 x infantry battalions, and 3 x light reconnaissance squadrons) and the reconnaissance squadrons organic to each of the 10 battlefield surveillance brigades (BfSB) (4 x AC and 6 x ARNG) and this totals 174 maneuver battalions and 88 reconnaissance squadrons, which represents the total ground combat power of the U.S. Army.

The Army's strategic depth is not determined by the number of brigades, but instead by the number of battalions available for the brigades to control. Just as divisions are collections of brigades and corps are collections of divisions, brigades are merely collections of battalions. Just as three active component corps headquarters effectively meet the needs of ARFORGEN, so could fewer BCTs. The key is to have the total number of active BCTs divisible by 3 and the total number of ARNG BCTs divisible by 5.

Modular BCTs were designed to command and control up to five maneuver battalions (This number of battalions supported by a brigade headquarters has been the standard organizational construct since the creation of the Reorganization Objective Army Division (ROAD) redesign in 1962.). The intent was to make brigades flexible enough to meet the needs of a forever changing battlefield. Ongoing operations in Iraq and Afghanistan show the level of flexibility designed into the modular BCTs with the

first modular BCT to deploy to Iraq, 1st Brigade, 3rd Infantry Division, being task organized with seven maneuver battalions in 2005 (Antonietti 2006). The current two-battalion structure effectively utilizes two-fifths of its total command and control and support capacity. This equates to a capability for supporting 114 additional maneuver battalions.

### Calculating Additional Requirements

The costs associated with either adding BCTs or battalions are divided into personnel costs and monetary costs. Personnel costs fall into three categories: 1) the total number of personnel required to implement a course of action, 2) the cost in shortage of military occupational specialties (MOS), and 3) the cost in personnel by grade. For the purpose of this thesis, personnel costs will be restricted to the total number of personnel required and the total number of captains and majors required. The decision to omit shortage of MOS's is based on the realization that MOS shortages can change significantly by month, especially with most advanced individual training requiring six-months or less. The Army is currently short over 3,000 captains and majors. Combined, they represent the clear majority of staff officers at the BCT level. Given that these grades require from five to 14 years to create, they represent a significant population that any course of action should address. For the purpose of this thesis, monetary costs represent simply the cost for all necessary equipment. Although there are also related installation costs, these costs vary by installation and by the type of units being assigned.

Before a fair analysis of costs can begin, the amount of additional support required for adding a third battalion to a BCT must be determined. This study examined the designs of two of the three existing three-battalion designs still in the Army today: the



Armored Cavalry Regiment (ACR), and Stryker BCT (SBCT). From an examination of the tables of organization and equipment for these two brigade designs, the following additional force multipliers have been determined necessary to fully support an additional battalion: 1) one artillery battery with associated battalion and logistics support to the brigade fires battalion, 2) one chemical reconnaissance team to the headquarters and support company of the BSTB, and 3) additions to the military brigade military intelligence company consisting of one tactical human intelligence (HUMINT) platoon headquarters element, half an operations management team, one HUMINT team, and one Prophet signals intelligence (SIGINT) sensor.

The ARCIC/TRAC studies do not address the additional costs associated with fully supporting additional battalions. Determining the total monetary costs required an examination of the related tables of organization and equipment and a search for estimated cost values via the internet. Costs for all equipment were not available; therefore a 10% adjustment based upon the known costs was added in an effort to establish a realistic estimate of total monetary cost (See Appendices B and C).

This study assumes that the level of field artillery support would revert back to pre-modularity levels if a third maneuver battalion were added to each BCT. This would mean that the current, two-battery, 16-gun battalion would be converted back into a three-battery, 18-gun battalion. The HBCT Paladin firing battery would therefore be identical to the six-gun battery in both the legacy force mechanized BCTs and in the current Fires Brigade cannon battalion. This study assumes that unlike the Paladin battery, the IBCT firing battery would not revert back to its pre-modular design, but would instead resemble that of the SBCT, with a consolidated fire direction center (FDC)

and battery operations center (BOC), and two firing platoons of three-guns each. It is from these assumptions that cost and personnel estimates were made.

### Strategic Lift Requirements

One of the imperatives to transform was to increase expeditionary capabilities (Transformation Roadmap 2004, vii). Strategic mobility has become more important as the Army transitions from a forward deployed force to a Continental United States (CONUS) based force. The creation of smaller BCTs could be viewed as a way to make Army forces more deployable and therefore meet the expeditionary imperative.

Strategic lift comes in two primary forms, air and sea. It takes a total of 185 C-17 sorties required to move one IBCT (MTMCTEA Pamphlet 700-5 2001) (See Appendix D). Given this, it appears clear that the total number of sorties required to move a significant force would exceed the capacity of the Air Force's 120 C-17 aircraft, especially when maintenance and other missions are taken into account (Globemaster Production 2008). If we include the fact that only the 76 C-5 aircraft are even capable of transporting an M1 main battle tank, it becomes clear that the Air Force lacks the ability to move and sustain the needs of a large ground combat force. This study will focus its attention on strategic sealift as a measurement of expeditionary capability.

According to Mr. Timothy Civils, an instructor in the Department of Logistics and Resource Operations at the Command and General Staff College, the most common type of ship used for strategic sealift are the large, medium speed, roll-on/roll off (LMSR) ships of the USNS Bob Hope class. The Bob Hope class of ships has approximately 387,662 square feet of cargo space (MTMCTEA Pam 700-6 2002, 3). According to Mr. Civils, not all the square footage is usable space, therefore planners typically plan for

60% usable space when loading Army units on ship. This means that the Bob Hope class has approximately 232,597.2 square feet ( $387,662 \text{ square feet} * .60$ ) of usable space.

A modular IBCT requires 171,841.8 square feet of ship space, or 0.74 LMSR ( $171,841.8 \text{ square feet} / 232,597.2 \text{ square feet}$ ). A single infantry battalion requires 15,175.2 square feet (MTMCTEA Pamphlet 700-5 2001) (See Appendix E). To estimate the additional space required to fully support this battalion, we add an additional 10% of space to get an estimated total of 16,692.7 square feet ( $15,175.2 \text{ square feet} * 1.10$ ). A three-battalion IBCT would require approximately 188,534.5 square feet ( $171,841.8 + 16,692.7$ ) of ship space, or about 0.81 ( $188,534.5 \text{ square feet} / 232,597.2 \text{ square feet}$ ) LMSR.

A modular HBCT requires 324,181.4 square feet of ship space, or 1.39 LCMR ( $324,181.4 \text{ square feet} / 232,597.2 \text{ square feet}$ ). A single CAB requires 36,897.4 square feet and, as with the infantry battalion, if we add an additional 10% of space to account for fully sustaining the CAB, we get an estimated total of 40,587.1 square feet ( $36,897.4 \text{ square feet} * 1.10$ ). A three-CAB HBCT would require approximately 364,768.5 square feet of ship space ( $324,181.4 \text{ square feet} + 40,587.1 \text{ square feet}$ ), or about 1.57 ( $364,768.5 \text{ square feet} / 232,597.2 \text{ square feet}$ ) LCMR.

### Sustainment Requirements

One of the reasons for modularity was to utilize more of the combat power in the ARNG. Prior to modularity, the ARNG had only 15 of 42 BCTs fully logistically supported. To achieve sustainability, the ARNG had to transform some of its formations from combat units to support units. It would be counterproductive for the Army to consider any COA that did not take sustainability into consideration.

There are no divisional sustainment brigades. Under modularity, the brigade support battalion provides all sustainment functions for the BCT. A sustainment brigade working with a division is operating only within a supporting to supported relationship and is tasked with supporting only those units not represented by a brigade support battalion (BSB). According to LTC William Garrison, a force developer at the U.S. Army Combined Arms Support Command, adding a third battalion to a maneuver BCT would have very little or no effect upon echelons above brigade (EAB) sustainment requirements and would not require additional personnel and equipment to be added to the force. Adding a third maneuver battalion only has an effect upon the sustainment support within the BSB, which has already been addressed in the section on additional costs.

Of the approximately 3,436 personnel assigned to an IBCT, only 1,511, or 43.98% are assigned to exclusively combat duties with the remaining 1,925, or 50.02% assigned to supporting duties which include either C2 or sustainment functions (See Appendix H). Adding a fully supported infantry battalion to an existing IBCT increases the percentage of combat personnel relative to support personnel by 3.98% to 47.96% (2,096 combat personnel / 4,370 total personnel) (See Appendix J).

Of the approximately 3,806 personnel assigned to an HBCT, 1,347, or 35.39% are assigned to exclusively combat duties while the remaining 2,459, or 64.61% are assigned to supporting duties which include C2 and logistics sustainment (See Appendix K). Adding a fully supported CAB to an existing HBCT increases the percentage of combat personnel relative to support personnel by 12.57% to 47.96% (2,096 combat personnel / 4,370 total personnel) (See Appendix M).

### Personnel and Monetary Costs

A modular IBCT is made up of 3,468 personnel, requiring a total of 106 captains and 32 majors. The personnel cost for adding six IBCTS totals 20,808 of which 636 are captains and 192 are majors. This cost in personnel gains 12 infantry battalions and six reconnaissance squadrons for the force structure. Adding one fully supported infantry battalion to an existing IBCT requires 925 total personnel including 15 captains and two majors. If used for adding battalions, the same 20,808 personnel equal 22 ( $20,808 / 925$ ) infantry battalions and require 330 captains and 44 majors. Simply stated, adding battalions instead of BCTs gains double the combat power gained while requiring about half the captain's and one-quarter the majors.

Each new IBCT costs approximately \$438 million. The cost for adding six IBCTs equals \$2.63 billion ( $\$438 \text{ million} \times 6 \text{ IBCT}$ ). The cost of adding one fully supported infantry battalion to an existing IBCT equals \$27.2 million with the cost of 22 fully supported infantry battalions (based upon 20,808 available personnel) being \$0.598 billion ( $\$0.027 \text{ billion} \times 22 \text{ infantry battalions}$ ). Adding battalions saves \$2.03 billion over adding BCTs.

In addition to the six IBCTs being added to the force structure, the Army has yet to complete the modular transformation of four of its planned 18 AC HBCTs. Two of these units (5th Brigade, 1st Armored Division and 1st Brigade, 1st Infantry Division) are currently being reorganized from duty as training brigades while the remaining two brigades (2nd Brigade, 1st Armored Division and 172nd Infantry Brigade (Mechanized)) are legacy force mechanized infantry brigades and are not scheduled for modular conversion until 2012.

Although a new HBCT requires 3,804 total personnel, with 105 captains and 34 majors, in this case, the HBCTs being added exist in at least partial form with part of the compliment of personnel. 1st Brigade, 1st Infantry Division at Fort Riley, Kansas, has 24% (899 / 3,804) of an HBCT's required personnel strength with 12 captains and 61 majors. 5th Brigade, 1st Armored Division at Fort Bliss, Texas, is currently at 51% (1,936 / 3,804) of an HBCT's required personnel strength with 16 captains and 42 majors. The two legacy brigades in Germany, 2nd Brigade, 1st Armored Division and the 172nd Infantry Brigade (Mechanized) are both at 100% an HBCT's required strength, but each require 11 captains and 11 majors. To convert these four brigades into HBCTs will require 129 captains and 62 majors (See Appendix N).

In comparison, adding a fully supported CAB to an existing HBCT requires 937 personnel with 17 captains and 2 majors. If the two training brigades were not converted to HBCTs, but were instead converted into combined-arms battalions, they would represent the equivalent of 8 CABs ( $[3,803 \text{ total personnel} \times 2 \text{ brigades}] / 937 \text{ personnel per battalion}$ ) in total personnel strength. Creating 8 CABs would cost 136 captains and 24 majors. Adding battalions would cost 7 more captains than adding BCTs, but would cost 38 fewer majors and is therefore less costly in mid-grade officers overall.

Converting the two training brigades into HBCTs will cost approximately \$8.0 billion ( $\$4.0 \text{ billion per HBCT} \times 2 \text{ HBCT} = \$8.0 \text{ billion}$ ) as these organizations currently have little to none of the required equipment. Converting the two legacy mechanized brigades into HBCTs should cost very little as these organizations are already fully digitized and possess most of their required equipment. For the purposes of this study,

we will use the cost of conversion of the two training brigades as the cost required to convert all four brigades into HBCTs.

Just as with the conversion of the mechanized brigades above, we can assume that converting the two legacy brigades into 8 total CABs would cost very little as these brigades currently have most of the necessary equipment. For the purposes of this study, we will assume that cost of converting the two training brigades and the two legacy brigades into 16 CABs ((3,804 personnel per HBCT x 4 HBCT) / 950 personnel per fully supported CAB) would be roughly equal to the cost of creating only eight CABs. Eight CABs would cost approximately \$2.44 billion (\$0.6101 billion per combined-arms battalion x 4 battalions). Therefore, the addition of 16 CABs would save \$5.56 billion (\$8.000 billion - \$2.440 billion) over adding four HBCTs.

### Final Analysis

Stability operations are characterized by their high requirement for dismounted combat capability. The Secretary of Defense has stated publicly that the Army must build more capability to fight conflicts that more resemble what is being experienced today in Iraq and Afghanistan (Roeder 2008). The current modular BCTs were designed before stability operations were elevated to being equal with offense and defense and are optimized for major combat operations. Under full-spectrum operations, a force must be capable of conducting simultaneous offense, defense, and stability operations. According to McGrath, this means having the ability to dedicate approximately one-third of available combat power to counterinsurgency operations while the remaining two-thirds of the force conducts other missions.

Table 1. Research Summary Data						
	COA1		COA2		COA3	
	HBCT w/CAV SQDN	IBCT w/More Dismounts	CONVERT 4 X HBCT	ADD 6 X IBCT	ADD 1 X BN HBCT	ADD 1 X BN IBCT
% COMBAT PERSONNEL (BCT)	36.00%	44.56%	35.39%	44.56%	37.65%	47.96%
% SUPPORTING PERSONNEL (BCT)	64.00%	55.44%	64.61%	55.44%	62.35%	52.05%
TOTAL COST (ARMY)	\$8.600B	\$0.662B	\$8.000B	\$2.630B	\$2.44B	\$0.598B
# LMSR SHIPS REQUIRED (BCT)	1.39	0.74	1.39	.074	1.57	0.81
ADDITIONAL CAPTAINS (ARMY)	0	0	129	636	167	325
ADDITIONAL MAJORS (ARMY)	0	0	62	192	14	50
MANEUVER BATTALIONS ADDED (ARMY)	0	0	2	12	16	22
RECON SQUADRONS ADDED (ARMY)	0	0	4	6	0	0

The reconnaissance squadron is an intelligence gathering formation designed to provide decision-making information for the commander. Although there is a growing effort to convert the HBCT reconnaissance squadron into a heavy cavalry squadron, the COA recommended by ARCIC/TRAC would add more major combat operations capability and very little stability operations capability. The addition of armor goes against the stated goals of the Secretary of Defense who said "..., the kind of capabilities we need in the years ahead will resemble the kind of capabilities we need today (Roeder 2008). The COA recommended by ARCIC/TRAC, adding additional dismounted scouts



to all IBCT reconnaissance squadrons, adds considerably less combat power to the IBCT reconnaissance squadron and does not provide sufficient capability for dismounted scouts to operate in an urban environment out of close proximity to their scout HMMWVs.

The Army force generation model (ARFORGEN) is incorrectly being used as measurement for strategic depth. One of the intents of modularity was to standardize, or fix brigade organizations, thus making the brigade the largest, and at the same time, the smallest organizational building block for maneuver combat power. When combined with ARFORGEN, the focus of force development became the creation of as many BCTs as possible, thus leading to a greater number of C2 headquarters rather than maneuver battalions. This does not change the reality on the ground. Division commanders still reorganize their attached brigades, in spite of modularity, in order to meet tactical demands. The number of maneuver battalions is a more accurate measurement of strategic depth than BCTs.

Strategic mobility is measured by sealift capability as the Air Force lacks the number of aircraft necessary to transport and sustain a large ground maneuver force. Adding a third battalion to either the IBCT or HBCT does not increase the total number of ships necessary to transport the brigade, therefore it does not change its strategic mobility.

Adding a third maneuver battalion to modular BCTs would have little or no effect upon EAB sustainment. The only requirements for additional sustainment personnel and equipment would be at the BSB. By adding a third battalion to existing BCTs, there is an overall reduction in the total number of support personnel relative to the total number of combat personnel. Adding a fully supported infantry battalion to an IBCT increases the

number of combat personnel relative to support personnel by 3.98% while adding a fully supported CAB to an HBCT increases the percentage of combat personnel relative to support personnel by 12.57%. These increases are a result of maximizing existing C2 and sustainment functions inherent to the modular BCT designs.

Finally, if the Army were to add battalions instead of creating six IBCTs and two HBCTs, it would reduce the total number of captains and majors required by 273 and 190 respectively and save a total of \$7.590 billion. Additionally, the Army would gain a total of 32 maneuver battalions by adding battalions versus a gain of only 14 maneuver battalions and 10 reconnaissance squadrons by adding IBCTs and HBCTs. If combined with the 3 CABs and 11 infantry battalions held by the ARNG as TCF units, the Army could create 43 three-battalion BCTs without reducing the total number of BCTs from current levels.

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

During the 1990s, the [Revolution in Military Affairs] decade, the more technical services provided the intellectually attractive ideas that began to shape joint doctrine and concepts. From this enthusiasm over information technology-based weaponry, surveillance systems, networks and high-speed computers emerged a number of “bumper sticker” concepts that appealed to important audiences outside the services—“Shock and Awe,” “Global Reach—Global Power,” “Operational Maneuver from the Sea,” “Rapid Decisive Operations,” “Network Centric Warfare” and “Effects-Based Operations.” These ideas were attractive because they suggested that far fewer people would be needed, especially in the ground forces, and that such savings would pay for the required technological investments.

Brigadier General (Retired) Huba Wass de Czege, Institute of Land Warfare

The way the United States Army approaches ground maneuver warfare has changed with the publication of the 2008 edition of *FM 3-0, Operations*. The new approach reflects a greater understanding of the changes in the operational environment since the end of the Cold War. Although the requirement for full spectrum operations, the concept that Army forces must execute offense, defense, and stability operations, has been part of Army doctrine since the 2001 edition of FM 3-0, the latest edition changes the relationship of these three operations. No longer are offense, defense, and stability operations viewed as sequential events, but instead they are operations that must be conducted simultaneously. This change has come about due to an understanding that stability operations are equally important to offensive and defensive operations for success in the current operational environment.

Previously, maneuver forces were expected to deliver quick, devastating, and decisive blows to an enemy’s organized military machine and, once this was

accomplished, follow-on forces would conduct stability operations. This linear approach to full-spectrum operations was reflected in the design of the modular BCTs which were small, highly mobile fixed formations of great lethality. Ground maneuver forces were expected to focus upon the enemy, to maintain the offense, and rely upon their greater mobility for protection against enemy detection and engagement. Enemy forces would be detected beyond their ability to detect or engage friendly forces and they would be destroyed through the use of joint fires.

The reality of full spectrum operations, after seven years in Afghanistan and five years in Iraq, indicates that maneuver forces will execute this form of network-centric warfare for only a short time during the span of a conflict. In today's long war, BCTs conduct simultaneous offense, defense, and stability operations. Although still conducting offense operations, they are conducted on a much smaller scale. Defensive operations, lumped under the protection warfighting function, are of a long-term nature and are not merely a temporary state prior to reassuming the offense. Enemy forces are much harder to identify and they are more likely to be identified through human interaction with the population than through high-tech sensors. Stability operations are inherently static and require a force to focus less upon maneuvering against an enemy and more upon providing security for a population.

#### Benefits to Adding Battalions Instead of BCTs

The Army will achieve greater strategic depth at a reduced cost by adding a third maneuver battalion to existing BCTs rather than by adding additional BCTs. The shift from a division-centric to a brigade-centric Army did not change the fact that it is the battalion and their assigned companies which accomplish the business of warfare. The

developers of the modular force were correct in their assessment that they could achieve an equally capable BCT with fewer battalions by simply increasing the number of companies under each battalion headquarters. This same logic must now be applied so that we can achieve a more capable overall force through the addition of battalions under each BCT. Strategic depth is currently being defined as the long-term rotational pool of BCTs when it should be the total rotational number of battalions within those BCTs.

Currently, the Army intends to reduce the total number of BCTs rotating to Iraq to 15. If translated into battalions, this equals 30 maneuver battalions and 15 reconnaissance squadrons. In terms of actual combat soldiers, a reconnaissance squadron is roughly half the size of a maneuver battalion, therefore in order to compare a reconnaissance squadron to a maneuver battalion, we must multiply the number of reconnaissance squadrons by 0.5, therefore the Army's goal is to reduce the total number of maneuver battalion equivalents in Iraq to 37.5 by the summer of 2008.

By adding battalions to existing BCTs the Army can add an additional 22 maneuver battalions for the overall force pool, which is double the maneuver battalion equivalents gained through the current plan of adding six IBCTs. An additional 10 maneuver battalions could be gained by converting the two training brigades stationed at Fort Riley, Kansas, and Fort Bliss, Texas, and the two legacy brigades in Germany into combined-arms battalions rather than converting these four brigades to HBCTs. In total, the Army could create 13 maneuver battalions over and above that which would be obtained by the current plan of building more modular BCTs. These 13 additional battalions equal the same ground combat power as adding 5.2 modular BCTs. This

clearly adds strategic depth as it would require less of our overall combat capability to be dedicated to enduring operations, thus reducing the overall strain on the Army as a whole.

The cost savings of adding battalions versus brigades is significant. The cost of adding six IBCTs is currently \$2.63 billion and the cost of converting four HBCTs (two training BCTs and two legacy brigades) will cost approximately \$8.0 billion. In comparison, the cost of adding 22 fully supported infantry battalions to existing IBCTs is \$0.598 billion, the conversion of the two training BCTs into eight new combined-arms battalions would cost approximately \$2.44 billion, while the conversion of the two legacy brigades in Germany into eight CABs would be little as these brigades are already fully digitized organizations and contain the equivalent combat power of 4 combined-arms battalions each. Adding battalions to existing BCTs saves approximately \$7.59 billion when compared to the Army's current plan.

Although adding battalions to existing BCTs would utilize the same total number of personnel as adding six IBCTs, the savings realized by adding battalions versus BCTs in the area of critical military occupational specialties and grades would be significant. A specific area of concern to the Army today is a shortage of over 3,000 captains and majors. Adding battalions to existing BCTs reduces the total number of officers being added to this shortage, which will reduce the increasing strain upon recruitment and retention of the Army's front-line and mid-level leaders. Adding six IBCTs will require 828 captains and majors while adding 22 infantry battalions would require only 139 captains and majors. There is no cost or savings associated with either converting the training and legacy brigades to modular BCTs or adding combined-arms battalions as these personnel are already in the Army system. Although adding battalions does add

additional strain to an already existing shortage of Army captains and majors, the increase is 54.6% of that which will be added by creating additional modular BCTs.

### Recommendation

It is the conclusion of this study that the Army would gain a greater benefit by adding battalions to existing BCTs than by adding additional BCTs to the force structure. The Army should not add six additional IBCTs to the force structure nor continue to convert the four remaining heavy brigades into HBCTs. Instead, the Army should utilize the manpower, equipment, and funds allocated for these units toward the creation of 38 maneuver battalions to be added to existing brigades.

Further research should be conducted to determine the need for creating Army National Guard tactical command forces for the specific support to maneuver enhancement brigades. It appears that these forces could be better utilized if assigned to a maneuver brigade and tasked to support other types of brigades as the mission requires. Further study should also be conducted in the area of strategic lift as this thesis used only general planning figures and should not be considered comprehensive in determining the total lift needed for moving combat forces. Finally, additional research should be done to determine if it would be costs and benefits to reducing the total number of maneuver and support brigades in order to gain a third maneuver battalion for each of the remaining BCTs.

On May 13, 2008, the Secretary of Defense made it clear that the Army needs to build more stability capability within its force structure. Taking this and the elevation of stability operations to the same level as offense and defense in Army doctrine into account and it becomes clear that Army forces must contain a significantly greater

proportion of ground combat capability than was previously required under the Cold War paradigm. No longer can force design be looked at from a position skewed by lethality and offensive capability, but instead the modular force must be able to meet simultaneous full-spectrum demands upon manpower.

Strategic depth must not be looked at from the standpoint of BCTs. Although BCTs represent the smallest self-contained warfighting formation in the Army, it is the battalion and their assigned companies that actually conduct operations and therefore represent the true capability of the Army. Although it is clear that the quantity of personnel, equipment and funds available is insufficient to add a third maneuver battalion to each and every existing brigade, this does not mean that more battalions might not be added at a later date if it is determined that the Army must again grow to meet mission requirements.



## GLOSSARY

Battalion. A unit consisting of two or more company, battery, or troop-sized units and a headquarters. Also called bn. (FM 1-02 2004, 1-19). Same sized unit as a squadron.

Brigade Combat Team (BCT). A brigade is a unit consisting of two or more battalions and a headquarters (FM 1-02 2004, 1-25). A BCT differs from a brigade in that it is a self-contained combined arms organization with organic maneuver, fires, reconnaissance, intelligence, communications, and logistic units. There are three types of BCTs: heavy (HBCT), infantry (IBCT), and Stryker (SBCT) (FMI 3-0.1 2007, viii).

Combat Power. The total means of destructive and/or disruptive force which a military unit/formation can apply against an opponent at a given time (FM 1-02 2004, 1-35). The total means of destructive, constructive, and information capabilities that a military unit/formation can apply at a given time (FM 3-0 2008, 4-1).

Combined Arms. The synchronized and simultaneous application of the elements of combat power to achieve an effect greater than if each element of combat power was used separately or sequentially (FM 3-0 2008, 4-7).

Combined Arms Battalion (CAB). A maneuver battalion existing within the modular HBCT consisting of a headquarters company, two mechanized (MECH) infantry companies, two tank companies, and one combat engineer company.

Company. A unit consisting of two or more platoons, usually of the same type, with a headquarters and a limited capacity for self support (FM 1-02 2004, 1-41). Same sized organization as a battery or troop.

Maneuver. A component of the movement and maneuver warfighting function. Direct fire is inherent in maneuver, as is close combat (FM 3-0 2008, 4-3). The employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission (JP 3-0, IV-8). Maneuver is the means by which commanders mass the effects of combat power to achieve surprise, shock, and momentum (FM 3-0 2008, 4-4).

Maneuver Battalion. A battalion that is organized, trained, and equipped to conduct maneuver warfare as its primary function.

Reconnaissance. A component of the intelligence warfighting function (FM 3-0 2008, 4-4). A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to security data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. Also called recce; recon (FM 1-02 2004, 1-158).

Reconnaissance Squadron. A squadron that is organized, trained, and equipped to conduct reconnaissance as its primary function.

## APPENDIX A

### COMBAT POWER COMPARISON

	HBCT			IBCT		
	<u>2 x CAB</u>			<u>2 x BN</u>		
	<u>2 x CAB</u>	<u>w/CAV</u>	<u>3 x CAB</u>	<u>2 x BN</u>	<u>w/dismou</u>	<u>3 x BN</u>
	<u>w/ARS</u>	<u>SQDN</u>	<u>w/ARS</u>	<u>w/RECCE</u>	<u>nts</u>	<u>w/RECCE</u>
<b><u>SQUADS</u></b>						
RIFLE SQD (9 MAN)	36	36	54	54	54	81
WEAPONS SQD (9 MAN)	0	0	0	18	18	27
DISMOUTNED RECON SQD (8 MAN)	0	0	0	6	6	12
ENG SQD (7-8 MAN)	9	9	9	6	6	9
MORTAR SQD (6 MAN)	0	0	0	7	7	10
	<b>45</b>	<b>45</b>	<b>63</b>	<b>91</b>	<b>91</b>	<b>139</b>
<b><u>ARMORED VEHICLE SECTIONS</u></b>						
AR SEC (2 x TANK) (4-MAN CREWS)	24	36	36	0	0	0
BRADLEY SEC (2 x BRADLEY) (3-MAN CREWS)	38	56	43	0	0	0
ARMORED RECCE SEC (1 x BRADLEY + 1 x HMMWV) (3-MAN CREWS)	24	6	27	0	0	0
HMMWV SEC (2 x HMMWV) (3-MAN CREWS)	27	27	30	40	40	59
HOW SEC (1 x HOW + 1 x FAASV) (2-MAN CREWS)	16	16	18	0	0	0
MORTAR SEC (2 x MORTAR TRACK) (2-MAN CREWS)	7	7	9	0	0	0
ARMORED CAR SEC (2 x ARMORED CAR) (3-MAN CREWS)	3	3	3	3	3	3
	<b>139</b>	<b>151</b>	<b>166</b>	<b>43</b>	<b>43</b>	<b>62</b>
<b>TOTAL TASKABLE SQD/SEC</b>	<b>184</b>	<b>196</b>	<b>229</b>	<b>134</b>	<b>134</b>	<b>201</b>
<b><u>DISMOUNT TEAMS</u></b>						
FA TM (4-5 MAN)	16	16	18	16	16	18
SNIPER TM (3 MAN)	6	6	9	8	8	11
SCOUT TM (2-3 MAN)	24	24	27	0	8	0
MORTAR TM (2-3 MAN)	7	7	9	12	12	16
FO TM (2 MAN)	18	18	24	26	24	35
	<b>71</b>	<b>71</b>	<b>87</b>	<b>62</b>	<b>68</b>	<b>80</b>
<b><u>SINGLE ARMED VEHICLES</u></b>						
CMD TANK	10	13	15	0	0	0
CMD BRADLEY	29	29	38	0	0	0
CMD M113	12	12	16	0	0	0
COLT HMMWV (KNIGHT)	5	5	5	4	4	4
CMD ARMED HMMWV	0	0	0	5	5	5
	<b>56</b>	<b>59</b>	<b>74</b>	<b>9</b>	<b>9</b>	<b>9</b>

Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsardd.army.mil/usafmsa/> [Accessed March 3, 2008]

## APPENDIX B

### ADDITIONAL COST OF ONE INFANTRY BATTALION

AN/GYK-57	AFATDS	2	100,000.00	200,000.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
AN/PAS-13V2	THERMAL SIGHT	7	563.00	3,941.00	<a href="http://www.deagel.com/Navigation-and-Targeting-Systems/ANPAS-13B2-MTWS_a001627002.as">http://www.deagel.com/Navigation-and-Targeting-Systems/ANPAS-13B2-MTWS_a001627002.as</a>
AN/PAS-13V3	THERMAL SIGHT	1	563.00	563.00	<a href="http://www.deagel.com/Navigation-and-Targeting-Systems/ANPAS-13B2-MTWS_a001627002.as">http://www.deagel.com/Navigation-and-Targeting-Systems/ANPAS-13B2-MTWS_a001627002.as</a>
AN/PSG-7V1	DATA SET ARTY	3	100,000.00	300,000.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
AN/PSN-13	DAGR	18	2,335.00	42,030.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	48	2,099.00	100,752.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
AN/PYG-1	CENTAUR	2		0.00	
AN/TYQ-109	GCSS-A	1		0.00	
AN/USQ-159	CAMOUFLAGE NET	89	250.00	22,250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/UYK-152	FBCB2	20	23,706.00	474,120.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/UYQ-90	MTS	2		0.00	
AN/VAS-5		20		0.00	
AN/VDR-2	RADIAC SET	1	52.00	52.00	<a href="http://www.american-milspec.com/c-12-radiation-detection.aspx">http://www.american-milspec.com/c-12-radiation-detection.aspx</a>
AN/VRC-87F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-88F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-90F	SINCGARS RADIO	3	34,997.00	104,991.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-91F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-92F	SINCGARS RADIO	9	106,906.00	962,154.00	<a href="http://www.defenselink.mil/news/Oct1998/m10051998_m169-98.html">http://www.defenselink.mil/news/Oct1998/m10051998_m169-98.html</a>
AN/VSQ-2	EPLRS	15	50,000.00	750,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
	GDU	2		0.00	
KG-175	ENCRYPTOR	3	10,950.00	32,850.00	<a href="http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan">http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan</a>
OL-700/TYQ	PROCESSOR GROUP	1		0.00	
M1083	5-TON FMTV	1	190,000.00	190,000.00	<a href="http://www.combatreform.com/lavdanger.htm">http://www.combatreform.com/lavdanger.htm</a>
M1084	5-TON FMTV W/MHE	1	190,000.00	190,000.00	<a href="http://www.combatreform.com/lavdanger.htm">http://www.combatreform.com/lavdanger.htm</a>
M1095	FMTV TRAILER	2	18,558.00	37,116.00	<a href="http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWART-STEVENSON-AWARDED-CC">http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWART-STEVENSON-AWARDED-CC</a>
M1097A2	HMMWV (HVY VARIANT)	4	60,563.00	242,252.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
M1101	HMMWV TRLR 1 1/4 T	2	5,290.00	10,580.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
M1102	HMMWV TRLR 3/4 T	4	5,290.00	21,160.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
M1113	HMMWV (HVY VARIANT)	2	60,563.00	121,126.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
M119A1	105MM TOWED HOWITZER	2	1,090,909.00	2,181,818.00	<a href="http://www.combatreform.com/lavdanger.htm">http://www.combatreform.com/lavdanger.htm</a>
M149	WATER TRAILER	1	13,000.00	13,000.00	<a href="http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d7f2275378d64529e8c39522398">http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d7f2275378d64529e8c39522398</a>
M2	.50 CAL MG	1	14,002.00	14,002.00	<a href="http://www.fas.org/man/dod-101/sys/land/m2-50cal.htm">http://www.fas.org/man/dod-101/sys/land/m2-50cal.htm</a>
M203	40MM GRENADE SINGLE	4	601.00	2,404.00	<a href="http://www.fas.org/man/dod-101/sys/land/m203.htm">http://www.fas.org/man/dod-101/sys/land/m203.htm</a>
M240B	7.62MM MG	2	6,600.00	13,200.00	<a href="http://www.fas.org/man/dod-101/sys/land/m240g.htm">http://www.fas.org/man/dod-101/sys/land/m240g.htm</a>
M249	5.56MM MG	3	4,087.00	12,261.00	<a href="http://www.fas.org/man/dod-101/sys/land/m249.htm">http://www.fas.org/man/dod-101/sys/land/m249.htm</a>
M4	5.56MM RIFLE	46	586.00	26,956.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>

M22	BINOCULAR: MIL SCALE RETICLE 7X50MM W/E	4	998.00	3,992.00	<a href="http://www.just-binoculars.com/merchant2/merchant.mvc?Screen=PROD&amp;Product_Code=PS538">http://www.just-binoculars.com/merchant2/merchant.mvc?Screen=PROD&amp;Product_Code=PS538</a>
M40	PROTECTIVE MASK	74	137.00	10,138.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M67	GLPS	2	84,084.00	168,168.00	<a href="http://findarticles.com/p/articles/mi_qa3723/is_199706/ai_n8769762/pg_2">http://findarticles.com/p/articles/mi_qa3723/is_199706/ai_n8769762/pg_2</a>
M9	9MM PISTOL	3	263.00	789.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
M90	CHRONOGRAPH	1	23,000.00	23,000.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
M998	HMMWV	7	60,563.00	423,941.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
MEP-831A1	GENERATOR 3KW	2	1,495.00	2,990.00	<a href="http://www.colemans.com/generator.htm">http://www.colemans.com/generator.htm</a>
Mk19	40MM MG GRENADE	1	13,758.00	13,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/mk19.htm">http://www.fas.org/man/dod-101/sys/land/mk19.htm</a>
OE-254	ANTENNAE GROUP	12	1,600.00	19,200.00	<a href="http://www.amfone.net/AMPX/101.htm">http://www.amfone.net/AMPX/101.htm</a>
TF-1456VRC	FHMUX	2		0.00	
	GENERATOR SET 28V DC	2		0.00	
	PRIME MOVER KIT M119	2		0.00	
				<b>6,962,539.00</b>	

**ARTY FMT**

AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M1113	HMMWV (HVY VARIANT)	3	60,563.00	181,689.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
SECM	SHOP EQP CONTACT MAINT	1	19,616.00	19,616.00	<a href="https://aais.ria.army.mil/aais/award_web_03/DAAE2003D00870023/08.pdf">https://aais.ria.army.mil/aais/award_web_03/DAAE2003D00870023/08.pdf</a>
M1084	5-TON FMTV W/MHE	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
M1095	FMTV TRAILER	1	18,558.00	18,558.00	<a href="http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWARD-STEVENSON-AWARDED-CC">http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWARD-STEVENSON-AWARDED-CC</a>
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/UYQ-90	MTS	1	50,000.00	0.00	
M4	5.56MM RIFLE	5	586.00	2,930.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	5	137.00	685.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
OL-581/TYQ	OPTICAL READER	1		0.00	
				<b>419,491.00</b>	

**POL TEAM**

AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	4	250.00	1,000.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M978	HEMTT FUELER	1	286,285.00	286,285.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1449">http://www.defenselink.mil/contracts/contract.aspx?contractid=1449</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYQ-90	MTS	1		0.00	
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>

M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
<b>407,967.00</b>					
<b><u>FOOD SVC TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M1101	HMMWV TRAILER	1	5,290.00	5,290.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
<b>163,079.00</b>					
<b><u>SURVEY PERSONNEL</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
<b>9,644.00</b>					
<b><u>FORWARD COMMO SPT</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-92F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
KG-175	ENCRYPTOR	3	10,950.00	32,850.00	<a href="http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan">http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan</a>
M4	5.56MM RIFLE	1	586.00	586.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	1	137.00	137.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PVS-7B	NVG	1	2,099.00	2,099.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
<b>211,523.00</b>					
<b><u>MEDIC</u></b>					
AN/PVS-7B	NVG	1	2,099.00	2,099.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	1	586.00	586.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	1	137.00	137.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/TYQ-105	MEDICAL COMPUTER	1	600.00	600.00	
<b>3,422.00</b>					
<b><u>NBC RECON TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>

M1114	ARMORED HMMWV	1	140,000.00	140,000.00	<a href="http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248">http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248</a>
AN/VRC-89F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
TF-1456VRC	FHMUX	1		0.00	
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	3	586.00	1,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	4	137.00	548.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M249	5.56MM MG	1	4,087.00	4,087.00	<a href="http://www.fas.org/man/dod-101/sys/land/m249.htm">http://www.fas.org/man/dod-101/sys/land/m249.htm</a>

**305,074.00**

**ENGINEER PLATOON**

AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	5	250.00	1,250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV (CARGO)	5	60,563.00	302,815.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-89F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-91F	SINCGARS RADIO	3	34,997.00	104,991.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/PRC-148	MBITR	4	5,000.00	20,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
M1101	HMMWV TRAILER	4	5,290.00	21,160.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
AN/PVS-7B	NVG	10	2,099.00	20,990.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	28	586.00	16,408.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	28	137.00	3,836.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M203	40MM GRENADE SINGLE	7	601.00	4,207.00	<a href="http://www.fas.org/man/dod-101/sys/land/m203.htm">http://www.fas.org/man/dod-101/sys/land/m203.htm</a>
M240B	7.62MM MG	1	6,600.00	6,600.00	<a href="http://www.fas.org/man/dod-101/sys/land/m240g.htm">http://www.fas.org/man/dod-101/sys/land/m240g.htm</a>
M249	5.56MM MG	6	4,087.00	24,522.00	<a href="http://www.fas.org/man/dod-101/sys/land/m249.htm">http://www.fas.org/man/dod-101/sys/land/m249.htm</a>

**676,814.00**

**HUMINT PLT HQ**

AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV (CARGO)	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYK-152	FBCB2	2	23,706.00	47,412.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>

M9	9MM PISTOL	2	263.00	526.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
<b>293,059.00</b>					
<b><u>OPS MGT TM (-)</u></b>					
M998	HMMVV (CARGO)	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmvv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmvv.html</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/VRC-92F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/GRC-93A	TACSAT	1	7,000.00	7,000.00	<a href="http://www.gordon.army.mil/ococ/ac/Edition,%20Summer/Summer%2002/combnet.htm">http://www.gordon.army.mil/ococ/ac/Edition,%20Summer/Summer%2002/combnet.htm</a>
AN/PYQ-7	CI/HUMINT WORKSTATION	1		0.00	
AN/PYQ-3	CHATS	1		0.00	
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fqgJhttps://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fqgJhttps://akss.dau.mil/Documents/Policy/c</a>
M1101	HMMVV TRAILER	1	5,290.00	5,290.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	2	263.00	526.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
<b>240,646.00</b>					
<b><u>HUMINT TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	2	250.00	500.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M1114	ARMORED HMMVV	2	140,000.00	280,000.00	<a href="http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248">http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYK-152	FBCB2	2	23,706.00	47,412.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fqgJhttps://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fqgJhttps://akss.dau.mil/Documents/Policy/c</a>
AN/PRC-148	MBITR	1	5,000.00	5,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PYQ-8	ITRT	1		0.00	
AN/PRC-126	SCOPE SHIELD	2	5,000.00	10,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	4	586.00	2,344.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	4	137.00	548.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	4	263.00	1,052.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
<b>581,916.00</b>					
<b><u>PROFET SENSOR TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/MLQ-40(V)3	PROFET MULTI-SENSOR	1	220,000.00	220,000.00	<a href="http://findarticles.com/p/articles/mi_m0EIN/is_/ai_n15659469">http://findarticles.com/p/articles/mi_m0EIN/is_/ai_n15659469</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/VRC-91F	SINCGARS RADIO	3	34,997.00	104,991.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>



AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	3	586.00	1,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	3	137.00	411.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJhttps://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJhttps://akss.dau.mil/Documents/Policy/c</a>
				<b>459,649.00</b>	
			<b>SUB</b>	<b>\$10,734,823.00</b>	
			<b>ADJUSTMENT</b>	<b>1.10</b>	
			<b>ESTIMATED COST</b>	<b>\$11,808,305.30</b>	

Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaradd.army.mil/usafmsa/> [Accessed March 3, 2008]

## APPENDIX C

### ADDITIONAL COST OF ONE COMBINED ARMS BATTALION

<u>155MM SP HOWITZER BTRY</u>					
AN/GRC-93A	HF RADIO	2		0.00	<a href="http://www.just-binoculars.com/merchant2/merchant.mvc?Screen=PROD&amp;Product_Code=PS538">http://www.just-binoculars.com/merchant2/merchant.mvc?Screen=PROD&amp;Product_Code=PS538</a>
AN/GYK-57	AFATDS	2	100,000.00	200,000.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
AN/PSG-7V1	DATA SET ARTY	3	100,000.00	300,000.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
AN/PSN-13	DAGR	19	2,335.00	44,365.00	
AN/PVS-7B	NVG	47	2,099.00	98,653.00	<a href="http://www.american-milspec.com/c-12-radiation-detection.aspx">http://www.american-milspec.com/c-12-radiation-detection.aspx</a>
AN/TYQ-109	GCSS-A	1		0.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/USQ-159	CAMOUFLAGE NET	89	250.00	22,250.00	
AN/UYK-152	FBCB2	17	23,706.00	403,002.00	<a href="http://www.vtamynavy.com/camo_netting.htm">http://www.vtamynavy.com/camo_netting.htm</a>
AN/UYQ-90	MTS	5		0.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VDR-2	RADIAC SET	1	52.00	52.00	
AN/VRC-90F	SINCGARS RADIO	9	34,997.00	314,973.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
AN/VRC-92F	SINCGARS RADIO	11			<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/VSQ-2	EPLRS	15	50,000.00	750,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
KG-175	ENCRYPTOR	1	10,950.00	10,950.00	<a href="http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan">http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan</a>
M1075	PLS TRUCK	2	360,139.00	720,278.00	<a href="http://www.dtic.mil/ndia/2007/tw/bell.pdf">http://www.dtic.mil/ndia/2007/tw/bell.pdf</a>
M1077	FLAT RACK	2	9,300.00	18,600.00	<a href="http://forums2.jolt.co.uk/showthread.php?t=281544">http://forums2.jolt.co.uk/showthread.php?t=281544</a>
M1084	5-TON FMTV W/MHE	1	190,000.00	190,000.00	<a href="http://www.govexec.com/features/0498def.htm">http://www.govexec.com/features/0498def.htm</a>
M109A6	SP HOWITZER	2	735,121.00	1,470,242.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/m992.html">http://www.geocities.com/banzaidyne2/hg2ed/m992.html</a>
M1102	HMMWV TRLR 3/4 T	4	5,290.00	21,160.00	<a href="http://www.natick.army.mil/soldier/jcotas/Nov2002.htm">http://www.natick.army.mil/soldier/jcotas/Nov2002.htm</a>
M149	WATER TRAILER	1	13,000.00	13,000.00	<a href="http://www.combatreform.com/lavdanger.htm">http://www.combatreform.com/lavdanger.htm</a>
M2	.50 CAL MG	3	14,002.00	42,006.00	<a href="http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d712275378d64529e8c39522398">http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d712275378d64529e8c39522398</a>
M203	40MM GRENADE SINGLE	4	601.00	2,404.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
M22	BINOCULAR: MIL SCALE RETICLE 7X50MM W/E	4	998.00	3,992.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
M249	5.56MM MG	4	4,087.00	16,348.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
M4	5.56MM RIFLE	47	586.00	27,542.00	<a href="http://www.fas.org/man/dod-101/sys/land/m2-50cal.htm">http://www.fas.org/man/dod-101/sys/land/m2-50cal.htm</a>
M40	PROTECTIVE MASK	26	137.00	3,562.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M42	MASK CHEMICAL BIOLOGICAL	21	228.00	4,788.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
M9	9MM PISTOL	3	263.00	789.00	<a href="http://www.fas.org/man/dod-101/sys/land/mk19.htm">http://www.fas.org/man/dod-101/sys/land/mk19.htm</a>
M90	CHRONOGRAPH	1	23,000.00	23,000.00	<a href="http://www.fas.org/man/dod-101/sys/land/m249.htm">http://www.fas.org/man/dod-101/sys/land/m249.htm</a>
M992A1	FA SPT AMMO VEH (FAASV)	2	208,275.00	416,550.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M998	HMMWV (CARGO)	8	60,563.00	484,504.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
Mk19	40MM MG GRENADE	2	13,758.00	27,516.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
OE-254	ANTENNAE GROUP	12	1,600.00	19,200.00	<a href="http://www.fas.org/man/dod-101/sys/land/m203.htm">http://www.fas.org/man/dod-101/sys/land/m203.htm</a>
OL-700/TYQ	TACIMS	1		0.00	<a href="http://www.armfone.net/AMPX/101.htm">http://www.armfone.net/AMPX/101.htm</a>
XM9	BAYONET MULTIPURPOSE SYSTEM	47	63.00	2,961.00	
TF-1456VRC	PALADIN UPGRADE	2	1,500,000.00	3,000,000.00	<a href="http://www.armynavydeals.com/asp/products_details.asp?SKU=3134&amp;ST=2">http://www.armynavydeals.com/asp/products_details.asp?SKU=3134&amp;ST=2</a>
	FHMUX	1		0.00	
				<b>8,652,687.00</b>	
<u>ARTY FMT</u>					
M998	HMMWV (CARGO)	1	60,563.00	60,563.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M1113	HMMWV (HVY VARIANT)	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
SECM	SHOP EOP CONTACT MAINT	1	19,616.00	19,616.00	<a href="https://ais.ria.army.mil/ais/award_web_03/DAAE2003D00870023/08.pdf">https://ais.ria.army.mil/ais/award_web_03/DAAE2003D00870023/08.pdf</a>
M88A2	ARMORED RECOVERY VEH	1	57,144.00	57,144.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/m88a2.html">http://www.geocities.com/banzaidyne2/hg2ed/m88a2.html</a>
M1075	PLS TRUCK	1	360,139.00	360,139.00	<a href="http://www.dtic.mil/ndia/2007/tw/bell.pdf">http://www.dtic.mil/ndia/2007/tw/bell.pdf</a>
M1077	FLAT RACK	1	9,300.00	9,300.00	<a href="http://forums2.jolt.co.uk/showthread.php?t=281544">http://forums2.jolt.co.uk/showthread.php?t=281544</a>
M7	FWD REP SYS	1	53,914.00	53,914.00	<a href="http://www.dtic.mil/descriptivesum/Y2000/Army/0604622a.pdf">http://www.dtic.mil/descriptivesum/Y2000/Army/0604622a.pdf</a>
M1084	5-TON FMTV W/MHE	1	190,000.00	190,000.00	<a href="http://www.govexec.com/features/0498def.htm">http://www.govexec.com/features/0498def.htm</a>
M1095	FMTV TRAILER	1	18,558.00	18,558.00	<a href="http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWARD-STEVENSON-AWARDED-CC">http://goliath.ecnext.com/coms2/gi_0199-115865/USA-STEWARD-STEVENSON-AWARDED-CC</a>
AN/VRC-90F	SINCGARS RADIO	4	34,997.00	139,988.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
AN/UYK-152	FBCB2	4	23,706.00	94,824.00	<a href="http://www.vtamynavy.com/camo_netting.htm">http://www.vtamynavy.com/camo_netting.htm</a>
AN/PSN-13	DAGR	4	2,335.00	9,340.00	
AN/UYQ-90	MTS	1		0.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
M2	.50 CAL MG	2	14,002.00	28,004.00	<a href="http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d712275378d64529e8c39522398">http://www.g503.com/forums/viewtopic.php?p=653327&amp;sid=e79d712275378d64529e8c39522398</a>
M249	5.56MM MG	2	4,087.00	8,174.00	<a href="http://www.globalsecurity.org/military/library/report/1988/MJR.htm">http://www.globalsecurity.org/military/library/report/1988/MJR.htm</a>
M4	5.56MM RIFLE	14	586.00	8,204.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	12	137.00	1,644.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M42	MASK CHEMICAL BIOLOGICAL	2	228.00	456.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
AN/PVS-7B	NVG	10	6,000.00	60,000.00	<a href="http://tech.military.com/equipment/view/88663/an-pvs-7b-night-vision-goggles.html">http://tech.military.com/equipment/view/88663/an-pvs-7b-night-vision-goggles.html</a>
OL-581/TYQ	OPTICAL READER	1		0.00	
				<b>1,180,431.00</b>	
<u>POL TEAM</u>					
M978	HEMTT FUELER	2	286,285.00	572,570.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1449">http://www.defenselink.mil/contracts/contract.aspx?contractid=1449</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UYQ-90	MTS	2		0.00	
AN/UYK-152	FBCB2	2	23,706.00	47,412.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>

ANV/SQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PVS-7B	NVG	4	6,000.00	24,000.00	<a href="http://tech.military.com/equipment/view/88663/an-pvs-7b-night-vision-goggles.html">http://tech.military.com/equipment/view/88663/an-pvs-7b-night-vision-goggles.html</a>
M4	5.56MM RIFLE	4	586.00	2,344.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
<b>821,264.00</b>					
<b><u>FOOD SVC TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
ANV/SQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M1101	HMMWV TRAILER	1	5,290.00	5,290.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
<b>163,079.00</b>					
<b><u>SURVEY PERSONNEL</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
<b>9,644.00</b>					
<b><u>FORWARD COMMO SPT</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-92F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
ANV/SQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
KG-175	ENCRYPTOR	3	10,950.00	32,850.00	<a href="http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan">http://www.wikileaks.org/wiki/US_Military_Equipment_in_Afghanistan</a>
M4	5.56MM RIFLE	1	586.00	586.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	1	137.00	137.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PVS-7B	NVG	1	2,099.00	2,099.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
<b>211,523.00</b>					
<b><u>MEDIC</u></b>					
AN/PVS-7B	NVG	1	2,099.00	2,099.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	1	586.00	586.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	1	137.00	137.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/TYQ-105	MEDICAL COMPUTER	1	600.00	600.00	
<b>3,422.00</b>					
<b><u>NBC RECON TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	4	250.00	1,000.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M1135	STRYKER NBCRV	1	2,000,000.00	2,000,000.00	<a href="http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=8111248">http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=8111248</a>
AN/VRC-89F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/VRC-90F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
ANV/SQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
TF-1456VRC	FHMUX	1		0.00	
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	3	586.00	1,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	4	137.00	548.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M249	5.56MM MG	1	4,087.00	4,087.00	<a href="http://www.fas.org/man/dod-101/sys/land/m249.htm">http://www.fas.org/man/dod-101/sys/land/m249.htm</a>
<b>2,165,824.00</b>					
<b><u>HUMINT PLT HQ</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M998	HMMWV (CARGO)	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	2	23,706.00	47,412.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
ANV/SQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	2	263.00	526.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
<b>293,059.00</b>					
<b><u>OPS MGT TM (-)</u></b>					
M998	HMMWV (CARGO)	1	60,563.00	60,563.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html">http://www.geocities.com/banzaidyne2/hg2ed/hmmwv.html</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/VRC-92F	SINCGARS RADIO	1	34,997.00	34,997.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/GRC-93A	TACSAT	1	7,000.00	7,000.00	<a href="http://www.gordon.army.mil/occs/ac/Edition,%20Summer/Summer%2002/combnet.htm">http://www.gordon.army.mil/occs/ac/Edition,%20Summer/Summer%2002/combnet.htm</a>
AN/PYQ-7	CI/HUMINT WORKSTATION	1		0.00	
AN/PYQ-3	CHATS	1		0.00	
AN/UJK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
ANV/SQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>

AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c</a>
M1101	HMMVV TRAILER	1	5,290.00	5,290.00	<a href="http://www.defenselink.mil/contracts/contract.aspx?contractid=1423">http://www.defenselink.mil/contracts/contract.aspx?contractid=1423</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	2	586.00	1,172.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	2	137.00	274.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	2	263.00	526.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
				<b>240,646.00</b>	
<b><u>HUMINT TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/USQ-159	CAMOUFLAGE NET	2	250.00	500.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
M1114	ARMORED HMMVV	2	140,000.00	280,000.00	<a href="http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248">http://www.investorvillage.com/smbd.asp?mb=132&amp;mn=7833&amp;pt=msg&amp;mid=811248</a>
AN/VRC-90F	SINCGARS RADIO	2	34,997.00	69,994.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	2	23,706.00	47,412.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c</a>
AN/PRC-148	MBITR	1	5,000.00	5,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PYQ-8	ITRT	1		0.00	
AN/PRC-126	SCOPE SHIELD	2	5,000.00	10,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	4	586.00	2,344.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	4	137.00	548.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	4	263.00	1,052.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
				<b>581,916.00</b>	
<b><u>PROFET SENSOR TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/MLQ-40(V)3	PROFET MULTI-SENSOR	1	220,000.00	220,000.00	<a href="http://findarticles.com/p/articles/mi_m0EIN/is_ai_r15659469">http://findarticles.com/p/articles/mi_m0EIN/is_ai_r15659469</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/VRC-91F	SINCGARS RADIO	3	34,997.00	104,991.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	3	586.00	1,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	3	137.00	411.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c</a>
				<b>459,649.00</b>	
			<b>SUB</b>	<b>\$14,783,144.00</b>	
			<b>ADJUSTMENT</b>	<b>1.1</b>	
			<b>ESTIMATED TOTAL</b>	<b>\$16,261,458.40</b>	
AN/VSQ-2	EPLRS	2	50,000.00	100,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	2	2,335.00	4,670.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c</a>
AN/PRC-148	MBITR	1	5,000.00	5,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PYQ-8	ITRT	1		0.00	
AN/PRC-126	SCOPE SHIELD	2	5,000.00	10,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm">http://www.nationaldefensemagazine.org/issues/2007/May/DefenseBundles.htm</a>
AN/PVS-7B	NVG	4	2,099.00	8,396.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	4	586.00	2,344.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	4	137.00	548.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
M9	9MM PISTOL	4	263.00	1,052.00	<a href="http://fas.org/man/dod-101/sys/land/m9.htm">http://fas.org/man/dod-101/sys/land/m9.htm</a>
				<b>31,684,262.50</b>	
<b><u>PROFET SENSOR TEAM</u></b>					
AN/CYZ-10	ANCD	1	4,000.00	4,000.00	<a href="http://en.wikipedia.org/wiki/AN/CYZ-10">http://en.wikipedia.org/wiki/AN/CYZ-10</a>
AN/MLQ-40(V)3	PROFET MULTI-SENSOR	1	220,000.00	220,000.00	<a href="http://findarticles.com/p/articles/mi_m0EIN/is_ai_r15659469">http://findarticles.com/p/articles/mi_m0EIN/is_ai_r15659469</a>
AN/USQ-159	CAMOUFLAGE NET	1	250.00	250.00	<a href="http://www.vtarmynavy.com/camo_netting.htm">http://www.vtarmynavy.com/camo_netting.htm</a>
AN/VRC-91F	SINCGARS RADIO	3	34,997.00	104,991.00	<a href="http://www.geocities.com/banzaidyne2/hg2ed/mtv.html">http://www.geocities.com/banzaidyne2/hg2ed/mtv.html</a>
AN/UJK-152	FBCB2	1	23,706.00	23,706.00	<a href="http://www.defensetech.org/archives/004106.html">http://www.defensetech.org/archives/004106.html</a>
AN/VSQ-2	EPLRS	1	50,000.00	50,000.00	<a href="http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm">http://www.nationaldefensemagazine.org/issues/2001/May/Land_Forces.htm</a>
AN/PSN-13	DAGR	1	2,335.00	2,335.00	<a href="http://www.olive-drab.com/od_electronics_gps_dagr.php">http://www.olive-drab.com/od_electronics_gps_dagr.php</a>
AN/PVS-7B	NVG	2	2,099.00	4,198.00	<a href="http://www.nightvisionmall.com/Merchant2/merchant.mvc">http://www.nightvisionmall.com/Merchant2/merchant.mvc</a>
M4	5.56MM RIFLE	3	586.00	1,758.00	<a href="http://www.fas.org/man/dod-101/sys/land/m16.htm">http://www.fas.org/man/dod-101/sys/land/m16.htm</a>
M40	PROTECTIVE MASK	3	137.00	411.00	<a href="http://www.globalsecurity.org/military/systems/ground/m40m42.htm">http://www.globalsecurity.org/military/systems/ground/m40m42.htm</a>
AN/PSC-5	SPITFIRE	1	48,000.00	48,000.00	<a href="http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c">http://64.233.169.104/search?q=cache:kBW4W_X9fggJ:https://akss.dau.mil/Documents/Policy/c</a>
				<b>459,649.00</b>	
			<b>SUB</b>	<b>\$32,378,890.50</b>	
			<b>ADJUSTMENT</b>	<b>1.10</b>	
			<b>ESTIMATED COST</b>	<b>\$35,616,779.55</b>	

Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsardd.army.mil/usafmsa/> [Accessed March 3, 2008]



## APPENDIX E

### IBCT SEA LIFT REQUIREMENT

Date - 04-MAY-2005 11:14:27

FORCE DATA SUMMARY

Page - 1

Project ID: GUALGR1 - Light BCT (77400G000) Red (SC)

SRC-Paragraph	Unit Description	Multiple	Personnel	Vehicles	Square Feet	Short Tons	Measurement Tons	Aircraft Quantity	Aircraft Square-Feet
1 06125G000	FIELD ARTILLERY BATTALION,	1	316	183	22276.7	700.9	3202.1		
2 07415G000	INFANTRY BATTALION (INFANT	2	641	123	15175.2	574.9	2304.8		
3 17495G000	RECONNAISSANCE, SURVEILLAN	1	350	127	16241.5	623.4	2580.9		
4 63335G000	BRIGADE SUPPORT BATTALION	1	459	370	67228.6	2835.7	12488.9		
5 77302G000	HEADQUARTERS, INFANTRY BRI	1	159	57	6617.6	197.3	912.1		
6 77405G000	BRIGADE SPECIAL TROOPS BAT	1	415	236	29127.0	1094.1	4580.7		
Force Totals -			2981	1219	171841.8	6601.2	28374.2		

SRC data represents one unit; Unit multiples are applied in the force total  
 Includes allowance for accompanying supply and ammunition when applied  
 Aggregated TOE assumed stacked to height of 96 inches

*Sources:*

Civils, Timothy. 2008. Conversation with author. May 6.

Military Traffic Management Command Transportation Engineering Agency. 2001. MTMCTEA Pamphlet 700-5: *Deployment Planning Guide*. Newport News, VA: HQ MTMCTEA

## APPENDIX F

### HBCT AIR LIFT REQUIREMENT

04-MAY-2005 10:45:19

AIR LOAD REQUIREMENTS SUMMARY

Page - 1

UA (Heavy) (87300G000) Red (SC)  
Project ID - GUAHGR1

Unit Integrity -- YES			Load Ratio
Aircraft	Payload	Quantity	(percent)
C-17	130000	Unlimited	

SRC-Paragraph	Description	Multiple	Personnel	C-17	Loaded* STON	Residual* STON	Loaded PAX	Residual PAX
06385G000	FIELD ARTILLERY BATTALION,	1	384	34	1706.8	0.0	384	0
07205G000	MANEUVER BATTALION (HEAVY	2	702	70	4354.6	0.0	76	626
17205G000	ARMORED RECONNAISSANCE SQU	1	375	30	1744.5	0.0	86	289
63325G200	BRIGADE SUPPORT BN (HEAVY	1	1197	202	9672.0	0.0	104	1093
87302G000	HEADQUARTERS, HEAVY BRIGAD	1	155	8	287.8	0.0	22	133
87305G000	BRIGADE SPECIAL TROOP BATT	1	241	20	619.2	0.0	54	187
	Force Totals -		3756	434	22739.4	0.0	802	2954

*Sources:*

Civils, Timothy. 2008. Conversation with author. May 6.

Military Traffic Management Command Transportation Engineering Agency. 2001. MTMCTEA Pamphlet 700-5: *Deployment Planning Guide*. Newport News, VA: HQ MTMCTEA

## APPENDIX G

### HBCT SEA LIFT REQUIREMENT

Date - 04-MAY-2005 11:00:41

FORCE DATA SUMMARY

Page - 1

Project ID: GUAHGR1 - Heavy BCT (87300G000) Red (SC)

SRC-Paragraph	Unit Description	Multiple	Personnel	Vehicles	Square Feet	Short Tons	Measurement Tons	Aircraft Quantity	Aircraft Square-Feet
1 06385G000	FIELD ARTILLERY BATTALION,	1	384	169	29381.7	1706.8	5983.2		
2 07205G000	MANEUVER BATTALION (HEAVY	2	702	192	36897.4	4354.6	8155.6		
3 17205G000	ARMORED RECONNAISSANCE SQU	1	375	153	23751.8	1744.5	4721.4		
4 63325G200	BRIGADE SUPPORT BN (HEAVY	1	1197	829	172097.5	9672.0	34828.2		
5 87302G000	HEADQUARTERS, HEAVY BRIGAD	1	155	64	7120.0	287.8	1078.6		
6 87305G000	BRIGADE SPECIAL TROOP BATT	1	241	157	18035.7	619.2	2704.3		
Force Totals -			3756	1756	324181.4	22739.4	65626.9		

SRC data represents one unit; Unit multiples are applied in the force total  
 Includes allowance for accompanying supply and ammunition when applied  
 Aggregated TOE assumed stacked to height of 96 inches

*Sources:*

Civils, Timothy. 2008. Conversation with author. May 6.

Military Traffic Management Command Transportation Engineering Agency. 2001. MTMCTEA Pamphlet 700-5: *Deployment Planning Guide*. Newport News, VA: HQ MTMCTEA



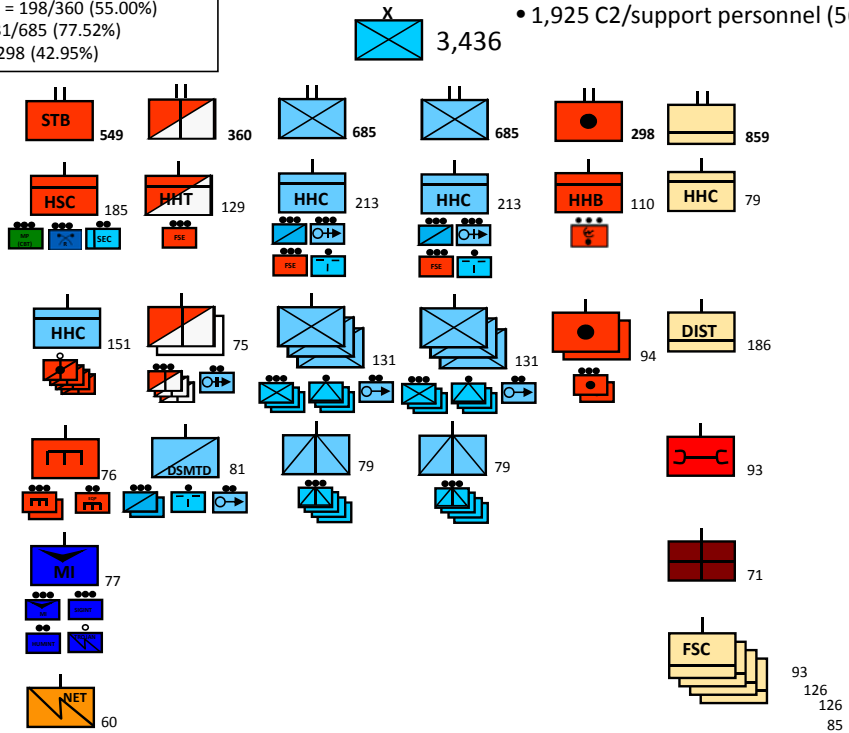
# APPENDIX H

## IBCT TOOTH TO TAIL

**Combat Assigned Personnel:**

- BSTB = 123/549 (22.40%)
- RECON SQDN = 198/360 (55.00%)
- RIFLE BN = 531/685 (77.52%)
- FA BN = 128/298 (42.95%)

- 1,511 combat personnel (43.98%)
- 1,925 C2/support personnel (56.02%)



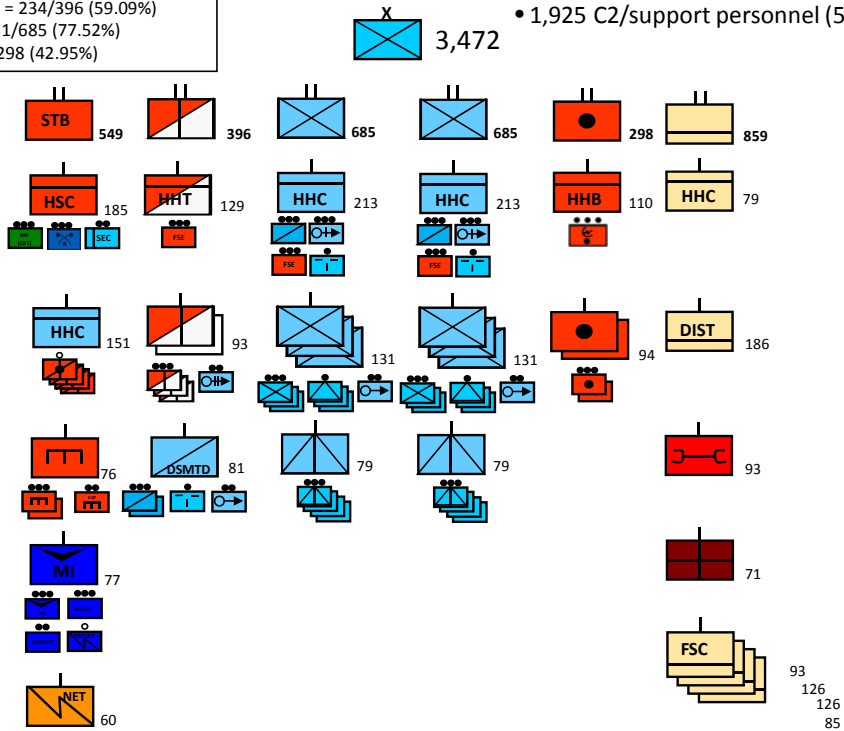
Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaridd.army.mil/usafmsa/> [Accessed February 28, 2008]

# APPENDIX I

## IBCT W/DISMOUNTED SCOUTS TOOTH TO TAIL

Combat Assigned Personnel:  
 • BSTB = 123/549 (22.40%)  
 • RECON SQDN = 234/396 (59.09%)  
 • RIFLE BN = 531/685 (77.52%)  
 • FA BN = 128/298 (42.95%)

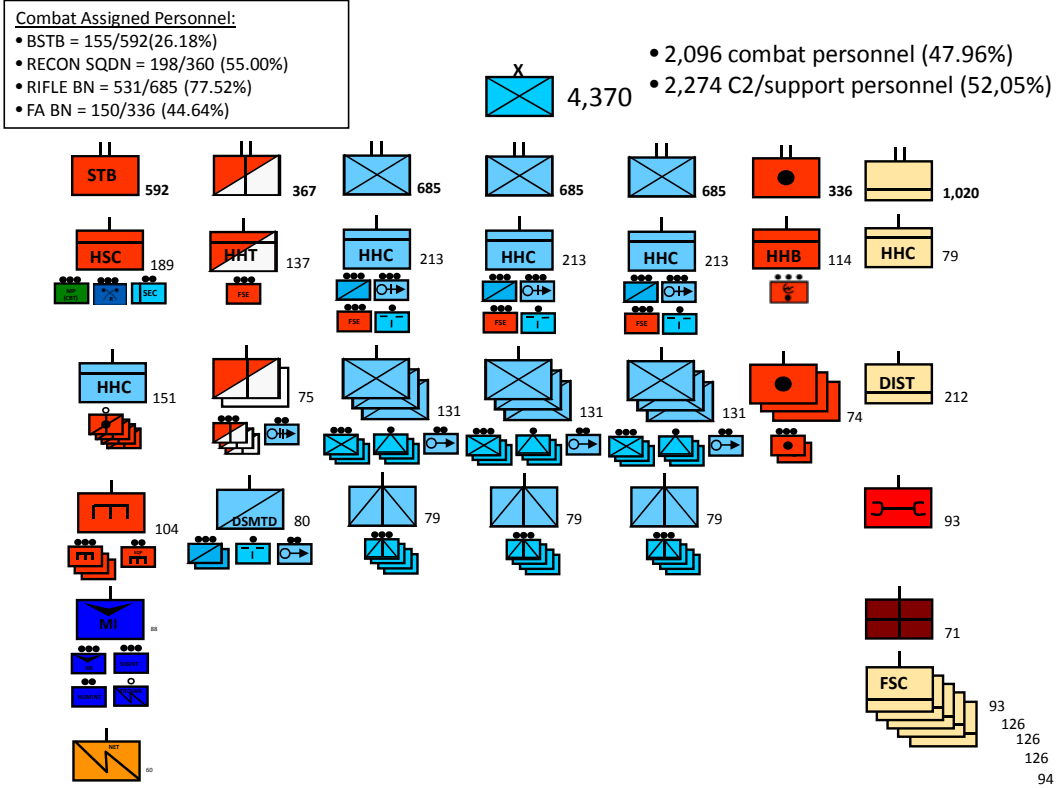
- 1,547 combat personnel (44.56%)
- 1,925 C2/support personnel (55.44%)



Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaridd.army.mil/usafmsa/> [Accessed February 28, 2008]

# APPENDIX J

## 3 X BATTALION IBCT TOOTH TO TAIL



Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaridd.army.mil/usafmsa/> [Accessed February 28, 2008]

# APPENDIX K

## HBCT TOOTH TO TAIL

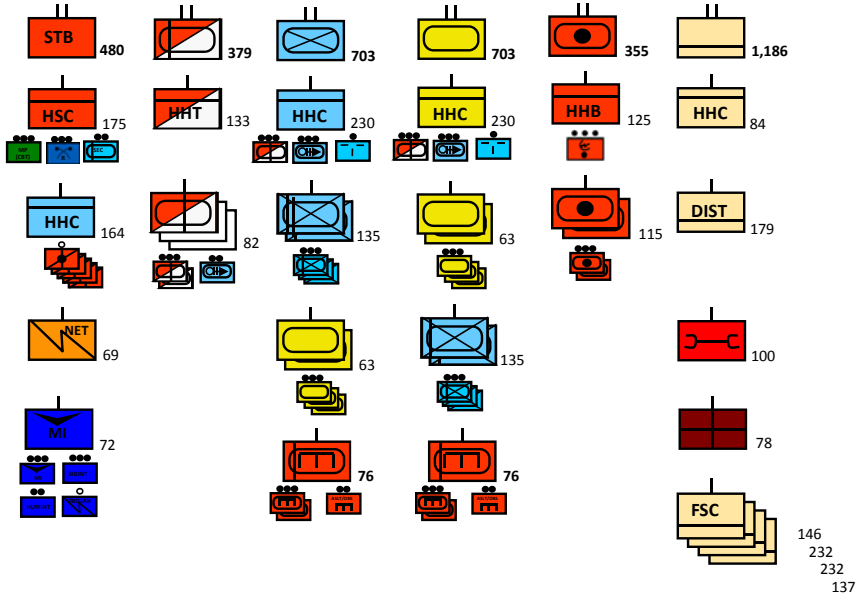
**Combat Assigned Personnel:**

- BSTB = 68/480 (14.17%)
- ARS = 207/379 (54.62%)
- CAB = 464/703 (66.00%)
- FA BN = 144/355 (40.06%)



3,806

• 1,347 combat personnel (35.39%)  
 • 2,459 supporting personnel (64.61%)



Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaridd.army.mil/usafmsa/> [Accessed February 28, 2008]

# APPENDIX L

## HBCT W/CAV SQDN TOOTH TO TAIL

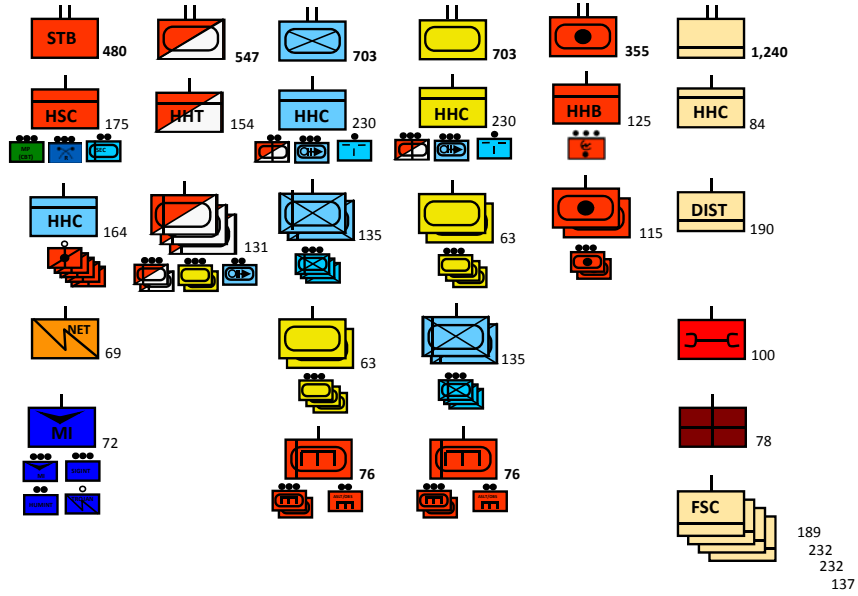
**Combat Assigned Personnel:**

- BSTB = 68/480 (14.17%)
- CAV SQDN = 303/547 (55.40%)
- CAB = 464/703 (66.00%)
- FA BN = 144/355 (40.06%)



4,028

• 1,443 combat personnel (35.80%)  
 • 2,585 supporting personnel (64.20%)



Source: U.S. Army Force Management Support Agency. 2008.  
<https://www.usafmsaridd.army.mil/usafmsa/> [Accessed February 28, 2008]



APPENDIX N

HEAVY BRIGADE CONVERSION REQUIREMENTS

1/1ID (Mitt TRAINING BRIGADE) 18APR08

	MAJ	CPT	TOT PERS
HHC		3	16
D/4 CAV		0	1
1-16 IN		2	9
1-34 AR		2	9
1-5 FA		2	9
101 SPT BN		3	17
BDE TOT	12	61	899
- HBCT TOT	34	105	3804
= REQUIRED	-22	-44	-2905

5/1 AD (AETF) 17MAR07

	MAJ	CPT	TOT PERS
HHC		10	10
BSTB (-/-)		0	1
3-36 IN		2	9
4-37 AR		2	14
1-3 FA		2	6
BSB (-/-)		0	2
BDE TOT	16	42	969
- HBCT TOT	34	105	3804
= REQUIRED	-18	-63	-2835

2/1 AD (MECH) 16OCT08

	MAJ	CPT	TOT PERS
HHC		6	10
MI CO		0	1
SIG CO		0	1
G/1 CAV		0	1
1-6 IN		2	13
2-6 IN		2	13
1-35AR		2	13
EN BN		2	11
4-27 FA		3	17
47 SPT BN		6	14
BDE TOT	23	94	3804

172 IN BDE (MECH) 16MART08

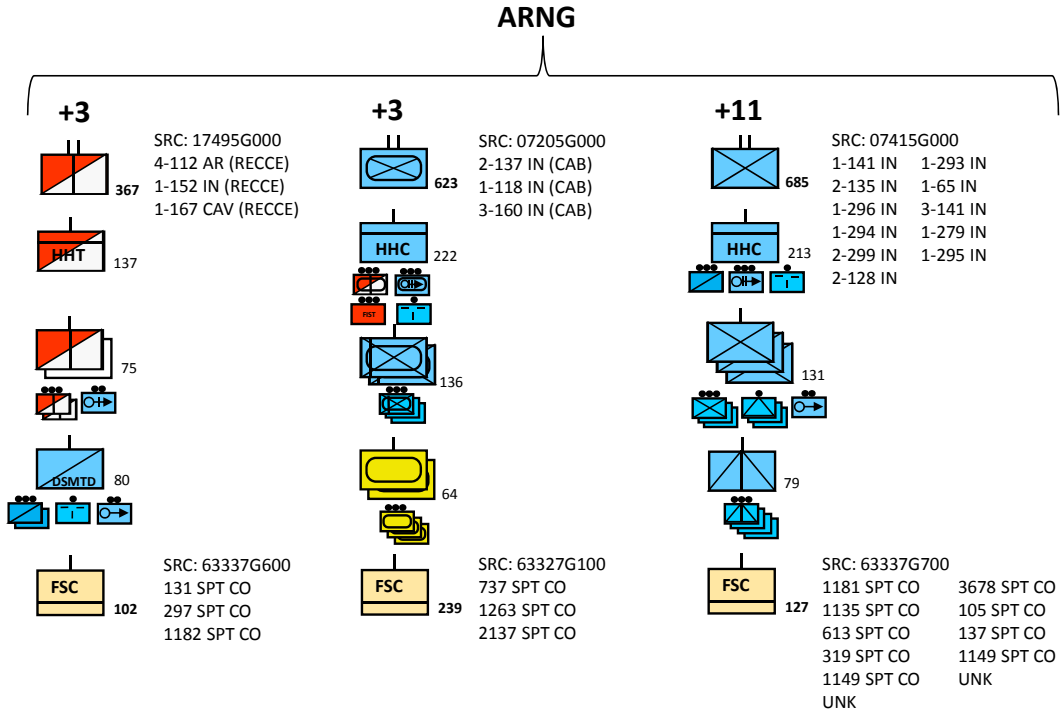
	MAJ	CPT	TOT PERS
HHC	6	10	89
501 MI CO	0	1	76
57 SIG CO	0	1	86
E/5 CAV	0	1	51
1-2 IN	2	13	703
2-28 IN	2	13	703
3-66 AR	2	13	504
9 EN BN	2	11	417
1-77 FA	3	17	634
172 SPT BN	6	14	539
<b>BDE TOT</b>	<b>23</b>	<b>94</b>	<b>3802</b>
<b>- HBCT TOT</b>	<b>34</b>	<b>105</b>	<b>3804</b>
<b>= REQUIRED</b>	<b>-11</b>	<b>-11</b>	<b>-2</b>
<b>TOTAL REQUIRED</b>	<b>-62</b>	<b>-129</b>	<b>-5742</b>

Source: U.S. Army Force Management Support Agency. 2008.  
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# APPENDIX O

## TACTICAL COMBAT FORCES



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